

# Society of Toxicology

## 28th Annual Meeting Program

February 27–March 3, 1989  
The Atlanta Hilton and Towers  
Atlanta, Georgia

# SPECIAL EVENTS

## **CAREER PLANNING IN TOXICOLOGY**

Sponsored by the SOT Placement Committee  
 Monday, February 27, 1989  
 4:15 p.m.–6:00 p.m.  
 Salon D  
 Open to all registrants.

## **SOT WELCOMING RECEPTION**

Monday, February 27, 1989  
 6:00 p.m.–7:30 p.m.  
 Galleria  
 Open to all registrants and guests.

## **SOT STUDENT LUNCHEON**

Sponsored by the SOT Education Committee  
 Tuesday, February 28, 1989  
 12:00 Noon–1:00 p.m.  
 Vienna Room  
 Tickets required. Pre-registration by Monday,  
 February 27, 1989, 5:00 p.m.

## **SPECIAL POSTER/DEMONSTRATION SESSION— COMMUNICATING BASIC CONCEPTS IN TOXICOLOGY TO NON-SCIENTISTS**

Tuesday, February 28, 1989—1:30 p.m.–4:30 p.m.  
 (attended)  
 Wednesday, March 1, 1989—8:30 a.m.–1:30 p.m.  
 (displayed)  
 Walton Room  
 Open to all registrants.

## **NIGHT AT THE OLD GEORGIA FREIGHT DEPOT**

Tuesday, February 28, 1989  
 7:00 p.m.–11:00 p.m.  
 (Buses leave from the Courtland Street side of The  
 Atlanta Hilton and Towers by 6:30 p.m. and return by  
 11:00 p.m.)  
 \$31.00 per person includes transportation, open bar, all-  
 you-can-eat Southern Bar-B-Que Dinner, and  
 entertainment.  
 Tickets required. Pre-registration by January 31, 1989.

## **SOT ISSUES SESSION**

Wednesday, March 1, 1989  
 12:00 noon–1:00 p.m.  
 Ballroom West  
 Chaired by SOT President James E. Gibson  
 Bring your lunch and participate in an open forum  
 discussion of SOT affairs  
 Open to all registrants.

## **GENERAL PLATFORM SESSION—“FRONTIERS IN TOXICOLOGY”**

Chaired by Roger O. McClellan and Curtis D. Klaassen  
 Wednesday, March 1, 1989  
 1:30 p.m.–3:30 p.m.  
 Ballroom West  
 Open to all registrants.

## **SOT ANNUAL BUSINESS MEETING**

Wednesday, March 1, 1989  
 4:00 p.m.–5:30 p.m.  
 Ballroom West  
 Open to all registrants.

## **4TH ANNUAL BURROUGHS WELLCOME TOXICOLOGY SCHOLAR AWARD LECTURE**

by Philip Guzelian  
 Chaired by Tom S. Miya  
 Thursday, March 2, 1989  
 12:00 noon–1:00 p.m.  
 Ballroom A  
 Open to all registrants.

## **28TH ANNUAL BANQUET AND AWARDS PRESENTATION**

Thursday, March 2, 1989  
 7:00 p.m.–10:00 p.m.  
 Ballroom East  
 Open to all registrants and guests. \$32.00 per person.  
 Tickets required (available through pre-registration and  
 at the Registration Desk through noon, February 28).

## FUTURE MEETINGS

Meeting	Year	Date	Location
29	1990	February 12–16	Fontainebleau Hilton Hotel Miami Beach, Florida
30	1991	February 25–March 1	Loews Anatole Hotel Dallas, Texas

# Society of Toxicology

## 28th Annual Meeting Program

February 27–March 3, 1989  
The Atlanta Hilton and Towers  
Atlanta, Georgia

# GENERAL INFORMATION

## ANNUAL MEETING REGISTRATION FEES

	Received Before January 31	Received After January 31	Continuing Education Courses
Member or Post-Doctoral in Training	\$ 90.00	\$115.00	\$50.00
Non-Member	\$150.00	\$175.00	\$60.00
Student or Full- Time Pre- Doctoral	\$ 15.00	\$ 30.00	\$20.00
Guest*	\$ 10.00	\$ 10.00	—

\*Guests must be registered and have a badge in order to be admitted to the Guest Hospitality Center.

**TUESDAY, FEBRUARY 28, 1989, 7:00 p.m., SOT Night at the Old Georgia Freight Depot.** Tickets are \$31.00 per person which include transportation, open bar, Southern all-you-can-eat Bar-B-Que dinner, and entertainment. Pre-registration only by January 31, 1989. No refunds or exchanges.

**THURSDAY, MARCH 2, 1989, SOT Annual Banquet and Awards Presentation.** Tickets are \$32.00 per person. Tables of 10 are available. Tickets may be purchased at the Registration Desk through 12:00 noon, February 28.

## REGISTRATION DESK—PREFUNCTION AREA/SECOND FLOOR

Sunday, February 26	4:00 p.m.—8:00 p.m.
Monday, February 27	7:00 a.m.—5:00 p.m.
Tuesday, February 28	7:00 a.m.—4:00 p.m.
Wednesday, March 1	8:00 a.m.—4:00 p.m.
Thursday, March 2	8:00 a.m.—4:00 p.m.

## INCOMING MESSAGE CENTER

The Message Center will be located in the Registration Area during registration hours. Please inform your office and family of The Hilton's telephone number (404) 659-2000, and have them ask for the SOT Message Desk.

## HOTEL ACCOMMODATIONS

The Society of Toxicology 28th Annual Meeting will be headquartered at the Atlanta Hilton and Towers, 255 Courtland Street, NE, Atlanta, Georgia 30043. Arrangements have been made for the special room rates of \$85–115 for single accommodations in the main hotel—\$168 for Tower singles; \$102–132 for double accommodations in the main hotel—\$188 for Tower doubles; Suite rates begin at \$315 for a one-bedroom in the main hotel, and \$465 for a two-bedroom suite in the main hotel. You are responsible for making your own hotel reservations prior to **January 27, 1989**. Please contact the Reservations Manager, The Atlanta Hilton and Towers, 255 Courtland Street, NE, Atlanta, Georgia 30043. To make your reservations by telephone, please call (404) 659-2000 or toll-free (800) HIL-TONS. Note that check-in time is 3:00 p.m. and check-out time is 11:00 a.m.

The Society has reserved a block of 1,100 rooms at The Atlanta Hilton and Towers. Housing requests received after this block has been filled will be referred by The Hilton to the Hyatt Regency, The Ritz-Carlton, or the Holiday Inn, all of which are located within a short walking distance of the Hilton. For further information regarding alternative accommodations, contact the Annual Meeting

Registrar, SOT, 1133 Fifteenth Street, NW, Suite 1000, Washington, DC 20005, (202) 293-5935, TLX: 292046 IMGUR, FAX # (202) 775-9631.

## AIR TRANSPORTATION

Continental Airlines and Eastern Airlines, in cooperation with the Society of Toxicology, are offering meeting registrants special discounts: 50 per cent off Continental's and 55 percent off Eastern's round trip coach fares, both with no restrictions, penalties, or advance booking; 55 percent discount off Continental and Eastern first-class fares also with no restrictions, penalties or advance booking; and five percent off any promotional fares offered by either airline (rules and restrictions apply).

To find out what special fares are available from your departure city, call the Continental/Eastern Convention Desk, toll free, from anywhere in Canada and the United States (including Hawaii, Alaska, Puerto Rico, and the Virgin Islands), Monday–Friday from 8:00 a.m.–9:00 p.m. EST, and 1-800-468-7022 and refer to **EZ Access #2PA7**.

A prize drawing will be held following the meeting. An individual who booked a ticket through the Continental/Eastern Convention Desk will receive two round-trip, coach tickets to anywhere Continental or Eastern flies in the Continental United States, Bahamas, or Puerto Rico.

## AIRPORT TRANSPORTATION SERVICES

The Atlanta Hilton and Towers is located 12 miles, 20 minutes from Hartsfield International Airport. Transfers from the airport to downtown by taxi cost approximately \$13.50; by airport limo \$6.00. The Metropolitan Atlanta Rapid Transit Authority's (MARTA) Southwest line operates from Hartsfield International Airport to downtown Atlanta and stops at the Peachtree Center station which is just a couple of blocks from the Hilton. The fare is 85 cents.

## SOT HEADQUARTERS—JOHN ADAMS ROOM/THIRD FLOOR

Sunday	1:00 p.m.— 6:00 p.m.
Monday–Thursday	7:00 a.m.— 4:00 p.m.
Friday	7:00 a.m.—11:00 a.m.

## PLACEMENT SERVICE/FOURTH FLOOR

Monday—Embassy Room (Registration Only)	10:00 a.m.—3:30 p.m.
Tuesday–Thursday Cabinet/Council/Club/State Rooms	9:00 a.m.—4:00 p.m.

## PLACEMENT SERVICE SEMINAR: CAREER PLANNING IN TOXICOLOGY—SALON D/SECOND FLOOR

Monday, February 27	4:15 p.m.—6:00 p.m.
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The Basics of Seeking Employment In: (a) Industry; (b) Government; (c) Academia; and (d) Consulting.

## PRESS ROOM—THOMAS JEFFERSON ROOM/SECOND FLOOR

Monday–Thursday	8:00 a.m.— 5:00 p.m.
Friday	8:00 a.m.—12:00 noon

## SPEAKERS' SLIDE PREVIEW ROOM—GEORGE WASHINGTON/SECOND FLOOR

Sunday	8:00 a.m.—5:00 p.m.
Monday–Thursday	8:00 a.m.—4:00 p.m.
Friday	8:00 a.m.—9:00 a.m.

## **GUEST HOSPITALITY AND PROGRAM**

A special program has been coordinated for registrants' guests. Guests will not only be able to enjoy the amenities offered by the Atlanta Hilton and Towers, but will also have the opportunity to tour Atlanta's highlights including downtown Atlanta, the High Museum of Art, Lenox Square, Phipps Plaza, famous Peachtree Street, and the beautiful homes and historic neighborhoods of Newnan, Georgia.

The Guest Hospitality Center will be open daily throughout the meeting and staffed Sunday through Wednesday with a representative from Guidelines Atlanta, Inc. who can provide you with information on the city, register you for the tours offered through the Society or distribute tour tickets purchased in advance of the meeting.

Guests must be registered for the Annual Meeting in order to have access to the Hospitality Center and to be eligible for the discounted tour rates. Guests can register at the Registration Desk during registration hours.

## **GENERAL PLATFORM SESSIONS—"FRONTIERS IN TOXICOLOGY"**

Wednesday, March 1 . . . 1:30 p.m.–3:30 p.m. . . . Ballroom West

To acknowledge excellence in toxicology research, the SOT Program Committee has planned a General Platform Session for this year's meeting. This session is scheduled for Wednesday, March 1, and will highlight platform presentations of forefront, top-quality research, selected by the Program Committee from submitted abstracts. All meeting registrants are encouraged to attend this session.

## **EXHIBITS—GALLERIA/LOWER LEVEL**

Monday . . . . . 6:00 p.m.– 7:30 p.m.  
Tuesday–Thursday . . . . . 8:30 a.m.–11:30 p.m.

## **SPECIAL POSTER/DEMONSTRATION SESSION COMMUNICATING BASIC CONCEPTS IN TOXICOLOGY TO NON-SCIENTISTS—WALTON ROOM/SECOND FLOOR**

Tuesday (attended) . . . . . 1:30 p.m.– 4:30 p.m.  
Wednesday (displayed) . . . . . 8:30 a.m.–11:30 a.m.

The SOT Committee on Public Communications provides a special opportunity for SOT members to exchange and share teaching and information materials, which can be utilized in presenting basic concepts in toxicology to non-scientists, such as secondary school students, health practitioners and the media.

## **THE TOXICOLOGIST—ABSTRACTS OF PAPERS PRESENTED**

Distributed to all members of the Society of Toxicology and pre-registered non-members in advance of the meeting. Non-member on-site registrants will be given *The Toxicologist* when they register. Due to slow postal delivery, non-US and Canadian members and pre-registered non-members will receive their copies at the Registration Desk at the meeting. Additional copies will be available for purchase at the meeting for \$10.00 each. Following the meeting, copies will be available from SOT Headquarters for \$20.00 each, plus \$3.00 postage and handling.

# PROGRAM SUMMARY

## Continuing Education Courses (Pre-Registration Only)

All courses are held on Monday, February 28, 1989

### 8:00 a.m.–12:00 noon

- |                                  |               |
|----------------------------------|---------------|
| 1. Advanced Renal Toxicology     | Ballroom East |
| 2. Concepts in Molecular Biology | Salon East    |
| 3. Neurotoxicology               | Salon E       |
| 4. Regulatory Toxicology         | Ballroom West |

### 1:30 p.m.–5:30 p.m.

- |   |               |
|---|---------------|
| 5. Assessment of Human and Environmental Health Hazards | Ballroom East |
| 6. Concepts in Molecular Biology                        | Salon East    |
| 7. Dermatotoxicology—1989 vs. 1969                      | Salon E       |
| 8. Statistics for Toxicologists                         | Ballroom West |

## Symposia

Day/ Time	Topic	Room	Page
Tuesday 8:30 a.m.	Molecular Biology Applications to Toxicology	Ballroom East	1
Tuesday 8:30 a.m.	Refinements in Animal Experiments in Toxicology	Ballroom West	1
Tuesday 1:30 p.m.	Correlation Between Morphologic and Functional Changes Induced by Xenobiotics: Is Every Change a Sign of Toxicity?	Ballroom West	8
Tuesday 1:30 p.m.	Reproductive Endocrinology and Toxicity: Mechanisms of Action	Ballroom A	8
Tuesday 1:30 p.m.	Alternative Models in Immunotoxicology	Ballroom B	8
Wednesday 8:30 a.m.	Lung Cancer Risk of Exposure to Radon	Ballroom West	17
Wednesday 8:30 a.m.	Early Embryo Loss as a Factor in Reproductive Failure	Ballroom A	17
Wednesday 8:30 a.m.	Gerontotoxicology: Age-Related Susceptibilities to Toxicity	Ballroom B	17
Thursday 8:30 a.m.	Pulmonary Immunotoxicology: Species Comparisons	Ballroom East	30
Thursday 8:30 a.m.	Neurotoxicant Induced Alterations in Cellular Interactions	Ballroom West	31
Thursday 1:30 a.m.	AIDS Drug Development and Toxicology	Ballroom East	39
Thursday 1:30 p.m.	Mechanisms of Lung Injury by Systemically Administered Chemicals	Ballroom West	39
Friday 8:30 a.m.	Risk Assessment for Carcinogens: A Slowly Turning Ship	Ballroom East	47

## General Platform Session

Day/ Time	Topic/Abstract #	Room	Page
Wednesday 1:30 p.m.	Frontiers in Toxicology #70–75	Ballroom West	26

## Platform Sessions

Day/ Time	Topic/Abstract #	Room	Page
Tuesday 8:30 a.m.	Risk Assessment #1–9	Salon C	1
Tuesday 1:30 p.m.	Molecular/Cellular #10–19	Salon C	9
Tuesday 1:30 p.m.	Dermal/Ocular: Hypersensitivity, Phototoxicity #20–29	Salon D	9
Tuesday 1:30 p.m.	Biotransformation I #30–43	Salon E	10
Wednesday 8:30 a.m.	Genetic Toxicology/ Mutagenesis #44–56	Salon C	18
Wednesday 8:30 a.m.	Immunotoxicology #57–69	Salon D	18
Thursday 8:30 a.m.	Metals: General #76–87	Salon C	31
Thursday 8:30 a.m.	Biotransformation II #88–99	Salon D	31
Thursday 8:30 a.m.	Hepatotoxicity #100–112	Salon E	32
Thursday 1:30 p.m.	Reproductive Toxicology/ Teratology #113–126	Salon C	39
Thursday 1:30 p.m.	TCDD Toxicity #127–138	Salon D	40

## Poster/Discussion Sessions

Day/ Time	Topic/Abstract #	Room	Page
Tuesday 8:30 a.m.	Nasal Toxicity of Inhaled Gases and Vapors #139–148	Clayton	1
Tuesday 8:30 a.m.	Mechanisms in Immunotoxicology #149–160	Gwinnett	2
Tuesday 8:30 a.m.	Environmental Toxicology of Polyaromatic Compounds #161–171	Douglas	3
Tuesday 1:30 p.m.	Ozone-Induced Pulmonary Toxicity #172–184	Clayton	10
Tuesday 1:30 p.m.	Macromolecular Binding: Acetaminophen as a Model #185–195	Gwinnett	11
Tuesday 1:30 p.m.	Risk Assessment Methodology #196–205	Douglas	11
Wednesday 8:30 a.m.	Inflammatory Cells in Lung Disease #206–217	Clayton	19
Wednesday 8:30 a.m.	Mechanisms of Metal Transport and Disposition #218–228	Gwinnett	19
Wednesday 8:30 a.m.	Hepatotoxicity of Halogenated Hydrocarbon Mixtures #229–238	Douglas	20
Thursday 8:30 a.m.	<i>In Vitro</i> Models of Percutaneous Absorption #239–248	Clayton	33
Thursday 8:30 a.m.	Peroxisomal Proliferation #249–257	Gwinnett	33
Thursday 8:30 a.m.	Mechanisms of Testicular Toxicity #258–266	Douglas	34

Thursday 1:30 p.m.	<i>In Vitro</i> Models for Hepatotoxicity #267-278	Clayton	40	Wednesday 1:30 p.m.	*Risk Assessment #711-727	Galleria	26
Thursday 1:30 p.m.	Immune Reactivity to Chemicals #279-287	Gwinnett	41	Wednesday 1:30 p.m.	Pulmonary Toxicology #728-758	Galleria	27
Thursday 1:30 p.m.	Organophosphate Induced Delayed Neuropathy: Mechanisms and Methods #288-300	Douglas	41	Wednesday 1:30 p.m.	*Biotransformation II #759-783	Galleria	28
Friday 8:30 a.m.	Deposition/Clearance of Inhaled Particles and Gases #301-312	Clayton	47	Wednesday 1:30 p.m.	Hepatotoxicity #784-799	Galleria	29
Friday 8:30 a.m.	Mechanisms of Renal Toxicity #313-325	Gwinnett	48	Wednesday 1:30 p.m.	*Immunotoxicology #800-822	Galleria	29
				Thursday 8:30 a.m.	*Carcinogenesis II #823-856	Galleria	34
				Thursday 8:30 a.m.	Aquatic/Environmental #858-877	Galleria	35
				Thursday 8:30 a.m.	*Pesticides #878-897	Galleria	36
				Thursday 8:30 a.m.	Halogenated Hydrocarbons #898-921	Galleria	37
				Thursday 8:30 a.m.	*Genetic Toxicology/ Mutagenesis #922-935	Galleria	38
				Thursday 1:30 p.m.	*Biotransformation III #936-966	Galleria	42
				Thursday 1:30 p.m.	Dermal/Ocular: Hypersensitivity, Phototoxicity #967-987	Galleria	43
				Thursday 1:30 p.m.	*Solvents #988-1004	Galleria	44
				Thursday 1:30 p.m.	Food/Drug #1006-1037	Galleria	45
				Thursday 1:30 p.m.	*Methods in Toxicology #1038-1064	Galleria	46
				Friday 8:30 a.m.	*Reproductive Toxicology/ Teratology #1065-1097	Galleria	48
				Friday 8:30 a.m.	Endocrine System #1098-1107	Galleria	49
				Friday 8:30 a.m.	*Cardiovascular Toxicology #1108-1123	Galleria	50
				Friday 8:30 a.m.	Biotransformation IV #1124-1149	Galleria	51
				Friday 8:30 a.m.	*Immunotoxicology/- Hematotoxicology #1150-1167	Galleria	52

## Poster Sessions

Sessions indicated by an asterisk (\*) will be attended from 8:30 a.m. to 10:00 a.m. or 1:30 p.m. to 3:00 p.m. Those without an asterisk will be attended from 10:00 a.m. to 11:30 a.m. or 3:00 p.m. to 4:30 p.m.

Day/ Time	Topic/Abstract #	Room	Page
Tuesday 8:30 a.m.	*Biotransformation I #326-354	Galleria	3
Tuesday 8:30 a.m.	Reproductive Toxicology/ <i>In Vitro</i> #355-379	Galleria	4
Tuesday 8:30 a.m.	*Metals: Lead/Mercury #380-404	Galleria	5
Tuesday 8:30 a.m.	Neurotoxicology: Behavior and Behavioral Methods #405-424	Galleria	7
Tuesday 8:30 a.m.	*General Toxicology #425-448	Galleria	7
Tuesday 1:30 p.m.	*TCDD Toxicity #460-481	Galleria	12
Tuesday 1:30 p.m.	Carcinogenesis I #482-516	Galleria	13
Tuesday 1:30 p.m.	*Metals: Cadmium/Others #517-547	Galleria	14
Tuesday 1:30 p.m.	Inhalation Toxicology #548-581	Galleria	15
Wednesday 8:30 a.m.	*Neurotoxicology: Chemistry, Physiology and Pathology #582-603	Galleria	20
Wednesday 8:30 a.m.	Reactive Intermediates #604-629	Galleria	21
Wednesday 8:30 a.m.	*Molecular/Cellular #630-646	Galleria	22
Wednesday 8:30 a.m.	Dermal/Ocular: Toxicity and Absorption #647-663	Galleria	23
Wednesday 8:30 a.m.	*Mechanisms of Hepatotoxicity #664-685	Galleria	24
Wednesday 8:30 a.m.	Renal Toxicology #686-710	Galleria	25

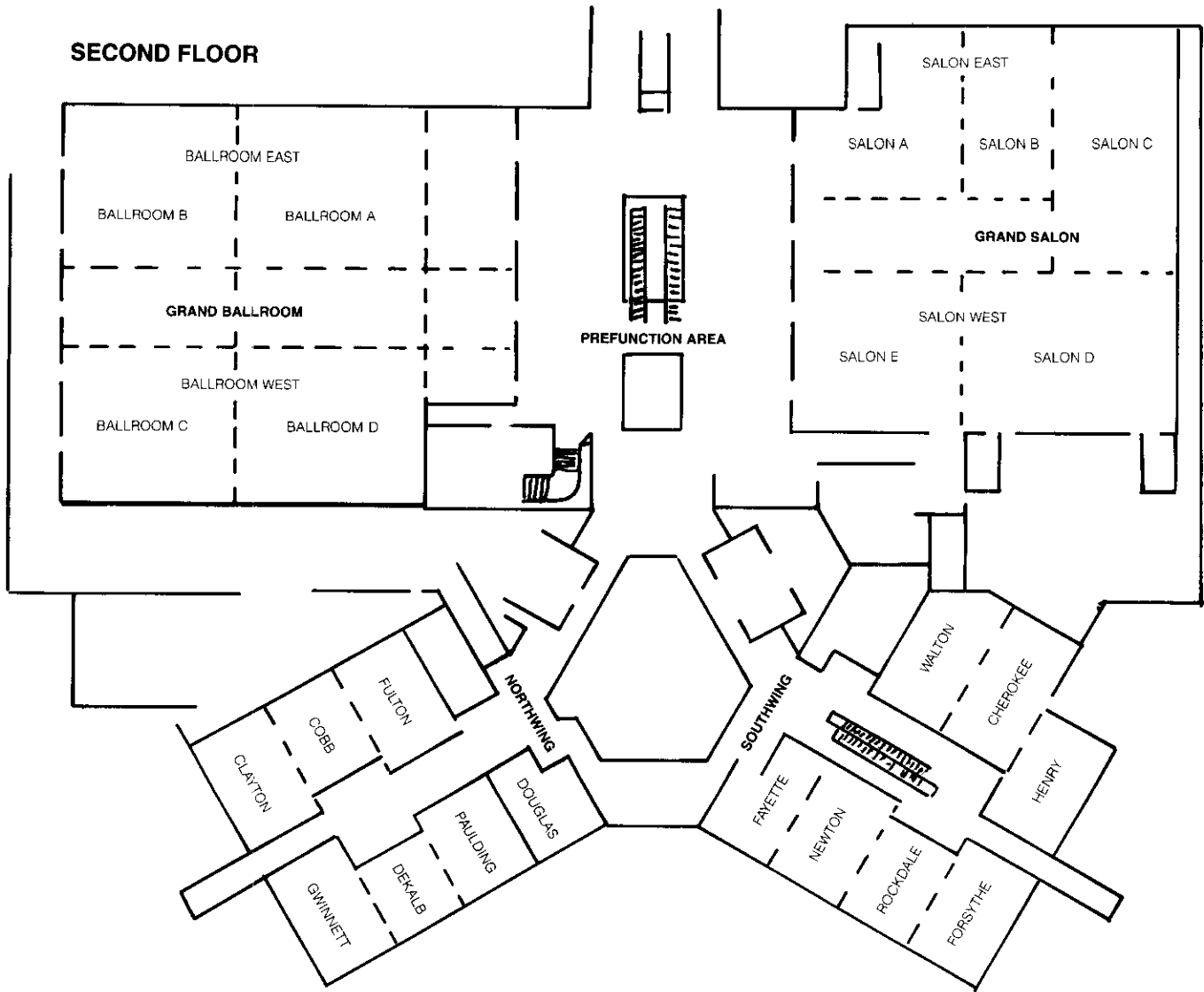
Poster/Demonstration Session			
Day/ Time	Topic/Abstract #	Room	Page
Tuesday 1:30 p.m.	Communicating Concepts in Toxicology #449-459	Walton	16
Wednesday 8:30 a.m.- 11:30 a.m.	Display only	Walton	16

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**Smoking is not permitted in scientific sessions**

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# ATLANTA HILTON AND TOWERS



These rooms are located on the **second floor**:

- |                  |            |
|------------------|------------|
| Prefunction Area | Cherokee   |
| Grand Salon      | Walton     |
| Southwing        | Salon East |
| Northwing        | Salon A    |
| Grand Ballroom   | Salon B    |
| Ballroom East    | Salon C    |
| Ballroom B       | Salon West |
| Ballroom A       | Salon E    |
| Ballroom West    | Salon D    |
| Ballroom C       |            |
| Ballroom D       |            |
| Douglas          |            |
| Fulton           |            |
| Paulding         |            |
| Cobb             |            |
| Dekalb           |            |
| Clayton          |            |
| Gwinnett         |            |
| Fayette          |            |
| Newton           |            |
| Rockdale         |            |
| Forsythe         |            |
| Henry            |            |

These rooms are located on the **third floor**:

- Headquarters-John Adams Room
- Press-Thomas Jefferson Room
- Slide Preview Room-George Washington Room

## Galleria—Lower Level

- Exhibit Area
- Poster Sessions

**Other meeting rooms** not listed may be located on the Hotel directory.



# 1989 EXHIBITORS

Alphabetical Listing

<i>Company</i>	<i>Booth(s) #</i>	<i>Company</i>	<i>Booth(s) #</i>
Academic Press	433	LAB Products, Inc.	312, 314
Agway, Inc., Country Foods Division	528	Laboratory Research Enterprises, Inc.	315
Allentown Caging Equipment Co.	326	Landis Associates, Inc.	134
Alza Corporation	136, 138	Life Science Research	204
Analytical Bio-Chemistry (ABC) Labs	517	MacMillan Publishing Co.	104
Animal Identification & Marking Systems	205	Meridian Instruments, Inc.	112
Apoloco Systems	227	Microbiological Associates, Inc.	409, 411
Arthur D. Little	119, 121	Millipore Corporation	526
Bench Ltd., Science Recruitment Division	424	Mini-Mitter Co., Inc.	523
Bio Medic Data Systems, Inc.	334, 336	Modular Instruments, Inc.	120
Bio-Life Associates, Ltd.	237	Naige Company	213, 215
Bio/Dynamics, Inc.	202	National Testing Corporation	529
Buxco Electronics, Inc.	224	Nicolet Biomedical Instruments	516
Cambridge Scientific Abstracts	113	Ohaus Corporation	229
Charles River Laboratories, Inc.	325, 327, 329	Omnitech Electronics, Inc.	509
Chemical Design, Inc.	525	Pathco, Inc.	236
Chemsyn Science Laboratories	106	Pathology Associates, Inc.	208
Clement Assoc., Inc./Div. KS Crump	537	Pathology Data Systems	211
Clonetics Corporation	209	Pergamon Press	519
Colorado Histo-Prep, Inc.	212	Po-Ne-Mah, Inc.	127
Columbus Instruments	324	Purina Mills, Inc.	427, 429
Compliance Services Int'l.	122	Raven Press	532
Costar Corporation	230	RCC Group	135
Coulbourn Instruments, Inc.	124, 126	Ricerca, Inc.	131
CRC Press, Inc.	114	Roy F. Weston, Inc.	102
CRYO Resources Ltd.	313	S. Karger Publishers, Inc.	434
Cyto Sciences, Inc.	105	San Diego Instruments	539
Data Sciences, Inc.	203	Shin Nippon Biomedical, Ltd.	111
Dawson Research Corporation	430	Sigma Chemical Company	129
Elsevier Science Publishing	414	SilverPlatter Information, Inc.	535
ENSR Health Sciences	109	Sitek Research Labs	231
Environmental Health Research & Testing	132	Southwest Research Institute	108, 110
Experimental Pathology Laboratories, Inc.	304	SRI, International	511
Food & Drug Research Labs	103	Stillmeadow, Inc.	412
General Computer Systems, Inc.	118	Suburban Surgical Co., Inc.	302
Genesys Research, Inc.	130	Torpac Capsules	527
Hamilton-Thorn Research	115	Toxicol Laboratories Ltd.	226
Harlan Sprague Dawley, Inc.	415	Toxikon	515
Hazleton Laboratories	425	TPS, Inc.	436
Hazleton Research Products, Inc.	417	U.S. Testing Co.—BSD	228
Health Designs, Inc.	426, 428	Utah Biomedical Test Lab (UBTL)	533
Hemisphere Publishing Corp.	225	Unifab Corp.	308, 310
The Hill Top Companies	508, 510	Vanguard International Inc.	534, 536
Hilltop Lab Animals, Inc.	408	VCH Publishers, Inc.	514
Huntingdon Research Centre	435, 437	White Eagle Toxicology Labs Inc.	330
IIT Research Institute	235	White Eagle Labs	328
Inhausen Research Institute	214	Wildlife International, Ltd.	410
Innovative Programming Assoc./IPA Labcat	524		

This listing is a courtesy to exhibiting companies. All booth assignments are tentative. For final booth location and final list of exhibitors, please see the on-site Guide to Exhibits to be distributed at the Atlanta program.

# CONTINUING EDUCATION COURSES

*All courses are held on Monday, February 27, 1989 (Pre-Registration Only)*

**8:00 a.m.–12:00 noon**

## 1. ADVANCED RENAL TOXICOLOGY

**Chairperson:** Robin Goldstein, Smith Kline & French Laboratories, King of Prussia, PA.

This course will be the first "advanced" course in the Continuing Education Program and will assume an understanding of the basic principles of renal toxicology, i.e., nephron structure and function, physiological basis for susceptibility of kidney to toxic insult and assessment of renal (dys) function. The Advanced Renal Toxicology course will focus in depth on mechanisms of site-specific damage within the nephron, devoting a full lecture to mechanisms of injury to each of the different segments/regions of the nephron, specifically, the glomerulus, proximal tubule, thick ascending limb/distal tubule and collecting duct/papilla.

**Overview.** Robin Goldstein, Smith Kline & French Laboratories, King of Prussia, PA.

**Glomerulus.** Jonathan Diamond, Harvard Medical School, Boston, MA.

**Proximal Tubule: Halogenated Hydrocarbons.** William Kluwe, Battelle Laboratories, Columbus, OH.

**GSH Conjugates.** Thomas Jones, University of Maryland, Baltimore, MD.

**Distal Tubule/MTAL.** Rick Schnellmann, University of Georgia, Athens, GA.

**Collecting Duct/Papilla.** Sandra Sabatini, Texas Tech University, Lubbock, TX.

## 2. CONCEPTS IN MOLECULAR BIOLOGY

**Chairperson:** William F. Greenlee, CIIT, Research Triangle Park, NC.

This course will emphasize concepts important to understanding the design and interpretation of contemporary research in molecular biology with emphasis on experimental approaches relevant to mechanistic toxicology. The first session will focus on principles, to include a review of DNA structure, discussion of the concepts of complementarity, polarity, replication and repair, an overview of RNA and protein synthesis, and mechanisms of regulation of gene expression. The second session will concentrate on methodologies and strategies for gene cloning. This session will emphasize the rationale underlying current cloning approaches and focus on the importance of gene manipulation to the study of protein function. The third session will cover molecular approaches for the study of metagenesis using the well characterized bacterial gene, hypoxanthine phosphoribosyl transferase (HPRT), as a model. The course will conclude with a session introducing basic concepts of the molecular biology of oncogenes and anti-oncogenes. The emphasis of this session will be on principles and will focus on the interaction of these important growth regulatory genes as determinants of transformation susceptibility.

**Principles of Molecular Biology.** William F. Greenlee, CIIT, Research Triangle Park, NC.

**Introduction to the Molecular Biology of Oncogenes and Anti-oncogenes.** Michael Z. Gilman, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

**Molecular Approaches for the Study of Mutagenesis.** Howard L. Liber, Harvard School of Public Health, Boston, MA.

**Basic Methodology and Strategies.** Thomas R. Skopek, CIIT, Research Triangle Park, NC.

## 3. NEUROTOXICOLOGY

**Chairperson:** Hugh A. Tilson, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

One of the main objectives of this continuing education course in neurotoxicology is to provide an update for interested participants in terms of the latest developments and current methodologies used in the four main disciplines of neurotoxicology, including neuropathology, neurochemistry, neurophysiology and neurobehavior. These presentations would systematically describe the fundamental concepts necessary to study neurotoxicants at each of the respective levels of neural organization. Included in these presentations would be at least three examples of selected neurotoxicants studied in each of the four disciplines, e.g., acrylamide or n-hexane, organometals (methylmercury)—and dieldrin. These compounds are fairly representative of the range of neurotoxicants existing in the environment and for which there are sufficient data to make cross discipline comparisons. This approach would provide a continuity of thought and information between each of the four talks.

The second main objective of the proposed course is to demonstrate how information derived from neurotoxicological studies is used in risk assessment. The last presentation will outline current guidelines and regulations concerning neurotoxicological endpoints, and will include a discussion of recent data obtained from studies using a functional observation battery of screen for potential neurotoxicity.

**Structural Targets of Neurotoxic Action.** Anthony M. Verity, University of California-Los Angeles, Los Angeles, CA.

**Biochemical Approaches to Neurotoxicology.** Barry W. Wilson, University of California-Davis, Davis, CA.

**Physiological Determinants of Neurotoxicity.** Rebecca J. Anderson, Boehringer Ingelheim Pharmaceuticals, Ridgefield, CT.

**Behavioral Indices of Neurotoxicity.** Deborah A. Cory-Slechta, University of Rochester, Rochester, NY.

**Regulatory Issues and Risk Assessment for Neurotoxicity.** Carole A. Kimmel, USEPA, Washington, DC.

## 4. REGULATORY TOXICOLOGY

**Chairperson:** Carol M. Schiller, Anderson, Schiller & Rutherford P.A., Raleigh, NC.

This course provides an introduction and overview for this particular area of toxicology which is a unique blend of science, toxicology, law and public policy. An overview of each agency organization, process, jurisdiction and responsibility will be presented as well as current programs, recent projects and proposed rules. Specific examples will be utilized to illustrate the application of toxicology principles in regulatory decision-making in each agency.

**Introduction and Overview.** Carol M. Schiller, Anderson, Schiller & Rutherford, P.A., Raleigh, NC.

**Food and Drug Toxicology.** Ronald W. Hart, National Center for Toxicological Research, Jefferson, AZ.

**Occupational Toxicology.** John Martonik, U.S. Department of Labor, OSHA, Washington, DC.

**Environmental Toxicology—Federal Level.** John A. Moore, U.S. Environmental Protection Agency, Washington, DC.

**Environmental Toxicology—Interface with the States.** Lee A. DeHins, U.S. Environmental Protection Agency, Region IV, Atlanta, GA.

1:30-5:30 p.m.

## 5. ASSESSMENT OF HUMAN AND ENVIRONMENTAL HEALTH HAZARDS

**Chairpersons:** Dennis J. Paustenbach, ChemRisk Division, McLaren Environmental Engineering, Alameda, CA.; Thomas C. Marshall, IT Corporation, Knoxville, TN.

Risk assessment has become an important part of regulatory decision-making and, as such, a relatively new area of responsibility for the toxicologist. This course will provide an overview of the principles of environmental and human health risk assessment; hazard identification, dose-response assessment, exposure assessment and risk characterization. The application of these principles to solve actual problems will be illustrated through the presentation of four case studies by the scientists primarily responsible for conducting the assessments. The case studies will address contaminated soil, potential human and aquatic hazards of detergents in municipal water, a hazardous waste site, and the use of *de minimus* levels in risk characterization and risk management. Persons who participate in the course will become familiar with literature-based parameters, as well as, the site-specific or chemical specific information needed to conduct a risk assessment.

Each participant may purchase a copy of the recently published book entitled *The Risk Assessment of Environmental and Human Health Hazards: A Textbook of Case Studies* by Dennis Paustenbach (John Wiley and Sons, New York). It is a 34 chapter (1200 page) compilation of case studies which illustrate the application of toxicological principles and risk assessment methodologies. (There will be an order form in the syllabi offering this text book at a greatly reduced price.)

**Introductions.** Dennis J. Paustenbach, ChemRisk Division, McLaren Environmental Engineering, Alameda, CA.

**Review of the Fundamentals: Hazards Identification and Dose-Response; Environmental Fate and Exposure Assessment; and Risk Characterization.** Dennis J. Paustenbach, ChemRisk Division, McLaren Environmental Engineering, Alameda, CA and Thomas C. Marshall, IT Corporation, Knoxville, TN.

**Evaluating the Hazards of Arsenic Contaminated Soil.** Barbara Beck, Gradient Corporation, Cambridge, MA.

**Environmental Assessment of Detergent Chemicals.** Bill Bishop, Procter & Gamble, Cincinnati, OH and Dan Woltering, Procter & Gamble, Cincinnati, OH.

**Health Risk of Remediating a Hazardous Waste Site.** Sue Brett, Environ Corp. Washington, DC.

**Applying the Concept of *De Minimus* Risk.** Chris Whipple, Electronic Power Research Institute, Palo Alto, CA.

**Health Risks of Contaminated Soil to Wildlife.** Russ Keenan, Enviologic Data, Portland, ME.

## 6. CONCEPTS IN MOLECULAR BIOLOGY

**Chairperson:** William F. Greenlee, CIIT, Research Triangle Park, NC.

The course will emphasize concepts important to understanding the design and interpretation of contemporary research in molecular biology with emphasis on experimental approaches relevant to mechanistic toxicology. The first session will focus on principles, to include a review of DNA structure, discussion of the concepts of complementarity, polarity, replication and repair, an overview of RNA and protein synthesis, and mechanisms of regulation of gene expression. The second session will concentrate on methodologies and strategies for gene cloning. This session will emphasize the rationale underlying current cloning approaches and focus on the importance of gene manipulation to the study of protein function. The third session will cover molecular approaches for the study of mutagenesis using the well characterized bacterial gene, hypoxanthine phosphoribosyl transferase (HPRT), as a model. The course will conclude with a session introducing basic concepts of the molecular biology of oncogenes and anti-oncogenes. The emphasis of this session will be on principles and will focus on the interaction of these important growth regulatory genes as determinants of transformation susceptibility.

**Principles of Molecular Biology.** William F. Greenlee, CIIT, Research Triangle Park, NC.

**Introduction to the Molecular Biology of Oncogenes and Anti-oncogenes.** Michael Z. Gilman, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

**Molecular Approaches for the Study of Mutagenesis.** Howard L. Liber, Harvard School of Public Health, Boston, MA.

**Basic Methodology and Strategies.** Thomas R. Skopek, CIIT, Research Triangle Park, NC.

## 7. DERMATOTOXICOLOGY—1989 vs. 1969

**Chairperson:** Howard I. Maibach, University of California Hospital, San Francisco, CA.

Dermatotoxicology has rapidly expanded in clinical content, clinical description, mechanisms, and models in the last twenty years. This course will summarize the state of the science and art as it relates to: irritation, allergic contact dermatitis, photo irritation, photo allergic contact dermatitis, percutaneous penetration, systemic toxicity, and contact urticaria.

Each participant may purchase a copy of the book entitled *Dermatotoxicology* by Manull and Maibach (Hemisphere Press, New York). This 500 text book will illustrate important issues in dermatotoxicology. (There will be an order form in the syllabi offering this text book at a greatly reduced price.)

**Dermatotoxicology—1989 vs. 1969.** Howard I. Maibach, University of California Hospital, San Francisco, CA.

## 8. STATISTICS FOR TOXICOLOGISTS

**Chairperson:** Shayne C. Gad, G.D. Searle & Co., Skokie, IL.

This course will focus on the practical aspects of statistics as utilized by toxicologists. The full range of standard techniques and approaches to experimental design, analysis, modeling and presentation of data will be presented in a nonmathematical manner, along with considerations of their limitations and advantages. The daily application of these methods in toxicology studies will be explicitly addressed.

The newer techniques of trend analysis as applied to toxicology will be presented, along with practical application to the full range of *in vivo* toxicology studies. Finally, low dose extrapolation

models and techniques for carcinogenesis studies will be over-viewed and characterized.

**Basic Statistical Methods for Toxicologists.** Shayne C. Gad, G.D. Searle & Co., Skokie, IL.

**Trend Analysis and Its Applications in Toxicology.** Art Roth, G.D. Searle & Co., Skokie, IL.

**Data Analysis Applications in Toxicology.** Carrol S. Weil, Pittsburgh, PA.

**Dose Response Models and Low Dose Extrapolation of Carcinogenicity.** Ajit K. Thakur, Hazleton Laboratories America, Inc., Vienna, VA.

**TUESDAY MORNING, FEBRUARY 28**

**8:30 a.m.-12:00 noon**

**BALLROOM EAST**

## **SYMPOSIUM: MOLECULAR BIOLOGY APPLICATIONS TO TOXICOLOGY**

Sponsored by the SOT Mechanisms Specialty Section

**Chairpersons:** R Billings, Genentech, Inc., South San Francisco, CA; S Bigelow, Environmental Protection Agency, Washington, DC

**Identification of Protein Adducts.** Lance Pohl, National Institutes of Health, Bethesda, MD.

**Cloning and Expression of Cytochrome P450 Genes.** Frank Gonzalez, National Cancer Institute, Bethesda, MD.

**Uses of Transgenic Animals.** Denny Liggett, Genentech, Inc., South San Francisco, CA.

**TUESDAY MORNING, FEBRUARY 28**

**8:30 a.m.-12:00 noon**

**BALLROOM WEST**

## **SYMPOSIUM: REFINEMENTS OF ANIMAL EXPERIMENTS IN TOXICOLOGY**

Sponsored by the SOT Animals in Research Committee

**Chairpersons:** A Aronson, NC State University, Raleigh, NC; S Gad, G.D. Searle & Co., Skokie, IL

**Introduction:** Arthur L. Aronson, North Carolina State University, Raleigh, NC.

**Recent Developments in Reducing and Replacing Animal Use in Toxicologic Research.** Shayne C. Gad, G.D. Searle & Company, Skokie, IL.

**Contributions of the Laboratory Animal Veterinarian to Refining Animals Experiments in Toxicology.** Stephen A. Pakes, Southwestern Medical School, Dallas, TX.

**Animal Research Technique Refinement and Validity of Research Data.** A.N. Rowan, Tufts University, Boston, MA.

**Refining and Optimizing Long-Term Toxicity and Carcinogenesis Studies.** Ghanta N. Rao, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

**The 3R Principles and the Regulatory Process: Balancing Good Science and Benefit-Risk Assessment with Animal Welfare Concerns.** Jack H. Dean, Sterling-Winthrop Research Institute, Rensselaer, NY.

**TUESDAY MORNING, FEBRUARY 28**

**8:30 a.m.-12:00 noon**

**SALON C**

## **PLATFORM SESSION: RISK ASSESSMENT**

**Chairpersons:** George Alexeeff, Calif. Dept. of Health Services, Berkeley, CA  
P J Gehring, Dow Chemical Co., Midland, MI

- #1 8:30 **ESTIMATING TIMES TO INITIATION ONSET AND MALIGNANCY USING A TWO-STAGE MODEL OF CARCINOGENESIS.** W-Y Tan and T B Starr, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #2 8:50 **CARCINOGENIC RISK ASSESSMENT OF HEPTACHLOR.** F L Cavender and J H Brantner. Dynamac Corporation, Rockville, MD, and California Department of Health Services, Toxic Substances Control Division, Sacramento, CA.
- #3 9:10 **A RAT/HUMAN COMPARISON OF LOWER RESPIRATORY TRACT (LRT) DOSE OF INHALED <sup>18</sup>O-LABELED OZONE.** G E Hatch, M J Wiester, M Aissa, \*J Overton, and D L Costa. ITD, HERL, US EPA, RTP, NC; \*NSI Tech. Serv., RTP, NC.
- #4 9:30 **QUANTITATIVE RISK ASSESSMENT OF NON-CANCER HEALTH EFFECTS FOR ACUTE EXPOSURE TO AIR POLLUTANTS.** G V Alexeeff and D C Lewis. California Department of Health Services, and Engineering-Science, Berkeley, CA.
- #5 9:50 **BENEDICTIN: ITS RISKS AND ITS BENEFITS.** A Engel\*, S H Lamn, S Linn, P Mckeigue. Consultants in Epidemiology and Occupational Health, Inc. Washington, DC.
- #6 10:10 **DEVELOPMENT OF EXPOSURE CRITERIA FOR SILVER.** M J Wade, R J Sedman. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA and J DURDA. ICF-Clement, Inc., Fairfax, VA.
- #7 10:30 **ENVIRONMENTAL EXPOSURE CRITERIA FOR SELENIUM.** S M DiZio and M J Wade. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA and M McKvey. ICF-Clement Inc., Fairfax, VA.
- #8 10:50 **NEUROCHEMICAL ACTIONS OF PLANT AMINO ACIDS LINKED TO HUMAN MOTOR-NEURON DISEASES.** S M Ross and P S Spencer, Institute of Neurotoxicolgy, Department of Neuroscience, Albert Einstein College of Medicine, Bronx, NY.
- #9 11:10 **QUANTITATIVE STRUCTURE-ACTIVITY RELATIONSHIPS FOR MONOSUBSTITUTED PHENOLS.** T W Schultz, College of Veterinary Medicine, The University of Tennessee, Knoxville, TN. Sponsor: Donita Frazier.

**TUESDAY MORNING, FEBRUARY 28**

**CLAYTON ROOM**

## **POSTER/DISCUSSION SESSION: NASAL TOXICITY OF INHALED GASES AND VAPORS**

**Chairpersons:** K Morgan, CIIT, Research Triangle Park, NC  
J Harkema, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM

**Displayed: 8:30 a.m.-11:30 a.m.**

**Discussion: 10:00 a.m.-11:30 a.m.**

- #139 **SPECIES AND CONCENTRATION DEPENDENCE OF DNA-PROTEIN CROSS-LINK (DPX) FORMATION BY FORMALDEHYDE (HCHO) IN RHESUS MONKEYS AND F-344 RATS.** M Casanova, H d'A Heck, W H Steinhagen, J I Everitt, K T Morgan, and J A Popp. Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #140 **OZONE-INDUCED NASAL EPITHELIAL PROLIFERATION AND SECRETORY CELL HYPERPLASIA IN RATS.** J R Harkema, J A Hotchkiss, N F Johnson, and R F Henderson. Lovelace Institute, Albuquerque, NM.
- #141 **LOW-LEVEL OZONE EXPOSURE CAUSES INCREASES IN RAT NASAL EPITHELIAL MUCOSUBSTANCES.** J A Hotchkiss, J R Harkema, R F Henderson. Lovelace Institute Toxicology Research Institute, Albuquerque, NM.
- #142 **CELL TURNOVER IN NASAL EPITHELIUM FOLLOWING CIGARETTE SMOKE AND OZONE EXPOSURE.** N F Johnson, J A Hotchkiss, J R Harkema, J L Mauderly, R F Henderson and R G Cuddihy. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #143 **FORMALDEHYDE-INDUCED LESIONS IN THE RESPIRATORY TRACT: COMPARISON OF F-344 RATS WITH RHESUS MONKEYS.** T.M. Monticello and K.T. Morgan. CIIT, Research Triangle Park, N.C. Sponsor: J.A. Popp
- #144 **RELATIVE ACUTE TOXICITIES IN THE RESPIRATORY TRACT OF INHALED HYDROGEN FLUORIDE, HYDROGEN BROMIDE, AND HYDROGEN CHLORIDE.** D F Kusewitt<sup>1</sup>, D M Stavert<sup>1</sup>, G Ripple<sup>2</sup>, T Munde<sup>2</sup>, B E Lehnert<sup>1</sup>. <sup>1</sup>Los Alamos National Laboratory, Los Alamos, NM. <sup>2</sup>Walter Reed Army Institute of Research, Washington, DC.
- #145 **INTERACTIONS OF GLUTARALDEHYDE WITH NASAL EPITHELIUM.** M B St. Clair, E A Gross, and K T Morgan. Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #146 **STUDIES ON THE MECHANISM OF METHYL BROMIDE-INDUCED OLFACTORY TOXICITY.** D A Thomas, S A Lacy, and K T Morgan, CIIT, Research Triangle Park, N C. Sponsor: E Gross-Bermudez.
- #147 **ENZYME MARKERS FOR STUDIES OF OLFACTORY EPITHELIAL REGENERATION IN RATS EXPOSED TO METHYL BROMIDE.** K T Morgan, D A Thomas and M B St. Clair. Chemical Industry Institute of Toxicology, Research Triangle Park, NC. Sponsor: J E Gibson.
- #148 **SEQUENTIAL HISTOPATHOLOGIC PULMONARY LESIONS IN FISCHER 344 RATS RESULTING FROM INTRANASAL ADMINISTRATION OF HUMAN INFLUENZA VIRUS [INFLUENZA A/PORT CHALMERS/1/73 (H3N2)]-AN ANIMAL MODEL FOR USE IN INHALATION TOXICOLOGY STUDIES.** H R Brown, J P Ehrlich and G R Burleson. Experimental Protection Agency, Research Triangle Park, NC.

**TUESDAY MORNING, FEBRUARY 28  
GWINNETT ROOM**

**POSTER/DISCUSSION SESSION: MECHANISMS IN IMMUNOTOXICOLOGY**

**Chairpersons:** S W Burchiel, University of New Mexico, Albuquerque, NM  
L Schook, University of Illinois, Urbana, IL

**Displayed: 8:30 a.m.-11:30 a.m.**

**Discussion: 10:00 a.m.-11:30 a.m.**

- #149 **EFFECTS OF EICOSAPENTAENOIC AND DECOSAHEXAENOIC ACIDS ON FETAL THYMUS ORGAN CULTURES.** K J Pendino, R R Schmidt and K P Chepenik, Department of Anatomy, Jefferson Medical College Philadelphia, PA. Sponsor: E M Johnson.
- #150 **SEPARATION OF DIMETHYLNITROSAMINE-INDUCED IMMUNOSUPPRESSION AND MUTAGENICITY.** H G Haggerty, B S Kim, and M P Holsapple. Dept. of Pharmacology & Toxicology, Medical College of Virginia/VCU, Richmond, VA.
- #151 **SUPPRESSION OF THE *IN VITRO* SRBC PFC RESPONSE BY 7,8 DIHYDROXY 7,8-DIHYDROBENZO(A)PYRENE IS INDEPENDENT OF Ah RECEPTOR PHENOTYPE.** S P Mudzinski, Dept. of Microbiology and Immunology, Albany Medical College, Albany, NY. Sponsor: D A Lawrence.
- #152 **ROLE OF SULFATE CONJUGATION IN DMN-INDUCED IMMUNOSUPPRESSION.** M P Holsapple, B S Kim\*, J R Ha\* and W D Stevens. Dept. of Pharmacol. & Toxicol., Medical College of Virginia/VCU, Richmond, VA and \*KAIST, Seoul, Korea.
- #153 **IMPAIRED PROTHYMOCYTE ACTIVITY FOLLOWING TCDD EXPOSURE.** J S Fine, T A Gasiewicz, and A E Silverstone. U. of Rochester, Rochester, NY and SUNY Health Science Center, Syracuse, NY.
- #154 **MECHANISMS OF IMMUNOTOXICITY OF PCB: FLOW CYTOMETRIC ANALYSIS OF LYMPHOCYTE SUBPOPULATIONS AND IL2R EXPRESSION DURING ALLOGENIC TUMOR REJECTION.** J A Brauner and N I Kerkvliet. College of Veterinary Medicine, Oregon State University, Corvallis, OR.
- #155 **ROLE OF THE AH LOCUS IN TCDD IMMUNOTOXICITY: STUDIES IN C57BL/6 MICE CONGENIC AT THE AH LOCUS.** N I Kerkvliet, L B Steppan, M C Henderson, and D R Buhler. College of Veterinary Medicine, Department of Agricultural Chemistry, and Environmental Health Science Center, Oregon State University, Corvallis, OR.
- #156 **CHANGES IN THE PRODUCTION OF MACROPHAGE REACTIVE OXYGEN INTERMEDIATES (ROI) FOLLOWING DIMETHYLNITROSAMINE (DMN) EXPOSURE.** M J Myers, C K Edwards, J F Lockwood, K W Kelley, & L B Schook. Univ. of Illinois, Urbana, IL.
- #157 **STRUCTURE-DEPENDENT ACTIVITIES OF POLYCHLORINATED BIPHENYL CONGENERS AS Ah RECEPTOR AGONISTS AND PARTIAL ANTAGONISTS-IMMUNOTOXICITY.** D Davis and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #158 **METABOLISM OF BENZO(A)PYRENE [B(a)P] BY SPLENIC MICROSOMES OF B(a)P-PRETREATED MICE.** T T Kawabata and K L White. Medical College of Virginia/VCU, Richmond VA.
- #159 **IMMUNOTOXIC AND IMMUNOENHANCING EFFECTS OF PHENYLPHOSPHONOTHIOATES.** S B Pruet, J E Chambers, H W Chambers. Dept. of Biol. Sci. and Ent., Miss. State Univ., Mississippi State, MS.
- #160 **B LYMPHOCYTE IS THE IMMUNE CELL TARGETED BY DIDEOXYADENOSINE.** W Tsao\*, E E Sikorski\*, B A Fuchs\*, M L Stern\*, M I Luster and A E Munson\*. Department of Pharmacology and Toxicology, Medical College of Virginia/Virginia Commonwealth University, Richmond, VA. and Systemic Toxicology Branch, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC.

**TUESDAY MORNING, FEBRUARY 28  
DOUGLAS ROOM**

**POSTER/DISCUSSION SESSION: ENVIRONMENTAL TOXICOLOGY OF  
POLYAROMATIC COMPOUNDS**

**Chairpersons:** K Cooper, Rutgers University, Piscataway, NJ  
M James, University of Florida, Gainesville, FL

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Discussion: 10:00 a.m.-11:30 a.m.**

- #161 **TOXIC EFFECTS OF PARTICULATE POLLUTANTS ADSORBED WITH BENZO(A)PYRENE (B[a]P) ON MAMMALIAN CELLS.** J M Daisey, P N Atkins, and J T Zelikoff. New York University Medical Center, New York, NY.
- #162 **TOXICOKINETICS AND DISPOSITION OF BENZO(a)PYRENE (BaP) AND BaP 7,8 DIOL IN THE WINTER FOUNDER.** K M Kleinow\* and A E McElroy<sup>1</sup>. \*Dept. of Veterinary Pharmacology, Louisiana State University, Baton Rouge, LA and <sup>1</sup>Environmental Sciences, University of Massachusetts/Boston, Boston, MA. Sponsor: W Flory.
- #163 **BILIARY EXCRETION OF BENZO(a)PYRENE IN BENTHIC FISH FROM INDUSTRIALLY-POLLUTED AND REFERENCE SITES IN THE GREAT LAKES.** G M Kirby, I R Smith, and M A Hayes. Department of Pathology, University of Guelph, Guelph, Ontario, Canada.
- #164 **BIOAVAILABILITY AND BIOTRANSFORMATION OF BENZO(A)PYRENE (BaP) AND BaP-7,8-DIHYDRODIOL (BaP-7,8-D) IN THE LOBSTER, HOMARUS AMERICANUS.** M O James and J D Schell. Dept. of Medicinal Chemistry and the Whitney Laboratory, University of Florida, Gainesville, FL.
- #165 **BENZO(A)PYRENE (BaP) DNA-ADDUCTS IN SOUTHERN FLOUNDER (PARALICHTHYS LETHOSTIGMA) FED CONTAMINATED SHELLFISH.** J D Schell, E A Cromer, and M O James. The Whitney Lab and Dept. of Medicinal Chemistry, Univ. of Florida, St Augustine, FL.
- #166 **METABOLISM OF DIETARY CARCINOGENS IN AQUATIC FOOD CHAINS.** A E McElroy and J D Sisson. UMass./Boston, Boston MA. Sponsor: M. O. James.
- #167 **EFFECT OF SOIL PROPERTIES ON BIOAVAILABILITY OF HEXACHLOROBIPHENYLS CONTAINED IN SOILS.** G F Fries, ARS-USDA, Pesticide Degradation Laboratory, Beltsville, MD.
- #168 **DEVELOPMENT OF ARYL HYDROCARBON HYDROXYLASE ACTIVITY IN EMBRYOS OF THE JAPANESE MEDAKA (ORYZIAS LATIPES).** J E Wisk, T H Umbreit, M A Gallo and K R Cooper. Joint Graduate Program in Toxicology, Rutgers Univ.-UMDNJ, Piscataway, NJ.
- #169 **DIFFERENTIAL EMBRYO SENSITIVITY TO 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) IN FUNDULUS HETEROCILITUS.** R Prince and K R Cooper. Joint Graduate Program in Toxicology, Rutgers University/UMDNJ, Piscataway, NJ.
- #170 **EFFECT OF 3, 4, 5, 3', 4', 5'-HEXACHLOROBIPHENYL (HCB) ON INTERRENAL STEROIDOGENESIS IN RAINBOW TROUT.** C L Miranda, M C Henderson, J-L Wang, and D R Buhler. Toxicology Program, Dept. of Ag. Chem., and Marine/Freshwater Biomed. Center, Oregon State Univ., Corvallis, OR.
- #171 **PHASE I AND PHASE II BIOTRANSFORMATION ENZYME ACTIVITIES IN CHANNEL CATFISH EXPOSED TO CONTAMINATED SEDIMENTS.** R T Di Giulio, C Habig, and T Wolfe. Ecotoxicology Laboratory, Duke University, Durham, NC. Sponsor: M B Abou-Donia

**TUESDAY MORNING, FEBRUARY 28  
GALLERIA**

**POSTER SESSION: BIOTRANSFORMATION I**

**Chairperson:** A Wilson, Monsanto Co., St. Louis, MO

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Attended: 8:30 a.m.-10:00 a.m.**

- #326 **VAGINAL ABSORPTION OF POLYVINYL ALCOHOL IN FISCHER 344 RATS.** J M Sanders and H B Matthews. NIEHS, Research Triangle Park, NC.
- #327 **EFFECTS OF SOIL ON THE PERCUTANEOUS ABSORPTION OF NAPHTHALENE IN MALE RATS.** G Skowronski, A Kadry, r Turkall, M Abdel-Rahman, and M. Botrous. Pharmacology & Toxicology Department, N.J. Medical School, UMDNJ, Newark, NJ 07103.
- #328 **TRICLOPYR: KINETICS AND METABOLISM IN FISCHER 344 RAT.** M D Dryzga, C Timchalk, P E Kastl. H&ES, The Dow Chemical Co., Midland, MI.
- #329 **PHARMACOKINETICS OF TRICLOPYR IN MAN.** N G Carmichael<sup>1</sup>, J M Perkins<sup>1</sup>, A P Fletcher<sup>2</sup>, R D Davies<sup>2</sup>, S J Warrington<sup>3</sup>, and R J Nolan<sup>4</sup>; <sup>1</sup>Dow Chemical Co.Ltd, Wantage, England, <sup>2</sup>CTC (International) Ltd, Essex, England, <sup>3</sup>Charterhouse Clinical Research Unit Ltd., London, England, <sup>4</sup>The Dow Chemical Co, Midland, MI, Sponsor: A M Schumann.
- #330 **DISPOSITION AND METABOLISM OF <sup>14</sup>C-THIOPHENE IN MALE FISCHER-344 RATS FOLLOWING NOSE-ONLY INHALATION EXPOSURE.** A A Nomeir, P M Markham and M Chadwick. Arthur D. Little, Inc., Cambridge, MA.
- #331 **PHARMACOKINETIC STUDIES ON METHYL TERTIARY BUTYL ETHER (MTBE) IN RATS.** A E Chin, J P Matlock, D R Peterson, and L D Twitty. Exxon Biomedical Sciences, E. Millstone, NJ. Sponsor: R A Scala.
- #332 **TOXICOKINETICS OF <sup>14</sup>C RDX (CYCLOTTRIMETHYLENENITRAMINE) IN RATS AFTER INTRATRACHEAL ADMINISTRATION.** G Reddy, K Eisenhut, S A Morrison, and J A Kelly. U S Army Biomedical Research and Development Laboratory, Fort Detrick, Frederick, MD.
- #333 **THE PHARMACOKINETICS OF TRIETHANOLAMINE IN C3H/HeJ MICE AND FISCHER 344 RATS FOLLOWING DERMAL ADMINISTRATION.** J M Waechter, Jr. and D L Rick, Mammalian & Environmental Toxicology Research Laboratory, The Dow Chemical Company, Midland, MI. Sponsor: A M Schumann.
- #334 **COMPARATIVE METABOLISM AND DISPOSITION OF 1,2,3-TRICHLOROPROPANE (TCP) IN RATS AND MICE.** N A Mahmood, and L T Burka. NIEHS, RTP, NC. Sponsor: H B Matthews.
- #335 **DOSE-DEPENDENT URINARY EXCRETION OF ACRYLONITRILE (ACN) METABOLITES IN F-344 RATS AND B6C3F1 MICE.** G L Kedderis, S D Held, R Batra, M J Turner Jr, and A E Roberts. Chemical Industry Industry of Toxicology, Research Triangle Park, NC.

- #336 **BIODISTRIBUTION OF 2-14C METHYL 2,3-14C ACRYLONITRILE (MeAN) IN RATS.** M Y H Farooqui, R Cavazos, M I Villarreal, E Massa and A Castillo. Div. of Environ. Toxicol. Dept. of Biology, Pan American University, Edinburg, TX.
- #337 **DISPOSITION OF THREE GLYCOL ETHERS ADMINISTERED IN DRINKING WATER TO MALE F344/N RATS.** M A Medinsky, G Singh, W E Bechtold, J A Bond, P J Sabourin, L S Birnbaum, and R F Henderson. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM and \*NIEHS, RTP, NC.
- #338 **COMPARISON OF ETHYLENE GLYCOL PHARMACOKINETICS AND DISPOSITION BY THREE ROUTES IN SPRAGUE DAWLEY RATS.** S W Frantz, C B Jensen, C M Grosse, M J Tallant, J L Beskitt and B Ballantyne. Bushy Run Research Center, Export PA, and \*Union Carbide Corporation, Danbury, CT.
- #339 **PHARMACOKINETICS, DISPOSITION AND METABOLISM OF ETHYLENE GLYCOL MONOHEXYL ETHER (EGHE) AFTER CUTANEOUS ADMINISTRATION TO FISCHER 344 RATS.** C B Jensen, S W Frantz, C M Grosse, J L Beskitt and B Ballantyne. Bushy Run Research Center/Union Carbide Corp., Export, PA.
- #340 **THE TOXICOKINETICS OF 1,3-BUTYLENE GLYCOL VERSUS ETHANOL IN THE TREATMENT OF ETHYLENE GLYCOL POISONING.** S K Cox, K E Ferslew, and L J Boelen. Section of Toxicology, Depts. of Pharm. and Path., East Tennessee State Univ. and Veterans' Administration Medical Center, Johnson City, TN.
- #341 **EFFECT OF DOSE ON THE DISPOSITION AND METABOLISM OF 4-CHLORONITROBENZENE (4-CNB) IN MALE FISCHER-344 RATS FOLLOWING ORAL ADMINISTRATION.** D M Silveira, P M Markham, M F McComish, A A Nomeir and M Chadwick. Arthur D. Little, Inc., Cambridge, MA.
- #342 **EFFECT OF DOSE ON THE DISPOSITION AND METABOLISM OF 2-CHLORONITROBENZENE (2-CNB) IN MALE FISCHER-344 RATS FOLLOWING ORAL ADMINISTRATION.** M F McComish, N F Ferrala, D M Silveira, A A Nomeir and M Chadwick. Arthur D. Little, Inc., Cambridge, MA.
- #343 **ELIMINATION AND BRAIN DISTRIBUTION OF 14C-TRIS(2-CHLOROETHYL)PHOSPHATE IN RATS.** D W Herr and H B Matthews. NIEHS, Research Triangle Park, NC.
- #344 **DISPOSITION OF 14C-TRIS ( 2-CHLOROETHYL) PHOSPHATE (TRCP) IN MALE FISCHER-344 RATS AFTER ORAL ADMINISTRATION.** M Chadwick, D Hayes, J P Cheplis and A A Nomeir. Arthur D. Little, Inc., Cambridge, MA.
- #345 **IN VIVO METABOLISM OF CIS AND TRANS 3,7-DIMETHYL-2,6-OCTADIENAL (CITRAL) IN RATS.** J J Diliberto, P Srinivas, L T Burka, L S Birnbaum. NIEHS, Research Triangle Park, NC.
- #346 **THE METABOLISM AND NEPHROTOXICITY OF INDAN IN FISCHER 344 RATS.** M P Serve, M A Ferry, G McDonald, K O Yu, C T Olson\* and D W Hobson\*. Department of Chemistry, Wright State University, Dayton, OH and H.G. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson AFB, OH\*.
- #347 **PHARMACOKINETIC STUDIES WITH [2-14C-HEXYL]2-ETHYLHEXANOIC ACID (14C-EHA) IN THE FEMALE FISCHER 344 RAT.** J C English, P J Deisinger, L G Perry, D Guest. Eastman Kodak Company, Rochester, NY. Sponsor: J L O'Donoghue.
- #348 **BODY DISTRIBUTION, BIOTRANSFORMATION AND EXCRETION OF 4-NITRO-N-METHYL-PHYTHALIMIDE (4-NPI) IN RATS.** J J Coffey, W F Mueller, Toxicology Program New Mexico State University, Las Cruces, NM and L W Smith, G E Plastics, Pittsfield, MA.
- #349 **ENTEROHEPATIC CIRCULATION OF T-2 TOXIN METABOLITES IN THE RAT.** K A Coddington, S P Swanson, A S Hassan, and W B Buck. Dept. of Veterinary Biosciences, College of Veterinary Medicine, University of Illinois, Urbana, IL. Sponsor: V R Beasley.
- #350 **AGE RELATED CHANGES IN DISPOSITION OF BENZYL ACETATE (BA): A MODEL COMPOUND FOR GLYCINE CONJUGATION.** T F McMahon, J J Diliberto, and L S Birnbaum. NIEHS, RTP, NC.
- #351 **FDISPOSITION IN OBESE AND NON-OBESE F344 RATS.** S A Rice, and W F Ebling. Depts. of Anesthesia, Stanford University and VAMC, Palo Alto, CA.
- #352 **METABOLISM OF 14C-FURAN IN THE MALE FISCHER 344 RAT.** K D Washburn, L T Burka\*, and W C Dauterman. Toxicology Program, North Carolina State University, Raleigh, NC, and \*NIEHS, Research Triangle Park, NC.
- #353 **PHYSIOCHEMICAL CHARACTERIZATION AND TISSUE DISTRIBUTION OF CHEMICALLY RADIOLABELED (3,4)MICROCYSTIN-LR.** N A Robinson, G A Miura, C F Matson, R E Dinterman and J G Pace. Pathophysiology Division, USAMRIID, Fort Detrick, Frederick, MD. Sponsor: R W Wannemacher.
- #354 **AFFINITY OF HEPATIC GLUTATHIONE S-TRANSFERASES FOR DNA-BINDING METABOLITES OF AFLATOXIN B1.** B A Quinn, T L Crane, G M Kirby, M S Pollanen, and M A Hayes. Department of Pathology, University of Guelph, Guelph, Ontario, Canada.

## TUESDAY MORNING, FEBRUARY 28

### GALLERIA

## POSTER SESSION: REPRODUCTIVE TOXICOLOGY/IN VITRO

Chairperson: F Welsch, CIIT, Research Triangle Park, NC

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 10:00 a.m.-11:30 a.m.

- #355 **THE USE OF RABBITS IN MALE REPRODUCTIVE TOXICOLOGY STUDIES.** J Williams, R E Chapin, J L Phelps and B C Gladen. Developmental and Reproductive Toxicology, NTP, NIEHS, RTP, NC.
- #356 **SUBTLE TOXICANT-INDUCED CHANGES IN RAT SPERM VELOCITY ARE DETECTED BY COMPUTER-ASSISTED MOTION ANALYSIS.** V L Slott, J D Suarez<sup>1</sup>, L F Strader, P M Poss<sup>1</sup>, J E Simmons, R L Linder, S D Perreault. Reproductive Toxicology Branch, Herl, USEPA and NSI<sup>1</sup>, RTP, NC.
- #357 **EFFECT OF A SINGLE DOSE OF 2,5-HEXANEDIONE (2,5-HD) ON SPERM MORPHOLOGY AND MOTILITY IN THE RAT.** L F Strader, R E Linder, and S D Perreault. Reprod Tox Br, HERL/USEPA, RTP, NC. Sponsor: L E Gray.
- #358 **INFLUENCE OF CHOLINERGIC CHEMICALS ON SPERM CAPACITATION AND ACROSOME REACTION.** K Chou<sup>1</sup>, M D Oswalt<sup>1</sup>, C Chen<sup>1</sup>, S Yuan<sup>2</sup>. <sup>1</sup>Endocrine Research Center, <sup>2</sup>Center for Environmental Tox., <sup>1</sup>Dept. of Animal Sci., <sup>2</sup>Dept. of Microbiology, Michigan State Univ., E. Lansing, MI. Sponsor: S Bursian.
- #359 **TESTIS MORPHOLOGY CHANGES AFTER ETHYLENE GLYCOL MONOMETHYL ETHER (EGME) EXPOSURE.** A R Nikurs, D P Waller, S Ghosh, L D Russell, and L J D Zaneveld. Univ. of Illinois at Chicago and Rush-Presbyterian-St. Luke's Medical Centre, Chicago, IL, and Southern Illinois Univ., Carbondale, IL.
- #360 **COMPARATIVE TESTICULAR TOXICITY OF BIS(2-METHOXYETHYL) ETHER (DIGLYME) AND 2-METHOXYETHANOL (2-ME) IN RATS.** K P Lee, L A Kinney, R Valentine, and M C Carakostas. E.I. du Pont de Nemours & Co., Inc., Haskell Laboratory for Toxicology and Industrial Medicine, Elkton Road, Newark DE.



- #361 **DOSE-RESPONSE ASSESSMENT OF ETHOXYETHANOL EFFECTS ON MALE RATE REPRODUCTION WITH SINGLE EJACULATE MATING.** E D Clegg\*, H Zenick\*, B J Campbell\*\*, and H F Bushar\*\*. U.S. EPA\*, FDA\*\*, Washington, DC.
- #362 **THE ENHANCEMENT OF GLUTATHIONE AND ITS PROTECTIVE ROLE IN GERM CELL MUTATIONS.** L A Buehler, R D Harbison and J Gandy, Division of Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR.
- #363 **POTENTIATION OF ETHYL METHANESULFONATE (EMS) DOMINANT LETHALITY BY PHORONE DEPLETION OF GLUTATHIONE (GSH).** H K Bates, R D Harbison and J Gandy, Pathology Associates, Inc./NCTR, Jefferson, AR and Division for Medical Sciences, Little Rock, AR.
- #364 **INDUCTION OF TESTICULAR TOXICITY IN RATS BY Ro 23-2895: TIME COURSE OF MORPHOLOGIC CHANGES.** T Bosakowski, A A Levin, and S K Durham. Dept. of Toxicology and Pathology, Hoffmann-La Roche, Nutley, NJ. Sponsor: E A Pfizer.
- #365 **GOSSYPOL-INDUCED CHANGES IN SELENIUM CONTENT OF HAMSTER TESTES AND EIDIDYMAL SPERMATOZOA.** Y Wang and D P Waller, Univ. of Illinois at Chicago, Chicago, IL.
- #366 **PEROXIDASE: A POTENTIAL PATHWAY FOR XENOBIOTIC OXIDATION IN HUMAN TERM PLACENTA.** D C Cook and A P Kulkarni, Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #367 **CO-OXYGENATION AS ALTERNATIVE PATHWAY TO CYTOCHROME P-450 FOR BENZO(a)PYRENE ACTIVATION IN HUMAN TERM PLACENTAL MICROSOMES.** J Z Byczkowski and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #368 **BIOTRANSFORMATION OF BENZO (a)PYRENE-7, 8-DIOL IN RAT UTERUS *IN VITRO*.** A P Kulkarni and J Z Byczkowski. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #369 **BIOTRANSFORMATION OF ETHYLENE DIBROMIDE (EDB) BY HUMAN FETAL LIVER AND TERM PLACENTAL GLUTATHIONE TRANSFERASE (GST).** J K Edwards and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #370 **CHANGES IN A FETAL LYMPHOCYTIC SURFACE ANTIGEN AFTER GESTATIONAL EXPOSURE TO DIETHYLSTILBESTROL (DES).** P Lindstrom, C Comment, M Luster, R Morrissey, NTP, NIEHS, Res Tri Pk, NC.
- #371 **USE OF *IN VITRO* FERTILIZATION METHODS TO ASSESS OOCYTE FUNCTION IN THE HAMSTER: EFFECT OF CARBENDAZIM (MBC) AND OTHER MICROTUBULE POISONS.** S D Perreault, R R Barbee, and P M Ross. Reproductive Toxicology Branch, HERL, USEPA, and NSI, RTP, NC. Sponsor: L E Gray, Jr.
- #372 **MONO (2-ETHYLHEXYL) PHYHALATE (MEHP) INHIBITION OF FSH-STIMULATED cAMP ACCUMULATION IN CULTURED GRANULOSA CELLS.** K A Treinen, A James and J J Heindel. Developmental and reproductive toxicology. NTP/NIEHS RTP NC. Sponsor: L Adostal.
- #373 **CHEMICALLY INDUCED GROWTH INHIBITION AND CELL CYCLE PERTURBATIONS IN CULTURES OF DIFFERENTIATING RODENT EMBRYONIC CELLS.** P L Ribeiro and E M Faustman. Depts. of Environ. Health and Pathology, Univ. of Washington, Seattle, WA.
- #374 **STRUCTURE-ACTIVITY RELATIONSHIPS OF T-2 TOXIN AND MAJOR METABOLITES USING EMBRYO CULTURE AND HYDRA AS INDICATORS OF DEVELOPMENTAL TOXICITY.** K Mayura, M S Bean, E E Smith, B A Clement, and T D Phillips. Texas A & M University, College Station, TX.
- #375 **PRENATAL TOXICITY OF NAPHTHALENE MONITORED VIA PREIMPLANATION RODENT EMBRYO CULTURE.** J E Martin, P Iyer, and T R Irvin. Laboratory of Toxicology, Veterinary Anatomy Department, Texas A&M University, College Station, TX. Sponsor: A Ray.
- #376 **PRENATAL TOXICITY OF LEAD MONITORED VIA PREIMPLANATION RODENT EMBRYO CULTURE.** L Kurosky, P Iyer, J E Martin, and T R Irvin. Laboratory of Toxicology, Veterinary Anatomy Department, Texas A&M University, College Station, TX. Sponsor: A Ray.
- #377 **THE EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) ON A MOUSE EMBRYO CULTURE SYSTEM.** N A Nuzzo, A S Goldman and D P Waller. Univ. of Illinois at Chicago, Chicago, IL.
- #378 **ASSESSMENT OF THE POTENTIAL TERATOGENIC HAZARD OF SYNTHETIC RETINOIDS USING EMBRYO CULTURE.** F W Ross, J M Tesh, P S Bryers, C N Hensby, M Dange, B Shroot. Department of Reproductive Studies. Life Science Research, Elm Farm Laboratories, Eye, Suffolk, England and Centre International de Recherches Dermatologiques, Sophia Antipolis, Valbonne, France. Sponsor: I W Daly.
- #379 **COMPARATIVE DEVELOPMENTAL TOXICITY OF METALS TO EMBRYO-LARVAL STAGES OF AQUATIC ORGANISMS.** E M Silberhorn, W J Birge, J A Black and A G Westerman. Graduate Center for Toxicology, University of Kentucky, Lexington, KY and DEP, State of Kentucky, Frankfort, KY. Sponsor: L W Roberston.

**TUESDAY MORNING, FEBRUARY 28**

**GALLERIA**

**POSTER SESSION: METALS: LEAD/MERCURY**

**Chairperson:** A Furst, University of San Francisco, San Francisco, CA

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 8:30 a.m.-10:00 a.m.

- #380 **METHYLMERCURY CYTOTOXICITY: FLOW CYTOMETRIC AND CYTOGENETIC ANALYSIS.** EJ Massaro<sup>1</sup>, R M Zucker<sup>2</sup>, K H Elstein<sup>2</sup>, and R E Easterling<sup>1</sup>, Environmental Protection Agency<sup>1</sup>, and NSI Technology Services Corp.<sup>2</sup>, Research Triangle Park, NC.
- #381 **METHYLMERCURY INCORPORATION INTO THE HAIR OF NEONATAL MICE.** C Shi, A T Lane, and T W Clarkson. Environmental Health Sciences Center, School of Medicine and Dentistry, University of Rochester, Rochester, NY.
- #382 **EFFECTS OF *IN VITRO* MERCURY ON RAT BRAIN MICROSOMAL Mg<sup>2+</sup> ATPase.** B Rajanna, C S Chetty and S Rajanna. Selma University, Selma, AL. Sponsor: Prasada Rao S Kodavanti.
- #383 **POST-TRANSLATION MODIFICATION OF NEURONAL MICROTUBULES ALTERS SUSCEPTIBILITY TO METHYLMERCURY.** K R Reuhl, Neurotoxicology Lab, Rutgers University College of Pharmacy, Piscataway, NJ. Sponsor: H E Lowndes
- #384 **METHYLMERCURY (MeHg) ALTERS IONIC SELECTIVITY OF SYNAPTOSOMAL Ca CHANNELS AND BLOCKS DIHYDROPYRIDINE (DHP)-SENSITIVE <sup>45</sup>Ca INFLUX INTO PC12 CELLS.** T J Shafer and W D Atchison. Michigan State Univ., E. Lansing, MI.
- #385 **EFFECT OF MERCURIC CHLORIDE (HG) ON DOPAMINE (DA) RELEASE AND INTRACELLULAR IONIZED CALCIUM (C<sup>+</sup>positive<sup>2</sup>) IN SYNAPTOSOMES.** M F Hare, Dept. Environ. Hlth., U. Cincinnati., Cincinnati, OH and M Rezazadeh, Div. Pharmacol., Coll. Pharmacy, U. Texas, Austin, TX. Sponsor: E J O'Flaherty.

- #386 **HYPEREXCITABILITY IN SINGLE DORSAL ROOT GANGLION NEURONS INDUCED BY METHYL MERCURY INTOXICATION.** D A Dello, K R Reuhl and H E Lowndes. Neurotoxicology Laboratories, Rutgers College of Pharmacy, Piscataway, NJ.
- #387 **FREQUENCY-DEPENDENT SENSITIVITY TO POTASSIUM CHANNEL BLOCKERS IN SEGMENTALLY DEMYELINATED OPTIC TRACT AXONS FOLLOWING LEAD EXPOSURE.** D A Fox, D Y Ruan and Y S Blocker. University of Houston, College of Optometry, Houston, TX.
- #388 **IONIC DEPENDENCE OF ORGANOLEAD NEUROTOXICITY.** M A Verity, W Guerra and T S Sarafian, Division of Neuropathology, UCLA School of Medicine, Los Angeles, CA Sponsor: A Cho.
- #389 **EFFECT OF LEAD DURING DIFFERENT PERIODS OF DEVELOPMENT ON DISCRIMINATION REVERSAL PERFORMANCE IN MONKEYS.** D C Rice and S G Gilbert. Toxicology Research Division, Health Protection Branch, Ottawa, Ontario, Canada
- #390 **ARE THE LEAD-INDUCED ALTERATIONS IN RETINAL MITOCHONDRIAL RESPIRATION MEDIATED BY CALCIUM?** C J Medrano, M J Weil, S D Rubinstein and D A Fox. U. Houston, Coll. Optometry, Houston, TX.
- #391 **MICROANALYSIS OF DRINKING BEHAVIOR FOLLOWING LITHIUM CHALLENGE IN TWO STRAINS OF RATS POSTNATALLY EXPOSED TO LEAD.** P M Martin and R B Mailman. Biological Sciences Research Center, Departments of Psychiatry and Pharmacology, Chapel Hill, NC.
- #392 **LEAD-INDUCED AGGREGATION OF alpha2micro-GLOBULIN *IN VITRO*.** G E DuVal, D A Jett, B A Fowler. University of Maryland Toxicology Program and Department of Pathology, University of Maryland School of Medicine, Baltimore, MD.
- #393 **INDUCTION OF STRESS PROTEINS BY GALLIUM, INDIUM AND ARSENITE IN CULTURED RAT KIDNEY CELLS.** Y Aoki, M M Lipsky, and B A Fowler. University of Maryland Toxicology Program and Department of Pathology, University of Maryland School of Medicine, Baltimore, MD.
- #394 **LONGITUDINAL ASSESSMENT OF BONE LEAD (Pb) STORES BY L-XRAY FLUORESCENCE (LXRF) IN LEAD TOXIC CHILDREN TREATED WITH CaNa<sub>2</sub> EDTA (EDTA).** J F Rosen and M E Markowitz, Dept. Peds., Montefiore Med. Ctr., Albert Einstein Coll. Med., Bronx, NY.
- #395 **THE BIOAVAILABILITY OF HEAVY METALS FROM MUNICIPAL SOLID WASTE INCINERATOR FLYASH.** S L Clapp, D S Kosson and M A Gallo, Depts. Chemical Biochem. Engineering, Rutgers University and Environ. Comm. Medicine, UMDNJ/Robert Wood Johnson Med. Sch., Piscataway, NJ.
- #396 **LEAD (Pb) PERTURBS PARATHYROID HORMONE (PTH) EFFECTS ON INTRACELLULAR CALCIUM ([Ca<sup>2+</sup>]).** F A X Schanne, T L Dowd, R K Gupta, and J F Rosen. Albert Einstein Col. of Med. Montefiore Med Ctr Bronx NY.
- #397 **EFFECT OF LEAD TOXICITY ON HEPATOCELLULAR IRON HOMEOSTASIS.** J G Pounds and G L Long. Brookhaven National Laboratory, Upton, NY.
- #398 **COMPARATIVE EFFECTS OF LEAD ON GROWTH IN RATS.** J Hamilton and E J O'Flaherty. Environmental Health, Univ. of Cincinnati, Cincinnati, OH.
- #399 **LEAD ALTERED LIPID METABOLISM IN BONE MARROW DERIVED MACROPHAGES.** M Kowolenko and D A Lawrence. Dept. Microbiology and Immunology, Albany Medical College, Albany, NY.
- #400 **DIETARY LEAD ALTERS HEPATIC AND SERUM FATTY ACID COMPOSITION IN CHICKS IN A DOSE-RESPONSE MANNER.** L J Schmidt and W E Donaldson. N C State Univ., Raleigh, NC.
- #401 **PEROXIDE FORMATION AND LEAD TOXICITY.** W E Donaldson. N.C. State Univ., Raleigh, NC.
- #402 **EFFECTS OF LEAD ON HEME BIOSYNTHESIS DURING ERYTHROID DIFFERENTIATION *IN VITRO*.** W W Ku, D Slowiejko, L Bestervelt and W N Piper. Toxicology Program, Dept. of Env. and Ind. Health, University of Michigan, Ann Arbor, MI.
- #403 **ERYTHROCYTE PYRIMIDINE 5'-NUCLEOTIDASE LEAD RESISTANCE.** C Konantakiet, F C Beuthin and R T Louis-Ferdinand. Department of Pharmaceutical Sciences. Wayne State University, Detroit, MI.
- #404 **MESO-2,3-DIMERCAPTOSUCCINIC ACID (DMSA) IN HUMAN BLOOD.** R M Maiorino, J M Akins, and H V Aposhian. Dept. Molecular & Cellular Biology, University of Arizona, Tucson, AZ.

## TUESDAY MORNING, FEBRUARY 28

### GALLERIA

## POSTER SESSION: NEUROTOXICOLOGY: BEHAVIOR AND BEHAVIORAL METHODS

**Chairperson:** J Chambers, Mississippi State University, Mississippi St, MS

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 10:00 a.m.-11:30 a.m.

- #405 **FUNCTIONAL OBSERVATIONAL BATTERY (FOB) AND MOTOR ACTIVITY MEASUREMENTS IN FOOD RESTRICTED RATS.** D M Serrone, J C Killeen, J M Schollenberger. Toxicology and Animal Metabolism, Ricerca, Inc., Painesville, OH.
- #406 **DEVELOPMENT OF A MINOR ACTIVITY TEST SYSTEM IN RODENTS FOR GUIDELINE NEUROTOXICITY SCREENING.** J P Van Miller, M W Gill, and R E Wilson. Bushy Run Research Center, Export, PA.
- #407 **MICROPROCESSOR-BASED SYSTEM FOR COLLECTING AND PRESENTING NEUROTOXICOLOGY DATA.** R E Wilson, M W Gill, and J P Van Miller. Bushy Run Research Center/Union Carbide Corp., Export, PA.
- #408 **VALIDATION OF A FUNCTIONAL OBSERVATIONAL BATTERY FOR GUIDELINE NEUROTOXICITY SCREENING.** M W Gill, R E Wilson, and J P Van Miller. Bushy Run Research Center, Export, PA.
- #409 **A NEUROLOGICAL TEST BATTERY FOR USE IN TOXICITY STUDIES.** S L Allen, R Sheldon, M G Simpson and G J Oliver. ICI Central Toxicology Laboratory, Macclesfield, Chesire. Sponsor: E A Lock.
- #410 **BEHAVIORAL TERATOLOGY TEST BATTERY VALIDATION USING DIAZEPAM AND METHIMAZOLE** J W Henck, B K Beyer, C F Bajo and J A Anderson. Parke-Davis Res., Warner-Lambert Co., Ann Arbor, MI.
- #411 **EFFECT OF *IN UTERO* CAFFEINE EXPOSURE ON DISCRIMINATION REVERSAL PERFORMANCE IN INFANT MONKEYS.** S G Gilbert and D C Rice. Toxicology Research Division, Food Directorate, Health Protection Branch, Health and Welfare Canada, Ottawa, Canada.
- #412 **COGNITIVE DYSFUNCTION PRODUCED BY COLCHICINE ADMINISTERED INTO THE NUCLEUS BASALIS AND MEDICAL SEPTAL AREA.** M Bonner, S Lee, R McLamb, W Mundy and H Tilson. LMIN, Nat. Inst. Environ. Hlth. Sciences, Research Triangle Park, NC and Toxicology, UNC-Chapel Hill, NC.

- #413 **EFFECTS OF ANTICHOLINESTERASES AND ATROPINE ON FIXED RATIO PERFORMANCE AND MUSCARINIC RECEPTORS.** J E Chambers and H W Chambers. Depts. of Biol. Sci. and Entomology, Miss. State Univ., Mississippi State, MS.
- #414 **THE EFFECTS OF 2,4-DITHIOBIURET (DTB) ON SENSORY AND MOTOR FUNCTION.** K F Dean, R C Hamrick, and K M Crofton. Neurotoxicology Division, US EPA, RTP, NC and NSI Technology Services, RTP, NC. Sponsor: L W Reiter
- #415 **THE EFFECT OF 1,1,1-TRICHLOROETHANE DELIVERED BY CERAMIC-GLASS RESERVOIR SYSTEMS ON SELECTED BEHAVIORAL TESTS IN THE FISCHER 344 RAT.** D E Hollenbach, P K Bajpai, R B Drawbaugh, D R Mattie, and J C Cooper. Armstrong Aerospace Medical Research Laboratory, Toxic Hazards Division, Wright-Patterson AFB, OH. Sponsor: E R Kinkead.
- #416 **INCREASED RUNNING WHEEL AND LOCOMOTOR ACTIVITY DURING ACUTE TOLUENE OR m-XYLENE EXPOSURE.** J F Graefe and R W Wood, Institute of Environmental Medicine, NYU Medical Center, New York, NY.
- #417 **ACUTE BEHAVIORAL TOXICITY OF N-OCTANE COMPARED TO N-HEXANE: ASSESSMENT BY LOCOMOTOR ACTIVITY AND THE STARTLE REFLEX.** J M Russo and J L McLaurin. National Institute for Occupational Safety and Health, Cincinnati, OH. Sponsor: W K Anger.
- #418 **ABSENCE OF NEUROTOXICOLOGIC EFFECTS AFTER 13-WEEKS EXPOSURE TO 2000 ppm DICHLOROMETHANE.** J L Mattsson, R R Albee, D L Eisenbrandt, C M Streeeter and P J Hopkins. Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.
- #419 **OPERANT BEHAVIORAL SCHEDULE ACQUISITION AND PERFORMANCE IN BABOONS SURVIVING TWICE THE LD50 OF SOMAN OR SARIN.** J L Orr, Southwest Research Institute, San Antonio, TX. Sponsor: J A Dellinger.
- #420 **EFFECTS OF ELECTRIC FIELDS ON NONHUMAN PRIMATES.** W R Rogers, J L Orr and A C Coelho. Southwest Research Institute and Southwest Foundation for Biomedical Research, San Antonio, TX. Sponsor: J A Dellinger.
- #421 **INNER EAR EFFECTS OF PRENATAL EXPOSURE TO PHENYTOIN AND THE RELATIONSHIP TO OFFSPRING BEHAVIOR.** D R Minck, W P Weisenburger, and C V Vorhees. Institute for Developmental Research. Children's Hospital Research Foundation, Cincinnati, OH. Sponsor: R G York.
- #422 **BEHAVIORAL TERATOLOGY OF THALIDOMIDE.** W P Weisenburger, D R Minck, and C V Vorhees. Institute for Developmental Research, Children's Hospital Research Foundation, Cincinnati, OH. Sponsor: R G York.
- #423 **NICOTINIC AND MUSCARINIC INTERACTIONS WITH D1 AND D2 DOPAMINERGIC SYSTEMS IN AFFECTING COGNITIVE BEHAVIOR OF RATS.** E D Levin, J E Rose, S R McGurk, and L L Butcher. Nicotine Research Lab, VA Medical Center and Dept of Psychology UCLA, Los Angeles, CA. Sponsor: A Cho.
- #424 **SPECIFICITY OF NMDA-INDUCED FUNCTIONAL DEFICITS.** B C Rogers and H A Tilson. Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC and NIEHS, Research Triangle Park, NC.

## TUESDAY MORNING, FEBRUARY 28

### GALLERIA

## POSTER SESSION: GENERAL TOXICOLOGY

Chairperson: M J Olson, General Motors Corp., Warren, MI

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 8:30 a.m.-10:00 a.m.

- #425 **90-DAY ORAL SUBCHRONIC TOXICITY OF NITROGUANIDINE IN RATS.** C M Lewis, E W Morgan, L D Brown, M J Pearce, G M Zaucha, G T Makovec, and D W Korte, Jr. Letterman Army Institute of Research, San Francisco, CA. Sponsor: S T Omaye.
- #426 **COMPARATIVE ACUTE TOXICITY AND IRRITATION PRODUCED BY ALKYL AND AROMATIC AMINES.** R C Myers and B Ballantyne. Bushy Run Research Center, Union Carbide Corp., Export, PA.
- #427 **ACUTE TOXICITY OF 2-METHYLPYPERAZINE.** D J Naas, WIL Research Labs., Inc., Ashland, OH and C P Chengelis, G D Searle and Co., Skokie, IL.
- #428 **COMPARATIVE TOXICITY OF ACETYLATED SCIRPENOL MYCOTOXINS IN CHICKENS.** A A Ademoyero and P B Hamilton. Toxicology Program and Department of Poultry Science, North Carolina State University, Raleigh, NC. Sponsor: W E Donaldson.
- #429 **MODULATING EFFECT OF CHANGES IN BODY TEMPERATURE ON ACUTE TOXIC RESPONSE IN LABORATORY MAMMALS.** W P Watkinson and C J Gordon, US EPA, Health Effects Research Laboratory, Research Triangle Park, NC. Sponsor: J S Tepper.
- #430 **A 13-WEEK ORAL TOXICITY STUDY ON SUCCINATE TARTRATES IN RATS.** D W Petersen. The Procter & Gamble Company, Cincinnati, OH. Sponsor: J F Griffith.
- #431 **SUBCHRONIC ORAL TOXICITY STUDIES OF SARIN, TYPE I & II AND SOMAN USING CD RATS.** R M Parker, J A Crowell, T J Buccia, and \*J C Dacre. Pathology Associates Inc., NCTR, Jefferson, AR and \*US Army Biomedical R&D Laboratory, Fort Detrick, MD.
- #432 **ACUTE AND SUBCHRONIC TOXICITY, TERATOGENICITY, AND GENOTOXICITY EVALUATION OF DITALLOW IMIDAZOLINE.** D J G Muller, J D Innis and P J Hakkinen. The Procter & Gamble Co., Brussels, Belgium, and Cincinnati, OH. Sponsor: W B Gibson.
- #433 **SUBCHRONIC ORAL TOXICITY STUDIES OF 2-ETHYLHEXANOIC ACID IN THE RAT AND THE MOUSE.** D C Topping, L G Bernard, and D R Gordon. Eastman Kodak Company, Rochester, NY.
- #434 **CATALYTICALLY IMPORTANT AMINO ACIDS IN HUMAN AND MURINE LIVER CYTOSOLIC EPOXIDE HYDROLASE.** E C Dietze, D Bender, and B D Hammock. Departments of Entomology and Environmental Toxicology, University of California, Davis, CA.
- #435 **THE INFLUENCE OF HUSBANDRY REGIMENS ON ABSORPTION KINETICS OF ORALLY ADMINISTERED BARBITURATES IN DOGS.** M A Collins, N J Loftus, L Pinto, ICI Central Toxicology Laboratory, Macclesfield, Cheshire, UK, Sponsor: P M D Foster.
- #436 **PRETREATMENT WITH 3,3'-DICHLOROBENZIDINE (DCB) ALTERS THE PATTERN OF POLYUNSATURATED FATTY ACIDS IN RAT HEPATIC MICROSOMES.** M M Iba, B Lang, and R M Cross. Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.
- #437 **OMEGA-3 FATTY ACIDS INDUCE VASCULAR ANOMALIES ON CHICKEN CHORIO-ALLANTOIC MEMBRANE (CAM).** M I Klibaner, A C Wallstrom. Anglo-Medical Corp. Boston, MA. Sponsor: A E Rogers.
- #438 **CELL SPECIFICITY IN BENZENE LEUKEMIA.** S H Lamm, A S Walters, H Grunwald, DM Byrd, and R Wilson. Consultants in Epidemiology and Occupational Health, Inc, Washington, DC.
- #439 **THE BEST SOURCES OF DATA FOR CONSUMER PRODUCT EXPOSURE ASSESSMENTS.** P J Hakkinen, S Baldwin, and J C Callender. The Procter & Gamble Company. Packaged Soap and Detergent Product Development Division and \*Corporate Home Performance Testing, Cincinnati, OH. Sponsor: J F Griffith.

- #440 **A PROSPECTIVE SURVEY OF ACCIDENTAL INGESTIONS OF AUTOMATIC DISHWASHING DETERGENTS.** S Baldwin\*, T L Schwab\*, V H Sublet\*\*, Procter & Gamble Co., and Cincinnati Drug and Poison Information Center, Univ. of Cincinnati\*\*, Cincinnati, OH. Sponsor: J F Griffith.
- #441 **DRUG-INDUCED PHYSIOLOGIC CHANGES IN MATERNAL ARTERIAL BLOOD RELEVANT TO EMBRYONAL DEVELOPMENT IN RATS.** K S Khera. Sir Frederick Banting Research Centre, Tunney's Pasture, Ottawa, Ontario.
- #442 **THE EFFECT OF PROLONGED DRYING ON TRANSEPIDERMAL WATER LOSS, MOISTURE AND pH OF HUMAN LABIA MAJORA AND FOREARM SKIN.** P Elsner, H J Maibach. Dept. of Dermatology, University of California San Francisco, San Francisco, CA.
- #443 **DETECTION OF THE TOXIC AMINO ACID HYPOGLYCIN IN THE JAMAICAN ACKEE FRUIT BY RP-HPLC AND OPA DERIVATIZATION.** C McGowan, V A Wiley, and R P Bates. Food Science and Human Nutrition Dept., University of Florida, Gainesville, FL.
- #444 **SUBCHRONIC TOXICITY OF AN ORALLY ADMINISTERED CHOLINOMIMETIC AGENT IN RATS AND PRIMATES.** M D Seefeld, J A Petreire, H M Ulloa and K L Hawkins. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #445 **INTRAVENOUS TOXICITY OF CI-935, AN ANTICANCER DRUG CANDIDATE, IN RATS.** D G Pegg and K M Walsh. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #446 **DETERMINATION OF AMPHETAMINE AND ITS MAJOR METABOLITES BY HPLC UV DETECTOR.** W Ruangyuttikarn and D E Moody. Center for Human Toxicology, Dept. of Pharmacology and Toxicology, Univ. of Utah, Salt Lake City, UT.
- #447 **PRECHRONIC TOXICITY STUDIES OF C I DIRECT BLUE 15 AND 3,3'-DIMETHOXYBENZIDINE IN F34 RATS.** D L Morgan, J H Mennear, NTP/NIEHS, RTP, NC; B M Ulland, Hazleton Labs, Vienna, VA.
- #448 **POSSIBLE ENVIRONMENTAL FATE OF ANATOXIN-A.** D K Stevens and R I Krieger\*. WOI Regional Program in Veterinary Medicine, Washington State University, Pullman WA and \*Department of Food and Agriculture, Worker Health and Safety Unit, Sacramento, CA.

## TUESDAY AFTERNOON, FEBRUARY 28

1:30 p.m.-5:00 p.m.

BALLROOM WEST

### **SYMPOSIUM: CORRELATION BETWEEN MORPHOLOGIC AND FUNCTIONAL CHANGES INDUCED BY XENOBIOTICS: IS EVERY CHANGE A SIGN OF TOXICITY?**

**Chairpersons:** Z Ruben, G D Searle & Co., Skokie, IL; B Wagner, Nathan S Kline Res. Inst., Orangeburg, NY

**Introduction:** Zakok Ruben, G.D. Searle & Company, Skokie, IL.

**Toxic and Nontoxic Changes Induced in the Urothelium by Xenobiotics.** Samuel M. Cohen, University of Nebraska Medical Center, Omaha, NE.

**The Relationship of Androgens/Estrogens to Proliferative Changes in the Prostate.** Irwin Leav, Tufts University School of Veterinary Medicine, Boston, MA.

**Chemically-Induced Morphologic Changes in the Respiratory Tract: Physiologic Adaptation or a Sign of Toxicity?** Gary T. Burger, The R.J. Reynolds Co., Winston Salem, NC.

**Correlation between Behavioral and Pathologic Changes in the Evaluation of Neurotoxicity.** Brian R. Broxup, Bio-Research Laboratories, Ltd., Senneville, Quebec, Canada.

**Toxicology of the Pancreas.** Dante G. Scarpelli, Northwestern University School of Medicine, Chicago, IL.

**Panel Discussion.** Bernard M. Wagner (moderator), The Nathan S. Kline Research Institute, Orangeburg, N.Y.

## TUESDAY AFTERNOON, FEBRUARY 28

1:30 p.m.-5:00 p.m.

BALLROOM A

### **SYMPOSIUM: REPRODUCTIVE ENDOCRINOLOGY AND TOXICITY: MECHANISMS OF ACTION**

**Sponsored by the SOT Reproductive and Developmental Toxicology Specialty Section**

**Chairperson:** R Chapin, NIEHS, Research Triangle Park, NC

**Endocrine, Paracrine, and Autocrine Regulation of Testicular Function: Overview, and Sites of Action of Reproductive Toxicants.** Jerrold J. Heindel, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

**Mechanistic Studies on the Male Reproductive Toxicity of Lead.** Rebecca Z. Sokol, UCLA School of Medicine, Harbor General Hospital, Torrance, CA.

**Mechanistic Studies of Reproductive Toxicants with Primary Cultures of Testicular Cells.** Michael J. Brabec, Eastern Michigan University, Ypsilanti, MI.

**The Effects of Vitamin A and its Derivatives on Male and Female Reproduction.** Arthur A. Levin, Dept. of Toxicology, Hoffmann-La Roche Co., Nutley, NJ.

## TUESDAY AFTERNOON, FEBRUARY 28

1:30 p.m.-5:00 p.m.

BALLROOM B

### **SYMPOSIUM: ALTERNATIVE MODELS IN IMMUNOTOXICOLOGY**

**Sponsored by the SOT Carcinogenesis and Risk Assessment Specialty Sections**

**Chairpersons:** L Koller, Oregon State University, Corvallis, OR; G Henningsen, NIOSH, Cincinnati, OH

**Opening Remarks:** Loren D. Koller, Oregon State University, Corvallis, OR.

**Species Comparison of Immune System Structure and Function.** Patrick Haley, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.

**Immunotoxicologic Studies in the Rat.** Jerry H. Exon, University of Idaho, Moscow, ID.

**Immunotoxicologic Studies in the Dog.** John C. Bloom, Smith, Kline and French Laboratories, King of Prussia, PA.

**Immunotoxicologic Studies in Primates and Humans.** Terrance J. Hayes, Hoffmann-La Roche, Inc., Nutley, NJ.; Timothy Anderson, Hoffmann-La Roche, Inc., Nutley, NJ.

**Closing Remarks and Panel Discussion.** Gerry M. Henningsen, National Institute of Occupational Safety and Health, Cincinnati, OH.

## TUESDAY AFTERNOON, FEBRUARY 28

1:30 p.m.-4:30 p.m.

SALON C

### PLATFORM SESSION: MOLECULAR/CELLULAR

**Chairpersons:** B J Kelman, Battelle Pacific Northwest Laboratories, Richland, WA  
R C Smart, North Carolina State University, Raleigh, NC

- #10 1:30 **CHARACTERIZATION OF BaP ADDUCTS TO THE 5S rRNA GENE.** D L Springer, D B Mann and G L Stiegler, Pacific Northwest Laboratory, Richland, WA.
- #11 1:50 **ONTOGENIC EXPRESSION OF CYTOCHROME P450 mRNAs IN RAT TISSUES.** C J Omiecinski. Department of Environmental Health, University of Washington, Seattle, WA.
- #12 2:10 **SPATIAL EXPRESSION OF PHENOBARBITAL-INDUCIBLE P450 mRNAs IN THE RAT HEPATIC LOBULE ASSESSED BY IN SITU HYBRIDIZATION.** C Hassett, D L Luchtel, and C J Omiecinski. Department of Environmental Health, University of Washington, Seattle, WA.
- #13 2:30 **RAT LIVER CARBOXYLESTERASES; TISSUE DISTRIBUTION AND EVIDENCE FOR A MULTIGENE FAMILY.** R M Long, H Satoh, and L R Pohl. Laboratory of Chemical Pharmacology, NHLBI, NIH, Bethesda, MD.
- #14 2:50 **S-(1,2,3,4,4-PENTACHLORO-1,3-BUTADIENYL)-L-CYSTEINE (PCLB) UNCOUPLES RABBIT RENAL CORTICAL MITOCHONDRIAL (RCM) OXIDATIVE PHOSPHORYLATION (OX PHOS) BY DISSIPATING THE PROTON GRADIENT.** R G Schnellmann and E A Lock. Univ. Georgia, Athens, GA, and ICI, Chesire, UK.
- #15 3:10 **STRUCTURE-ACTIVITY STUDIES ON THE ANTIOXIDATION POTENTIAL OF INDOLE COMPOUNDS** M W Tabor, E Coats, M Sainsbury\* and H G Shertzer. University of Cincinnati Medical Center, Cincinnati, OH; \*University of Bath, Bath, England.
- #16 3:30 **INHIBITION OF INTERCELLULAR COMMUNICATION BY TOXIC XENOBIOTIC CHEMICALS *IN VITRO* IN A HUMAN EPITHELIAL CELL CULTURE SYSTEM.** B V Madhukar, S Y Oh, E DeFeyter and J E Trosko. Dept. of Pediatrics/Human Development, Michigan State University, E. Lansing, MI.
- #17 3:50 **REGENERATION MEDIATES REPAIR OF S-(1,2-DICHLOROVINYL)-L-CYSTEINE (DCVC) NEPHROTOXICITY: STUDIES *IN VIVO* AND *IN VITRO*.** J L Stevens, P B Hatzinger, and W T Hsieh. W Alton Jones Cell Science Center, Lake Placid, NY Sponsor: T W Jones.
- #18 4:10 **TRIFLUOROACETYLATED PROTEIN DISULFIDE ISOMERASE IS A HALOTHANE-INDUCED NEOANTIGEN.** J L Martin, J G Kenna, B M Martin and L R Pohl. The Laboratory of Chemical Pharmacology, NIH, Bethesda, MD., Dept. of Anesthesiology, The Johns Hopkins Medical Institutions, Baltimore, MD. and Clinical Neurosciences Branch, NIMH, Bethesda, MD.
- #19 4:30 **EFFECTS OF CHLORDECONE (KEPONE) ON THE RAT ADRENAL AND PITUITARY GLANDS.** L W Chang, University of Arkansas for Medical Sciences, Little Rock, AR and J S Hong, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

## TUESDAY AFTERNOON, FEBRUARY 28

1:30 p.m.-5:00 p.m.

SALON D

### PLATFORM SESSION: DERMAL/OCULAR: HYPERSENSITIVITY, PHOTOTOXICITY

**Chairpersons:** J D Laskin, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ  
J Riviere, North Carolina State University, Raleigh, NC

- #20 1:30 **ALLERGIC CONTACT SENSITIZATION POTENTIAL OF HYDROXYCITRONELLAL IN HUMANS.** R A Ford, A M Api, and \*R R Suskind. Research Institute for Fragrance Materials, Inc., Englewood Cliffs, NJ and \*Institute of Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH. Sponsor: O D Easterday.
- #21 1:50 **NON-IMMUNOLOGIC CONTACT URTICARIA ASSAYS OF COSMETIC INGREDIENTS.** E Patrick\*, M S Wortzman<sup>1</sup>, E Jungermann<sup>1</sup>, T J Stephens\*, K D Drake\*, and H I Maibach\*. \*University of California, San Francisco, CA, <sup>1</sup>Neutrogena Corporation, Los Angeles, CA, \*Mary Kay Cosmetics Inc., Dallas, TX.
- #22 2:10 ***IN VITRO* MODELS OF IRRITANT EFFECTS ON HUMAN SKIN** R Bloom, H I Maibach, R Tammi, JR Polansky, Laboratory for Cellular Pharmacology and Department of Dermatology, University of California Medical Center, San Francisco, CA.
- #23 2:30 **AN *IN VITRO* METHOD FOR DETERMINING DERMAL IRRITATION.** V C Gordon, C P Kelly, H C Bergman, National Testing Corporation, Palm Springs, CA. Sponsor: R J Soto.
- #24 2:50 **MECHANISM OF PSORALEN INDUCED PHOTOTOXICITY IN SARCOMA 180 CELLS.** J D Laskin and E J Yurkow, Joint Grad. Prog. in Toxicol., UMDNJ-Robert W. Johnson Medical School, Piscataway, NJ.
- #25 3:10 **THE CELL MEMBRANE AS A TARGET FOR THE PSORALENS IN SKIN PHOTOTOXICITY.** F H Mermelstein, T Abidi, M A Gallo, and J D Laskin, Joint Graduate Program in Toxicology, UMDNJ-Robert W. Johnson Medical School, Piscataway, NJ.
- #26 3:30 **NOVEL METHOD FOR ASSESSMENT OF OCULAR TOXICITY USING FLOW CYTOMETRIC DETECTION OF MORPHOLOGICAL AND FUNCTIONAL ALTERATIONS OF CORNEAL CELLS.** J M Mitchell, J D Laskin, and F M Robertson.
- #27 3:50 **EVALUATION OF AN *IN-VITRO* ASSAY FOR OCULAR IRRITANCY.** R J Soto, M J Servi, S C Johnson & Son, Inc., Racine, WI. V C Gordon, National Testing Corp., Palm Springs, CA.
- #28 4:10 **OCULAR AND TRNASOCULAR TOXICITY OF PALYTOXIN.** R W Wannemacher, R E Dinterman, and W B Lawrence. U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD.
- #29 4:30 **FACTORS INVOLVED IN THE DEVELOPMENT OF CATARACTS IN DOGS RECEIVING HMG COA REDUCTASE INHIBITORS.** R J Gerson, J S MacDonald, A W Alberts, J Chen, J B Yudkovitz, M D Greenspan and D L Bokelman. Merck Sharp and Dohme Research Labs, West Point, PA.

**TUESDAY AFTERNOON, FEBRUARY 28**

**1:30 p.m.-5:00 p.m.**

**SALON E**

## **PLATFORM SESSION: BIOTRANSFORMATION I**

**Chairpersons:** C Chengelis, G. D. Searle & Co., Skokie, IL  
N Stacey, University of Sydney, Sydney, Australia

- #30 1:30 **METABOLISM OF TRANS, TRANS-MUCONALDEHYDE TO A MONOCARBOXYLIC ACID-ALDEHYDE INTERMEDIATE BY PURIFIED YEAST ALDEHYDE DEHYDROGENASE AND MOUSE LIVER CYTOSOL.** T A Kirley, W M Maniara, B D Goldstein and G Witz. The Joint Graduate Program in Toxicology, Rutgers University/UMDNJ-RWJ Medical School, Piscataway, NJ.
- #31 1:45 **EFFECT OF INHALATION ANESTHETICS ON THE UDP-GLUCURONIC ACID PATHWAY IN MOUSE LIVER.** J B Watkins and D R Engles, Medical Sciences Program, Indiana University School of Medicine, Bloomington, IN.
- #32 2:00 **SPECIES DIFFERENCES IN THE IN VITRO GLUCURONIDATION OF DIGITOXIN (DT<sub>3</sub>) AND DIGITOXIGENIN MONODIGITOXOSIDE (DT<sub>1</sub>).** D C Eberhart, M R Halvorson and A Parkinson. Kansas University Medical Center, Kansas City, KS.
- #33 2:15 **METABOLISM OF DIGITOXIN (DT<sub>3</sub>) IN RATS AND HAMSTERS AND ITS RELATIONSHIP TO DIFFERENCES IN DT<sub>3</sub> TOXICITY.** C Dorian, M R Halvorson, and A Parkinson. Kansas University Medical Center, Kansas City, KS.
- #34 2:30 **SPECIES DIFFERENCES IN TESTOSTERONE HYDROXYLATION BY LIVER MICROSOMES: STUDIES WITH ANTIBODY AGAINST RAT CYTOCHROME P-450p.** M R Halvorson, A J Sonderfan and A Parkinson. Kansas University Medical Center, Kansas City, KS.
- #35 2:45 **REACTION OF GLUTATHIONYL RADICAL (GS<sup>•</sup>) WITH HYDROXYEICOSANOIC ACIDS: A NEW MECHANISM FOR FORMATION OF LEUKOTRIENE C-LIKE COMPOUNDS.** G L Foureman, J Curtis, and T E Eling. Laboratory of Molecular Biophysics, NIEHS, RTP, NC.
- #36 3:00 **GAS CHROMATOGRAPHY/MASS SPECTROMETRY OF LSD IN HUMAN PLASMA.** D I Papac and R L Foltz, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT. Sponsor: G S Yost.
- #37 3:15 **RECENT DEVELOPMENTS IN THE ANALYSIS OF URINARY MERCAPTURIC ACID CONJUGATES USING TANDEM MASS SPECTROMETRY.** C K Winter, A D Jones\* and T M Dinoff. Department of Entomology, University of California, Riverside, CA and \*Facility for Advanced Instrumentation, University of California, Davis, CA.
- #38 3:30 **COMPARATIVE PHARMACOKINETICS OF RETINOIC ACID DERIVATIVES IN PREGNANT HAMSTERS.** R P Sharma, W B Howard, C C Willhite and S T Omaye. Utah State University, Logan UT, California Dept. of Health Services, Berkeley, CA, and Letterman Army Institute of Research, San Francisco, CA.
- #39 3:45 **DEVELOPMENTAL CHANGES IN THE LEVELS OF A RAT LIVER MICROSOMAL CARBOXYESTERASE (HYDROLASE A).** E W Morgan, G Wood, D J Greenway and A Parkinson. University of Kansas Medical Center, Kansas City, KS.
- #40 4:00 **THE METABOLISM AND BIOLOGICAL EFFECTS OF 4-METHYLMISONIDAZOLE IN THE ISOLATED PERFUSED HYPOXIC RAT LIVER.** J L Born, N Harper, and D L Kaplan. The University of New Mexico College of Pharmacy, Albuquerque, NM. Sponsor: W M Hadley.
- #41 4:15 **IN VITRO N-HYDROXYLATION OF SELECTED PRIMARY AROMATIC AMINES BY JAPANESE MEDAKA AND RAINBOW TROUT.** J M Dady<sup>1</sup>, S P Bradbury<sup>2</sup>, and A D Hoffman<sup>2</sup>. <sup>1</sup>University of Wisconsin, Superior, WI and <sup>2</sup>US EPA Environmental Research Laboratory, Duluth, MN. Sponsor: K B Wallace.
- #42 4:30 **TRANSFORMATION OF CYANIDE BY RHODANESE LOADED MURINE CARRIER ERYTHROCYTES.** P Leung, E Cannon, D M Sylvester, and J L Way, College of Medicine, Texas A & M University, College Station, TX.
- #43 4:45 **METABOLISM OF PHENAZOPYRIDINE (PAP) BY PRIMARY RAT HEPATOCYTES.** B H Thomas, L W Whitehouse, G Solomonraj, and A Pakuts. Drug Toxicology Division, Health and Welfare Canada, Ottawa, Ont., Canada.

**TUESDAY AFTERNOON, FEBRUARY 28**

**CLAYTON ROOM**

## **POSTER/DISCUSSION SESSION: OZONE-INDUCED PULMONARY TOXICITY**

**Chairpersons:** J Mauderly, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM  
D B Menzel, Duke University Medical Center, Durham, NC

**Displayed: 1:30 p.m.-4:30 p.m.**

**Discussion: 3:00 p.m.-4:30 p.m.**

- #172 **DESIGN AND EXPOSURE REGIMEN FOR THE EPA CHRONIC OZONE (O<sub>3</sub>) STUDY.** E C Grose, J A Graham, F J Miller, D W Davies, and P J Johnson. Inhal. Toxicol. Div. HERL, U.S. EPA, Res. Tri. Park, NC.
- #173 **EFFECTS OF CHRONIC EXPOSURE TO AN AMBIENT PATTERN OF O<sub>3</sub> ON RODENT LUNGS.** L Chang, Y Huang, B Stockstill and J D Crapo. Duke University, Durham, NC; USEPA, RTP, NC. Sponsor: J S Tepper.
- #174 **PULMONARY BIOCHEMICAL CHANGES IN THE RAT FOLLOWING A CHRONIC OZONE (O<sub>3</sub>) EXPOSURE.** R H Jaskot, E C Grose\*, J H Richards, and A G Stead\*. NSI-ES, RTP, NC and \*US EPA, RTP, NC.
- #175 **EXTRAPULMONARY CHANGES IN THE RAT FOLLOWING A CHRONIC OZONE (O<sub>3</sub>) EXPOSURE.** J H Richards, R H Jaskot, E C Grose\*, and A G Stead\*. NSI-ES, RTP, NC and \*US EPA, RTP, NC.
- #176 **EFFECT OF CHRONIC OZONE EXPOSURE ON NATURAL KILLER CELL ACTIVITY AND LYMPHOCYTE BLAGOGENIC RESPONSE TO MITOGENS IN THE SPLEEN.** M J Daniels and M J K Selgrade. Inhalation Toxicology Division, HERL, US EPA, RTP, NC.
- #177 **THE EFFECT OF CHRONIC OZONE (O<sub>3</sub>) EXPOSURE ON BRONCHOALVEOLAR LAVAGE (BAL) SUPERNATANT, CELL, AND WHOLE LUNG ANTIOXIDANTS.** J Norwood, K Crissman, R Slade, and G Hatch. Toxicol. Div. HERL, U.S.E.P.A., Res. Tri. Park, NC.
- #178 **OZONE (O<sub>3</sub>) TOLERANCE IN RATS AFTER CHRONIC EXPOSURE TO ENVIRONMENTAL O<sub>3</sub> CONCENTRATIONS.** M J Wiester, J S Tepper\*, and D L Costa. U.S. EPA, RTP, NC. NSI-ES, RTP, NC\*.
- #179 **CO<sub>2</sub> STIMULATED VENTILATION REDUCED IN RATS CHRONICALLY EXPOSED TO OZONE (O<sub>3</sub>).** J S Tepper, M J Wiester,\* M F Weber, S Fitzgerald and D L Costa.\* NSI-ES RTP, NC and \*US EPA, RTP, NC.
- #180 **PULMONARY IMMUNOLOGY PROFILE IN FISCHER-344 RATS AFTER CHRONIC OZONE EXPOSURE.** G R Burleson,<sup>1</sup> L L Keyes,<sup>2</sup> and J P Ehrlich.<sup>2</sup> <sup>1</sup>Inhalation Toxicology Division, Health Effects Research Laboratory, US EPA; <sup>2</sup>NSI-ES, RTP, NC.
- #181 **ACUTE OZONE (O<sub>3</sub>) EFFECTS ON LAVAGE FLUID ANTIOXIDANTS IN HUMANS, RATS, AND GUINEA PIGS.** K Crissman, J Norwood, R Slade, J Highfill, H Koren, and G Hatch. U.S.E.P.A., RTP, NC.

- #182 **LATHYROGEN ALTERED CONNECTIVE TISSUE REPAIR:THE LACK OF EFFECT ON SUBACUTE O<sub>3</sub> INJURY.** J R Lehmann, D L Costa<sup>1</sup>, M A Stevens, S Fitzgerald, D Doerfler. NSI-ES, RTP, NC. <sup>1</sup>USEPA RTP, NC. Sponsor: G E Hatch.
- #183 **CONCENTRATION-TIME MODELS FOR THE EFFECTS OF INHALED OZONE ON BRONCHOALVEOLAR LAVAGE PROTEIN.** J W Highfill, G E Hatch, and D L Costa. HERL, USEPA, Research Triangle Park, NC. Sponsor: J S Tepper.
- #184 **EFFECTS OF ACUTE OXIDANT STRESS ON ADULT AND AGED RAT LUNG PYRIDINE NUCLEOTIDES.** M R Montgomery, P Raska-Ernery, L Zychlinski, and J U Balis. Colleges of Public Health and Medicine, Univ. of South Florida and VA Hospital, Tampa, FL.

**TUESDAY AFTERNOON, FEBRUARY 28  
GWINNETT ROOM**

**POSTER/DISCUSSION SESSION: MACROMOLECULAR BINDING:  
ACETAMINOPHEN AS A MODEL**

**Chairpersons:** D Reed, Oregon State University, Corvallis, OR  
S Lau, University of Texas, Austin, TX

**Displayed: 1:30 p.m.-4:30 p.m.**  
**Discussion: 3:00 p.m.-4:30 p.m.**

- #185 **DEVELOPMENT OF A PARTICLE CONCENTRATION FLUORESCENCE IMMUNOASSAY FOR 3-(CYSTEIN-S-YL)-ACETAMINOPHEN ADDUCTS.** R W Benson, N R Pumford, T A McRae, J A Hinson, and D W Roberts. Natl. Ctr. Tox. Res., Jefferson, AR.
- #186 **IMMUNOCHEMICAL QUANTITATION OF 3-(CYSTEIN-S-YL)-ACETAMINOPHEN PROTEIN ADDUCTS IN KIDNEY OF RATS TREATED WITH NEPHROTOXIC DOSES OF ACETAMINOPHEN AND P-AMINOPHENOL.** K Furuhashi, R W Benson, N R Pumford, K L Rowland, J A Hinson, and D W Roberts. Natl. Ctr. Tox. Res., Jefferson, AR.
- #187 **EVALUATION OF 3-(CYSTEIN-S-YL) ACETAMINOPHEN IN THE NEPHROTOXICITY OF ACETAMINOPHEN IN RATS.** T A McRae, K Furuhashi, D W Roberts, T A Getek, and J A Hinson. National Center for Toxicological Research, Jefferson, AR.
- #188 **IMMUNOHISTOCHEMICAL LOCALIZATION OF 3-(CYSTEIN-S-YL) ACETAMINOPHEN PROTEIN ADDUCTS IN LIVERS OF MICE TREATED WITH ACETAMINOPHEN.** D W Roberts, J A Hinson, R W Benson, N R Pumford, A R Warbritton, J A Crowell, and T J Buccì. Natl. Ctr. Toxic. Res., Jefferson, AR.
- #189 **LOCALIZATION OF 3-(CYSTEIN-S-YL) ACETAMINOPHEN PROTEIN ADDUCTS IN SUBCELLULAR FRACTIONS OF LIVER FOLLOWING HEPATOTOXIC DOSES OF ACETAMINOPHEN.** N R Pumford, D W Roberts, R W Benson, and J A Hinson. Natl. Ctr. Tox. Res., Jefferson, AR and Univ. Ark. Med. Sci., Little Rock, AR.
- #190 **ACETAMINOPHEN-INDUCED ALTERATIONS OF PANCREATIC BETA CELLS AND SERUM INSULIN LEVELS.** D Ferguson, D W Roberts, H Han-Shu, A Andrews, R W Benson, J Crowell, T Buccì, and J A Hinson. National Center for Toxicological Research, Jefferson, AR.
- #191 **COMPARISON OF THE DISTRIBUTION OF SUBCELLULAR COVALENT BINDING AND THE EFFECTS ON CALCIUM HOMEOSTASIS PRODUCED BY ACETAMINOPHEN AND 3-HYDROXYACETANILIDE IN MOUSE LIVER.** M A Tirmenstein and S D Nelson. Department of Medicinal Chemistry, University of Washington, Seattle, WA.
- #192 **SELECTIVE ACETAMINOPHEN METABOLITE BINDING TO EXTRAHEPATIC PROTEINS: AN INVIVO AND IN VITRO ANALYSIS.** J B Bartolone, W P Beierschmitt, R B Birge, S Emeigh Hart, S Wyand, S D Cohen, and E A Khairallah. The University of CT., Storrs, CT.
- #193 **COMPARISONS OF THE PROTEINS COVALENTLY BOUND BY ACETAMINOPHEN AND 2,6-DIMETHYL ACETAMINOPHEN IN CULTURED MOUSE HEPATOCYTES.** R B Birge, J B Bartolone, S D Cohen, and E A Khairallah. Univ. of CT, Storrs, CT.
- #194 **THE EFFECT OF 8-METHOXYPSORALEN (8-MOP) POST-TREATMENT ON THE COVALENT BINDING OF ACETAMINOPHEN (APAP) TO ELECTROPHORETICALLY SEPARATED HEPATIC PROTEINS.** J T Brady, J Bartolone, R Birge, S Hart, D S Wyand, E A Khairallah and S D Cohen. University of Conn., Toxicology Program, Storrs, CT.
- #195 **GLUTATHIONE S-TRANSFERASES ARE NOT MAJOR ACETAMINOPHEN BINDING PROTEINS IN MOUSE LIVER.** E V Nishanian, S D Cohen, and E A Khairallah. University of Connecticut, Storrs, CT.

**TUESDAY AFTERNOON, FEBRUARY 28  
DOUGLAS ROOM**

**POSTER/DISCUSSION SESSION: RISK ASSESSMENT METHODOLOGY**

**Chairpersons:** C F Wilkinson, Cornell University, Ithaca, NY  
R A Scala, Exxon Biomedical Sciences, Inc., East Millstone, NY

**Displayed: 1:30 p.m.-4:30 p.m.**  
**Discussion: 3:00 p.m.-4:30 p.m.**

- #196 **A NEW APPROACH TO DERIVING EXPOSURE GUIDELINES.** S C Lewis, J R Lynch, A I Nikiforov, and R A Scala. Exxon Biomedical Sciences, East Millstone, NJ.
- #197 **ABAMECTIN: A RISK ASSESSMENT FOR DEVELOPMENTAL TOXICITY.** K Pfeifer, R Krieger, California Department of Food and Agriculture, Sacramento, CA.
- #198 **RETROSPECTIVELY ASSIGNING CONTEXT OF OBSERVATION FOR F-344 RATS CHRONICALLY EXPOSED TO FORMALDEHYDE.** W H Lowry, T M Monticello, T B Starr, K T Morgan. Chemical Institute of Toxicology, Research Triangle Park, NC.
- #199 **INTERIM TOXICITY EQUIVALENCY FACTORS FOR PCDD/PCDFs.** M J Miller, K G Bogdan, A J Grey and N K Kim. Bureau of Toxic Substances Assessment, New York State Department of Health, Albany, NY.
- #200 **RISK ASSESSMENT OF AMBIENT WATER POLLUTANTS: I. METHODOLOGY.** L R Papa, R J F Bruins & C Sonich-Mullin, Environmental Criteria & Assessment Office, U.S. EPA, Cincinnati, OH. Sponsor: H Choudhury.
- #201 **THE RISK ASSESSMENT OF AMBIENT WATER POLLUTANTS: II. APPLICATION.** A M Gatchett, L R Papa, & C Sonich-Mullin, Office of Health & Environmental Assessment, U.S. Environmental Protection Agency, Cincinnati, OH. Sponsor: H Choudhury.

- #202 **ESTIMATING DERMAL EXPOSURES FOR SUPERFUND RISK ASSESSMENT.** L J Herrinton, J A Vandeven, and D Shelton. CH2M Hill, Reston, VA.
- #203 **APPROACHES TO USING FIELD DATA TO ASSESS HUMAN HEALTH EFFECTS FROM MUNICIPAL WASTE COMBUSTORS.** P McGinnis, M Fragge, \*D Basu and \*\*L Fradkin. Syracuse Research Corporation, Cincinnati, OH and \*Syracuse, NY, \*\*ECAO, U.S. Environmental Protection Agency, Cincinnati, OH.
- #204 **TOXICOKINETICS OF INTERSPECIES SCALING: IMPLICATIONS FOR RISK ASSESSMENT.** J A Todhunter. Todhunter, Mandava Associates, Washington, DC.
- #205 **A CALIFORNIA PROGRAM FOR EVALUATION OF CHEMICAL CONTAMINANTS IN DRINKING WATER.** A M Fan, W N Choy, P E Berteau, J B Bankowska, M J Lipsett, and R J Jackson. California Dept. Health Services, Berkeley, CA.

**TUESDAY AFTERNOON, FEBRUARY 28  
GALLERIA**

**POSTER SESSION: TCDD TOXICITY**

**Chairperson:** G Witz, Robert Wood Johnson Medical School, Piscataway, NJ

**Displayed:** 1:30 p.m.-4:30 p.m.

**Attended:** 1:30 p.m.-3:00 p.m.

- #460 **EFFECT OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) ON HEPATIC PROTEIN BOUND (PB) AND NON-PROTEIN (NPB) SULFHYDRYL (-SH) GROUPS IN FEMALE RATS.** M A Shara, W J Murray, and S J Stohs. University of Nebraska Medical Center, Omaha, NE.
- #461 **TCDD-INDUCED DECREASES IN RAT LIVER MEMBRANE FLUIDITY.** N Alsharif, C J Grandjean, and S J Stohs. University of Nebraska Medical Center, Omaha, NE.
- #462 **THE MODULATION OF THE PHOSPHATIDYLINOSITOL SIGNAL TRANSDUCTION PATHWAY BY 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD).** T. Rosenbach and W.F. Greenlee. Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #463 **TCDD AND RETINOIC ACID (RA) INTERACT SYNERGISTICALLY IN CLEFT PALATE (CP) INDUCTION IN MICE.** M W Harris, L M Stocking, R E Morrissey, A M Clark and L S Birnbaum. NIEHS, RTP, NC, and UNC, Chapel Hill, NC.
- #464 **ROLE OF THE Ah LOCUS IN THE REGULATION OF THE EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) ON EPIDERMAL GROWTH FACTOR (EGFR), GLUCOCORTICOID (GCR), AND ESTROGEN (ER) RECEPTORS IN MOUSE LIVER.** F H Lin, S Stohs, L S Birnbaum, G Clark, G Lucier, and J A Goldstein. NIEHS, Research Triangle Park, NC.
- #465 **BIOCHEMICAL EFFECTS OF TCDD IN SKIN AND LIVER OF HRS/J MICE.** S J Stohs, B D Abbott, F S Lin, and L S Birnbaum. NIEHS, Res. Tri. Pk., NC.
- #466 **CHARACTERIZATION OF TCDD-INDUCED HYDRONEPHROSIS RELATIVE TO CLEFT PALATE IN C57BL/6N MICE.** L A Couture, M W Harris, and L S Birnbaum. NIEHS, RTP, NC and UNC, Chapel Hill, NC.
- #467 **FETAL TOXICITY OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) IN THE RAT AND HAMSTER.** J R Olson and B P McGarrigle. Toxicol. Res. Ctr., Dept. of Pharmacol., SUNY. Buffalo, NY.
- #468 **COMPARATIVE TOXICITY OF CHLORINATED DIBENZODIOXINS AND DIBENZOFURANS.** C D Hebert, M W Harris, M R Elwell, and L S Birnbaum. Natl. Inst. of Environ. HealthSci., Res. Tri. Pk., NC. and Univ. of N. Carolina, Chapel Hill, NC.
- #469 **AGE-RELATED CHANGES IN DERMAL ABSORPTION OF TCDD AND 2,3,4,7,8-PENTACHLORODIBENZOFURAN (4PeCDF).** Y B Banks, D W Brewster, and L S Birnbaum. NIEHS, RTP, NC.
- #470 **KEY ENZYMES OF GLUCONEOGENESIS IN LIVERS OF TCDD-TREATED RATS.** M Lebofsky, LWD Weber, H Greim and K Rozman. University of Kansas Medical Center, Kansas City, KS (USA), and Institut fur Toxikologie, GSF Munchen, Neuherberg (FRG).
- #471 **DISPOSITION OF TCDD IN RATS AFTER INTRAVENOUS INJECTION.** K Rozman, S W Ernest and L W D Weber, University of Kansas Medical Center, Kansas City, KS (USA), and Institut fur Toxikologie, GSF Munchen, Neuherberg (FRG).
- #472 **PENETRATION OF TCDD INTO HUMAN SKIN IN VITRO.** L W D Weber, A Zesch and K Rozman. University of Kansas Medical Center, Kansas City, KS (USA); Institut fur Arzneimittel, Bundesgesundheitsamt, Berlin (FRG); and Institut fur Toxikologie, GSF Munchen, Neuherberg (FRG).
- #473 **TCDD MAY DECREASE FOOD INTAKE IN RATS SECONDARILY VIA CENTRAL SEROTONERGIC MECHANISMS.** R H Alper, L Kerecsen, B D Pfeiffer and K Rozman. Dept. of Pharmacol., Toxicol. & Therap., Univ. Kansas Med. Ctr., Kansas City, KS, and Inst. fur Toxikol., Gesellschaft fur Strahlen-und Umweltforschung mbH Munchen, Neuherberg, Fed. Rep. Ger.
- #474 **MOLECULAR PROPERTIES OF THE RAT AND MOUSE CYTOSOLIC Ah RECEPTOR COMPLEX: RADIOLIGAND-DEPENDENT EFFECTS.** J Piskorska-Plisczynska and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #475 **A MULTI-COMPARTMENTAL MODEL FOR ESTROGEN-TCDD INTERACTION.** M D Cheng, M A Gallo, and T H Umbreit. Dept. Environ. Comm. Medicine, UMDNJ/Robt. W. Johnson Medical School, Piscataway, NJ.
- #476 **MEMBRANE FLUIDITY IN MICROSOMES FROM RATS TREATED WITH 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) CONTAMINATED SOIL.** T H Umbreit, N L Esterline, G Witz, and M A Gallo. Dept Environ Comm Med, UMDNJ/Robt W Johnson Medical School, Piscataway, NJ.
- #477 **HEPATIC DNA SYNTHESIS IN C57BL/6J AND DBA/2J MICE TREATED WITH 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD).** P L Scala, T H Umbreit, W Lutz, and M A Gallo. Dept. Environ. Comm. Medicine., UMDNJ/Robt. W. Johnson Medical School, Piscataway, NJ, and Inst. Toxicol., Univ. Zurich, Schwerzenbach, Switz.
- #478 **THE EFFECTS OF TCDD ON ESTRADIOL LEVELS AND ESTROGEN RECEPTOR LEVELS IN LIVER AND UTERI OF CD-1 MICE.** M DeVito, S MacKenzie, E Martin, T Umbreit and M Gallo. Graduate Program in Public Health and Dept. of Pathology, UMDNJ-RWJohnson Medical School, Piscataway, NJ.
- #479 **HISTOPATHOLOGICAL OBSERVATIONS OF TCDD-ESTROGEN INTERACTION IN MOUSE LIVER.** M A Gallo and T H Umbreit. Dept Environ Comm Med, JGPT, UMDNJ/RW Johnson Med Sch, Piscataway, NJ.



- #480 **INDUCTION OF CYTOCHROME P-450 AS A MARKER OF THE TRANSPULMONARY ABSORPTION OF TCDD.** C S Nessel, M A Amoroso, T H Umbreit, R J Meeker, M A Gallo, Graduate Program in Public Health, Dept. of Environ. and Comm. Medicine, UMDNJ-R W Johnson Medical School, Piscataway, NJ.
- #481 **POTENTIATION OF TCDD TOXICITY IN CD1 MICE BY TAMOXIFEN.** S A MacKenzie, M J DeVito, T H Umbreit and M A Gallo. JGPT, UMDNJ/RW Johnson Medical School and Rutgers U., Piscataway, NJ.

**TUESDAY AFTERNOON, FEBRUARY 28**

**GALLERIA**

**POSTER SESSION: CARCINOGENESIS I**

Chairperson: C Lindamood, Southern Research Institute, Birmingham, AL

Displayed: 1:30 p.m.-4:30 p.m

Attended: 3:00 p.m.-4:30 p.m.

- #482 **ACTIVITIES OF SELECTED CYCLIC HYDROCARBONS OF KNOWN CARCINOGENICITY IN TH V79 METABOLIC COOPERATION ASSAY.** E Elmore, H A Milmani, B P Wilkinson, G P Wyatt. NSI Technology Services Corp. Research Triangle Park, NC., and U.S. Environmental Protection Agency, Washington, DC. Sponsor: V.C Moser.
- #483 **INTERCELLULAR COMMUNICATION AND RODENT HEPATOCYTE HETEROGENEITY.** J A Hampton, C M Weghorst, R J Ruch, and J E Klaunig. Department of Pathology, Medical College of Ohio, Toledo, OH.
- #484 **MORPHOLOGICAL TRANSFORMATION AND INTERCELLULAR COMMUNICATION IN SYRIAN HAMSTER EMBRYO CELLS.** T Sanner, E Rivedal, and H Yamasaki. Lab. for Environmental and Occupational Cancer, Institute for Cancer Research, Montebello, Oslo, Norway and International Agency for Research on Cancer, Lyon, France. Sponsor: E Dybing.
- #485 **EFFECTS OF CULTURE MEDIUM ON HEPATOCYTE GAP JUNCTIONAL INTERCELLULAR COMMUNICATION.** R J Ruch, J A Hampton, and J E Klaunig. Department of Pathology, Medical College of Ohio, Toledo, OH.
- #486 **KINETIC ANALYSIS OF INTERCELLULAR COMMUNICATION INHIBITION BY TPA.** S C McKarns, S W Bombick, and S J Doolittle. R.J. Reynolds Tobacco Company, Winston-Salem, NC.
- #487 **INHIBITION OF INTERCELLULAR COMMUNICATIONS IN CULTURED RAT HEPATOCYTES BY INDUCTION OF PEROXISOME PROLIFERATION.** N E Schultz, T J B Gray, and J E Klaunig. Medical College of Ohio, Toledo, OH, and BP International, Surrey, England.
- #488 **CORRELATION BETWEEN HEPATIC CARCINOGENICITY AND INHIBITION OF HEPATOCYTE INTERCELLULAR COMMUNICATION BY NONGENOTOXIC CARCINOGENS.** J A Hartnett, R J Ruch, C M Weghorst, J E Klaunig. Department of Pathology, Medical College of Ohio, Toledo, OH.
- #489 **ROLE OF INHIBITION OF HEPATOCYTE INTERCELLULAR COMMUNICATION IN TUMOR PROMOTION.** J E Klaunig, R J Ruch, S G Lilly, and C M Weghorst. Department of Pathology, Medical College of Ohio, Toledo, OH.
- #490 **REDUCED GAP JUNCTIONAL INTERCELLULAR COMMUNICATION AND TUMORIGENICITY OF RAT LIVER EPITHELIAL ("OVAL", F344-WB) CELLS.** S G Lilly, E deFeyter, C M Weghorst, C C Chang, B V Madhukar, M El-Fouly, J E Trosko and J E Klaunig. Medical College of Ohio, Toledo, OH, and Michigan State University, East Lansing, MI.
- #491 **A NEW MEDIUM-TERM BIOASSAY SYSTEM FOR THE ASSESSMENT OF HEPATOCARCINOGENIC POTENTIAL IN RATS.** S Yamaguchi, R Hasegawa, M Hirose, M Asamoto, and N Ito. 1st Dept. Pathol., Nagoya City Univ. Med. Sch., Nagoya, Japan.
- #492 **INITIATION-PROMOTION BIOASSAY IN MOUSE LIVER.** M M Khoury, P L Barnwell, K K Wasmund, J E Klaunig and M A Pereira. Environmental Health Research and Testing Inc., Cincinnati, OH; \*Medical Center of Ohio, Toledo, OH.
- #493 **INVESTIGATION OF STRUCTURE-ACTIVITY RELATIONSHIPS BETWEEN NTP TEST CHEMICALS AND MONONUCLEAR CELL LEUKEMIA USING A CELLULAR TRANSPLANT MODEL.** M P Dieter, C W Jameson, J E French, R R Maronpot, R S Chhabra, and P C Chan. NIEHS, National Toxicology Program, Res. Tri. Park, NC.
- #494 **IN VIVO INTERMEDIATE TERM SCREENING TESTS FOR GASTRIC CARCINOGENS AND PROMOTERS BASED ON QUANTITATIVE ANALYSIS OF PEPSINOGEN 1 (PG 1) ALTERED PYLORIC GLANDS.** K Ozaki, M Tatematsu, H Tsuda, and N Ito. 1st Dept. Pathol., Nagoya City Univ. Med. Sch., Nagoya, Japan.
- #495 **HUMAN BREAST CANCER CELLS AS MODELS FOR INVESTIGATING Ah RECEPTOR-MEDIATED PROCESSES.** M Harris, M Romkes, and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #496 **EVALUATION OF PHYSICOCHEMICAL FACTORS AFFECTING SKIN PENETRATION AND CARCINOGENIC POTENCY OF MINERAL OILS CONTAINING POLYCYCLIC AROMATIC COMPOUNDS.** T A Roy, J J Yang, S W Johnson, and C R Mackerer. Mobil Environmental and Health Science Laboratory, Princeton, NJ. Sponsor: C V Kommineni.
- #497 **LIVER TUMOR INDUCTION BY CHLORINATED ACETIC ACIDS.** M A Nelson, I M Sanchez, A J Lansing, and R J Bull. Pharmacology/ Toxicology Graduate Program and College of Pharmacy, Washington State University, Pullman, WA.
- #498 **EVALUATION OF THE TRANSPLACENTAL TUMORIGENICITY OF THE TOBACCO-SPECIFIC CARCINOGEN, 4-(METHYLNITRO-SAMINO)-1-(3-PYRIDYL)-1-BUTANONE (NNK) IN MICE.** L M Anderson, S S Hecht, D Hoffmann, and J M Rice. Laboratory of Comparative Carcinogenesis, NCI, Frederick, MD, and American Health Foundation, Valhalla, NY.
- #499 **HEPATIC TUMOR PROMOTING CHLORINATED HYDROCARBONS STIMULATE PROTEIN KINASE C ACTIVITY.** G J Moser and R C Smart. Toxicology Program, North Carolina State University, Raleigh, NC.
- #500 **CHRONIC TOXICITY OF PENTACHLOROPHENOL.** E E McConnell, M Heitmancik, A C Peters, and R Persing. National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC and Battelle Columbus Laboratories, Columbus, OH.
- #501 **CARCINOGENIC EVALUATION OF 3,3'-DIMETHYLBENZIDINE (DMB) IN BALB/C MICE.** G J Schieferstein, Y Shinohara, R R Allen, D L Greenman, and W T Allaben. National Center for Toxicological Research, Jefferson, AR.
- #502 **TOXICOLOGIC STUDIES ON A NOVEL ANTINEOPLASTIC MANNICH BASE.** C G Rousseaux, H G Townsend, and J R Dimmock. University of Saskatchewan, Saskatoon, Sask. Sponsor: C Couillard.
- #503 **ACTIVATED K-ras IN 1,3 BUTADINE-INDUCED B63C3F1 MOUSE LUNG TUMORS.** T Goodrow, S Reynolds, R Maronpot, and M Anderson. NIEHS, RTP and \*University of North Carolina, Chapel Hill, NC.
- #504 **ALTERED METHYLATION OF RAS ONCOGENES IN BENZIDINE-INDUCED B6C3F1 MOUSE LIVER TUMORS (MLT).** R L Vorce and J I Goodman. Michigan State University, East Lansing, MI.

- #505 **TRICHLOROETHYLENE (TCE)-INDUCED EFFECTS ON THE METHYLATION STATUS OF RAS ONCOGENES IN THE LIVER OF THE B6C3F1 MOUSE.** J S Ray and J I Goodman. Michigan State University, E. Lansing, MI.
- #506 **PATTERNS OF ONCOGENE EXPRESSION IN RETINOID-PROMOTED PAPILLOMAS AND PHENOTYPICALLY NORMAL MOUSE SKIN.** D L McCormick and B J Bagg. IIT Research Institute, Chicago, IL.
- #507 **LIPOXYGENASE CATALYZED PEROXYL RADICAL FORMATION AND EPOXIDATION OF 7,8-DIHYDROXY-7, 8-DIHYDRO-BENZO(A)PYRENE (BP-7,8-DIOL).** M F Hughes, W Chamulitrat, R P Mason, and T E Eling. Laboratory of Molecular Biophysics, NIEHS, Research Triangle Park, NC. Sponsor: G L Foureman.
- #508 **REDUCTION BY DIETARY RESTRICTION OF *IN VIVO* BINDING OF AFLATOXIN B<sub>1</sub> TO HEPATIC NUCLEAR DNA IN RATS.** R A Pegram, W T Allaben, and M W Chou. National Center for Toxicological Research, Jefferson, AR.
- #509 **HEMOGLOBIN ADDUCTS FORMED ON ADMINISTRATION OF ACRYLONITRILE (AN) TO RATS.** T R Fennell, J P MacNeela, M J Turner, and J A Swenberg. Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #510 **SERUM TRANSPORT OF BENZO (A) PYRENE [B(a)P] METABOLITES AND THE PRODUCTION OF DNA ADDUCTS IN MOUSE TISSUES.** G L Ginsberg and T B Atherholt. Coriell Inst. for Medical Res., Camden, NJ.
- #511 **LACK OF *IN VIVO* DNA BINDING OF MERCAPTOBENZOTHIAZOLE (MBT) TO SELECTED TISSUES OF THE RAT.** D W Brewster, K J Mirly, A G Wilson, J W Barnett. Monsanto Company, St. Louis, MO.
- #512 **3-METHYLCHOLANTHRENE (MC)-INITIATED LUNG TUMORS CORRELATE WITH CYTOCHROME P-450IA1 INDUCTION IN FETAL BUT NOT ADULT MICE.** M S Miller, A B Jones, and L M Anderson. Laboratory of Comparative Carcinogenesis, NCI, Frederick, MD.
- #513 **STRAIN AND GENDER DEPENDENT PATTERNS OF HEPATIC TUMOR PROMOTION IN NEONATALLY INITIATED MICE TO PHENOBARBITAL.** C M Weghorst and J E Klaunig. Department of Pathology, Medical College of Ohio, Toledo, OH.
- #514 **PROMOTING EFFECTS OF PHENOLIC ANTIOXIDANTS ON RAT BLADDER CARCINOGENESIS INITIATED BY N-BUTYL-N (4-HYDROXYBUTYL) NITROSAMINE (BBN).** Y Kurata, S Fukushima, R Hasegawa, A Hagiwara, and N Ito. 1st Dept. Pathol., Nagoya City Univ. Med. Sch., Nagoya, Japan.
- #515 **RELATIONSHIP OF INDUCTION OF CYTOCHROME P-450<sub>1</sub> (IIB1) TO PROMOTION OF DEN-INDUCED THYROID AND KIDNEY TUMORS.** R A Lubet, B A Diwan, R W Nims, and J M Rice. LCC, NCI, and BCDP, PRI, Frederick, MD.
- #516 **SPECIES-SPECIFIC ONCOGENIC MECHANISMS.** A R Gregory and J M Conis. Combustion Engineering-Environmental, Washington, DC.

## TUESDAY AFTERNOON, FEBRUARY 28 GALLERIA

### POSTER SESSION: METALS: CADMIUM/OTHERS

Chairperson: R Dudley, NutraSweet Co., Deerfield, IL

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 1:30 p.m.-3:00 p.m.

- #517 **CADMIUM AND BIORESPONSES TO 1,25 (OH)<sub>2</sub> VITAMIN D<sub>3</sub>.** S A Swanson and C R Angle. Toxicology Program and Department of Pediatrics, University of Nebraska Medical Center, Omaha, NE.
- #518 **CADMIUM DEPENDENT BINDING OF CALMODULIN (CaM) TO MICROTUBULE-ASSOCIATED PROTEINS (MAPS) AND TUBULIN.** B A Perrino and I N Chou. Department of Microbiology, Boston University School of Medicine, Boston, MA.
- #519 ***IN VIVO* EFFECTS OF CADMIUM ON CALMODULIN AND CALMODULIN REGULATED ENZYMES** P J S Vigi and R Nath, Postgraduate Institute of Medical Education and Research, Chandigarh, India.
- #520 **LOCALIZATION OF METALLOTHIONEIN IN PLACENTA.** R A Gover, M D Haust and M G Cherian. Univ. of Western Ontario, London, Canada.
- #521 **LOW MOLECULAR WEIGHT (MW) ZN AND CD BINDING PROTEINS IN MOUSE PLACENTA.** D J Thomas, R K Johnson, and T S O'Gara. Depts Peds and Pharm. Sci, Univ. Neb. Ctr, Omaha, NE.
- #522 **LACK OF COORDINATION OF METALLOTHIONEIN AND HEAT-SHOCK PROTEIN PRODUCTION IN RESPONSE TO METALS.** J W Bauman, J Liu and C D Klaassen. Univ. of Kansas Med. Ctr, Kansas City, KS.
- #523 **HEPATIC ENDOTHELIAL CELLS APPEAR TO BE AN IMPORTANT CELL TYPE IN PRODUCING CADMIUM HEPATOXICITY.** J Liu, Y P Liu, W C Kershaw and C D Klaassen. Univ. of Kansas Medical Center, Kansas City, KS.
- #524 **EFFECT OF *IN VIVO* LOW-DOSE CADMIUM PRETREATMENT ON THE *IN VITRO* INTERACTIONS OF CADMIUM WITH ISOLATED INTERSTITIAL CELLS OF THE RAT TESTES.** Z Z Wahba and M P Waalkes. National Cancer Institute-FCRF, Frederick, MD.
- #525 **SPECIES SPECIFICITY OF ACUTE CADMIUM-INDUCED RENAL TOXICITY: SUSCEPTIBILITY OF THE SYRIAN HAMSTER.** S Rehm and M P Waalkes. National Cancer Institute-FCRF, Frederick, MD.
- #526 **SELENIUM AND CADMIUM INTERACTIONS ON HEPATIC GLYCOGEN CONTENT.** M B Iszard, V Nonavinakere, J L Early, and R R Bell. Florida A&M University, College of Pharmacy, Tallahassee, FL. Sponsor: R C Schnell.
- #527 **THE PROTECTIVE EFFECTS OF ZINC ON DIETHYLDITHIOCARBAMATE (DDC) CYTOTOXICITY ON ASTROCYTES IN CULTURE.** M F McManus, M Toulon, L D Trombetta. Toxicology Program, College of Pharmacy. St. John's University, New York, NY.
- #528 **EFFECTS OF INTRATRACHEAL V<sub>2</sub>O<sub>5</sub> ADMINISTRATION ON RAT LIVER MITOCHONDRIA.** L Zychlinski and J Z Byczkowski. Toxlab Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #529 **EFFECT OF GALLIUM (Ga) ON INHIBITION OF AMINOLEVULINIC ACID DEHYDRATASE (ALAD) IN RATS.** P L Goering and S Rehm\*. Food and Drug Administration, Rockville, MD and National Cancer Institute\*, Frederick, MD.
- #530 **GLUTATHIONE ATTENUATION OF PORPHYRINOGEN OXIDATION: ROLE IN TRACE METAL-INDUCED PORPHYRIA.** C A Calas and J S Woods. University of Washington, Seattle, WA.
- #532 **INHIBITION OF SUPEROXIDE (O<sub>2</sub><sup>-</sup>) AND HYDROGEN PEROXIDE (H<sub>2</sub>O<sub>2</sub>) PRODUCTION BY ORGANOTIN COMPOUNDS IN STIMULATED PHAGOCYtic CELLS.** C Whiteside, M A Amoruso, N Sadrieh and B D Goldstein. Joint Graduate Program Toxicology Rutgers University, UMDNJ/Robert Wood Johnson Medical School, Piscataway, NJ.
- #533 **TRIMETHYLTIN (TMT) EFFECTS ON AUDITORY FUNCTION AND COCHLEAR PATHOLOGY.** K M Crofton, K F Dean, M G Menache, and R Janssen. Neurotoxicology Division, US EPA, RTP, NC and NSI Technology Services, RTP, NC. Sponsor: L P Sheets.

- #534 **NEONATAL EXPOSURE TO TRIETHYL TIN (TET) DISRUPTS OLFACTORY LEARNING DURING EARLY DEVELOPMENT IN THE RAT.** M E Stanton. U.S. Environmental Protection Agency, Research Triangle Park, NC. Sponsor: P J Bushnell.
- #535 **THALLIUM INTOXICATION PRODUCES NEUROCHEMICAL ALTERATIONS IN RAT BRAIN.** S F Ali, K Jairaj, C E Lambert, G D Newport, G W Lipe, S C Bondy, and W Slikker. Division of Reproductive & Developmental Toxicology, NCTR, Jefferson, AR and So. Occ. Health Ctr., U. CA Irvine, Irvine, CA.
- #536 **NICKEL(II) INHIBITION OF CATALASE, GLUTATHIONE PEROXIDASE AND GLUTATHIONE REDUCTASE SYSTEM.** R E Rodriguez and K S Kasprzak. NCI-FCRF, Frederick, MD.
- #537 **ALLOSTERIC BINDING OF NICKEL(II) TO CALMODULIN.** N Raos and K D Kasprzak. Laboratory of Comparative Carcinogenesis, National Cancer Institute, FCRF, Frederick, MD.
- #538 **MACROMOLECULAR BINDING OF NICKEL IN RAT LUNG.** J M Benson, C E Mitchell, J D Sun, and A Waddoups. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #539 **TOXICITY AND ALUMINUM CONCENTRATION IN BONE AND BRAIN FOLLOWING DIETARY ADMINISTRATION OF BASIC SODIUM ALUMINUM PHOSPHATE (KASAL) IN BEAGLE DOGS.** J C Pettersen, D S Hackett, G M Zwicker, and G L Sprague. CIBA-GEIGY, Environmental Health Center, Farmington, CT.
- #540 **FEASIBILITY OF AL, SI AND TI AS TRACERS FOR SOIL INGESTION MEASUREMENTS BY XRF AND ICP SPECTROMETRY: A SURROGATE STUDY IN MINIPIGS.** J E Ballou and L B Sasser. Pacific Northwest Laboratory, Richland, WA.
- #541 **COMPARISON OF THE EFFICACY OF SEVERAL CHELATING AGENTS IN ACUTE URANIUM INTOXICATION.** J M Llobet, A Ortega, J L Domingo, M Gomez, and J Corbella. Laboratory of Toxicology & Biochemistry, School of Medicine, E-43201, Reus, Spain.
- #542 **PRODUCTION OF AN IN VIVO REDUCING ENVIRONMENT FOR GSH BY THE CHELATING AGENT DMPA.** W Zheng\*, R Maiorino and H V Aposhian. Dept Pharm & Toxicol\* and Dept Mol & Cell Biology, Univ of Arizona, Tucson, AZ.
- #543 **DECORPORATION OF POLONIUM-210 BY DMPA.** G M Bogdan and H V Aposhian. Depts of Pharmacology & Toxicology and Molecular Cellular Biology, University of Arizona, Tucson, AZ.
- #544 **SUBCHRONIC TOXICITY STUDY IN RATS WITH THALLIUM.** A Bathija, R Rubenstein, B R Sonawane, H Choudhury, C DeRosa, and S Irene. US EPA Washington, DC. Sponsor: P A Fenner-Crisp.
- #545 **IN VITRO PRENATAL TOXICITY OF TRIMETHYL ARSINE.** K J Irgolic and T R Irvin. Dept. of Chemistry and Vet Anatomy, Texas A&M University, College Station, TX. Sponsor: A Ray.
- #546 **SIMULTANEOUS EXPOSURE TO METALS SYNERGISTICALLY INHIBITS Na(positive)K(positive)-ATPase ACTIVITY IN SYNAPTIC PLASMA MEMBRANES.** M A Carfagna<sup>1</sup>, G D Ponsler<sup>2</sup>, and B B Muhoberac<sup>2</sup>, Department of Pharmacology and Toxicology<sup>1</sup>, Indiana University School of Medicine, and Department of Chemistry<sup>2</sup>, Purdue University School of Science, Indiana University-Purdue University, Indianapolis, IN. Sponsor: R B Forney<sup>1</sup>.
- #547 **SELENITE INDUCED HEPATO-PEROXIDATION: THE ROLE OF THE GLUTATHIONE RECYCLING SYSTEM.** H Roque, I S Jamall, and L D Trombetta. St. John's University, Jamaica, NY.

## TUESDAY AFTERNOON, FEBRUARY 28 GALLERIA

### POSTER SESSION: INHALATION TOXICOLOGY

Chairperson: M A Medinsky, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 3:00 p.m.-4:30 p.m.

- #548 **LUNG RESPONSE TO TEST TONER UPON 2-YEAR INHALATION EXPOSURE IN RATS.** R Mermelstein<sup>1</sup>, C Dasenbrock<sup>2</sup>, S Takenaka<sup>2</sup>, U Mohr<sup>2</sup>, R Kilpper<sup>1</sup>, J MacKenzie<sup>1</sup>, P Morrow<sup>3</sup> and H Muhle<sup>2</sup> <sup>1</sup>Corporate Environmental Health & Safety, Xerox Corp. Rochester NY <sup>2</sup>Fraunhofer Institute for Toxicology, Hanover 3000, FRG <sup>3</sup>University of Rochester, Rochester, NY.
- #549 **COMPARISON OF THREE METHODS OF EXPOSING RATS TO CIGARETTE SMOKE.** J L Mauderly, W E Bechtold, J A Bond, A L Brooks, B T Chen, J R Harkema, R F Henderson, N F Johnson, K Rithidech, D G Thomassen, and R G Cuddihy. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #550 **RESPONSES TO THE INTRAPULMONARY DEPOSITION OF PARTICULATE HIGH TEMPERATURE SUPERCONDUCTOR MATERIAL.** J E London, D Kusewitt, L R Newkirk, B E Lehnert. Los Alamos National Laboratory, Los Alamos, NM.
- #551 **SYNERGISTIC EFFECTS OF NITROGEN DIOXIDE AND CARBON DIOXIDE FOLLOWING ACUTE INHALATION EXPOSURES IN RATS.** B C Levin, M Paabo, L Highbarger, and N Eller. National Institute of Standards and Technology, Gaithersburg, MD.
- #552 **SUBCHRONIC INHALATION TOXICITY STUDY IN RATS EXPOSED TO SILICON CARBIDE WHISKERS.** D.K. Craig<sup>1,5</sup>, C.A. Lapin<sup>2</sup>, M.G. Valerio<sup>3,5</sup>, and S. Bogoroch<sup>4,6</sup>. 1Battelle, Columbus, OH; 2ARCO, Los Angeles, CA; 3ICI Americas Inc, Wilmington, DE; 4 New York, NY; 5 formerly at Litton Bionetics Inc., Rockville, MD; 6 formerly ARCO Chemical, Newtown Square, PA.
- #553 **THE USE OF A LIPID PROFILE IN A 90-DAY INHALATION EXPERIMENT IN RATS, COMPARING SMOKE FROM CIGARETTES WHICH BURNED OR ONLY HEATED TOBACCO.** C R E Coggins, P H Ayres, A T Mosberg and C H Chen. R.J. Reynolds Tobacco Co, Winston-Salem, NC and Alpha Biomedical Labs, Seattle, WA.
- #554 **INDUCTION AND REGRESSION OF HISTOPATHOLOGY IN THE RAT LARYNX AFTER ACUTE EXPOSURE TO SMOKE FROM 1R4F CIGARETTES.** P H Ayres, C R E Coggins, J W Sagrats\*, and G T Burger. R.J. Reynolds Tobacco Company, Winston-Salem, NC and \*Veritas Laboratories, Burlington, NC.
- #555 **RELATIONSHIPS BETWEEN AMOUNTS OF NICOTINE PRESENTED AND INHALED, AND RESULTING PLASMA CONCENTRATIONS, IN 90-DAY INHALATION STUDIES IN RATS.** A T Mosberg, CR E Coggins, P H Ayres and A P Wehner. R.J. Reynolds Tobacco Co, Winston-Salem, NC and Battelle, Richland, WA.
- #556 **SUBCHRONIC INHALATION TOXICITY STUDY OF ISOBUTYL NITRITE (IBN) IN F344/N RATS AND B6C3F1 MICE.** C Aranyi<sup>1</sup>, C L Gaworski<sup>1</sup> A Hall, III<sup>2</sup>, K M Abdo<sup>3</sup> and CD Jackson<sup>4</sup>. <sup>1</sup>IITRI, Chicago, IL, <sup>2</sup>PAI, Chicago, IL, <sup>3</sup>NIEHS/NTP, RTP, NC, and <sup>4</sup>NCTR, Jefferson, AR.
- #557 **SUBCHRONIC INHALATION TOXICITY STUDY OF 2-MERCAPTOBENZIMIDAZOLE (2-MBI) AEROSOLS.** C L Gaworski<sup>1</sup>, C Aranyi<sup>1</sup>, S Vana<sup>1</sup>, N Rajendran<sup>1</sup>, A Hall, III<sup>2</sup>, and K M Abdo<sup>3</sup>. <sup>1</sup>IITRI, Chicago, IL, <sup>2</sup>PAI, Chicago, IL, and <sup>3</sup>NIEHS/NTP, RTP, NC.
- #558 **EFFECTS OF CHRONIC VANADIUM PENTOXIDE (V<sub>2</sub>O<sub>5</sub>) DUST INHALATION ON PULMONARY REACTIVITY IN CYNOMOLGUS MONDKEYS.** E A Knecht, R E Biagini, W J Moorman and J C Clark. NIOSH, Exptl. Tox. Br., Cincinnati, OH.

- #559 **NINETY-DAY INHALATION TOXICITY STUDY IN RATS WITH HYDROCHLOROFLUOROCARBON 132B.** D P Kelly and T Chiu, E I du Pont de Nemours and Co, Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE. Sponsor: H J Trochimowicz
- #560 **ACUTE PULMONARY AND HEPATIC TOXICITY OF INHALED TRIETHYLBORANE (TEB) SPONTANEOUS OXIDATION PRODUCTS: DIFFERENTIAL EFFECTS OF IMMEDIATE VRS. DELAYED EXPOSURE.** K L Yerkes, H F Leahy, H G Wall and E C Kimmel. NSI Technology Services Corp., Dayton, OH. Sponsor: R B Conolly.
- #561 **HISTOPATHOLOGIC ANALYSIS OF SEQUENTIAL LESIONS IN THE RESPIRATORY SYSTEM OF F344 RATS RESULTING FROM A SINGLE 2 HOUR INHALATION EXPOSURE TO METHYL ISOCYANATE (MIC).** G A Boorman, H R Brown and J R Bucher. Experimental Pathology Laboratories, Inc. and National Toxicology Program, N.I.E.H.S., Research Triangle Park, NC.
- #562 **SUBCHRONIC INHALATION TOXICITY OF METHYLTHIOACETATE (MTA) IN F-344 RATS.** L C Griffis, E D Bruce and W R Richter. Chevron Environmental Health Center, Inc., Richmond, CA.
- #563 **PULMONARY PATHOLOGY IN RATS EXPOSED TO FLUOROPOLYMER/WOOD SMOKES FROM A FULL-SCALE FIRE.** R Valentine, G T Makovec, B B Baker, D J Kasprzak; F B Clarke<sup>1</sup>; and C H Herpol and M Jannsens<sup>2</sup>. E.I. du Pont de Nemours & Co., Wilmington, DE; Benjamin/Clarke Associates, Kensington, MD<sup>1</sup>; and State University of Ghent, Belgium<sup>2</sup>.
- #564 **EFFECTS OF INHALATION OF ACETALDEHYDE ON THE RESPIRATORY SYSTEM OF RATS.** S K Durham, P J Meynders and C Zurcher. Dept. of Toxicology and Pathology, Hoffman-La Roche, Inc., Nutley, NJ; TNO/RBI and TNO/IVEG, Rijswijk, The Netherlands. Sponsor: W H Halliwell.
- #565 **VINYLTRIMETHOXYSILANE (VTMS) NINE-DAY VAPOR INHALATION STUDY WITH RATS.** B Ballantyne<sup>1</sup>, P E Losco<sup>2</sup>, C M Troup<sup>2</sup>, and D E Dodd<sup>2</sup>. <sup>1</sup>Union, Carbide Corporation, Danbury, CT; <sup>2</sup>Bushy Run Research Center, Export, PA.
- #566 **ACUTE AND 9-DAY VAPOR INHALATION STUDIES WITH BIS (2-DIMETHYLAMINOETHYL) ETHER (DMAEE).** D E Dodd, B Ballantyne, R H Garman, I M Pritts, D R Klonne, and D J Nachreiner. Bushy Run Research Center/Union Carbide Corp., Export, PA.
- #567 **COMBUSTION TOXICITY OF AN AIRCRAFT LUBRICANT.** V J Forrest, J F Wyman, \*C J Hixson, \*J R Cooper, L H Lee, J A Rivera, D A Macys, Naval Medical Research Institute, Toxicology Detachment, WPAFB OH and \*AAMRL, Wright Patterson Air Force Base OH, Sponsor: R Gardier, Wright State University, Dayton, OH.
- #568 **ACUTE INHALATION EVALUATION OF PYROTECHNICALLY GENERATED TEREPHTHALIC ACID.** S A Thomson, D C Burnett, C L Crouse, R J Hilaski, W T Muse, Chemical Research, Development and Engineering Center, Aberdeen Proving Ground, MD. Sponsor: H Salem.
- #569 **SUBCHRONIC INHALATION TOXICITY STUDY WITH FORMAMIDE IN RATS.** P E Ross, L A Kinney, M C Carakostas, and D B Warheit. Du Pont-Haskell Lab., Newark, DE.
- #570 **ASSESSMENT OF LUNG TOXICITY TO ACRAWAX \*C FOLLOWING ACUTE EXPOSURE.** C F Reinhardt, M C Carakostas, M A Hartsky and D B Warheit. Du Pont-Haskell Lab., Newark, DE.
- #571 **TWO-WEEK AEROSOL EXPOSURE OF F-344 RATS TO A 1700 MOLECULAR WEIGHT ETHYLENE OXIDE/PROPYLENE OXIDE (EO/PO) POLYMER.** D R Klonne, D E Dodd, R H Garman, and T R Tyler. Bushy Run Research Center/Union Carbide Corp., Export, PA.
- #572 **EVALUATION OF THE ACUTE AND SUBACUTE INHALATION TOXICITY OF LUBRICATING OIL MISTS.** F T Whitman, J J Freeman, R N Infurna, and R D Phillips. Exxon Biomedical Sciences, Inc., East Millstone, NJ.
- #573 **ACUTE INHALATION TOXICITY OF COBALT HYDROCARBONYL.** J P Hinz, A I Nikiforov, W C Daughtrey, E A Mount, F T Whitman, and J Signorin. Exxon Biomedical Sciences, Inc., East Millstone, NJ.
- #574 **SUBCHRONIC INHALATION OF SKYDROL 500 B-4 IN RATS.** C H Farr, C L Bechtel, R S Nair, M V Roloff, W E Ribelin, and F R Johannsen. Monsanto Company, St. Louis, MO.
- #575 **13-WEEK INHALATION TOXICITY STUDY OF FORMIC ACID IN RATS AND MICE.** C L Leach<sup>1</sup>, K M Abdo<sup>2</sup>, B J Chou<sup>1</sup>, J H Roycroft<sup>2</sup>, and P W Mellick<sup>1</sup>. <sup>1</sup>Battelle Northwest, Richland, WA and <sup>2</sup>National Toxicology Program, Research Triangle Park, NC.
- #576 **DETERMINATION OF THE SUBCHRONIC INHALATION TOXICITY OF CHLOROTRIFLUOROETHYLENE OLIGOMER.** E R Kinkad<sup>1</sup>, B T Culpepper<sup>1</sup>, H G Wall<sup>1</sup>, R S Kutzman<sup>1</sup>, and R E Whitmire.<sup>1</sup> <sup>1</sup>NSI Technology Services Corporation, Dayton, OH, <sup>2</sup>Wright-Patterson Air Force Base, OH.
- #577 **UNIFORMITY OF TEST MATERIAL DISTRIBUTION IN INHALATION EXPOSURE CHAMBERS.** B J Greenspan, J R Decker, O R Moss, Battelle Pacific Northwest Laboratories, Richland, WA.
- #578 **REVISED TEST METHOD FOR DETERMINING ACUTE INHALATION TOXICITY OF FIRE SHELTER CLOTH LAMINATES.** D Drozdowski, T Putnam<sup>\*</sup>, M Linaris, A Melendez and C Tong. United States Testing Co., Inc., Hoboken, NJ. \*Forest Service, USDA, Missoula, MT.
- #579 **NEBULIZED AEROSOL EXPOSURE APPARATUS FOR TOXICOLOGY STUDIES IN THE CYNOMOLGUS MONKEY.** G Lulham, N Roosdorp, P Mihalko and B Procter. BioResearch Laboratories Ltd., Senneville, Que.
- #580 **A FLUIDIZED-BED DUST GENERATOR FOR USE IN INHALATION TOXICITY STUDIES.** B R Dudek, T A Kaempfe, C L Bechtel, S R Becktame and M V Roloff. Monsanto Company, Environmental Health Laboratory, St. Louis, MO.
- #581 **PULMONARY, RENAL AND HEPATIC DISTRIBUTION OF CADMIUM IN MICE AND RATS CHRONICALLY EXPOSED TO CIGARETTE SMOKE.** C Gairola<sup>\*</sup>, and G J Wagner<sup>\*\*</sup>, Tobacco & Health Research Institute<sup>\*</sup>, Graduate Center for Toxicology<sup>\*</sup>, and Department of Agronomy<sup>\*\*</sup>, University of Kentucky, Lexington, KY.

**TUESDAY AFTERNOON, FEBRUARY 28**

**WALTON ROOM**

**POSTER/DEMONSTRATION SESSION: COMMUNICATING CONCEPTS IN TOXICOLOGY**

**Chairperson:** A L Craigmill, University of California/Davis, Davis, CA

**Attended:** 1:30 p.m.-4:30 p.m. Tuesday only.

**Displayed:** 8:30 a.m.-12:00 p.m. Wednesday only.

- #449 **COMMUNITY ASSISTANCE IN TOXICOLOGY: A CASE STUDY.** M A Kamrin, D Bennack and L J Fischer, Center for Environmental Toxicology, Michigan State University, East Lansing, MI.
- #450 **COMMUNICATING PRINCIPLES OF TOXICOLOGY TO THE PUBLIC.** K S Rao. Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.

- #451 **COMMUNITY EXPOSURE GUIDELINES.** A I Nikiforov, S C Lewis, J Lynch, and G F Egan, Exxon Biomedical Sciences, Inc., East Millstone, NJ.
- #452 **MATERIALS FOR COMMUNICATING RISK.** H D Thier, R C Laugen, and T Hill. Chemical Education for Public Understanding Program (CEPUP), Lawrence Hall of Science, University of California, Berkeley, CA. Sponsor: A L Craigmill.
- #453 **RESPONSE PROTOCOLS: A RESOURCE FOR OCCUPATIONAL/AND ENVIRONMENTAL HEALTH EXPOSURE INFORMATION.** V H Sublet\*\*, C S Clark\*\*, L T Sigell\*, Drug and Poison Information Center (DPIC)\* and Dept. of Environ. Hlth.(DEH)\*\*, Univ. of Cinti, Cinti, OH. Sponsor: C S Baxter.
- #454 **FRAMEWORK FOR EFFECTIVE HEALTH COMMUNICATION.** M Y Lichtveld and J A Abraham. Agency For Toxic Substances and Disease Registry (ATSDR), Atlanta, GA. Sponsor: R S Yang.
- #455 **THE TOXICOLOGY RESOURCE INFORMATION SERVICE.** A L Craigmill. Environmental Toxicology, University of California, Davis, CA.
- #456 **HAZARDOUS SUBSTANCES DATA BANK.** G J Cosmides. National Library of Medicine, Bethesda, MD.
- #457 **MICROCOMPUTER-BASED TRAINING FOR TOXLINE.** M L Perkins and M L Spann. National Library of Medicine, Bethesda, MD. Sponsor: G J Cosmides.
- #458 **EXICHEM DATABASE: A MECHANISM FOR INTERNATIONAL INFORMATION EXCHANGE.** J M Kla, K J Boswell, and L S Rosenstein. Risk Analysis Branch, Office of Toxic Substances, U.S. Environmental Protection Agency, Washington, D.C.
- #459 **REFERENCE MAN REVISITED.** F M Martin. Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN. Sponsor: P Y Lu.

### WEDNESDAY MORNING, MARCH 1

8:30 a.m.-12:00 noon

**BALLROOM WEST**

## **SYMPOSIUM: LUNG CANCER RISK OF EXPOSURE TO RADON**

Sponsored by the SOT Inhalation Specialty Section

**Chairperson:** R F Henderson, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM

**Introduction.** Rogene F. Henderson, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.

**Exposure to Radon.** Anthony V. Nero, University of California, Berkeley, CA.

**Radon Dosimetry.** Bruce Stuart, Arthur D. Little, Inc., Boston, MA.

**Health Effects of Radon Exposure in Laboratory Animals.** Charles H. Hobbs, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.

**Epidemiology and Risk Assessment.** Jonathan Samet, University of New Mexico School of Medicine, Albuquerque, NM.

### WEDNESDAY MORNING, MARCH 1

8:30 a.m.-12:00 noon

**BALLROOM A**

## **SYMPOSIUM: EARLY EMBRYO LOSS AS A FACTOR IN REPRODUCTIVE FAILURE**

Sponsored by the SOT Reproductive and Developmental Toxicology Specialty Section

**Chairperson:** H Zenick, U.S. E.P.A., Washington, DC

**Introduction.** Harold Zenick, U.S. Environmental Protection Agency, Washington, DC.

**Embryo Development and Uterine Interaction in the Pre-Implantation Period.** S. K. Dey, University of Kansas Medical Center, Kansas City, KS.

**Genetic Mechanisms of Early Embryo Failure.** Peter Working, Genentech, Inc., San Francisco, CA.

**Toxicologic Mechanisms of Implantation Failure.** Audrey Cummings, U.S. Environmental Protection Agency, Research Triangle Park, NC.

**Detecting Early Pregnancy Loss in Humans.** Allen Wilcox, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

### WEDNESDAY MORNING, MARCH 1

8:30 a.m.-12:00 noon

**BALLROOM B**

## **SYMPOSIUM: GERONTOTOXICOLOGY: AGE-RELATED SUSCEPTIBILITIES TO TOXICITY**

**Chairpersons:** E Pfitzer, Hoffmann-La Roche, Inc., Nutley, NJ; L Birnbaum, NIEHS, Research Triangle Park, NC

**Introduction.** Emil A. Pfitzer, Hoffmann-La Roche, Inc., Nutley, NJ.

**The Role of Nutrition of Aging Processes.** Edward Masoro, University of Texas Health Sciences Center, San Antonio, TX.

**Changes in Immunocompetence with Age.** Marc Weksler, Cornell University Medical College, New York, NY.

**Carcinogenesis and Aging Processes.** Henry C. Pitot, University of Wisconsin Medical School, Madison, WI.

**Relation of Age to Neurotoxicological Susceptibility to Toxicants.** Peter Spencer, Albert Einstein College of Medicine, Bronx, NY.

**Metabolic and Physiological Alterations with Age that Increase Susceptibility to Toxicants.** Arlan Richardson, Illinois State University, Normal, IL.

**Model Systems for the Study of Gerontotoxicology.** George Martin, University of Washington, Seattle WA.

**Research Needs for Gerontotoxicology.** Linda Birnbaum, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

## WEDNESDAY MORNING, MARCH 1

8:30 a.m.-11:45 a.m.

### SALON C

## PLATFORM SESSION: GENETIC TOXICOLOGY/MUTAGENESIS

**Chairpersons:** C A McQueen, American Health Foundation, Valhalla, NY  
J I Goodman, Michigan State University, E. Lansing, MI

- #44 8:30 **MOLECULAR ANALYSIS OF 2-CYANOETHYLENE OXIDE-INDUCED MUTATIONS IN TK6 HUMAN LYMPHOBLASTOID CELLS.** L Recio, D Simpson, and T R Skopek. Chemical Industry Institute of Toxicology, Research Triangle Park, NC. Sponsor: W F Greenlee.
- #45 8:45 **FORMATION AND PERSISTENCE OF 7, $\alpha$ (2'-OXOETHYL)GUANINE AND N<sup>2</sup>,3-ETHENOGUANINE IN RAT TISSUE DNA AFTER VINYL CHLORIDE EXPOSURE.** N Fedtke, J A Boucheron, M J Turner and J A Swenberg. CIIT, Research Triangle Park, NC.
- #46 9:00 **EVALUATION OF THREE POTENTIAL MECHANISMS FOR THE INDUCTION OF CHROMOSOME ABERRATIONS BY BROPIRIMINE (U-54,461).** W J Donarski, R G Ulrich, S Aaron, A Thilagar\*, V Kumaroo\* and T W Petry. The Upjohn Company, Kalamazoo, MI and Sitek Res. Labs. Rockville, MD.
- #47 9:15 **DETERMINATION OF DNA DAMAGE MECHANISMS *IN VITRO* BY THE USE OF RAPID GEL ASSAYS.** W B Mattes, W Gunther and D W Matheson. CEIBA-GEIGY, Farmington, CT. Sponsor: D R Saunders.
- #48 9:30 **EFFECT OF NALIDIXIC ACID ON DNA REPAIR IN RAT HEPATOCYTES.** C A McQueen, R R Rosado and G M Williams. American Health Foundation, Valhalla, NY.
- #49 9:45 ***IN VITRO* TESTING USING THE SISTER CHROMATID EXCHANGE ASSAY: CORRELATION WITH *IN VITRO* CHROMOSOMAL ABERRATION ASSAY AND SALMONELLA ASSAY.** K S Loveday, Arthur D. Little, Inc. Acorn Park, Cambridge, MA. Sponsor: A Sivak.
- #50 10:00 **METHYLENE BLUE-LIGHT MEDIATED DAMAGE TO PLASMID DNA AND VIRAL RNA PARTICLES.** J E Schneier, X Zhu, S Price, and R A Floyd. Oklahoma Medical Research Foundation, Molecular Toxicology Research Group, Oklahoma City, OK.
- #51 10:15 **METHYLENE BLUE PLUS LIGHT CAUSES FORMATION OF 8-HYDROXY-2'-DEOXYGUANOSINE FORMATION IN DNA AND 8-HYDROXY-GUANOSINE FORMATION IN RNA.** R A Floyd, M S West, K Eneff, J E Schneider, and X Zhu. Oklahoma Medical Research Foundation, Molecular Toxicology Research Group, Oklahoma City, OK.
- #52 10:30 **OXIDATION DNA DAMAGE IN LIVERS OF SPRAGUE-DAWLEY RATS TREATED WITH 2-NITROPROPANE.** C C Conaway, E S Fiala, and J E Mathis. American Health Foundation, Valhalla, NY.
- #53 10:45 **INDUCTION OF MICRONUCLEI AND ANEUPLOIDY IN HUMAN LYMPHOCYTES BY HYDROQUINONE AND 1, 4-BENZOQUINONE.** J W Yager, D A Eastmond\*, M L Robertson, W M Paradisin, & M T Smith. School of Public Health, University of California, Berkeley, CA and \*Biomedical Sciences Division, Lawrence Livermore National Lab., Livermore, CA.
- #54 11:00 **PROSTAGLANDIN HYDROPEROXIDASE-DEPENDENT ACTIVATION OF HETEROCYCLIC AROMATIC AMINES.** T W Petry, P D Josephy\*, D Pagano, K T Knecht and T E Eling. NIH/NIEHS, Research Triangle Park, NC and \*Univ. Guelph, Guelph, Ontario, Canada.
- #55 11:15 **MUTAGENICITY AND TOXICITY OF SYNTHETIC OLIGONUCLEOTIDES IN CELL CULTURE.** P L Iversen<sup>1</sup>, G Zon<sup>2</sup>, and T Lawson<sup>1</sup>. University of Nebraska Medical Center and Eppley Institute<sup>1</sup> Omaha, NE and Applied Biosystems, Foster City, CA<sup>2</sup>.
- #56 11:30 **COMPARISON OF PRIMARY RAT HEPATOCYTES AND S9 AS ACTIVATION SYSTEMS IN THE AMES ASSAY FOR MUTAGENIC CARCINOGEN-NONCARCINOGEN PAIR-2,4 AND 2,6-DIAMINOTOLUENE.** M L Cunningham, R Langenbach and H B Matthews. Systemic Toxicology and Cellular and Genetic Toxicology Branches, NIH/NIEHS, Research Triangle Park, NC.

## WEDNESDAY MORNING, MARCH 1

8:30 a.m.-11:45 a.m.

### SALON D

## PLATFORM SESSION: IMMUNOTOXICOLOGY

**Chairpersons:** R Pfeifer, Purdue University, W. Lafayette, IN  
K Rodgers, University of Southern California, Los Angeles, CA

- #57 8:30 **MODULATION OF CHEMICALLY-INDUCED HEPATOTOXICITY BY ALTERING LIVER MACROPHAGE FUNCTION.** D L Laskin, A J Wasserman, C R Gardner. Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.
- #58 8:45 **DELTA-9-TETRAHYDROCANNABINOL INHIBITS MACROPHAGE PROTEIN EXPRESSION ELICITED BY IMMUNOMODULATORS.** G A Cabral\*, F Strodbeck, and L Pringle. Department of Microbiology and Immunology, Virginia Commonwealth University, Richmond, VA. Sponsor: S G Bradley
- #59 9:00 **ALTERATION OF ENDOTOXIN SENSITIVITY BY T-2 TOXIN.** M J Taylor and C Frayssinet. CNRS, Institut de Recherches Scientifiques sur le Cancer, Villejuif, France and NIH, NIEHS, NTP, Research Triangle Park, NC. Sponsor: M I Luster.
- #60 9:15 **IMMUNOTOXIC EFFECTS OF A DRINKING WATER CHEMICAL MIXTURE IN MICE.** D R Germolec, R S H Yang, M F Ackermann, G J Rosenthal and M I Luster. DTRT, NTP, NIEHS, Research Triangle Park, NC.
- #61 9:30 **DETECTION OF EFFECTS OF TBTO, HCB, AND O<sub>3</sub> ON NATURAL KILLER (NK) ACTIVITY IN THE RAT LUNG.** H Van Loveren, F A Blommaert, E I Krajnc, P J A Rombout, and J G Vos, National Institute of Public Health and Environmental Protection, Bilthoven, The Netherlands.
- #62 9:45 **IMMUNOLOGIC, HEMATOLOGIC, AND ENDOCRINE RESPONSES TO SUBCHRONIC GRADED LEVELS OF NITROUS OXIDE IN CD-1-MICE.** C E Healy, D B Drown, and R P Sharma. Toxicology Program, Utah State University, Logan, UT.
- #63 10:00 **MODULATION OF MACROPHAGE FUNCTION BY *IN VIVO* TREATMENT WITH MALATHION.** K E Rodgers, D D Ellefson. Livingston Research Center University of Southern California, Los Angeles, CA.
- #64 10:15 **DIFFERENTIAL ROLE OF COMPLEMENT ACTIVATION IN LUNG PARTICLE-INDUCED INFLAMMATORY RESPONSES.** D B Warheit and M A Hartsky. Du Pont-Haskell Lab., Newark, DE.
- #65 10:30 **MODULATION OF NATURAL KILLER ACTIVITY BY 12-O-TETRADECANOYLPHORBOL-13-ACETATE IN PHORBOLESTER-SENSITIVE (SENCAR) AND RESISTANT (B6C3F1) MICE.** R W Pfeifer, L W Updyke, A Chuthaputti, H L Yoon, and G K W Yim. Dept. of Pharmacol. and Toxicol., Sch. of Pharmacy and Pharmacol. Sci., Purdue Univ., West Lafayette, IN.
- #66 10:45 **DECREASED RESISTANCE TO LISTERIA MONOCYTOGENES IN MICE FOLLOWING VANADIUM EXPOSURE: EFFECTS UPON THE FUNCTION OF MACROPHAGES.** C I Wei and M D Cohen. Dept. Food Science & Human Nutrition, Univ. of Florida, Gainesville, FL and Inst. Environ. Med., New York Univ. Med. Center, Tuxedo, NY. Sponsor: C McGowan.

- #67 11:00 **EFFECT OF FUSARIN C ON PROLIFERATION OF INTERLEUKIN 2 (IL-2) DEPENDENT CELL LINE AND ANTIGEN SPECIFIC T CELL HYBRIDOMAS.** D Marijanovic, P Holt, W P Norred, \*M Mercep, C W Bacon and R T Riley. USDA/ARS, Athens, GA and \*Immunology Branch, NIH, Bethesda, MD.
- #68 11:15 **CYTOMEGALOVIRUS-COMPLEMENTARY HOST RESISTANCE MODELS FOR IMMUNOTOXICITY TESTING IN MICE AND RATS.** M J K Selgrade, D M Starnes, and M J Daniels, Inhalation Toxicology Division, HERL, US EPA, RTP, NC.
- #69 11:30 **INDUCTION OF SERUM COLONY STIMULATING ACTIVITY (CSA) FOLLOWING DIMETHYLNITROSAMINE (DMN) EXPOSURE.** J F Lockwood, M J Myers, and B Schook, Lab of Molecular Immunology, Dept. of Animal Sciences, Univ. of Illinois, Urbana, IL.

**WEDNESDAY MORNING, MARCH 1  
CLAYTON ROOM**

**POSTER/DISCUSSION SESSION: INFLAMMATORY CELLS IN LUNG DISEASE**

**Chairpersons:** R F Henderson, Osterville, MA  
K E Driscoll, Procter & Gamble, Cincinnati, OH

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Discussion: 10:00 a.m.-11:30 a.m.**

- #206 **OZONE-INDUCED EFFECTS ON LUNG ARACHIDONIC ACID METABOLISM AND MACROPHAGE FUNCTION.** J T Zelikoff, A Gunnison and R B Schlesinger, NYU Medical Center, NY, NY.
- #207 **EFFECTS OF SIDESTREAM CIGARETTE SMOKE ON MACROPHAGE PHAGOCYTOSIS AND LUNG ARACHIDONIC ACID METABOLISM.** A Gunnison, I Finkelstein, W Y Su and R Schlesinger, NYU Medical Center, NY, NY.
- #208 **MODULATION OF PULMONARY EICOSANOID BIOSYNTHESIS BY SULFURIC ACID AEROSOL.** R B Schlesinger and J T Zelikoff, NYU Medical Center, New York, NY.
- #209 **EICOSANOID PRODUCTION BY HUMAN AND RABBIT NEUTROPHILS AFTER IN VITRO OZONE EXPOSURE.** P Weideman, J T Zelikoff and R B Schlesinger, NYU Medical Center, New York, NY.
- #210 **ALTERATIONS OF EICOSANOID BIOSYNTHESIS BY ALVEOLAR MACROPHAGES EXPOSED TO NITROGEN DIOXIDE.** T W Robison and H J Forman, Dept. of Pediatrics and Inst. for Toxicology, Childrens Hospital of L.A., USC School of Medicine, Los Angeles, CA.
- #211 **ALVEOLAR MACROPHAGE (AM) ACTIVATION AFTER IN VITRO EXPOSURE TO FIBROGENIC AND NONFIBROGENIC AGENTS.** K E Driscoll, J M Higgins, J I Poynter, and L L Crosby. Procter & Gamble Co, Cincinnati, OH.
- #212 **RAT STRAIN DIFFERENCES IN THE FIBROGENIC RESPONSE TO SILICA.** R C Lindenschmidt, K E Driscoll, J K Maurer, M A Perkins, and J M Higgins. Procter & Gamble, Cincinnati, OH.
- #213 **LUCIGENIN CHEMILUMINESCENCE (CL) BY ALVEOLAR MACROPHAGES (AMs) AND ITS RELATIONSHIP TO MITOCHONDRIAL RESPIRATION.** R L Esterline and M A Trush, Division of Toxicological Sciences, Johns Hopkins Univ., Baltimore MD.
- #214 **BLEOMYCIN-INDUCED ALTERATIONS IN THE LUNG'S SUBPOPULATIONS OF LEUKOCYTES.** Y E Valdez, L A Dethloff, and B E Lehnert, Los Alamos National Laboratory, Los Alamos, NM.
- #215 **CHARACTERIZATION OF A NEUTROPHIL CHEMOTACTIC FACTOR IN THE LUNG GENERATED BY EXPOSURE OF RATS TO CADMIUM CHLORIDE.** S H Gavett, G Oberdorster and J N Finkelstein, University of Rochester Environmental Health Sciences Center, Rochester, NY.
- #216 **PLEURAL CAVITY CELL POPULATION: EFFECT OF INHALED MAN-MADE MINERAL FIBRES (MMMF).** F Lawrence, A Brammall\*, A R Riley and K Miller, BIBRA, Carshalton, Surrey, SM5 4DS, UK, \*MRC Carshalton. Sponsor: S D Gangolli.
- #217 **CHANGES IN PULMONARY CYTOLOGY FOLLOWING EXPOSURE TO GALLIUM ARSENIDE (AaAs) AND SILICA.** M H Rosner and D E Carter, College of Pharmacy, University of Arizona, Tucson, AZ.

**WEDNESDAY MORNING, MARCH 1  
GWINNETT ROOM**

**POSTER/DISCUSSION SESSION: MECHANISMS OF METAL TRANSPORT AND DISPOSITION**

**Chairpersons:** J M Frazier, Johns Hopkins University, Baltimore, MD  
E Foulkes, University of Cincinnati, Cincinnati, OH

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Discussion: 10:00 a.m.-11:30 a.m.**

- #218 **BIOAVAILABILITY OF CHROMIUM FROM SEVERAL SOURCES.** C M Witmer, L Jowa, R Brown, R Harris and S I Shupack. Joint Graduate Program in Toxicology, Rutgers University/Robert Wood Johnson Medical School, New Jersey DEP and Villanova University.
- #219 **MANGANESE TOXICITY AND MITOCHONDRIAL ION TRANSPORT: A CONNECTION?** C E Gavin, K K Gunter, T E Gunter. U. Rochester, NY. Sponsor: Victor Laties.
- #220 **DISPOSITION IN RATS AND DISSOLUTION PROFILE OF COBALT NAPHTHENATE.** J M Firriolo and D E Carter, Dept. Pharm/Tox, Univ. of Arizona, Tucson, AZ.
- #221 **A PHYSIOLOGICALLY-BASED TOXICOKINETIC MODEL FOR INCORPORATION OF LEAD INTO THE GROWING RAT SKELETON.** E J O'Flaherty, Department of Environmental Health, University of Cincinnati, Cincinnati, OH.
- #222 **COMPARISON OF THE PLACENTAL TRANSFER OF ORGANIC MERCURY (O-HG), INORGANIC MERCURY (I-HG), CADMIUM (CD) AND LEAD (PB) IN HEALTHY PREGNANT WOMEN.** A Nakano and T Kurosu, National Institute for Minamata Disease, Minamata, Japan. Sponsor: N Imura.
- #223 **THE KINETICS OF CADMIUM UPTAKE BY HEPATIC SINUSOIDAL PLASMA MEMBRANE VESICLES.** H B Eastman and J M Frazier, The Johns Hopkins University, Baltimore, MD.
- #224 **ROLE OF METALLOTHIONEIN (MT) IN BILIARY METAL EXCRETION.** S Jaw and E H Jeffery, University of Illinois, Urbana, IL.
- #225 **HEPATIC CADMIUM ACCUMULATION IS ELEVATED BY ESTRADIOL.** M E Blazka and Z A Shaikh, University of Rhode Island, Kingston, RI.

- #226 **THE EFFECT OF TESTOSTERONE ON THE DISTRIBUTION OF CADMIUM TO THE RAT PROSTATE.** S W Rhodes, Z Z Wahba, R M Bare, D E Devor, and M P Waalkes. NCI-FCRF, Frederick, MD.
- #227 **RENAL Cd UPTAKE FROM BLOOD IN RABBITS.** E C Foulkes and S Blanck. Depts. Env. Health & Physiol.-Biophys., Univ. of Cincinnati Coll. of Med., Cincinnati, OH.
- #228 **EARLY TIME-DEPENDENT CHANGES IN THE TISSUE DISTRIBUTION OF CADMIUM AFTER ORAL BUT NOT INTRAVENOUS EXPOSURE.** M M Jonah and M H Bhattacharyya. Argonne National Laboratory, Argonne, IL.

**WEDNESDAY MORNING, MARCH 1  
DOUGLAS ROOM**

**POSTER/DISCUSSION SESSION: HEPATOTOXICITY OF HALOGENATED  
HYDROCARBON MIXTURES**

**Chairpersons:** G L Plaa, University of Montreal, Montreal, CN  
J E Klaunig, Medical College of Ohio, Toledo, OH

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Discussion: 10:00 a.m.-11:30 a.m.**

- #229 **A CC14-CHC13 INTERACTION STUDY IN ISOLATED HEPATOCYTES — THE ROLE OF P-450 METABOLISM.** J F Borzelleca, T M O'Hara, C Gennings, and L Condie. Medical College of Virginia, Richmond, VA and U.S. E.P.A., Cincinnati, OH.
- #230 **STUDIES ON THE MECHANISM OF TRICHLOROETHYLENE POTENTIATION OF CARBON TETRACHLORIDE HEPATOTOXICITY.** N H Stacey, and V Kefalas. National Institute of Occupational Health and Safety, The University of Sydney, NSW, Australia.
- #231 **IN VITRO CYTOTOXICITY OF COMPLEX WASTE MIXTURES IN CULTURED HEPATOCYTES.** D L McKean, D M DeMarini\* and B A Merrick. USEPA, HERL, Cincinnati, OH and Research Triangle Park, NC\*.
- #232 **ENHANCEMENT OF CARBON TETRACHLORIDE (CC14) HEPATOTOXICITY BY PRIOR EXPOSURE TO A MIXTURE OF 25 GROUNDWATER CONTAMINANTS.** J E Simmons<sup>1</sup>, R S H Yang<sup>2</sup>, J C Seeley<sup>3</sup>, D Svendsgaard<sup>1</sup> and A McDonald<sup>4</sup>. <sup>1</sup>HERL/US EPA, <sup>2</sup>NIEHS/NTP, <sup>3</sup>PATHCO, <sup>4</sup>NSI, Research Triangle Park, NC.
- #233 **TOXIC INTERACTIONS BETWEEN CARBON TETRACHLORIDE (CC14) AND CHLOROFORM (CHC13).** R G Lamb, C Gennings, J F Borzelleca and L W Condie. Depts of Pharmacology/Toxicology and Biostatistics, MCV, Richmond, VA, and \*USEPA, Cincinnati, OH.
- #234 **POTENTIATION OF CARBON TETRACHLORIDE HEPATOTOXICITY AND LETHALITY BY VARIOUS ALCOHOLS.** S D Ray and H M Mehendale. Dept of Pharmacology and Toxicology, Univ of Mississippi Medical Center, Jackson MS.
- #235 **A CCL4/CHCL3 INTERACTION STUDY IN ISOLATED HEPATOCYTES — SELECTION OF A VEHICLE.** T M O'Hara, J F Borzelleca, and L Condie. Medical College of Virginia, Richmond, VA and U.S. E.P.A., Cincinnati, OH.
- #236 **POTENTIATION OF CC14 HEPATOTOXICITY AND LETHALITY BY KETONES.** M P S Poria, P R S Kodavanti, and H M Mehendale. Department of Pharmacology and Toxicology, University of Mississippi Medical Center, Jackson, MS.
- #237 **PHENTOLAMINE ANTAGONISM OF IODOBENZENE HEPATOTOXICITY IN B6C3F1 MICE.** M A Smith, J Gandy, S M Roberts, R C James, and R D Harbison. Division of Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR and Center for Environmental Toxicology, University of Florida, Gainesville, FL.
- #238 **HEPATOTOXIC INTERACTIONS BETWEEN CHLOROETHYLENE ISOMERS (CI) AND CARBON TETRACHLORIDE (CT) MIXTURES IN RATS.** B A Merrick, C L Smallwood and L W Condie. USEPA, HERL, Cincinnati, OH.

**WEDNESDAY MORNING, MARCH 1  
GALLERIA**

**POSTER SESSION: NEUROTOXICOLOGY: CHEMISTRY, PHYSIOLOGY AND  
PATHOLOGY**

**Chairperson:** D C Rice, Health and Welfare Canada, Ottawa, Ontario, CN

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Attended: 8:30 a.m.-10:00 a.m.**

- #582 **EVIDENCE FOR A LACK OF SELECTIVE VULNERABILITY OF LARGE DIAMETER AFFERENTS TO 2,5 HEXANEDIONE (HD).** T D deRojas and B D Goldstein. Dept. of Pharmacol. & Toxicol., Medical College of Ga., Augusta, GA.
- #583 **EXTENSIVE PROXIMAL DEGENERATIVE CHANGES IN SENSORY NEURONS PRODUCED BY ACRYLAMIDE ADMINISTRATION TO NEONATAL RATS.** S F Matheson and B G Gold. Joint Graduate Program in Toxicology, Rutgers Univ./UMDNJ-R W Johnson Medical School, Piscataway, NJ.
- #584 **NON-SELECTIVE EFFECTS OF ACRYLAMIDE (ACR) ON RETROGRADE HRP TRANSPORT IN SLOW AND FAST MOTONEURONS.** D W Sickles, and B D Goldstein. Medical College of Georgia, August, GA.
- #585 **COVALENT BINDING OF ACRYLAMIDE TO PROTEINS IN THE MOUSE CENTRAL NERVOUS SYSTEM *IN VIVO*.** D M Lapadula, C D Carrington, L Dulak, M Friedman and M B Abou-Donia. Duke Univ. Med Cntr., Durham, NC and American Cyanamid Co., Wayne, NJ.
- #586 **COMPARISON OF SUBCHRONIC NEUROTOXICITY OF 2-HYDROXYETHYL ACRYLATE (2HEA) AND ACRYLAMIDE (ACR) IN RATS.** V C Moser<sup>1</sup>, P M Phillips<sup>1</sup>, D C Anthony<sup>2</sup>, W F Sette<sup>3</sup>, R C MacPhail<sup>4</sup>. <sup>1</sup>NSI Technology Services, RTP, NC, <sup>2</sup>DUMC, Durham, NC, <sup>3</sup>US EPA, Washington, DC & <sup>4</sup>US EPA, RTP, NC.
- #587 **SENSITIVITY OF RAT BRAIN CALCIUM ATPase TO SCORPION AND SNAKE VENOMS.** B Venkaiah, C H Trotman, M Veerapalli and D Desaiiah. Dept Neurol, Univ Miss Med Ctr, and Dept of Chem, Jackson State Univ, Jackson, MS.
- #588 **HIPPOCAMPAL NECROSIS RESULTING FROM SUBCHRONIC ADMINISTRATION OF TRIS(2-CHLOROETHYL)PHOSPHATE (TCEP) IN RATS.** D Dixon, H B Matthews, D W Herr and H Tilson. National Institute of Environmental Health Sciences, Research Triangle Park, NC.
- #589 **COCAINE-INDUCED ALTERATIONS OF ELECTROMECHANICAL ACTIVITY IN HUMAN FETAL HEART *IN VITRO*.** I S Richards and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #590 **DIISOPROPYLFLUOROPHOSPHATE (DFP) TOLERANCE IS NOT MEDIATED BY UNCOUPLING OF THE GUANOSINE 3',5'-MONOPHOSPHATE RESPONSE.** L Davenport and S D Cohen. University of CT, Tox. Prog., Storrs, CT.



- #591 **MECHANISM OF ORGANOPHOSPHATE-AND CARBAMATE-INDUCED POTENTIATION AND DEPRESSION OF THE MONOSYNAPTIC REFLEX.** J E Warnick, S Das Gupta, K N Bass, and S B Deshpande. Dept of Pharmacol & Exp Ther, U of MD Sch of Med, Baltimore, MD.
- #592 **INHIBITION OF METHYL IODIDE NEUROTOXICITY IN VITRO BY THE ANTI-INFLAMMATORY AGENT BW755C.** C J Davenport and K T Morgan. CIIIT, Research Triangle Park, NC. Sponsor: E Gross-Bermudez.
- #593 **CHLORDANE ALTERS LIMBIC EVOKED POTENTIALS.** Z Hansan\*, D Woolley, K-S Dai, and L Drummer. University of California, Davis, CA and \*Jordan University of Science and Technology, Irbid.
- #594 **PYRETHROID INSECTICIDE MODULATION OF gamma-AMINOBTYRIC ACID-GATED CHLORIDE UPTAKE IN RAINBOW TROUT SYNAPTONEUROSOMES.** A J Eshleman and T F Murray. Toxicology Program, Oregon State Univ., Corvallis, OR. Sponsor: R E Larson.
- #595 **LYMPHOCYTE DOPAMINE RECEPTORS AS MARKERS OF CNS RECEPTORS: A PILOT STUDY IN STYRENE-EXPOSED WORKERS.** T Coccini, H Checkoway, L Manzo<sup>1</sup>, S M Rappaport<sup>2</sup> and L G Costa, Department of Environmental Health, SC-34, University of Washington, Seattle, WA,<sup>1</sup> Institute of Pharmacology, University of Pavia Medical School, Pavia (Italy) and <sup>2</sup> University of California School of Public Health, Berkeley, CA.
- #596 **EFFECTS OF LINDANE AND DENVALERATE ON GABA-ACTIVATED CHLORIDE CURRENTS IN CULTURED HIPPOCAMPAL NEURONS.** J Frey, M Dichter, and T Narahashi. Dept. of Pharmacol., Northwestern Univ. Med. Sch., Chicago, IL, and Dept. of Neurology, Univ. Pennsylvania, Philadelphia, PA.
- #597 **ACUTE AND SUBACUTE NEUROTOXICITY OF 1,3-DINITROBENZENE IN MALE FISCHER-344 RATS.** M A Philbert, C C Nolan, A W Brown. MRC Toxicology Laboratories, Woodmansterne Road, Carshalton, Surrey, UK. Sponsor: H E Lowndes.
- #598 **ETHANOL INHIBITS CYCLIC GUANOSINE MONOPHOSPHATE (cGMP) PRODUCTION IN PORCINE CHOROID PLEXUS.** M Kaufman, F Hirata and P Hartig. The Johns Hopkins School of Hygiene and Public Health. Baltimore, Md. Sponsor: Z Annu.
- #599 **THE SEPARATION AND IDENTIFICATION OF MUSCARINIC RECEPTOR SUBTYPES IN CALF CAUDATE FOR NEUROTOXICITY STUDIES.** L D Katz and J K Marquis. Boston University School of Medicine, Boston, MA.
- #600 **RAPID LOSS OF NAD(P)H: QUINONE REDUCTASE DURING OXIDATIVE STRESS: A POTENTIATING FACTOR IN CELL DEATH.** M J DeLong, Johns Hopkins School of Hygiene, Department of Environmental Health Science, Baltimore, MD. Sponsor: Z Annu.
- #601 **THE NOVEL NEUROPROTECTIVE ANTIOXIDANTS U-74006F AND U-74500A BLOCK NEUROFILAMENT PROTEIN DAMAGE BY OXYGEN RADICALS.** K L Horan, J M Braughler. The Upjohn Company, Kalamazoo, MI.
- #602 **ANTIOXIDANTS FAIL TO PROTECT AGAINST MPTP-INDUCED DOPAMINE DEPLETION IN MICE.** D Di Monte, M Galbo, N Hooper, M T Smith, L DeLanney, I Irwin, J W Langston. Institute for Medical Research, San Jose CA; University of California, Berkeley, CA.
- #603 **ELECTROPHYSIOLOGICAL ASSESSMENT OF THE NEUROTOXIC EFFECTS OF 2', 3' DIDEOXYCYTIDINE (ddC) IN CYNOMOLGUS MONKEYS.** J C Arezzo, H H Schaumburg, C E Schroeder, M S Litwak, A Davidovich. Albert Einstein Coll. of Med. Bx, NY, Hoffmann-LaRoche Inc. Nutley, NJ.

## WEDNESDAY MORNING, MARCH 1 GALLERIA

### POSTER SESSION: REACTIVE INTERMEDIATES

Chairperson: G L Kedderis, Merck Sharpe & Dohme Research Laboratory, Rahway, NJ

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 10:00 a.m.-11:30 a.m.

- #604 **ADDUCT FORMATION BY BENZENE OR BENZENE METABOLITES.** C C Hedli, C M Witmer and R Snyder. Joint Graduate Program in Toxicology, Rutgers University/Robert Wood Johnson Medical School, Piscataway, NJ.
- #605 **ADDUCT FORMATION BY BENZOQUINONE AND DEOXYCYTIDINE: A Computer Model and Simulation.** R L Guy and R Snyder. Joint Graduate Program in Toxicology, Rutgers University/UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.
- #606 **ADDUCT FORMATION RESULTING FROM THE REACTION OF 2'DEOXYGUANOSINE-3'-MONOPHOSPHATE AND 1,4-BENZENEDIOL.** H Bauer and R Snyder. Joint Graduate Program in Toxicology, Rutgers University and UMDNJ/Robert Wood Johnson Medical School, Piscataway, NJ.
- #607 **PROSTAGLANDIN H SYNTHASE-CATALYZED OXIDATION OF HYDROQUINONE TO A REACTIVE DNA BINDING METABOLITE.** M J Schlosser, R D Shurina, and G F Kalif. Department of Biochemistry and Molecular Biology Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA.
- #608 **ALKYLATION PREFERENCES OF S-(2-CHLOROETHYL)-GLUTATHIONE AND S-(2-CHLOROETHYL) CYSTEINE TOWARD SPECIFIC SITES WITHIN MODEL DIPEPTIDES AND NUCLEIC ACIDS.** P A Jean and D J Reed. Department of Biochemistry and Biophysics, Oregon State University, Corvallis, OR.
- #609 **THE ROLE OF AN EPISULFONIUM-RING CYSTEINE CONJUGATE IN 1,2-DICHLOROETHANE (DCE)-INDUCED TOXICITY.** K Tulip, D H Marchand, and D J Reed. Oregon State University, Corvallis, OR.
- #610 **SPECIES DIFFERENCES IN RENAL <sup>99</sup>GLUTAMYL TRANSEPTIDASE ACTIVITY AND SUSCEPTIBILITY TO 2-BROMOHYDROQUINONE MEDIATED NEPHROTOXICITY.** S S Lau, B A Hill, R Pinon and T J Monks. Div. of Pharm., The Univ. of Texas at Austin, TX and the Univ. of Texas M.D. Anderson Cancer Center, Science Park-Research Division, Smithville, TX.
- #611 **EFFECTS OF SULFUR-CONTAINING ANALOGS OF 2,4,5,6-TETRACHLOROISOPHTHALONITRILE ON HEPATIC AND RENAL MITOCHONDRIA.** M C Savides, J P Marciszyn, J C Killeen, Jr., G L Eilrich\*, Ricerca, Inc., Toxicology and Animal Metabolism, Painseville, OH. \*Fermenta Plant Protection Company, Mentor, OH.
- #612 **EFFECT OF GLUCOCORTICOID ON MICROCYSTIN INDUCED RELEASE OF ARACHIDONIC ACID METABOLITES IN RAT HEPATOCYTES.** S M Naseem and H B Hines. USAMRIID, Pathophysiology Division, Fort Detrick, Frederick, MD. Sponsor: R W Wannemacher.
- #613 **URINARY DIASTEREOMERIC MERCAPTURIC ACIDS (MAs) AS INDICATORS OF NAPHTHALENE EPOXIDATION.** M Buonarati and A Buckpitt. Veterinary Pharmacology and Toxicology, UC Davis, Davis, CA.
- #614 **THE NEUROTOXICANT ACRYLAMIDE IS METABOLIZED TO GLYCIDAMIDE -A REACTIVE EPOXIDE INTERMEDIATE.** C J Calleman and L G Costa. Dept. of Environmental Health, University of Washington, Seattle, WA.
- #615 **PEROXIDASE-CATALYZED OXIDATION OF EUGENOL: FORMATION OF A CYTOTOXIC METABOLITES(S).** D C Thompson, K Norbeck, L-I Olsson<sup>1</sup>, D Constantin-Teodosiu, J Van der Zee<sup>2</sup> and P Moldeus. Dept. of Toxicology, Karolinska Institutet, Stockholm, Sweden, Pharmacia Health Care<sup>1</sup>, Uppsala, Sweden, and NIEHS<sup>2</sup>, Research Triangle Park, NC. Sponsor: G Fouerman.

- #616 **DEUTERATED 3-METHYLINDOLE IS LESS GENOTOXIC THAN 3-METHYLINDOLE.** H Y Kim, J R Hincks, J M Huie, G G Yost\* and R A Coulombe, Jr. Toxicology Program, Dept. Vet. Sci., Utah State University, Logan, UT, and \* Dept. of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.
- #617 **BIOACTIVATION OF 3-METHYLINDOLE(3MI) BY ISOLATED RABBIT LUNG CELLS.** W K Nichols, D N Larson, and G S Yost, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.
- #618 **ISOLATION AND IDENTIFICATION OF THE MURINE 3-METHYLINDOLE URINARY METABOLITE 3-HYDROXY-3-METHYLOXINDOLE.** G L Skiles and G S Yost, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.
- #619 **THE RELATIONSHIP BETWEEN OXYGEN RADICALS AND THROMBOXANE (TxB<sub>2</sub>) RELEASE IN ISOLATED LUNGS PERFUSED WITH PHORBOL MYRISTATE ACETATE (PMA) AND NEUTROPHILS (PMN).** L C Deyo and R A Roth, Michigan State Univ., E. Lansing, MI.
- #620 **DOXORUBICIN-STIMULATED LIPID PEROXIDATION AND GENERATION OF MICROSOMAL ALDEHYDES.** K B Wallace. Dept. of Pharmacology, School of Medicine, University of Minnesota, Duluth, MN.
- #621 **MEMBRANE LIPID PEROXIDATION INDUCED BY LINOLEIC ACID HYDROPEROXIDE AND HEMATIN.** E H Kim and A Sevanian. Institute for Toxicology, University of Southern California, Los Angeles, CA.
- #622 **COMPARISON OF HYDROGEN PEROXIDE AND ORGANIC HYDROPEROXIDE EFFECTS ON PROTEOLYSIS IN HUMAN RED BLOOD CELLS.** R F Novak, M Runge-Morris, and A Mortensen. Institute of Chemical Toxicology, Wayne State University, Detroit, MI and Dept. Molecular Biology, Northwestern University Medical School, Chicago, IL.
- #623 **RADICAL-INDUCED INACTIVATION OF A Na(positive), K(positive)-ATPase AND PROTECTION BY VITAMIN E.** C E Thomas, and D J Reed. Oregon State University, Corvallis, OR.
- #624 **FACTORS INHIBITING LIPID PEROXIDATION IN LIVER AND MUSCLE OF RAT, MOUSE AND CHICKEN.** J P Kehrer and M E Murphy. Division of Pharmacology and Toxicology, College of Pharmacy, The University of Texas at Austin, Austin, TX.
- #625 **CHEMICALLY INDUCED HEPATIC VITAMIN E DEPLETION IN VIVO.** D J Reed. Oregon State University, Corvallis, OR.
- #626 **HYDROLYSIS AND REDUCTION OF A PEROXYTOCOPHERONE OXIDATION PRODUCT OF alpha-TOCOPHEROL (TH).** T A Kennedy and D C Liebler. Dept. of Pharmacol. & Toxicol., Univ. of Arizona, Tucson, AZ. Sponsor: I G Sipes.
- #627 **FORMATION OF PEROXYTOCOPHERONES FROM alpha-TOCOPHEROL (TH) IN LIPID BILAYERS.** D C Liebler and K L Kaysen, Dept. Pharmacol. & Toxicol., Univ. of Arizona, Tucson, AZ. Sponsor: I G Sipes.
- #628 **STRUCTURE-ACTIVITY RELATIONSHIPS (SAR) OF N-ALKOXYACETIC ACIDS ON RAT BLOOD *IN VITRO*.** B I Ghanavem, L T Burka, and H B Matthews. NIH/NIEHS, Research Triangle Park, NC.
- #629 **RULES OF MOLECULAR GEOMETRY FOR PREDICTING CARCINOGENIC ACTIVITY OF POLYNUCLEAR AROMATIC HYDROCARBONS (PAH).** J W Flesher, and S R Myers. Dept. of Pharmacology, Exp. Cancer Res. Lab., and Grad. Ctr. for Tox., Chandler Med. Ctr., Univ. of Kentucky, Lexington, KY.

## WEDNESDAY MORNING, MARCH 1

### GALLERIA

## POSTER SESSION: MOLECULAR/CELLULAR

**Chairperson:** H A Tilson, NIEHS, Research Triangle Park, NC

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 8:30 a.m.-10:00 a.m.

- #630 **EXPRESSION OF NADPH-CYTOCHROME P-450 REDUCTASE IN COS-1 CELLS AND ITS USE TO EVALUATE QUINONE TOXICITY.** R N Wixtrom and R W Estabrook. Department of Biochemistry, University of Texas Southwestern Medical Center, Dallas, TX. Sponsor: D J Qudiz.
- #631 **MITOCHONDRIAL EFFECTS OF PENTACHLOROBUTADIENYLGLUTATHIONE (PCBG) STUDIED WITH ISOLATED RATE RENAL EPITHELIAL CELLS (IREC).** C E Knoblock and T W Jones. Dept. of Path., Univ. of MD Sch. of Med., Balto., MD.
- #632 **ALLYLAMINE (AAM)-INDUCED PHENOTYPIC MODULATION OF AORTIC SMOOTH MUSCLE CELLS (SMC).** L R Cox and K Ramos. Philadelphia College of Pharmacy and Science, Philadelphia, PA and Texas Tech University Health Sciences Center, Lubbock, TX.
- #633 **ANTIDOTAL EFFECTS OF THE OPTICAL ISOMERS OF CYSTEINE AND N-ACETYLCYSTEINE ON ACUTE ACRYLONITRILE TOXICITY.** F W Benz, D E Nerland, C Babiuk, and W M Pierce. Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY and BP America, Inc., Cleveland, OH.
- #634 **CYTOSKELETAL INJURIES INDUCED BY HALOGENATED NITROBENZENE SENSITIZERS.** I N Chou, M F Leung and K Geoghegan-Barek. Boston University School of Medicine, Boston, MA.
- #635 **CYCLOSPORIN A PRODUCES A SELECTIVE REARRANGEMENT IN CYTOKERATIN INTERMEDIATE FILAMENTS IN PTK, CELL CULTURES.** L A Vernetti, A J Gandolfi, R B Nagle. Arizona Health Sciences Center, University of Arizona, Tucson, AZ.
- #636 **CYTOSKELETAL PERTURBATIONS INDUCED BY 1-CHLORO-2,4-DINITROBENZENE(CDNB): METABOLISM OF NON-PROTEIN THIOLS AND INHIBITION BY GLUTATHIONE MONOETHYL ESTER.** M F LEUNG and I N Chou. Boston University School of Medicine, Boston, MA.
- #637 **EFFECT OF MICROCYSTIN-LR ON CULTURED RAT ENDOTHELIAL CELLS.** R Solow, K Mereish, G W Anderson, Jr.\* and J Hewetson. Sponsor: R W Wannemacher, Jr. Pathophysiology Division and \*Disease Assessment Division, USAMRIID, Fort Detrick, Frederick, MD.
- #638 **EFFECT OF DOXORUBICIN (ADRIAMYCIN) ON CALCIUM UPTAKE BY PC/PE/CL (4:4:1) LIPOSOMES.** M B Kester and P M Sokolove. University Program in Toxicol and Dept Pharmacol & Exp Ther, Univ MD Med Sch, Baltimore, MD. Sponsor: B A Fowler.
- #639 **EFFECTS OF QUINOLONE ANTIBACTERIALS UPON PRO-TEOGLYCAN AND PROCOLLAGEN SYNTHESSES IN RAT LIMB BUD MICROMASS CULTURES.** D E Amacher, S J Schomaker, T D Gootz, and P R McGuirk. Drug Safety and Immunology & Infectious Diseases Departments, Pfizer Central Research, Groton, CT.
- #640 **THE EFFECT OF HYDROGEN PEROXIDE ON CYTOSOLIC Ca<sup>2+</sup>positive OF TRANSFORMED HUMAN BRONCHIAL EPITHELIAL CELLS AS MEASURED BY DIGITAL IMAGING FLUORESCENCE MICROSCOPY.** M W Smith, P C Phelps, R T Jones, B F Trump, and C C Harris. Dept. of Path., Univ. of MD Sch. of Med. and MIEMSS, Balto., MD, and Lab. of Human Carcinogenesis, NIH, Bethesda, MD. Sponsor: T W Jones.
- #641 **"MULTIPLE METABOLITE-MULTIPLE TARGET" HYPOTHESIS AS APPLIED TO BENZENE AND ACETAMINOPHEN TOXICITY.** S Ji. Dept. of Pharmacol. and Toxicology, Rutgers University, Piscataway, NJ.

- #642 **COMPARISON OF OXIDANT-DEPENDENT REACTIONS BY PMNS FROM HUMAN, RAT AND MOUSE: IMPLICATIONS FOR THE INVOLVEMENT OF PMNS IN TOXICOLOGICAL REACTIONS.** M A Trush, L E Twerdok and R L Esterline. Division of Toxicological Sciences, Johns Hopkins Univ. Baltimore, MD.
- #643 **REVERSIBLE OXIDATION OF THE THIOL OF GLYCERAL-DEHYDE 3-PHOSPHATE DEHYDROGENASE (GPD) IN HUMAN LUNG CARCINOMA CELLS (A549).** A E Brodie and D J Reed, Oregon State University, Corvallis, OR.
- #644 **THE ROLE OF OXIDATIVE STRESS IN THE ISOLATED RAT RENAL EPITHELIAL CELL TOXICITY OF MENADIONE AND ITS N-ACETYL-L-CYSTEINE CONJUGATE (MNAC).** P C Brown and T W Jones, University of Maryland Toxicology Program and Department of Pathology, University of Maryland School of Medicine, Baltimore, MD.
- #645 **STUDIES ON PHENELZINE-AND HYDRALAZINE-HbO<sub>2</sub> INTERACTION: CORRELATION WITH PROTEIN DAMAGE AND DEGRADATION.** M Runge-Morris and R F Novak, Dept. Molecular Biology, Northwestern Univ. Med. Sch., Chicago, IL and Institute of Chemical Toxicology, Wayne State University, Detroit, MI.
- #646 **ACTIVATION OF PROTEIN KINASE C (PKC) TO A HIGH V<sub>max</sub> FORM BY REDOX-CYCLING QUINONES.** S K Duddy, G E N Kass, and S Orrenius. Department of Toxicology, Karolinska Institute, Stockholm, Sweden. Sponsor: M T S Hsia.

## WEDNESDAY MORNING, MARCH 1 GALLERIA

### POSTER SESSION: DERMAL/OCULAR: TOXICITY AND ABSORPTION

Chairperson: K C Norbury, Ortho Pharmaceutical Corporation, Raritan, NJ

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 10:00 a.m.-11:30 a.m.

- #647 **EVALUATION OF THE DERMAL TOXICITY OF PARAFFINIC LUBE OILS.** G W Trimmer, J J Freeman, R N Infurna and R D Phillips, Exxon Biomedical Sciences, Inc., East Millstone, NJ.
- #648 **ABSORPTION AND EVAPORATION OF ETHYL ACRYLATE FOLLOWING DERMAL EXPOSURE.** H L Tomlinson, R H Donaldson, and C B Frederick, Rohm and Haas Co., Spring House, PA.
- #649 **METHYL ETHYL KETONE PEROXIDES (MEKP) TOXICITY IN F344 RATS AND B6C3F1 MICE FOLLOWING 13-WEEK DERMAL APPLICATION.** K M Abdo<sup>1</sup>, M R Elwell<sup>1</sup>, J C Peckham<sup>2</sup>, M R Moore<sup>3</sup>. <sup>1</sup>NIEHS/NTP, RTP, NC. <sup>2</sup>EPL, RTP, NC. <sup>3</sup>Hazleton Laboratories, Rockville, MD. Sponsor: R S Chhabra.
- #650 **COMPARATIVE ACUTE EFFECTS OF 5-ACETYLSALICYL-AMIDE (5-ASA) AND 5-BROMOACETYLSALICYLAMIDE (5-BrASA).** -D E Rodwell<sup>1</sup>, J C Siglin<sup>1</sup>, and C P Chengelis<sup>2</sup>. <sup>1</sup>Springborn Life Sciences, Inc., Spencerville, OH and <sup>2</sup>G. D. Searle & Co., Skokie, IL.
- #651 **DEVELOPMENT OF AN ANIMAL MODEL TO ASSESS THE EFFICACY OF HF DERMAL BURN THERAPY.** B J Dunn, G M Rusch, \*D J Naas, D J Billmaier, M A MacKinnon, Allied-Signal Inc., Ashland, OH.
- #652 **ALTERED EPIDERMAL MORPHOLOGY SECONDARY TO LIDOCAINE IONTOPHORESIS: *IN VITRO* AND *IN VIVO* STUDIES.** N A Monteiro-Riviere, College of Vet. Medicine and Toxicology Program, N.C. State Univ., Raleigh, NC.
- #653 **MULTIFOCAL RETINAL DYSPLASIA IN THE SYRIAN HAMSTER LAK:LVG(SYR).** D M Schiavo and V M Traina, CIBA-GEIGY Corporation, Pharma. Research Div., Dept. of Tox/Path, Summit, NJ.
- #654 ***IN VIVO* SKIN DECONTAMINATION OF 42% PCBs IN RHESUS MONKEY.** R C Wester, D A W Bucks, J McMaster, and H I Maibach, Dept. Dermatology, University of California, San Francisco, CA.
- #655 **STRUCTURE-RELATED DIFFERENCES IN THE METABOLIC FATE OF ANILINE DURING AZO COLOR METABOLISM IN SENCAR MOUSE SKIN.** S W Collier<sup>#</sup>, J E Storm, R L Bronaugh, <sup>#</sup> Division of Colors and Cosmetics, Division of Toxicology, Food & Drug Administration, Washington, DC.
- #656 ***IN VIVO* NUCLEAR MAGNETIC RESONANCE (NMR) AS A TOOL TO STUDY DERMAL ABSORPTION.** C D Carrington, C T Burt, and M B Abou-Donia, Duke Univ. Med. Cntr., Durham, NC and NIEHS, RTP, NC.
- #657 **DERMAL ABSORPTION OF FOLPET IN YOUNG AND ADULT RATS.** L L Hall, H L Fisher, M R Sumler<sup>\*</sup>, S P Shrivastava, and P V Shah. USEPA and \*NSI, RTP, NC.
- #658 **DERMAL ABSORPTION OF 1,2,3-TRICHLOROBENZENE IN THE RAT.** I Chu<sup>1</sup>, C A Franklin, A Viau and D Murdoch. Environmental Health Directorate, Ottawa, Ontario, Canada.
- #659 **SHORT TERM REVERSIBLE SKIN BARRIER DISRUPTION WITH SODIUM HYDROXIDE.** K P Wilhelm, H I Maibach, Dermatology Department, School of Medicine, University of California, San Francisco, CA.
- #660 **PERCUTANEOUS ABSORPTION IN THE NUDE RAT-HUMAN SKIN FLAP (NRHSF) AND THE SPRAGUE-DAWLEY RAT (SDR) MODELS.** W G Reifenrath and E S Bernardo, Letterman Army Institute of Research, Presidio of San Francisco, CA. Sponsor: S T Omaye.
- #661 **PARTITIONING OF CHEMICALS INTO STRATUM CORNEUM (SC).** C Surber, K P Wilhelm, D A W Bucks<sup>\*</sup>, H I Maibach, R H Guy<sup>\*</sup>. Depts. of Derm. and Pharmacy<sup>\*</sup> University of California, San Francisco, CA.
- #662 **DERMAL ABSORPTION OF DRINKING WATER CONTAMINANTS.** R R Vanderslice and E V Ohanian, US EPA, Office of Drinking Water, Washington, DC.
- #663 **STUDY OF LITHIUM ABSORPTION BY USERS OF SPAS TREATED WITH LITHIUM ION.** J D McCarty, S P Carter, M J Fletcher, M J Reape, and S Shindell. FMC Corporation, Princeton, NJ.

## WEDNESDAY MORNING, MARCH 1 GALLERIA

### POSTER SESSION: MECHANISMS OF HEPATOTOXICITY

Chairperson: E Jeffery, University of Illinois, Urbana, IL

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 8:30 a.m.-10:00 a.m.

- #664 **COMPARISONS OF K LEAKAGE AND INHIBITION OF PROTEIN SYNTHESIS AS INDICES OF ADVERSE CELLULAR RESPONSES TO CHEMICAL TOXINS.** J M Frazier and T M Vozar. The Johns Hopkins University, Baltimore, MD.

- #665 **T-2 MYCOTOXIN EFFECTS ON SWELLING AND RESPIRATION OF ISOLATED RAT LIVER MITOCHONDRIA.** G A Miura and J G Pace. USAMRIID, Pathophysiology Division, Fort Detrick, Frederick, MD. Sponsor: R W Wannemacher.
- #666 **OXMETIDINE INHIBITS MITOCHONDRIAL ELECTRON TRANSPORT AT SITE I.** G D Hoke, C K Mirabelli, and G F Rush. Smith Kline and French Laboratories, King of Prussia, PA.
- #667 **EFFECTS OF BIOTRANSFORMATION INDUCERS AND INHIBITORS ON CCl<sub>4</sub> TOXICITY IN RAT LIVER SLICES.** S Azri, A J Gandolfi, K Brendel. Dept Anesthesiology, University of Arizona, Tucson, AZ.
- #668 **ERYTHROMYCIN ESTOLATE (EE) STIMULATES THE RELEASE OF SUPEROXIDE (O<sub>2</sub><sup>-</sup>) FROM ACTIVATED RAT NEUTROPHILS (PMN<sub>s</sub>) *IN VITRO*.** J A Hewett and R A Roth. Mich. State Univ., E. Lansing, MI.
- #669 **ADMINISTRATION OF POLYETHYLENE GLYCOL (PEG) COUPLED-CATALASE (CAT) AND -SUPER-OXIDE DISMUTASE (SOD) TO RATS DOES NOT ALTER gamma-NAPHTHYLSIOTHIOCYANATE (ANIT)-INDUCED HEPATOTOXICITY.** L J Dahm and R A Roth. Michigan State Univ., E. Lansing, MI.
- #670 **THE ROLE OF A,B-UNSATURATED AMINO ACIDS IN THE TOXICITY OF MICROCYSTIN-LR AND NODULARIN, TWO HEPATOTOXINS FROM CYANOBACTERIA.** A M Dahlem<sup>1</sup>, V R Beasley<sup>1</sup>, K-I Harada<sup>2</sup>, K Matsuura<sup>2</sup>, M Suzuki<sup>2</sup>, C A Harvis<sup>3</sup>, K L Rinehart<sup>3</sup>, and W W Carmichael<sup>4</sup>. <sup>1</sup>Colleges of Veterinary Medicine and <sup>3</sup>Chemical Sciences, Univ. of Illinois, Urbana, IL; <sup>2</sup>Faculty of Pharmacy, Meijo University, Nagoya, Japan; <sup>4</sup>Dept. of Biological Sciences, Wright State University, Dayton, OH.
- #671 **DOSE AND TIME DEPENDENT EFFECTS OF THE HEPATOTOXIN MICROCYSTIN-LR IN MICE.** S J Hermansky, R S Markin, and S J Stohs. University of Nebraska Medical Center, Omaha, NE.
- #672 **ALTERATION OF NITROREDUCTASE, AZOREDUCTASE, B-GLUCURONIDASE, DECHLORINASE AND DEHYDROCHLORINASE ACTIVITY IN THE G.I. TRACT AFTER 2-AND 5-WEEKS OF LINDANE TREATMENT.** R W Chadwick<sup>1</sup>, J Chang<sup>2</sup>, L R Forehand<sup>3</sup>, J E Long<sup>2</sup>, M K Duffy<sup>2</sup> and P H Gilligan<sup>2</sup>. <sup>1</sup>USEPA, HERL, Res Tri Pk, NC; <sup>2</sup>UNC, Chapel Hill, NC; <sup>3</sup>EHRT, Res Tri Pk, NC.
- #673 ***IN VIVO* BILIRUBIN GLUCURONIDATION IS REGULATED BY UDP-GLUCURONOSYLTRANSFERASE AND NOT BY UDP-GLUCURONIC ACID.** D Y Mitchell and C D Klaassen. Univ. of Kansas Medical Center, Kansas City, KS.
- #674 **THE PERSISTENT EFFECT OF 1-CYANO-2-HYDROXY-3-BUTENE (CHB) ON PANCREATIC GLUTATHIONE (GSH) LEVELS.** M Wallig and E H Jeffery. University of Illinois, Urbana, IL.
- #675 **MORPHINE-INDUCED DEPRESSION OF HEPATIC GLUTATHIONE: RELATIONSHIP TO HYPOXIA, HYPOTHERMIA, TOLERANCE, AND GLUTATHIONE STATUS IN OTHER TISSUES.** N P Skoulis, R C James, R D Harbison and S M Roberts. University of Arkansas for Medical Sciences, Little Rock, AR and Center for Environmental Toxicology, University of Florida, Gainesville, FL.
- #676 **DIMINISHED GLUTATHIONE IN MICE SUBJECTED TO COLD-RESTRAINT STRESS.** H F Simmons, R C James, R D Harbison, and S M Roberts. University of Arkansas for Medical Sciences, Little Rock, AR and Center for Environmental Toxicology, University of Florida, Gainesville, FL.
- #677 **GLUTATHIONE DEPLETION AND POTENTIATION OF CARBON TETRACHLORIDE HEPATOTOXICITY BY SYMPATHOMIMETIC AMINES.** J F Seng, R C James, R D Harbison, and S M Roberts. University of Arkansas for Medical Sciences, Little Rock, AR and Center for Environmental Toxicology, University of Florida, Gainesville, FL.
- #678 **EFFECTS OF A HIGH CARBOHYDRATE DIET ON THE HEPATOTOXICITY OF ACETAMINOPHEN, BROMOBENZENE AND CARBON TETRACHLORIDE IN MALE AND FEMALE C3H MICE.** C S Boyer and D R Petersen. Molecular and Environmental Toxicology Program and School of Pharmacy, University of Colorado Health Sciences Center, Denver, CO.
- #679 **FAILURE OF PROSTAGLANDIN E<sub>2</sub> (OGE<sub>2</sub>) AND 16, 16-DIMETHYL PROSTAGLANDIN E<sub>2</sub> (DMPGE<sub>2</sub>) TO PROTECT AGAINST CCL<sub>4</sub>-INDUCED LIVER DAMAGE IN THE RAT.** M J Derelanko. Allied-Signal Inc. Dept. of Toxicology, Morristown, NJ.
- #680 **CCL<sub>4</sub>-INDUCED INHIBITION OF HEPATIC MICROSOMAL AND MITOCHONDRIAL CALCIUM SEQUESTRATION IN RATS PRE-TREATED WITH CHLORDEZONE.** P R S Kodavanti, and H M Mehendale. Department of Pharmacology and Toxicology, University of Mississippi Medical Center, Jackson, MS.
- #681 ***IN SITU* DETECTION OF TRIFLUOROACETYLATED ANTIGENS FOLLOWING *IN VIVO* EXPOSURE TO HALOTHANE, ENFLURANE, OR ISOFLURANE.** K L Hastings, S Schuman, A P Brown, A K Hubbard, and A J Gandolfi. University of Arizona, Tucson, AZ and University of Connecticut, Storrs, CT.
- #682 **MECHANISTIC STUDIES OF THE SYNERGISTIC HEPATOTOXICITY PRODUCED BY CARBON TETRACHLORIDE AND CHLOROFORM IN MALE F-344 RATS.** D.R. Steup, M. Tokars and I.G. Sipes. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.
- #683 **DIFFERENTIAL POTENCY OF THE ENANTIOMERS OF 2, 2', 3, 4, 6-HEXACHLOROBIPHENYL AS INDUCERS OF CYTOCHROME P-450 IN CHICK EMBRYO HEPATOCYTES.** L E Rodman, A Mannschreck<sup>1</sup>, M Puttmann, L W Robertson, A T Swim and S I Shedlofsky. Graduate Center for Toxicology, Univ. of Kentucky, Lexington, KY and <sup>1</sup>Univ. of Regensburg, Regensburg, FRG.
- #684 **THE ISOMERS OF DICHLOROBENZENE PRODUCE DIFFERENT HEPATOTOXIC EFFECTS.** J W Allis, E Berman, D E House, B L Robinson and J E Simmons. Health Effects Research Laboratory, U S Environmental Protection Agency, Research Triangle Park, NC.
- #685 **ULTRASTRUCTURAL CHANGES ASSOCIATED WITH 1-NITRO-NAPHTHALENE INDUCED HEPATOTOXICITY IN THE RAT.** C L Lehmann, D E Johnson<sup>a</sup>, L Beuving, Dept. Biol. Biomed. Sci., Western Michigan Univ., Kalamazoo, MI, <sup>a</sup>IRDC, Mattawan, MI.

## WEDNESDAY MORNING, MARCH 1 GALLERIA

### POSTER SESSION: RENAL TOXICOLOGY

Chairperson: C L Alden, Procter & Gamble Company, Cincinnati, OH

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 10:00 a.m.-11:30 a.m.

- #686 **IDENTIFICATION OF d-LIMONENE METABOLITES THAT BIND TO alpha<sub>2u</sub>-GLOBULIN (alpha<sub>2u</sub>).** L D Lehman-McKeeman, P A Rodriguez, R Takigiku, D Caudill, and M L Fey. Miami Valley Laboratories, Procter & Gamble Co., Cincinnati, OH.
- #687 **CHRONIC OCCUPATIONAL TOXICITY OF JP8.** C L Alden, T K Newell, and D R Mattie. Toxic Hazards Division, Wright Patterson AFB, OH.
- #688 **RENAL TOXICITY OF CARBON DISULFIDE (CS<sub>2</sub>) IN THREE STRAINS OF MICE.** R J Rubin and R B Kroll, Johns Hopkins University, Baltimore, MD.
- #689 **EFFECTS OF DICHLOROBENZENES ON FRESHLY ISOLATED RAT LIVER AND KIDNEY CELLS.** Y Ohno, Y Okamoto, K Hirota, M Sunouchi, A Takanaka. Division of Pharmacology, National Institute of Hygienic Sciences, Setagaya, Tokyo, Japan.

- #690 **ROLE OF GLUTATHIONE REDUCTASE (GSSG Rx) IN CEPHALORIDINE INDUCED GLUTATHIONE DEPLETION AND NEPHROTOXICITY.** J Nakada and R S Goldstein. Smith Kline and French Laboratories, Dept. of Invest. Toxicol., King of Prussia, PA.
- #691 **ONSET OF CEPHALORIDINE MEDIATED NEPHROTOXICITY IN NORMOGLYCEMIC AND STREPTOZOTOCIN (STZ) INDUCED DIABETIC RATS.** M A Valentovic, J G Ball and D A Bailly. Dept. Pharmacology, Marshall U. School of Med., Huntington, WV. Sponsor: G O Rankin.
- #692 **CEPHALORIDINE NEPHROTOXICITY; IN VIVO ALTERATIONS OF THE DRUG METABOLIZING ENZYME ACTIVITIES AND OF THE TRANSPORT SYSTEMS OF THE RAT RENAL BRUSH BORDER MEMBRANE.** C Cojocel, W Kramer, and D Mayer. Hoechst AG, Frankfurt am Main, Federal Republic of Germany.
- #693 **ROLE OF INTRACELLULAR REACTIVE OXYGEN SPECIES AND CALCIUM IN GENTAMICIN CYTOTOXICITY USING DICHLOROFUROSCEIN AND FURA-2 IN PRIMARY RENAL CORTICAL EPITHELIAL CULTURES.** J Swann and D Acosta, University of Texas, Austin, TX.
- #694 **PROTECTIVE EFFECT OF PYRIDOXAL-5'-PHOSPHATE AGAINST GENTAMICIN-INDUCED NEPHROTOXICITY IN RAT.** S Kacaw, Department of Pharmacology, Univ. of Ottawa, Ottawa, Ontario, Canada.
- #695 **ACUTE NEPHROTOXICITY OF FOSTRIECIN, A NOVEL ANTICANCER ANTIBIOTIC IN RATS.** R L Susick, K L Hawkins, AND D G Pegg. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #696 **EFFECT OF POLYASPARTIC ACID PRETREATMENT ON VANCOMYCIN-INDUCED NEPHROTOXICITY.** M.A. Smith, D.L. Kaplan and R. Hildebrandt. The University of New Mexico College of Pharmacy, Albuquerque, NM. Sponsor: G.B. Corcoran.
- #697 **CISPLATIN (CP) TOXICITY STUDIED WITH PRIMARY CULTURES OF RAT PROXIMAL TUBULAR CELLS (PTC).** J Y Lee, B F Trump, T W Jones. Department of Pathology, University of Maryland School of Medicine, and Maryland Institute for Emergency Medical Services Systems, Baltimore, MD.
- #698 **TISSUE DISPOSITION OF CISPLATIN (CDDP) IN NORMOTHERMIC AND HYPERTHERMIC DOGS.** R A Rogers, R L Page, D A Thrall, and J E Riviere. Col. Vet. Med. and Toxicology Program, N.C. State Univ., Raleigh, NC.
- #699 **EFFECTS OF COPPER OR BISMUTH PRELOADING OR DDTC RESCUE ON CISPLATIN NEPHROTOXICITY AND KIDNEY METAL CONCENTRATIONS.** R S DeWoskin and J E Riviere Toxicology Program, North Carolina State Univ., Raleigh, NC.
- #700 **EFFECTS OF THE ANGIOTENSIN CONVERTING ENZYME INHIBITOR QUINAPRIL ON RENAL STRUCTURE AND FUNCTION IN RATS.** M A Dominick, R L Susick, and J R MacDonald. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Harbor MI.
- #701 **EFFECTS OF QUINAPRIL ON RENAL FUNCTION AND HEMODYNAMICS IN ANESTHETIZED RATS.** L A Dethloff, M J Graziano, H E Griffin, Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #702 **DEACETYLATION OF ACETAMINOPHEN (APAP) TO PARA AMINOPHENOL (PAP) IS NOT REQUIRED FOR NEPHROTOXICITY IN THE CD-1 MOUSE.** S G Erneigh Hart, L L Meyers, W P Beierschmitt, D S Wyand, E A Khairallah and S D Cohen. University of Connecticut, Tox. Prog.: Depts. Pharmacol. & Toxicol., Mol. & Cell. Biol. and Pathobiol., Storrs, CT.
- #703 **SALICYLATE-INDUCED NEPHROTOXICITY IN MIDDLE-AGED RATS.** P A Glascott<sup>1</sup>, R S Goldstein<sup>2</sup> and J J Kocsis<sup>1</sup>. <sup>1</sup>Dept. of Pharmacology, Thomas Jefferson Univ., Philadelphia, Pa. <sup>2</sup>Dept. of Investigative Toxicology, Smith Kline & French Laboratories, King of Prussia, PA.
- #704 **HEPATIC AND RENAL DRUG METABOLIZING ENZYMES (DME) FOLLOWING CHRONIC DIETARY RESTRICTION IN RATS.** E Graichen, K Tyrrell, R Goldstein, and T Leonard. Smith Kline & French Labs, Swedeland, PA.
- #705 **THE EFFECTS OF DIETARY RESTRICTION ON LIFESPAN AND AGE-RELATED NEPHROPATHY IN SPRAGUE-DAWLEY (SD) AND FISCHER-344 (F344) RATS.** R S Goldstein, R S Sozio, D E Boram, H A Solleveld, B Short and J B Hook. Smith Kline & French Labs, Dept. of Invest. Toxicol. and Exper. Pathol., King of Prussia, PA.
- #706 **MATABOLIC DIFFERENCES BETWEEN CONVOLUTED (PCT) AND STRAIGHT (PST) RENAL PROXIMAL TUBULES (PT) PROTECT PST DURING HYPOXIA.** C E Ruegg and L J Mandel. Duke Univ. Med. Ctr. Durham, NC. Sponsor: D G Graham.
- #707 **LIVER AND KIDNEY INJURY IN SWINE AFTER ADMINISTRATION OF A CROSS-LINKED HEMOGLOBIN.** C D Smith, S T Schuschereba, P D Bowman, J R Hess. Letterman Army Institute of Research PSF, CA. Sponsor: N Elsayed.
- #708 **RENAL EFFECTS OF U-69,951F (LOBENZARIT): IN VIVO AND IN VITRO CHANGES IN CYNOMOLGUS MONKEY.** M O Manis, G A Elliott, K L Feenstra, D A VanderMeer, J K Schlicklin, G L Eifring, and R J Weaver. The Upjohn Co., Kalamazoo, MI.
- #709 **SUBCHRONIC ORAL AND DERMAL STUDIES OF 2-HYDROXY-4-METHOXYBENZOPHENONE (MOB) IN F344 RATS AND B6C3F1 MICE.** M E P Goad, L E Sendelbach, H J Esber, A Braun and J French<sup>1</sup>. <sup>1</sup>NIEHS/NTP, Research Triangle Park, NC and EG&G MasonResearch Institute, Worcester, MA.
- #710 **PRECLINICAL TOXICITY STUDIES OF AN ADENOSINE AGONIST, CI-926.** G E Macallum, R M Walker, N J Barsoum, G S Smith and P Greaves. Parke-Davis Res. Inst., Mississauga, ON. Sponsor: D Pegg.

## WEDNESDAY AFTERNOON, MARCH 1

12:00 noon-1:00 p.m.

**BALLROOM WEST**

### **SOT ISSUES SESSION**

Chaired by SOT President, James E Gibson

Bring your lunch and participate in an open forum discussion of SOT affairs.

## WEDNESDAY AFTERNOON, MARCH 1

1:30 p.m.-3:30 p.m.

**BALLROOM WEST**

### **GENERAL PLATFORM SESSION: FRONTIERS IN TOXICOLOGY**

**Chairpersons:** R O McClellan, CIIT, Research Triangle Park, NC

C D Klaassen, University of Kansas Medical Center, Kansas City, KS

- #70 1:30 **DESIGN OF ISOZYME-SPECIFIC CYTOCHROME P-450 INACTIVATORS.** J R Halpert, J-Y Jaw, C A Balfour, E A Mash, \*L S Kaminsky, and \*\*E F Johnson. University of Arizona, Tucson, AZ, \*New York State Department of Health, Albany, NY, and \*\*Scripps Clinic and Research Foundation, La Jolla, CA.

- #71 1:50 **TRANSFECTION OF DRUG METABOLIZING GENES AS A METHOD OF INCREASING THE METABOLIC CAPABILITY OF CELLS USED IN GENOTOXICITY ASSAYS.** R Langenbach, C Crespi, R Davies, K Rudo, and T Turner. Sponsor: J Bucher, NIEHS, RTP, NC.; Gentest, Woburn, MA.
- #72 2:10 **EXCRETION OF THE MERCAPTURIC ACID S-[2-(N<sup>7</sup>-GUANYL) ETHYL]-N-ACETYLCYSTEINE IN RAT URINE FOLLOWING ADMINISTRATION OF ETHYLENE DIBROMIDE.** D H Kim and F P Guengerich. Vanderbilt University, Nashville, TN.
- #73 2:30 **A PHYSIOLOGICALLY-BASED PHARMACODYNAMIC MODEL FOR INHIBITION OF ACETYLCHOLINESTERASE (AChE) BY DIISOPROPYLFLUOROPHOSPHATE (DFP).** J M Gearhart<sup>1</sup> G W Jepson<sup>2</sup>, H J Clewel<sup>2</sup>, M E Andersen<sup>2</sup>, R B Conolly<sup>1</sup>. NSI Technology Services Corp.<sup>1</sup>, AAMRL/TH WPAFB, OH<sup>2</sup>.
- #74 2:50 **LEAD (Pb) INCREASES MEMBRANE CLASS-II MHC (Ia) MOLECULE DENSITY ON MURINE B-LYMPHOCYTES.** M J McCabe and D A Lawrence. Dept. of Microbiology and Immunology, Albany Medical College, Albany, NY.
- #75 3:10 **SHARED CYTOSKELETAL FEATURES MAY EXPLAIN THE TISSUE SELECTIVITY OF COMBINED NERVOUS SYSTEM AND TESTICULAR TOXICANTS.** K Boekelheide, M D Neely. Brown University, Providence, RI.

## WEDNESDAY AFTERNOON, MARCH 1 GALLERIA

### POSTER SESSION: RISK ASSESSMENT

Chairperson: C R Clark, UNOCAL Corporation, Los Angeles, CA

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 1:30 p.m.-3:00 p.m.

- #711 **SUBCHRONIC TOXICITY OF BRUCINE AND STRYCHINE IN RATS.** H Choudhury, C DeRosa, S Irene, A Bathija, B Sonawane and R Rubenstein. U.S. EPA, Washington, DC.
- #712 **NERVE CONDUCTION VELOCITY AND LEAD: A CRITICAL REVIEW AND META-ANALYSIS.** D J Svendsgaard and J M Davis. U S Environmental Protection Agency, Research Triangle Park, NC. Sponsor: J A Graham.
- #713 **FACTORS INFLUENCING THE RISK ASSESSMENT OF ALUMINUM IN DRINKING WATER.** J Ormeand E V Ohanian. U.S. Environmental Protection Agency, Office of Drinking Water, Washington, DC.
- #714 **RISK ASSESSMENT FOR THE RECREATIONAL USE OF AN ARSENIC CONTAMINATED LAKE IN NEW JERSEY.** L Jowa and R Hazen, New Jersey Department of Environmental Protection (NJDEP), Trenton, NJ.
- #715 **TOXICOLOGY AND QUANTITATIVE RISK ASSESSMENT OF INHALATION EXPOSURE TO NICKEL AND NICKEL COMPOUNDS.** P Y Lu and R A Young. Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN.; W Ewald. Environmental Criteria and Assessment Office, U.S. Environmental Protection Agency, Research Triangle Park, NC.
- #716 **USE OF RISK ASSESSMENT IN THE STATISTICAL DESIGN OF A CARCINOGENICITY BIOASSAY OF ACRYLAMIDE.** V Frankos\*, L H Dulak\*, and M A Friedman\*. \*Environ Corp., Washington, DC, and \*American Cyanamid Co., Wayne, NJ.
- #717 **CARCINOGENIC RISK ASSESSMENTS OF DDT AND ITS CONGENERS.** C L Liao, J P Christopher and F Cavender. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA, and Dynamac Corporation, Rockville, MD.
- #718 **CARCINOGENIC RISK ASSESSMENT OF PENTACHLOROPHENOL.** J H Brantner and J J Wong. Cal. Dept. of Health Svcs., TSCD, Sacramento, CA. Sponsor: J P Christopher.
- #719 **PHENOL TOXICITY: ISSUES IN RISK ASSESSMENT.** R A Howd. California Dept. of Health Services, Toxic Substances Control Division, Sacramento, CA.
- #720 **EVALUATION OF PARATHION AS A POTENTIAL TOXIC AIR CONTAMINANT.** D Oudiz, K Klein, K Pfeifer, L Baker, California Department of Food and Agriculture and California Air Resources Board, Sacramento, CA.
- #721 **WATER QUALITY CRITERIA FOR COLORED SMOKES.** K A Davidson, P S Hovatter, and R H Ross. Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN. Sponsor: P Y Lu.
- #722 **ASSESSING THE INHALATION CONTRIBUTION TO TOTAL EXPOSURE FOR ORGANIC CHEMICALS IN TAP WATER.** \*T E McKone, \*J P Knezovich, \*S M DiZio, and \*J J Wong. \*Lawrence Livermore Laboratory, Livermore, CA and \*California Department of Health Services, Sacramento, CA. Sponsor: J P Christopher.
- #723 **APPLIED ACTION LEVELS IN AIR AND WATER FOR TRICHLOROETHYLENE (TCE).** J P Christopher. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA.
- #724 **APPLIED ACTION LEVELS IN AIR AND WATER FOR CHLOROFORM (CHCl<sub>3</sub>).** R A Becker and J P Christopher. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA.
- #725 **AIRBORNE DUST INHALATION EXPOSURE ASSESSMENTS FOR CHILDREN AND ADULTS.** G M Schum, R F Phalen and D Dunn-Rankin. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA, and University of California, Irvine, Air Pollution Health Effects Laboratory, Irvine, CA.
- #726 **NONONCOGENIC INHALATION TOXICOLOG AND RISK ASSESSMENT OF BERYLLIUM.** R H Ross and P Y Lu. Chemical Hazard Evaluation Program, Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN.; W Ewald, Environmental Protection Agency, Research Triangle Park, NC.
- #727 **HEALTH-BASED EXPOSURE CRITERION FOR SULFOLANE.** J J Wong and R A Becker. California Department of Health Services, Toxic Substances Control Division, Sacramento, CA. Sponsor: W J Wade.

## WEDNESDAY AFTERNOON, MARCH 1 GALLERIA

### POSTER SESSION: PULMONARY TOXICOLOGY

Chairperson: J P Kehrer, University of Texas, Austin, TX

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 3:00 p.m.-4:30 p.m.

- #728 **MORPHOLOGIC RESPONSE OF LUNG EXPLANTS EXPOSED TO MINERAL DUSTS CULTURED IN AMBIENT AIR OR ENRICHED OXYGEN ATMOSPHERES.** M. Placke<sup>1</sup>, K. Driscoll<sup>2</sup>. <sup>1</sup>Battelle Columbus Division, Columbus, OH; <sup>2</sup>The Procter and Gamble Company, Cincinnati, OH.

- #729 **INHALED CIGARETTE SMOKE INDUCES DNA ADDUCTS IN RAT LUNGS.** J A Bond, B T Chen, R G Cuddihy, W C Griffith, and J L Mauderly. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #730 **EFFECT OF THE MODERATE THROMBOCYTOPENIA ON PULMONARY PLATELET SEQUESTRATION AND PULMONARY HYPERPENSION IN MONOCROTALINE PYRROLE (MCTP)-TREATED RATS.** S M White, J G Wagner and R A Roth. Michigan State Univ., E. Lansing, MI.
- #731 **PROLIFERATION OF ENDOTHELIAL AND SMOOTH MUSCLE CELLS OF SMALL PULMONARY VESSELS IS INDUCED BY ASBESTOS INHALATION IN MICE.** P D McGavran, L B Moore and A R Brody. National Institute of Environmental Health Sciences, RTP, NC and UNC, Chapel Hill. Sponsor: G W Lucier.
- #732 **EFFECT OF DICLOFENAC ON BLEOMYCIN-INDUCED FIBROSIS IN HAMSTERS.** D Chandler, B Burton. OHSU, OPC, Portland, OR and Univ Al B'ham and VAMC Birmingham, AL. Sponsor: S N Giri.
- #733 **THIOUREAS APPEAR TO PROTECT AGAINST PARAQUAT TOXICITY BY REACTING WITH SUPEROXIDE AND NOT HYDROXYL RADICALS.** M J Kelner, R Bagnell, N M Alexander, University of California, San Diego, CA.
- #734 **DEPENDENCE OF CULTURED CELL CYTOTOXICITY ON THE PHYSICO-CHEMICAL PROPERTIES OF BERYLLIUM COMPOUNDS.** G L Finch, A L Brooks, M D Hoover, W T Lowther and R G Cuddihy. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #735 **RESPIRATORY TRACT TISSUE CYTOCHROME P-450 ISOZYME-DEPENDENT MONOOXYGENASE ACTIVITIES.** S.A. Lacy, D.A. Thomas, J.B. Mangum, and J.I. Everitt. CIIT, RTP, NC. Sponsor: J.A. Popp.
- #736 **REPEATED OROPHARYNGEAL NEBULIZATION OF DRUG TO RATS AND DOGS.** C P Sabaitis, J K Coombs, and B K J Leong. The Upjohn Co., Kalamazoo, MI.
- #737 **AUGMENTATION OF ELASTASE-INDUCED EMPHYSEMA BY CIGARETTE SMOKE: EFFECTS OF NICOTINE CONTENT.** E C Kimmel and D W Winsett. NSI Technology Services Corporation, Dayton, OH. Sponsor: E R Kinkead.
- #738 **AUGMENTATION OF ELASTASE-INDUCED EMPHYSEMA: EFFECTS OF NICOTINE.** D W Winsett and E C Kimmel. NSI Technology Services Corporation, Dayton, OH. Sponsor: E R Kinkead.
- #739 **DEPLETION OF RAT AND GUINEA PIG TISSUE GLUTATHIONE BY CIGARETTE SMOKE AND DIETHYL MALEATE.** M H Bilimoria and D J Ecobichon. Pathology Institute and Department of Pharmacology and Therapeutics, McGill University, Montreal, Quebec, CN.
- #740 **CIGARETTE SMOKE-INDUCED ALTERATIONS OF ESTRUAL CYCLICITY IN MICE.** D K Gulati\*, S R Russell\*, T A Cocanougher\*, M A Thomas\*\* and C Gairola\*\*. Environmental Health Research & Testing, Inc.\*, Tobacco & Health Research Institute\*\*, and Graduate Center for Toxicology\*\*, University of Kentucky, Lexington, KY.
- #741 **EFFECTS OF ADRENERGIC ANTAGONISTS ON THE PULMONARY TOXICITY OF COCAINE.** D J Murphy, D Francomarcaro, D A Culp and W D Matthews. Dept. of Investigative Toxicology, Smith Kline & French Lab, King of Prussia, PA.
- #742 **DISTRIBUTION OF AMIODARONE IN RAT LUNG** M J Reasor<sup>1</sup>, C L Ogle<sup>1</sup> and P R Miles<sup>1,2</sup>, West Virginia Univ. Health Sci. Ctr.<sup>1</sup> and ALOSH/NIOSH<sup>2</sup> Morgantown, WV.
- #743 **IN VIVO TOXIC EFFECTS OF AMIODARONE AND DESETHYLAMIODARONE IN RATS: ALTERATION OF AMIODARONE UPTAKE BY LUNG.** Department of Pharmacology and Toxicology, University of Mississippi Medical Center, Jackson, MS.
- #744 **VO<sub>2</sub>MAX DECREASES INVERSELY WITH BLOOD METHEMOGLOBIN CONCENTRATION FOLLOWING THE INHALATION OF NITRIC OXIDE.** D M Stavert<sup>1</sup>, G Ripple<sup>2</sup>, T Mundie<sup>2</sup>, B E Lehnert<sup>1</sup>. <sup>1</sup>Los Alamos National Laboratory, Los Alamos, NM; <sup>2</sup>Walter Reed Army Institute of Research, Washington, DC.
- #745 **KINETICS OF METHEMOGLOBIN FORMATION AND ELIMINATION AS A FUNCTION OF INHALED NITRIC OXIDE CONCENTRATION AND MINUTE VENTILATION.** G Ripple<sup>1</sup>, T Mundie<sup>1</sup>, D M Stavert<sup>2</sup>, B E Lehnert<sup>2</sup>. <sup>1</sup>Walter Reed Army Institute of Research, Washington, DC.; <sup>2</sup>Los Alamos National Laboratory, Los Alamos, NM.
- #746 **VENTILATORY CHANGES UPON THE INHALATION OF HIGH CONCENTRATIONS OF NITROGEN DIOXIDE.** T Mundie<sup>1</sup>, G Ripple<sup>1</sup>, D M Stavert<sup>2</sup>, B E Lehnert<sup>2</sup>. <sup>1</sup>Walter Reed Army Institute of Research, Washington, DC.; <sup>2</sup>Los Alamos National Laboratory, Los Alamos, NM.
- #747 **MECHANISTIC STUDIES OF REDUCTION OF CYANIDE (CN) TOXICITY BY ALPHA-KETOGLUTARIC ACID (alpha-KETOGLUTARIC).** S J Moore and A S Hume, Dept. of Pharmol. and Toxicol., Univ. of Miss. Med. Ctr., Jackson, MS.
- #748 **ALTERATION OF RESPIRATORY CYCLE TIMING IN MICE EXPOSED TO TRIMELLITIC ANHYDRIDE (TMA) AEROSOLS.** M Schaper, M Brost, M Stock and Y Alarie. University of Pittsburgh, Pittsburgh, PA.
- #749 **BRONCHOCONSTRICTION IN GUINEA PIGS INDUCED BY REPEATED EXPOSURE TO TRIMELLITIC ANHYDRIDE (TMA) AEROSOLS.** M Brost, M Stock, M Schaper, and Y Alarie. University of Pittsburgh, Pittsburgh, PA.
- #750 **CYCLOPENTADIENYL MANGANESE TRICARBONYL (CMT)-INDUCED ELEVATION IN PULMONARY NONPROTEIN SULFHYDRYL (NPSH) LEVELS.** R L Clay and J B Morris. Toxicology Program, University of Connecticut, Storrs, CT.
- #751 **BRONCHOCONSTRICTION IN GUINEA PIGS REPEATEDLY EXPOSED TO OVALBUMIN (OA) AEROSOLS AND ITS PREVENTION USING VERPAMIL.** K Detwiler, R D Thompson, M Schaper, and Y Alarie. University of Pittsburgh, Pittsburgh, PA.
- #752 **REDUCTION OF EXERCISE PERFORMANCE IN GUINEA PIGS BY HISTAMINE AEROSOLS.** M Iwasaki and Y Alarie. University of Pittsburgh, PA.
- #753 **COMPARISON OF RESPIRATORY TRACT ANTIOXIDANTS IN HUMANS, GUINEA PIGS AND RATS.** R Slade, K Crissman, J Norwood, H Koren, D Graham, and G Hatch. Inhal. Toxicol. Div., HURL, U.S.E.P.A., Res. Tri. Park, NC.
- #754 **EFFECTS OF SAXITOXIN ON CONTRACTILITY OF GUINEA PIG AIRWAYS AND AORTA.** D R Franz, C P Robinson, and M E Bondura. USAMRIID, Fort Detrick, Frederick, MD and College of Pharmacy, University of Oklahoma, HSC, Oklahoma City, OK.
- #755 **CHARACTERIZATION OF THE CARDIOVASCULAR AND PULMONARY TOXICITIES ELICITED BY ACUTE ADMINISTRATION OF CAPSAICIN.** T R LaHann and G Daniels, College of Pharmacy, Washington State University, Pullman, WA. Sponsor: R J Bull.
- #756 **ACCUMULATION OF Cd<sup>++</sup> IN THE CNS DEPENDING ON THE ROUTE OF ADMINISTRATION: INTRAPERITONEAL, INTRATRACHEAL OR INTRANASAL.** J Evans and L Hastings. Dept. Environ. Health, Univ. of Cincinnati, Cincinnati, OH. Sponsor: E C Foulkes.
- #757 **LONG-TERM MORPHOLOGIC AND BIOCHEMICAL EFFECTS INDUCED BY O,O,S-TRIMEHTYL PHOSPHOROTHIOATE IN THE MOUSE LUNG.** M J J Gijbels\*, S K Durham. \*TNO-IVEG, Rijswijk, The Netherlands; Dept. of Toxicology and Pathology, Hoffmann-La Roche, Nutley, NJ. Sponsor: W H Halliwell.
- #758 **3,4,3',4'-TCB DISTRIBUTION AND EFFECTS IN THE RAT LUNG.** A Brouer\* and S K Durham, \*Dept. of Toxicology, Univ. of Wageningen, The Netherlands; Dept. of Toxicology and Pathology, Hoffmann-La Roche, Nutley, NJ, and TNO-IVEG, Rijswijk, The Netherlands; Sponsor: W H Halliwell.

**WEDNESDAY AFTERNOON, MARCH 1  
GALLERIA**

**POSTER SESSION: BIOTRANSFORMATION II**

**Chairperson:** D L Springer, Battelle Pacific Northwest Laboratories, Richland, WA

**Displayed:** 1:30 p.m.-4:30 p.m.

**Attended:** 1:30 p.m.-3:00 p.m.

- #759 **INDUCTION OF gamma-GLUTAMYL-CYSTEINE SYNTHETASE (GCS) ACTIVITY BY BUTYLATED HYDROXYANISOLE IN THE MOUSE.** D L Eaton and D M Hamel, Department of Environmental Health, University of Washington, Seattle, WA.
- #760 **COMPARISON OF THE INDUCTION OF GLUTATHIONE S-TRANSFERASES BY PYRROLE, gamma-PICOLINE, AND PIPERIDINE IN RAT AND RABBIT HEPATIC CYTOSOL.** T Primiano and R Novak, Institute of Chemical Toxicology, Wayne State University, Detroit, MI.
- #761 ***IN VITRO* INHIBITION OF HEPATIC GLUTATHIONE S-TRANSFERASES (GST) BY THE WATER DISINFECTANT BY-PRODUCTS, HALOACETONITRILES.** J-P Loh, S A Soliman and A E Ahmed, Department of Pathology, University of Texas Medical Branch, Galveston, TX.
- #762 **AMPLIFICATION OF CARBON TETRACHLORIDE TOXICITY BY CHLORDECONE: DESTRUCTION OF RAT HEPATIC MICROSOMAL CYTOCHROME P-450 SUBPOPULATION.** S Chaudhury and H M Mehendale, Dept. Pharmacol. & Toxicol., Univ. Miss. Med. Ctr., Jackson, MS.
- #763 **RESPONSE OF HAMSTER LIVER MIXED FUNCTION OXIDASE (MFO) TO OLTIPRAZ (OTP).** M H Davies<sup>1</sup>, B A Merrick<sup>2</sup>, J K Selkirk<sup>3</sup>, M Heidrick<sup>4</sup>, D Cook<sup>4</sup> and R G Schnell<sup>5</sup>. <sup>1</sup>S C Johnson & Son, Inc, Racine, WI, <sup>2</sup>EPA, HERL, Cincinnati, OH, <sup>3</sup>NIEHS, RTP, NC, <sup>4</sup>Univ NE Medical Ctr, Omaha, NE and <sup>5</sup>N Dakota State Univ, Fargo, ND.
- #764 **EFFECT OF 2-THIOTRIAZONE (TTZ) AND DIETHYLMALEATE (DEM)-TTZ COMBINATION ON HEPATIC MIXED FUNCTION MONOOXYGENASE SYSTEMS OF RATS.** T M Tate, W Flory, Dept. Vet. Phys., Pharm., and Toxicol. School of Veterinary Medicine, Louisiana State University Baton Rouge, LA.
- #765 **INACTIVATION OF CYTOCHROME P-450 BY SPIRONOLACTONE (SPL).** C Decker<sup>1</sup>, M Rashed<sup>2</sup>, T Baillie<sup>3</sup>, A Rettie<sup>4</sup>, D Maltby<sup>5</sup>, and M A Correia<sup>1</sup> <sup>1</sup>Dept Pharmacol, liver Center, & <sup>2</sup>Mass Spec Facility, UCSF, <sup>3</sup>Dept. Med Chem, Univ of WA, Seattle.
- #766 **SELECTIVE INHIBITION OF CYTOCHROME P-450 ISOZYMES BY THE HERBICIDE SYNERGIST TRIDIPHANE.** P E Levi, D E Moreland, W P Novitzky, and E Hodgson, Toxicology Program, North Carolina State University, Raleigh, NC.
- #767 **EFFECT OF MICROSOMAL ENZYME INDUCTION ON RAT INTESTINAL GLUCURONIDATION CAPACITY IN SITU.** D Goon and C D Klaassen, Univ. of Kansas Medical Center, Kansas City, KS.
- #768 **ENZYME INDUCTION DEFECT TO PHENOBARBITAL IN THE fa/fa ZUCKER RAT: RELATION BETWEEN CYTOCHROME P-450 AND UDPGT.** I Chaudhary, L Robertson, R A Blouin, Graduate Center for Toxicology and College of Pharmacy, University of Kentucky, Lexington, KY.
- #769 **THE ALCOHOL-INDUCIBLE FORM OF CYTOCHROME P-450 IS A HIGH AFFINITY PYRIDINE N-OXIDASE.** S G Kim and R F Novak, Institute of Chemical Toxicology, Wayne State University, Detroit, MI.
- #770 **CYTOCHROME P450 AND P448 DEPENDENT METABOLISM IN RAT, MOUSE, MONKEY, AND HUMAN TESTIS.** K W DiBiasio, C D Brown, D W Wilson, C G Plopper, M G Miller, and L R Shull, Depts. of Environmental Toxicology and Veterinary Pathology, University of CA., Davis, CA.
- #771 **IMPRINTING OF HEPATIC P450 IN ADULT MALE RATS FOLLOWING NEONATAL EXPOSURE TO 2,4,5,3',4',5'-HEXACHLOROBIPHENYL (HCB) VIA MATERNAL MILK.** B J Ring, P E Thomas, M J Vodcnik and S A Wrighton, Med. College of WI, Milwaukee WI and Rutgers, Piscataway, NJ.
- #772 **SUBSTRATE SPECIFICITY AND REGIOSELECTIVITY OF THE CYTOCHROME P450 IN THE C3H/10T1/2 CELL LINE.** L H Pottenger and C R Jefcoate, Environmental Toxicology Center, University of Wisconsin, Madison, WI.
- #773 **DIFFERENCES IN CYTOCHROME P-450 MONOOXYGENASE SYSTEM IN STRAINS OF HELIOTHIS VIRESCENS RESISTANT ORGANOPHOSPHATE INSECTICIDES AND THE SECONDARY PLANT CHEMICALS, QUERCETIN AND 2-TRIDEKANONE.** R L Rose, P E Levi, and E Hodgson, Toxicology Program, N.C. State University, Raleigh, NC.
- #774 **PURIFICATION AND CHARACTERIZATION OF CYTOCHROME P-450 ISOZYMES FROM PHENOBARBITAL-INDUCED CHICKEN LIVER.** R P Gupta, D M Lapadula, M B Abou-Donia, Department of Pharmacology, Duke University Medical Center, Durham, NC.
- #775 **CYTOCHROME P-450 INDUCTION IN CHICKENS EXPOSED SIMULTANEOUSLY TO N-HEXANE AND METHYL ISO-BUTYL KETONE,** C Habig, M B Abou-Donia, and D M Lapadula, Department of Pharmacology, Duke University Medical Center, Durham, NC.
- #776 **EFFECTS OF ACRYLAMIDE ON THE HEPATIC MONOOXYGENASE INDUCTIVE RESPONSE OF RAINBOW TROUT.** M L Haasch, P J Wejksnora and J J Lech, Medical College of Wisconsin, Center for Great Lakes Studies, Univ. of Wisconsin-Milwaukee, Milwaukee, WI.
- #777 **INDUCTION OF HEPATIC MICROSOMAL DRUG-METABOLIZING ENZYMES BY THE ARYLAMIDE HERBICIDE PROPANIL AND ITS DERIVATIVES.** D C McMillan, J E A Leakey, M P Arlotto, J M Haake, and J A Hinson, National Center Toxicology Res., Jefferson, AR and Univ. of Ark. for Med. Sci., Little Rock, AR.
- #778 **DRUG METABOLIZING ENZYME INDUCTION BY NON-HALOGENATED N-SUBSTITUTED IMIDAZOLES.** M R Franklin, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.
- #779 **EFFECT OF DIETARY CORN OIL ON THE INDUCTION OF HEPATIC MICROSOMAL CYTOCHROME P-450 ISOZYMES.** H J Kim, <sup>1</sup>E S Choi, F P Guengerich, and A E Wade, Dept. of Pharmacol. & Toxicol. and <sup>2</sup>Dept. of Biochem., Univ. of Georgia, Athens, GA, and Dept. of Biochem., Vanderbilt Univ., Nashville, TN.
- #780 **TIME COURSE FOR THE INDUCTION OF PULMONARY CYTOCHROME P-450 DEPENDENT MONOOXYGENASE ACTIVITY BY CIGARETTE SMOKE EXPOSURE (KENTUCKY REFERENCE CIGARETTE, 1R4F) IN RATS.** K-M Chang, P H Ayres, and J D deBethizy, R.J. Reynolds Tobacco Co., Winston-Salem, NC.
- #781 **EFFECT OF PREGNENOLONE-16 $\alpha$ -CARBONITRILE (PCN) AND DEXAMETHASONE (DEX) ON ACETAMINOPHEN(AA)-INDUCED HEPATOTOXICITY IN MICE.** C D Klaassen, C Madhu and T J Maziasz, Univ. of Kansas Medical Center, Kansas City, KS.
- #782 **THE EFFECTS OF PHENOBARBITAL INDUCTION ON THE TOXICITY OF BRODIFACOU M IN THE CANINE.** M J Murphy, A C Reagor, E M Bailey, Texas Veterinary Medical Diagnostic Laboratory, College Station, TX. Sponsor: A C Ray.
- #783 **STUDIES ON THE MECHANISM OF SIMVASTATIN INDUCED THYROID HYPERTROPHY IN THE RAT.** P F Smith, S J Grossman, L R Gordon, J S MacDonald and R J Gerson, Merck Sharp and Dohme Research Labs, West Point, PA.



**WEDNESDAY AFTERNOON, MARCH 1  
GALLERIA**

**POSTER SESSION: HEPATOTOXICITY**

**Chairperson:** T J Racznik, Upjohn Company, Kalamazoo, MI

**Displayed:** 1:30 p.m.-4:30 p.m.

**Attended:** 3:00 p.m.-4:30 p.m.

- #784 **THE RAT AS A MODEL TO EVALUATE THE GASTRIC IRRITATION POTENTIAL OF ALKALINE PRODUCTS.** L J Sauers, J K Maurer, and P J Reer. The Procter & Gamble Company, Cincinnati, OH.
- #785 **AN EVALUATION OF THE EFFECTS OF THE H2-ANTAGONIST, LY154961, ON GASTRIC HISTOPATHOLOGY AND FUNCTION IN FISCHER-344 RATS.** G K Hanasono, W H Jordan, J L Masten, S L White, R N Tamura, and G S Grimes. Toxicology Division, Eli Lilly & Company, Greenfield, IN.
- #786 **HEPATOTOXICITY AND GENOTOXICITY OF 4,4'-METHYLENEDIANILINE (MDA).** C M Hamilton, K L Steinmetz, J C Mirsalis, and J W Spalding. SRI International, Menlo Park, CA, and NIEHS, Res. Tri. Prk., NC. Sponsor: C E Green.
- #787 **HEPATOTOXICITY OF TACRINE IN ANIMAL MODES.** R M Walker, D W Clarke, G S Smith, G E Macallum, N J Barsoum and P Greaves. Parke-Davis Res. Inst., Mississauga, ON. Sponsor: D Pegg.
- #788 **ISONIAZID POTENTIATION OF A GUINEA PIG MODEL OF HALOTHANE-ASSOCIATED HEPATOTOXICITY.** R C Lind and A J Gandolfi. Dept of Anesthesiology, University of Arizona, Tucson, AZ.
- #789 **A CANINE 90-DAY GAVAGE STUDY OF MAGME — 100 MONOMER.** R A Davis and M A Friedman. American Cyanamid Company, Wayne, NJ.
- #790 **A COMPARISON OF SINGLE-DOSE TOXICITY OF CAPTAN, DIFOLATAN AND FOLPET IN RATS.** R R Dalvi, S G Sawant and M L Mutinga. School of Veterinary Medicine, Tuskegee University, Tuskegee, AL.
- #791 **SUBCHRONIC ORAL TOXICITY STUDY OF LEWISITE IN RATS.** J A Cushing, L B Sasser, P W Mellick, and J C Dacre. Pacific Northwest Laboratory, Richland, WA and USABRD, Ft. Detrick, Frederick, MD.
- #792 **EVALUATION OF THE EFFECTS IN MICE OF LOVASTATIN AND HEPATOTOXICANTS.** R Raju and S Bhattacharya. A & M Schwarz College of Pharmacy and Health Sciences, Long Island University, Brooklyn, NY.
- #793 **EFFECT OF CHLOROTRIFLUOROETHYLENE (CTFE) OLIGOMERS ON LIVERS OF FISCHER-344 RATS.** D R Mattie and M R Chase. AAMRL/THT, Wright-Patterson AFB, OH. Sponsor: M E Andersen.
- #794 **THE EFFECTS OF CHINESE HEPATOPROTECTIVE COMPOUNDS ON EXPERIMENTAL LIVER INJURY IN MICE.** Y P Liu, J Liu and C D Klaassen. Univ. of Kansas Medical Center, Kansas City, KS.
- #795 **LEUCOVORIN PROTECTION AGAINST TRIMETREXATE TOXICITY IN RATS.** J R MacDonald, C C Morse and D G Pegg. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #796 **PHARMACOKINETICS OF MOLSIDOMINE IN PATIENTS WITH TOXIC LIVER DAMAGE.** J R Weiser. Department of Medicine, Medical University of Lubeck, FRG.
- #797 **PHOSPHOLIPID CHANGES IN RAT AND MOUSE LIVER FOLLOWING DERMAL AND DRINKING WATER EXPOSURE TO DIETHANOLAMINE.** W L Jenkins and R L Melnick. NTP, NIEHS, RTP, NC. Sponsor: J Bucher.
- #798 **EFFECTS OF PANTETHINE ON THE BLOOD AND HEPATIC LIPIDS OF RATS FED ETHANOL CHRONICALLY.** I Nagiel and C A Lau-Cam, St. John's University, College of Pharmacy and Allied Health Professions, Jamaica, NY. Sponsor: L Trombetta.
- #799 **HISTOPATHOLOGIC, METABOLIC AND MICROCIRCULATORY CHANGES IN THE ISOLATED PERFUSED CIRRHOTIC RAT LIVER.** A H Boyarsky, K H Jung and S Ji. Dept. of Surgery, R.W. Johnson Medical School/UMDNJ and Dept. of Pharmacol. and Toxicol., Rutgers University, Piscataway, NJ.

**WEDNESDAY AFTERNOON, MARCH 1  
GALLERIA**

**POSTER SESSION: IMMUNOTOXICOLOGY**

**Chairperson:** J E Atkinson. Bio/dynamics, Inc., E. Millstone, NJ

**Displayed:** 1:30 p.m.-4:30 p.m.

**Attended:** 1:30 p.m.-3:00 p.m.

- #800 **IMMUNOTOXICITY OF 2,4-DIAMINOTOLUENE IN FEMALE B6C3F1 MICE.** K L White, J A McCay, D L Musgrove, R D Brown, M L Stern, M P Holsapple and A E Munson. Medical College of VA/VCU, Richmond VA.
- #801 **SUPPRESSION OF HUMORAL IMMUNITY FOLLOWING DERMAL EXPOSURE TO BENZO(a)PYRENE IN B6C3F1 MICE.** M C Parrott, T T Kawabata, and K L White. Medical College of Virginia/VCU, Richmond, VA.
- #802 **EFFECTS OF BENZO(a)PYRENE [B(a)P] AND ITS METABOLITES ON THE ANTIBODY RESPONSE *IN VITRO*.** R S Tomar, S Lim, and S S Gill. Department of Entomology, University of California, Riverside, CA.
- #803 **LOVE CANAL IMMUNOSUPPRESSION IN C57BL/6 MICE WHICH EXPRESS THE Ah<sup>d/d</sup> GENE PHENOTYPE.** J B Silkworth, and D S Cutler. Wadsworth Center for Laboratories and Research, New York State Department of Health, Albany, NY.
- #804 **ENHANCED INFLUENZA VIRUS REPLICATION IN FISCHER-344 RAT LUNG FOLLOWING PHOSGENE INHALATION.** J P Ehrlich<sup>1,2</sup> and G R Burleson<sup>3</sup>. <sup>1</sup>NSI-ES, RTP/NC; <sup>2</sup>NYU Med Center; <sup>3</sup>Inhalation Toxicology Division, Health Effects Research Laboratory, US EPA, RTP, NC.
- #805 **SUPPRESSION OF PULMONARY NATURAL KILLER ACTIVITY BY CONTINUOUS OZONE EXPOSURE.** J D Stutzman<sup>1</sup>, L L Keyes<sup>1</sup>, and G R Burleson<sup>2</sup>. <sup>1</sup>NSI-ES and <sup>2</sup>Inhalation Toxicology Division, Health Effects Research Laboratory, US EPA, RTP, NC.
- #806 **CHARACTERIZATION OF IMMUNE ALTERATIONS RESULTING FROM ACUTE EXPOSURE OF RATS TO TRIBUTYLIN OXIDE.** R J Smialowicz, M M Riddle, R R Rogers, R W Luebke, C B Copeland and G G Ernst. U.S. EPA, Research Triangle Park, NC.
- #807 **CYTOSINE ARABINOSIDE (ARA-C) INHIBITS PRE-B CELL MATURATION.** K S Cocke and D Wierda. Lilly Research Laboratories, Toxicology Division, Lilly Research Laboratories, Eli Lilly & Company, Greenfield, IN.
- #808 **THE ROLE OF METABOLIC BIOACTIVATION IN IMMUNOSUPPRESSION BY CCL<sub>4</sub>.** N E Kaminski\*, D W Barnes\*, S D Jordan\*, and M P Holsapple\*, \*Dept. of Pharmacol. & Toxicol. Medical College of VA/VCU, Richmond, VA. \*Dept. of Pharmacol., School of Medicine, East Carolina University, Greenville, NC.

- #809 **PIMOZIDE DOES NOT ALTER 2,3,7,8-TCDD-INDUCED IMMUNOTOXICITY.** N K Snyder, B A Fuchs, and M P Holsapple. Department of Pharmacology and Toxicology, Medical College of Virginia/VCU, Richmond, VA.
- #810 **EVALUATION OF THE HOST RESPONSE TO T. SPIRALIS INFECTION IN CYCLOPHOSPHAMIDE-TREATED RODENTS** R W Luebke, C B Copeland, M M Riddle, R R Rogers, and R J Smialowicz. U.S. EPA, and G Ernst, NSI, Inc., Research Triangle Park, NC.
- #811 **IMMUNOTOXICITY OF 2,2-DICHLORODIETHYL SULFIDE.** J A Blank, R L Joiner, D P Houchens, G S Dill, and D W Hobson, Battelle Columbus Division, Columbus, OH. Sponsor: C T Olson.
- #812 **EFFECTS OF CARBARYL (CA) AND ITS METABOLITES [ALPHA-NAPHTHOL (aN), ALPHA-NAPHTHYL-BETA-GLUCURONIDE (aNG), AND ALPHA-NAPHTHYL SULFATE (aNS)] ON CELL CYCLE TRAVERSE BY CTLL-2 CELLS.** <sup>1</sup>S Bavari, <sup>2</sup>C Kuszynski, and <sup>1</sup>G P Casale, Univ. of Nebraska Medical Center, <sup>1</sup>College of Pharmacy and <sup>2</sup>College of Medicine, Omaha, NE.
- #813 **EFFECTS OF MACROCYCLIC TRICHOHECENE CONGENERS ON THE VIABILITY AND MITTOGENESIS OF MURINE SPLENIC LYMPHOCYTES.** B J Hughes\*, B B Jarvis , and R P Sharma\*. \*Center for Environmental Toxicology, Utah State University, Logan,UT. Department of Chemistry and Biochemistry, University of Maryland, College Park, MD. Sponsor: P B McCay.
- #814 **IMMUNOTOXICOLOGIC EVALUATION OF A NOVEL INHIBITOR OF ALLERGIC REACTIONS.** M R Bleavins\*, A E Munson\*\*, K L White\*\*, R A Martin\*, J A McCay\*\*, and M M Fouant\*\*. \*Parke-Davis Pharm. Res. Div., Warner-Lambert Co.,Ann Arbor, MI and \*\*Medical College of Virginia, Richmond, VA.
- #815 **EFFECTS OF REPEATED EXPOSURE TO COMBINATIONS OF BENZENE AND TOLUENE ON IMMUNOLOGIC RESPONSES IN MICE.** G C Hsien, R P Sharma, and R D R Parker. Toxicology Program, Utah State University, Logan, UT.
- #816 **3-METHYLCHOLANTHRENE INDUCED TUMORS MAY ESCAPE IMMUNE SURVEILLANCE BY PGE<sub>2</sub> MEDIATED IMMUNOSUPPRESSION.** G G Mather, J H Exon and J L Bussiere. Dept. of Vet. Sci., University of Idaho, Moscow, ID.
- #817 **IMMUNOTOXICITY RISK ASSESSMENT MODELING USING HUMAN PERIPHERAL BLOOD MONONUCLEAR LEUKOCYTES (PB-MLs) FOLLOWING IN VITRO EXPOSURE TO SELECTED XENOBIOTICS.** J B Cornacoff and J H Dean. Sterling-Winthrop Research Institute, Rensselaer, NY.
- #818 **DEVELOPMENT OF IMMUNOTOXICOLOGICAL ASSAYS IN CYNOMOLGUS MONKEYS.** J A McCay\*, M L Stern\*, T T Kawabata\*, J E Atkinson, Biodynamics, Inc. E Millstone NJ, S P Richieri, J M Plummer, Immunetech Pharmaceuticals, San Diego, CA and K L White\*. \*Medical College of Virginia/VCU, Richmond, VA.
- #819 **IMMUNOTOXICITY OF T CELL MODULATORY PEPTIDE (TCMP-80) IN CYNOMOLGUS MONKEYS.** J E Atkinson, Biodynamics, Inc., E Millstone NJ, S P Richieri, J M Plummer, Immunetech Pharmaceuticals, San Diego, CA, J A McCay and K L White, Medical College of Virginia/VCU, Richmond, VA.
- #820 **INTERACTIONS BETWEEN FOOD COLOURS AND THE COMPLEMENT SYSTEM.** K Miller, A P Hutchinson, M P Scott and S Nicklin. BIBRA, Carshalton, Surrey UK. Sponsor: S D Gangolli.
- #821 **REFINEMENTS IN AN APPROACH TO PRIMARY IMMUNOTOXICITY ASSESSMENT.** M J Murray and P A Horn. The Procter & Gamble, Cincinnati, OH.
- #822 **IMMUNOTOXICITY ASSESSMENT OF FLAVORING INGREDIENTS USING A RAPID AND ECONOMICAL SCREEN.** T A Vollmuth, J D Heck, \*H V Ratajczak, and \*P T Thomas. Lorillard, Inc., Greensboro, NC and \*IIT Research Institute, Chicago, IL.

## WEDNESDAY AFTERNOON, MARCH 1

4:00 p.m.-5:30 p.m.

BALLROOM WEST

## ANNUAL SOT BUSINESS MEETING

President James E Gibson, Presiding  
SOT Members Only

## THURSDAY MORNING, MARCH 2

8:30 a.m.-12:00 noon

BALLROOM EAST

## SYMPOSIUM: PULMONARY IMMUNOTOXICOLOGY: SPECIES COMPARISONS

Co-Sponsored by the SOT Immunotoxicology and Inhalation Specialty Sections

**Chairpersons:** M Karol, University of Pittsburgh, Pittsburgh, PA; J Graham, U.S. E.P.A., Research Triangle Park, NC

**Opening Remarks:** Meryl H. Karol, University of Pittsburgh, Pittsburgh, PA.

**Comparitive Morphology of Pulmonary Immune Systems.** Richard D. Irons, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

**Comparison of Cell-Mediated Pulmonary Immune Responses to Inhaled Chemicals.** Gary R. Burleson, US Environmental Protection Agency, Research Triangle Park, NC.; Hillel Koren, US Environmental Protection Agency, Triangle Park, NC.

**Comparison of Humoral Pulmonary Immune Responses to Inhaled Chemicals.** David E. Bice, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.

**Comparison of Allergic Immune Responses in the Lung.** Meryl H. Karol, University of Pittsburgh, Pittsburgh, PA.

**Applicability of Animal Models of Lung Immunotoxicology to Human Health Risk Assessment.** Philip Bromberg, University of North Carolina, Chapel Hill, NC.

## THURSDAY MORNING, MARCH 2

8:30 a.m.-12:00 noon

BALLROOM WEST

### SYMPOSIUM: NEUROTOXICANT INDUCED ALTERATIONS IN CELLULAR INTERACTIONS

Sponsored by the SOT Neurotoxicology Specialty Section

Chairperson: D A Fox, University of Houston, Houston, TX.

Introduction. Donald A. Fox, University of Houston, Houston, TX.

Cellular Adhesion Molecules in Neurotoxicology. Ken Reuhl, Rutgers University, College of Pharmacy, Piscataway, NJ.

Toxicant-Induced Biochemical and Molecular Changes that Affect Cell-Cell Communication. Richard B. Mailman, University of North Carolina, Biological Research Science Center, Chapel Hill, NC.

Phosphoinositide Metabolism as a Potential Target for Neurotoxicity. Lucio G. Costa, University of Washington, Seattle, WA.

Intracellular Calcium as an Index of Neurotoxic Damage. Stephen Bondy, University of California/Irvine, CA.

## THURSDAY MORNING, MARCH 2

8:30 a.m.-11:30 a.m.

SALON C

### PLATFORM SESSION: METALS: GENERAL

Chairpersons: M Bhattacharyyan, Argonne National Laboratory, Argonne, IL  
P L Goering, USFDA, Rockville, MD

- #76 8:30 **LEAD CHELATES OF MESO-AND RACEMIC-DMSA HAVE DIFFERENT STRUCTURES.** M Rivera, H V Aposhian and Q Fernando. Dept. of Chem. and Dept. Mol. & Cell. Biol., University of Arizona, Tucson, AZ.
- #77 8:45 **ALTERED EFFICACY OF Pb CHELATION WITH ADVANCING AGE.** D A Cory-Slechta. Environmental Health Sciences Medicine and Dentistry, Rochester, NY.
- #78 9:00 **EFFECTS OF LEAD ON THE KINETICS OF ADENOSINE TRIPHOSPHATASE SYSTEM AND PROTECTION BY THIOL REAGENTS.** C S Chetty, S Rajanna, and B Rajanna. Selma University, Selma, AL. Sponsor: P R S Kodavanti.
- #79 9:15 **THE EFFECT OF LEAD ON OSTEOCALCIN LEVELS IN RAT OSTEOSARCOMA 17/2.8 (ROS) CELLS.** G J Long, University of Arkansas for Medical Sciences, Little Rock, AR, J F Rosen, Albert Einstein College of Medicine, Bronx, NY, and J G Pounds, Brookhaven National Laboratory, Upton, NY.
- #80 9:30 **ACUTE LEAD EXPOSURES AND BIOLOGICAL RESPONSES AMONG U.S. ARMY ARTILLERY MEN.** M H Bhattacharyya\*, D P Peterson\*, S A Johnson\*, J H Stebbings\*, B D Goun\*, I Janssen\*, and D L Parmer\*. \*Argonne National Laboratory, Argonne IL and \*USAMBRDL, Fort Detrick, Frederick MD.
- #81 9:45 **EXPOSURE TO LEAD IN FOOD: SOURCES AND ESTIMATED RISK.** M Sills and E K Silbergeld. Environmental Defense Fund, Washington DC.
- #82 10:00 **SELENITE BUT NOT SELENATE INHIBITS THE EARTHWORMS GSH S-TRANSFERASE.** A Furst and Q Nguenyn. Inst. of Chem. Biol. Univ. San Francisco, San Francisco, CA.
- #83 10:15 **PROTECTIVE EFFECT OF SELENIUM ON IMPAIRED GLUCOSE OUTPUT FROM HEPATOCYTES BY CADMIUM.** R Bell, J L Early, and V Nonavinakere. Florida A&M University, College of Pharmacy, Tallahassee, FL. Sponsor: R C Schnell.
- #84 10:30 **ANTICARCINOGENIC EFFECTS OF CADMIUM IN B6C3F1 MOUSE LIVER.** M P Waalkes, B Diwan, R M Bare, and J M Rice. NCI and BCDP, PRI, Frederick, MD.
- #85 10:45 **DEGRADATION AND METAL COMPOSITION OF HEPATIC ISOMETALLOTHIONEINS DURING CONDITIONS OF INDUCTION.** W C Kershaw and C D Klaassen, Univ. of Kansas Med. Ctr., Kansas City, KS.
- #86 11:00 **IDENTIFICATION OF BI-INDUCED METAL-BINDING PROTEIN IN MOUSE KIDNEY.** K Kobayashi, H Toyoda, M Satoh, T Kagami, A Naganuma and N Imura. Dept. of Public Health, Sch. of Pharmaceutical Sciences, Kitasato University, Shirokane, Minato-ku, Tokyo, Japan.
- #87 11:15 **ALTERED NICKEL BINDING PROTEINS IN NICKEL RESISTANT MOUSE CELLS.** X-W Wang, R J Imbra and M Costa. New York University Medical Center, Institute of Environmental Medicine, Tuxedo, NY.

## THURSDAY MORNING, MARCH 2

8:30 a.m.-11:30 a.m.

SALON D

### PLATFORM SESSION: BIOTRANSFORMATION II

Chairpersons: J Bond, Lovelace Inhalation Toxicology Research Center, Albuquerque, NM

- #88 8:30 **IMMUNOPRECIPITATION OF ETHANOLINDUCED RABBIT UDP-GLUCURONOSYLTRANSFERASE (GT)BY p-NITROPHENOL GT ANTIBODIES.** R M Hutabarat, M D Green\*, T R Tephly\*, and G S Yost, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT and \*Department of Pharmacology, University of Iowa, Iowa City, IA.
- #89 8:45 **EFFECT OF DOSE CHANGES AND ETHANOL COADMINISTRATION ON TRICHLOROETHYLENE METABOLISM.** J L Larson and R J Bull. Pharmacology/Toxicology Graduate Program, College of Pharmacy, Washington State University, Pullman, WA.
- #90 9:00 **PURIFICATION OF TWO ISOZYMES OF RAT LIVER MICROSOMAL CYTOCHROME P-450 WITH TESTOSTERONE 7-HYDROXYLASE ACTIVITY.** M P Arlotto<sup>1</sup> and A Parkinson<sup>2</sup>. <sup>1</sup>NCTR, Division of Genetic Toxicology, Jefferson, AR, and <sup>2</sup>University of Kansas Medical Center, Kansas City, KS.
- #91 9:15 **FUNCTIONAL CHARACTERIZATION OF A PHENOBARBITAL-INDUCIBLE DOG LIVER CYTOCHROME P-450 STRUCTURALLY RELATED TO RAT AND HUMAN ENZYMES OF THE P450III (STEROID-INDUCIBLE) GENE FAMILY.** P J Ciacco and J R Halpert. University of Arizona Tucson, AZ.

- #92 9:30 **EXTRAHEPATIC INDUCTION OF CYTOCHROME P-450 BY N-SUBSTITUTED IMIDAZOLES** W L Hopson and M R Franklin, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.
- #93 9:45 **ROLE OF THE 4S BINDING PROTEIN IN THE INDUCTION OF ARYL HYDROCARBON HYDROXYLASE IN MAMMALIAN CELLS.** C Kamps and S Safe, Departments of Biochemistry and Biophysics and Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #94 10:00 **DISPOSITION OF BENZ(A)ACRIDINE IN THE RAT.** N Nan, W F Mueller, New Mexico State University Toxicology Program, Las Cruces, NM, and W C Weimer, Battelle Northwest, Richland, WA. Sponsor: D L Springer.
- #95 10:15 **NICOTINE (N) METABOLISM BY P-450s AND FLAVIN-CONTAINING MONOOXYGENASE (FMO) IN RABBIT LUNG (RL).** D E Williams, M K Shigenaga and N Castagnoli, Oregon State Univ., Corvallis, OR and Univ. of California, San Francisco, CA.
- #96 10:30 **2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) PRETREATMENT OF C57BL MICE ALTERED DISPOSITION BUT NOT HEPATIC METABOLISM OF A SUBSEQUENT DOSE OF [<sup>14</sup>C] TCDD.** L R Curtis, H M Carpenter, L Baecher-Steppan, and N I Kerkyliet, Oak Creek Lab. of Biology, and College of Veterinary Medicine, Oregon State University, Corvallis, OR.
- #97 10:45 **BIOCHEMICAL CORRELATES OF CHLORDECONE (CD)-INDUCED PRETREATMENT DISPOSITION RESPONSE (PDR) IN MICE.** H M Carpenter, Z W Cai, and L R Curtis, Oak Creek Lab. of Biology, Oregon State University, Corvallis, OR.
- #98 11:00 **EFFECTS OF CARBON TETRACHLORIDE, ETHANOL AND METHYL ETHYL KETONE ON THE OXIDATION OF 2-BUTANOL BY RAT LUNG AND LIVER.** G P Carlson, Department of Pharmacology and Toxicology, Purdue University, West Lafayette, IN.
- #99 11:15 **TRICHLOROMETHYL RADICAL BINDING TO MICROSOMAL LIPIDS OF RAT LIVER IN CARBON TETRACHLORIDE METABOLISM.** B S Kaphalia and G A S Ansari, Department of Pathology, The University of Texas Medical Branch, Galveston, TX.

## THURSDAY MORNING, MARCH 2

8:30 a.m.-11:45 a.m.

SALON E

### PLATFORM SESSION: HEPATOTOXICITY

**Chairpersons:** J Watkins, Indiana University School of Medicine, Bloomington, IN  
S Stohs, University of Nebraska Medical Center, Omaha, NE

- #100 8:30 **IN VITRO BENZENE HEPATOTOXICITY.** A Dimitriadis, K H Jung, R Snyder and S Ji, Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.
- #101 8:45 **EVIDENCE FOR ENHANCED DT-DIAPHORASE MEDIATED METABOLISM OF MENADIONE BY PHENOBARBITAL PRETREATMENT.** W S Utley and H M Mehendale, Dept. Pharmacol. & Toxicol., Univ. Miss. Med. Ctr., Jackson, MS.
- #102 9:00 **BIOCHEMICAL ALTERATIONS IN MOUSE LIVER INDUCED BY NITROGEN MUSTARD.** N M Elsayed, P Ta, and D Korte, Division of Toxicology, Letterman Army Institute of Research Presidio of San Francisco, CA.
- #103 9:15 **TOXICITY OF HALOTHANE IN GUINEA PIG LIVER SLICES.** H N Ghantos, J Fernando, A J Gandolfi, K Brendel, Dept Anesthesiology, University of Arizona, Tucson, AZ.
- #104 9:30 **REVERSAL OF ESTRADIOL-17B-D-GLUCURONIDE (E17G) CHOLESTASIS BY BILE SALTS.** C O Abernathy, R Utili, M F Tripodi, L E Adinolfi, G B Gaeta and H J Zimmerman, Office of Drinking Water, U.S. EPA, Washington, DC, Univ. of Naples, Naples, Italy and V.A. Medical Center, Washington, DC.
- #105 9:45 **MICROCIRCULATORY ABERRATIONS IN THE ISOLATED PERFUSED RAT LIVER INDUCED BY SODIUM CYANIDE, ANOXIA OR ACETAMINOPHEN.** K H Jung, S Yoon and S Ji, Department of Pharmacology and Toxicology, College of Pharmacy, Rutgers University, Piscataway, NJ.
- #106 10:00 **IN VITRO HEPATOTOXICITY STUDY OF A SERIES OF ANTI-ULCER DRUGS.** K C Norbury, P Carthage, and G J Davis, Research Laboratories, Ortho Pharmaceutical Corporation, Raritan, NJ.
- #107 10:15 **EFFECT OF SELENIUM ON ALLYL ALCOHOL HEPATOTOXICITY IN THE RAT.** M Manosra and R C Schnell, Dept. of Pharmaceutical Sciences, College of Pharmacy, North Dakota State University, Fargo, ND.
- #108 10:30 **OBESITY MARKEDLY POTENTIATES HEPATIC INJURY BY ALLYL ALCOHOL IN THE OVERFED RAT.** G B Corcoran and D E Salazar, Toxicology Program, College of Pharmacy, University of New Mexico, Albuquerque, NM, and Department of Pharmaceutics, State University of New York at Buffalo, Buffalo, NY.
- #109 10:45 **CHLORDECONE (CD) INHIBITS SODIUM-STIMULATED [<sup>3</sup>H]-GLUTAMATE TRANSPORT IN RAT BILE CANALICULAR VESICLES (BCV).** L G Rochelle and L R Curtis, Oak Creek Lab. of Biology, Oregon State Univ., Corvallis, OR.
- #110 11:00 **MICROCYSTIN-LR INDUCES MORPHOLOGIC AND CYTOSKELETAL HEPATOCYTE CHANGES IN VITRO AND IN VIVO.** S B Hooser<sup>2</sup>, V R Beasley<sup>1</sup>, M S Kuhlenschmidt<sup>2</sup>, and W M Haschek.<sup>2</sup> Depts. of Veterinary Biosciences<sup>1</sup> and Veterinary Pathobiology,<sup>2</sup> Univ. of Illinois, Urbana, IL.
- #111 11:15 **EFFECTS OF MICROCYSTIN-LR (MCLR) ON INTRAVENOUSLY DOSED SWINE.** V R Beasley<sup>1</sup>, R A Lovell<sup>1</sup>, K R Holmes<sup>1</sup>, D J Schaeffer<sup>1</sup>, W M Valentine<sup>1</sup>, A M Dahlem<sup>1</sup>, S B Hooser, W W Carmichael<sup>2</sup>, and W M Haschek<sup>1</sup>.<sup>1</sup> College of Veterinary Medicine, University of Illinois, Urbana, IL; <sup>2</sup>Dept. of Biological Sciences, Wright State University, Dayton, OH.
- #112 11:30 **THE EXHALATION OF VOLATILE ALKA(E)NES AS INDICATORS OF O<sub>2</sub>-RADICAL ATTACKS ON LIPIDS AND PROTEINS.** H Remmer, W Kessler, H Einsele, T H Hintze, G Diaz de Toranzo, A M Gharraibe, and H Frank, Institute of Toxicology, University of Tübingen, W. Germany.

## THURSDAY MORNING, MARCH 2

CLAYTON ROOM

### POSTER/DISCUSSION SESSION: IN VITRO MODELS OF PERCUTANEOUS ABSORPTION

**Chairperson:** W F Greenlee, CIIT, Research Triangle Park, NC

**Displayed:** 8:30 a.m.-11:30 a.m.

**Discussion:** 10:00 a.m.-11:30 a.m.

- #239 **QUANTITATIVE PREDICTION OF IN VIVO PERCUTANEOUS ABSORPTION PROFILES USING IN VITRO ISOLATED PERFUSED PORCINE SKIN.** J E Riviere, P L Williams, Toxicology Prog., N. Carolina St. Univ., Raleigh, NC.

- #240 **COMPARISON OF THE *IN VITRO* RATES OF PERCUTANEOUS ABSORPTION OF SEVERAL CHEMICALS USING RAT AND HUMAN SKIN.** E D Barber, N M Teetsel and D Guest. Eastman Kodak Company, Health and Environment Laboratories. Sponsor: J L O'Donoghue.
- #241 ***IN VITRO* PERCUTANEOUS ABSORPTION OF A HYDROPHOBIC COMPOUND THROUGH VIABLE HAIRLESS GUINEA PIG SKIN.** R L Bronaugh, S W Collier, and R F Stewart. Division of Toxicology, FDA, Washington, DC.
- #242 **EVALUATION OF HAIRLESS HARTLEY GUINEA PIG SKIN PREPARATIONS USED FOR *IN VITRO* PERCUTANEOUS ABSORPTION AND METABOLISM STUDIES.** M G Robl\*, S W Collier\*\*, and R L Bronaugh\*\*. \*Div. of Pathology, \*\*Div. of Toxicology, Food and Drug Administration, Washington, DC.
- #243 ***IN VITRO* PERCUTANEOUS ABSORPTION AND STRATUM CORNEUM BINDING OF ALACHLOR IN LASSO: EFFECT OF VEHICLE DILUTION WITH WATER.** D A W Bucks, R C Wester, M M Mobayen, H I Maibach and D Coleman, Dermatology Department, School of Medicine, University of California, San Francisco, CA.
- #244 **EVALUATION OF THE *IN VITRO* SKIN PENETRATION POTENTIAL OF UCARE POLYMER JR400 USING RAT, MOUSE, RABBIT, GUINEA PIG AND HUMAN SKIN.** M J Tallant, S W Frantz, and B Ballantyne, Bushy Run Research Center, Export, PA and \*Union Carbide Corporation, Danbury, CT.
- #246 **EFFECT OF SKIN SOURCE ON *IN VITRO* PENETRATION OF TRITIUM LABELED PBTX-3 (A RED TIDE TOXIN) THROUGH HUMAN SKIN.** R G Stafford, B W Kempainen, and M Mehta, School of Pharmacy, Auburn University, Auburn, AL.
- #247 **PRELIMINARY EVALUATION OF *IN VITRO* PERMEABILITY OF MONKEY BUCCAL MUCOSA AND SKIN TO TRITIATED WATER (THO) AND PbTx-3 (RED TIDE TOXIN).** M Mehta, B W Kempainen and R G Stafford, School of Pharmacy, Auburn, AL.
- #248 **THE BIOCHEMICAL AND MORPHOLOGICAL EFFECTS OF VEHICLES ON THE ISOLATED PERFUSED PORCINE SKIN FLAP.** J R King and N A Monteiro-Riviere, Col. of Vet. Med. and Toxicology Program, N.C. State Univ., Raleigh, NC.

**THURSDAY MORNING, MARCH 2  
GWINNETT ROOM**

**POSTER/DISCUSSION SESSION: PEROXISOMAL PROLIFERATION**

**Chairpersons:** J Popp, CIIT, Research Triangle Park, NC  
I Purchase, ICI Corp, Aderly Park-Macclesfield, Cheshire, England

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Discussion: 10:00 a.m.-11:30 a.m.**

- #249 **SPECIES DIFFERENCES IN PEROXISOME PROLIFERATION.** C R Elcombe and J A Styles. ICI, Central Tox Lab Macclesfield, UK. Sponsor: P M D Foster.
- #250 **STUDIES *IN VIVO* AND *IN CULTURE* ON THE MECHANISM OF LIVER HYPERPLASIA IN RATS INDUCED BY METHYLCLOFENAPATE.** J A Styles and C R Elcombe. ICI CTL, Macclesfield, UK. Sponsor: P Foster.
- #251 **DEVELOPMENT OF A CULTURED HEPATOCYTE SYSTEM TO STUDY NONGENOTOXIC MECHANISMS OF HEPATOCARCINOGENESIS.** A P Li and J C Merrill, Monsanto Company Environmental Health Laboratory, St. Louis, MO.
- #252 **A NOVEL HYPOTHESIS TO EXPLAIN THE MECHANISM OF ACTION OF STRUCTURALLY DISSIMILAR PEROXISOMAL PROLIFERATING AGENTS.** B Keller and R G Thurman. Dept. Pharmacol., U N Carolina at Chapel Hill, NC.
- #253 **CHRONIC TOXICITY OF A PHENYLENE(OXY)-BIS 2,2-DIMETHYLPENTANOIC ACID, A LIPID-REGULATING AGENT.** E J McGuire, and J A Anderson. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #254 **COMPARISON OF 5-BROMODEOXYURIDINE AND <sup>3</sup>H-THYMIDINE IN RODENT HEPATOCELLULAR PROLIFERATION STUDIES.** T L Lanier, E K Berger, and P I Eacho. Toxicology Division, Lilly Research Laboratories, Eli Lilly & Company, Greenfield, IN.
- #255 **CHANGES IN HEPATIC LIPID CONTENT AND INDUCTION OF PEROXISOMAL B-OXIDATION FOLLOWING ADMINISTRATION OF LY171883 TO RATS.** P I Eacho, P S Foxworthy, and D M Hoover. Toxicology Division, Eli Lilly & Company, Greenfield, IN.
- #256 ***IN VITRO* INTERACTION BETWEEN GLUTATHIONE S-TRANSFERASES AND PHYHALATE ESTER DERIVED PEROXISOME PROLIFERATORS.** M Y L Law and D E Moody. Center for Human Toxicology, Dept. of Pharmacology and Toxicology, Univ. of Utah, SLC, UT.
- #257 **BIOCHEMICAL AND PEROXISOMAL PROLIFERATING EFFECTS OF BLEACHED KRAFT PULP AND PAPER MILL EFFLUENT IN CHANNEL CATFISH.** E Mather-Mihaich and R di Giulio. Ecotoxicology Laboratory, Duke University, Durham, NC. Sponsor: M B Abou-Donia.

**THURSDAY MORNING, MARCH 2  
DOUGLAS ROOM**

**POSTER/DISCUSSION SESSION: MECHANISMS OF TESTICULAR TOXICITY**

**Chairpersons:** P K Working, Genetech, Inc., San Francisco, CA  
P M Foster, ICI Corp., Aderley Park, Macclesfield, Cheshire, England

**Displayed: 8:30 a.m.-11:30 a.m.**  
**Discussion: 10:00 a.m.-11:30 a.m.**

- #258 **REDOX CYCLING OF m-NITROSONITROBENZENE (NNB): A POSSIBLE MECHANISM FOR THE SERTOLI CELL TOXICITY OF m-DINITROBENZENE (DNB).** P M D Foster, M K Ellis and D A Cave. ICI, CTL, Macclesfield, UK.
- #259 **RELATIONSHIP BETWEEN TESTICULAR CELL CULTURE AGE AND SUSCEPTIBILITY TO 1,3-DINITROBENZENE INDUCED TOXICITY.** C D Brown and M G Miller. Department of Environmental Toxicology, University of CA., Davis. Sponsor: L Shull.
- #260 **IS STIMULATION OF LACTATE SECRETION BY CULTURED RAT SERTOLI CELLS A USEFUL INDEX OF TESTICULAR TOXICITY?** N R Worrell, D M Creasy, C A Thompson, and T J B Gray, BIBRA, Carshalton, Surrey, UK
- #261 **RESPONSE OF RAT TESTICULAR CELL CULTURES TO REPRODUCTIVE TOXINS IS INFLUENCED BY OXYGEN CONCENTRATION.** J Woytowicz, T Fabel and M Brabec. Eastern Michigan University, Ypsilanti, MI.

- #262 **TRI-*o*-CRESYL PHOSPHATE (TOCP) TOXICITY TO SERTOLI CELLS *IN VITRO* REQUIRES LEYDIG CELLS.** R Chapin and J Phelps. DART, NTP, NIEHS, Research Triangle Park, NC.
- #263 **APPROACHES TO ASSESS TOXICANT ALTERED TESTICULAR AND EPIDIDYMAL FUNCTION.** G Klinefelter<sup>1</sup>, V Slot<sup>2</sup>, J Suarez<sup>1</sup> and J Laskey<sup>2</sup>, NSI<sup>1</sup>/USEPA<sup>2</sup>, HERL, RTB, RTP, NC. Sponsor: L E Gray
- #264 **THE TOXICITY OF METHOXYACETIC ACID (MAA) TO RAT PACHYTENE SPERMATOCYTES.** N R Worrell and T J B Gray. BIBRA, Carshalton, Surrey, UK.
- #265 **ATTENUATION OF 2-METHOXYETHANOL-INDUCED TESTICULAR TOXICITY IN THE RAT BY SIMPLE PHYSIOLOGICAL COMPOUNDS.** C A Mebus, F Welsch, and P K Working. CIIT, Research Triangle Park, NC.
- #266 **INDUCTION OF TESTICULAR TOXICITY BY Ro 23-2895 IN RATS: REDUCTIONS IN PLASMA AND TESTICULAR RETINOL.** A A Levin, T Bosakowski, and S K Durham. Dept of Toxicology and Pathology, Hoffmann-La Roche, Nutley, NJ Sponsor: E A Pfitzer.

**THURSDAY MORNING, MARCH 2  
GALLERIA**

**POSTER SESSION: CARCINOGENESIS II**

Chairperson: S S Mirvish, The University of Nebraska Medical Center, Omaha, NE

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 8:30 a.m.-10:00 a.m.

- #823 **THE EFFECT OF EXTRA HISTOPATHOLOGY SECTIONING ON LUNG TUMOR INCIDENCE IN CD-1 MICE.** C E Hastings, R A Cardona, D E Johnson, C H Frith\*\* and F W Carlborg\*\*\*. Uniroyal Chemical Co., Inc. Bethany CT, \*IRDC, Mattawan MI, \*\*Tox. Path. Assoc., Little Rock AK, and \*\*\*St. Charles IL.
- #824 **CARCINOGENICITY OF 2-ACETYLAMINOFLUORENE IN BALB/c MICE: TWO-STAGE MODELING OF THE ED<sub>01</sub> STUDY BASED ON DNA ADDUCTS, HYPERPLASIA, AND TUMOR FORMATION.** S M Cohen, and L B Ellwein. Univ. Nebraska Medical Center, Omaha, NE.
- #825 **AZIRIDINE AND CYCLOPROPYL SUBSTITUTED CARBON-7 ACTINOMYCIN D ANALOGS (AZMA AND CPMA): *IN VITRO* CYTOTOXICITY AND BIOCHEMICAL MODES OF ACTION.** D P Rosenbaum and S K Sengupta, Department of Pharmacology, Boston University School of Medicine, Boston, MA. Sponsor: C T Walsh.
- #826 ***IN VITRO* TOXICITY OF TRISODIUM NITRILOTRIACETATE (NA<sub>3</sub><sup>+</sup>NTA<sup>-</sup>H<sub>2</sub>O) AND ZINC NITRILOTRIACETATE (Zn-NTA) IN RAT PROXIMAL TUBULE EPITHELIAL (PTE) CELLS.** K A Elliget, R L Anderson, R A LeBoeuf and B F Trump. Dept. of Path., Univ. of MD Sch. of Med. and MIEMSS, Balto., MD, and Human and Environmental Safety Division, Proctor & Gamble Co., Cincinnati, OH. Sponsor: T W Jones.
- #827 **DNA REPAIR IN HUMAN LUNG CELLS EXPOSED TO CHROMATE.** H S Park and C M Witmer, Joint Graduate Program in Toxicology, Rutgers University and Robert Wood Johnson Medical School, Piscataway, NJ.
- #828 **CELL REPLICATION IN MALE AND FEMALE MOUSE LIVER AFTER INHALATION EXPOSURE TO UNLEADED GASOLINE.** T L Goldsworthy, C S Sprankle, J Strasser, and B E Butterworth. CIIT, Research Triangle Park, NC. Sponsor: H Heck.
- #829 **DIETARY LIPID MODULATION OF XENOBIOTIC METABOLIZING ENZYMES IN MICE TREATED WITH DIMETHYLBENZ(A)ANTHRACENE.** M H Silva, L A Doody, D Mitchell, L J Faulkin, and B D Hammock. Departments of Environmental Toxicology, University of California, Davis, CA. Sponsor: C N Aldous.
- #830 **GLUTATHIONE AND GLUTATHIONE RELATED ENZYMES IN HUMAN LUNG TUMORS.** H Ahmad, S V Singh, A K Hague, R D Medh and Y C Awasthi. University of Texas Medical Br., Galveston, TX.
- #831 **POLYMORPHIC N-ACETYLYATION OF SULFAMETHAZINE (SMZ) AND BENZIDINE (BZD) BY HUMAN LIVER: IMPLICATION FOR CANCER RISK.** J H Peters, G R Gordon, E Lin, C E Green, and C A Tyson. Life Sciences, SRI International, Menlo Park, CA.
- #832 **EFFECTS OF BUTYLATED HYDROXYANISOLE (BHA) ON MOUSE LIVER GLUTATHIONE S-TRANSFERASE (GST) ISOENZYME ACTIVITY TOWARD AFLATOXIN B1-8, 9-EPOXIDE (AFBO).** H S Ramsdell and D L Eaton. Department of Environmental Health, University of Washington, Seattle, WA.
- #833 **ACTIVATION OF 1,6-DINITROPYRENE BY AN OXYGEN-INSENSITIVE NITROREDUCTASE.** D L McGunagle and Z Djuric. Dept. Gynecology-Obstetrics, Wayne State University, Detroit, MI.
- #834 **CARCINOGENICITY OF IRON WITH HEXACHLOROBENZENE IN C57BL/10SCSN MICE.** A G Smith, J E Francis, P Carthew, M M Manson and J R P Cabral\*. Toxicology Unit, Medical Research Council, Carshalton, Surrey, UK, and \*International Agency for Research on Cancer, Lyon, France.
- #835 **THE INCREASED FORMATION OF ALTERED FOCI IN THE LIVERS OF AFLATOXIN B<sub>1</sub> TREATED PARTIALLY HEPATECTOMISED RATS RESULTING FROM ETHOXYQUIN ADMINISTRATION.** G E Neal<sup>a</sup>, H G Mandel<sup>b</sup>, M M Manson<sup>a</sup> and J R P Cabral<sup>c</sup>. <sup>a</sup>Toxicology Unit, MRC Laboratories, Carshalton, UK, <sup>b</sup>Dept of Pharmacology, George Washington University, Washington, DC, USA, and <sup>c</sup>International Agency for Research on Cancer, Lyon, France.
- #836 **IMPORTANCE OF IMMUNE SURVEILLANCE IN CHEMICAL-INDUCED CARCINOGENESIS.** J L Bussiere, J H Exon, and G G Mather. Dept. of Veterinary and Comparative Anatomy, Pharmacology and Physiology, Univ. of Idaho, Moscow, ID.
- #837 **MODULATORY INTERACTION BETWEEN INITIAL CLOFIBRATE TREATMENT AND SUBSEQUENT ADMINISTRATION OF PB OR 2-AAF.** S Wada, M Tatematsu, H Tsuda, and N Ito. 1st Dept. Pathol., Nagoya City Univ. Med Sch., Nagoya, Japan.
- #838 **B-CELL LYMPHOMA/LEUKEMIA (BCL) IN RATS AND MICE TREATED WITH 2-HYDROXYETHYLNITROSUREA (HENU) AND EFFECTS OF COADMINISTRATION OF 2,4,5-TRICHLOROPHENOXYACETIC ACID (245T) AND PENTACHLOROPHENOL (PCP).** S S Mirvish, J Nickols, D D Weisenburger, S S Joshi, M L Gross, H Tana. Eppley Inst Res Cancer, Univ Neb Med Ctr, Omaha, NE.
- #839 **NO SYSTEMIC CARCINOGENIC POTENTIAL FROM SKIN APPLICATION OF PETROLEUM HYDROCARBONS (PHC).** J J Freeman, S C Lewis, R H McKee, and R D Phillips. Exxon Biochemical Sciences, Inc., East Millstone, NJ.
- #840 **CARCINOGENIC POTENTIAL OF GASOLINE AND DIESEL ENGINE OILS.** R T Plutnick, and R H McKee. Exxon Biomedical Sciences, Inc., East Millstone, NJ.
- #841 **CARCINOGENICITY STUDY OF THE PESTICIDE FENVALERATE IN MICE.** J R P Cabral and D Galendo. International Agency for Research of Cancer (IARC), Lyon, France.
- #842 **PREVENTION OF NICKEL SUBSULFIDE CARCINOGENESIS BY LOCAL ADMINISTRATION OF M. BOVIS ANTIGEN.** K S Kasprzak and J M Ward. Laboratory of Comparative Carcinogenesis, National Cancer Institute, FCRF, Frederick, MD.

- #843 **PANCREATIC ACINAR CELL TUMORS INDUCED BY 3,2'-DIMETHYL-4-AMINOBIIPHENYL IN RATS.** A Nakamura, T Shirai, R Hasegawa, and N Ito. 1st Dept. Pathol., Nagoya City Univ. Med. Sch., Nagoya, Japan.
- #844 **CHRONIC TOXICITY STUDIES OF  $\alpha$ -BENZYL-p-CHLOROPHENOL IN F344 RATS AND B6C3F<sub>1</sub> MICE.** M Hejtmancik, M Ryan, A Peters and L Birnbaum. Battelle Columbus, Ohio and NIEHS, Research Triangle Park, NC.
- #845 **HEPATOTOXIC EFFECTS OF DICHLOROACETATE (DCA) AND TRICHLOROACETATE (TCA) IN B6C3F<sub>1</sub> MICE.** I M Sanchez and R J Bull. Pharmacology/Toxicology Graduate Program, College of Pharmacy, Washington State University, Pullman, WA.
- #846 **EVALUATION OF CHRONIC AND REPRODUCTIVE EFFECTS OF p-NITROCHLORO BENZENE (PNCB) IN RATS.** R S Nair, F R Johannsen, Monsanto Co., St. Louis, MO, R E Schroeder and C S Auletta, Bio/dynamics Inc., East Millstone, NJ.
- #847 **THE DERMAL CARCINOGENIC POTENTIAL OF UNREFINED AND HYDROTREATED LUBRICATING OILS.** W C Daughtrey, R H McKee, J J Freeman, T M Federici, R D Phillips, R T Plutnick. Exxon Biomedical Sciences, Inc., East Millstone, NJ.
- #848 **CARCINOGENICITY STUDIES OF WOLLASTONITE IN RATS.** B Adkins, E E McConnell\* and L Hall\*. NSI-Environmental Sciences and \*National Toxicology Program/NIEHS, Research Triangle Park, NC.
- #849 **LACK OF EFFECT OF STAGGERED PLACEMENT ONTO AND REMOVAL FROM AN ONCOGENIC BIOASSAY.** E F Erker<sup>1</sup>, L J Slaughter<sup>2</sup>, and W L West<sup>1</sup>. Depts. of Pharm.<sup>1</sup> and Path.<sup>2</sup>, Howard Univ. Coll. Med., Wash., DC.
- #850 **CARCINOGENICITY STUDIES IN RODENTS OF MORPHINE PYROLYSATE (MO) IMPLICATED IN THE AETIOLOGY OF OESOPHAGEAL CANCER.** M Friesen, J R P Cabral, D Galendo, L Garren and H Bartsch. International Agency for Research on Cancer, Lyon, France.
- #851 **CHRONIC TOXICITY/ONCOGENICITY STUDIES OF THE  $\beta$ -BLOCKER LEVOBUNOLOL.** C E Rothwell, E J McGuire, and R A Martin. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #852 **CORRELATION OF CYTOCHROME P-450 (P450) ISOZYME INDUCIBILITY, SUSCEPTIBILITY TO PHENOBARBITAL (PB) PROMOTION OF TUMOR FORMATION, AND BODY WEIGHT GAIN.** G L Wolff, J E A Leakey, J Bazare, and P J Webb. National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR.
- #853 **INHIBITION OF LIVER TUMOR FORMATION BY ALPHAHEXACHLORO CYCLOHEXANE (a-HCH) IN DIETHYLNITROSAMINE (DNA) INITIATED B6C3F<sub>1</sub> MICE.** J C Siglin, C M Weghorst, D E Rodwell and J E Klaunig. Springborn Life Sciences, Inc., Spencerville, OH and Dept. of Pathology, Medical College of Ohio, Toledo, OH.
- #854 **TEST OF ALKYL CARBAMATES FOR TUMOR INITIATION AND FOR TUMOR PROMOTION IN RAT LIVER.** M A Pereira, <sup>1</sup>H P Glauert, M M Khoury, P Barnwell, M Hensley And <sup>2</sup>R A Davis. Environmental Health Research and Testing, Inc., Cincinnati, OH; <sup>1</sup>University of Kentucky, Lexington, KY; <sup>2</sup> American Cyanamid Company, Wayne, NJ.
- #855 **FREEZING INITIATION OF BLADDER CARCINOGENESIS PROMOTED BY SODIUM O-PHENYLPHENATE (OPP-Na) OF RAT URINARY BLADDER.** N Shimoji<sup>1</sup>, H Okamiya<sup>1</sup>, R Hasegawa<sup>1,2</sup>, K Imaida<sup>1</sup>, M Takahashi<sup>1</sup>, N Ito<sup>2</sup>, and Y Hayashi<sup>1</sup>. <sup>1</sup>Division of Pathology, National Institute of Hygienic Sciences, 1-18-1 Kamiyoga, Setagaya, Tokyo, Japan, <sup>2</sup>First Department of Pathology, Nagoya City University Medical School, 1-Kawasumi, Mizuho Nagoya, Japan.
- #856 **HEPATOCTYCLE PROLIFERATION IN THE MOUSE AND RAT FOLLOWING ACUTE TREATMENT WITH TRICHLOROETHYLENE.** K L Fry, C M Weghorst, and J E Klaunig. Department of Pathology, Medical College of Ohio, Toledo, OH.

## THURSDAY MORNING, MARCH 2 GALLERIA

### POSTER SESSION: AQUATIC/ENVIRONMENTAL

**Chairperson:** L R Curtis, Oregon State University, Covallis, OR

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 10:00 a.m.-11:30 a.m.

- #858 **SENTINEL SPECIES, SENTINEL BIOASSAY AND HAZARDOUS WASTE SITE MONITORING.** W R Lower. Environmental Trace Substances Research Center, University of Missouri, Columbia, MO, W W Sutton, Environmental Research Laboratory, USEPA, Athens, GA, S S Sandhu, Genetic Toxicology Division, USEPA, Research Triangle Park, NC.
- #859 **COMPARATIVE EVALUATION OF SMALL MAMMALS AS MONITORS OF ENVIRONMENTAL TOXICANTS.** S S Talmage. Chemical Hazard Evaluation Program, Health and Safety Research Division and B T Walton. Environmental Sciences Division, Oak Ridge National Laboratory,\* Oak Ridge, TN.
- #860 **EARTHWORM TOXICITY, DOSE LEVEL SELECTION.** B Hakin, P A Johns, N L Roberts. Huntingdon Research Centre, Huntingdon, England.
- #861 **USE OF DAPHNIDS AND MICROTOX AS ALTERNATIVE ANIMAL MODELS TO EVALUATE STRUCTURE-ACTIVITY RELATIONSHIPS.** A W Fitzsimmons<sup>1</sup>, W J Keller<sup>1</sup>, and W H Benson<sup>2</sup>. <sup>1</sup>School of Pharmacy, Northeast Louisiana University, Monroe, LA; <sup>2</sup>School of Pharmacy, University of Mississippi, University, MS.
- #862 **THE USE OF ALKOXYRESORUFIN O-DEALKYLATION AS A POTENTIAL INDICATOR OF EXPOSURE TO ENVIRONMENTAL CONTAMINANTS.** R W Nims and R A Lubet. LCC, National Cancer Institute, Frederick, MD.
- #863 **CHEMICAL STABILITY AND BIOLOGICAL SUITABILITY OF A 25-CHEMICAL MIXTURE OF GROUNDWATER CONTAMINANTS FOR ANIMAL TOXICOLOGY STUDIES.** R S H Yang, T Goehl, C W Jameson, D Germolec, M I Luster, R Chapin, R E Morrissey, B A Schwetz, R Harris<sup>1</sup>, A Chatham<sup>1</sup>, D Arneson<sup>1</sup>, R Moseman<sup>2</sup>, N Collinsworth<sup>2</sup>, D Bigelow<sup>2</sup>. NIEHS/NTP, Research Triangle Park, NC, <sup>1</sup>Midwest Research Institute, Kansas City, MO, <sup>2</sup>Radian Corporation, Research Triangle Park, NC.
- #864 **STUDIES ON IRRADIATED GRANARY WEEVIL WITH REFERENCE TO HUMIDITY AND TEMPERATURE.** S Sriharan<sup>1</sup>, R S Saini<sup>2</sup> and D Romanovicz<sup>3</sup>. Selma University, Selma, AL<sup>1</sup>, Tuskegee University, Tuskegee, AL<sup>2</sup>, West Georgia College, Carrollton, GA<sup>3</sup>. Sponsor: G. Reddy.
- #865 **THE EFFECT OF ZEARALENONE ON REPRODUCTIVE PARAMETERS OF FEMALE MINK.** J K Cameron, S J Bursian, and R J Aulerich. Department of Animal Science and Center for Environmental Toxicology, Michigan State University, East Lansing, MI.
- #866 **COMPARATIVE METABOLISM, DNA BINDING AND DNA ADDUCT REPAIR OF AFLATOXIN B<sub>1</sub> IN TRACHEAL EXPLANTS FROM THREE MAMMALIAN SPECIES.** R W Ball, D W Wilson\* and R A Coulombe, Graduate Programs in Toxicology and Molecular Biology and Biochemistry, Utah State University, Logan, UT and \*Department of Veterinary Pathology, University of California, Davis, CA.
- #867 **RESISTANCE TO AFLATOXIN B<sub>1</sub>(AFB) AND FAILURE OF OLTIPRAZ TO PROTECT AGAINST AFB TOXICITY IN BROILER CHICKENS.** A M Standeven, B D Roebuck, J D Groopman, P A Egner, T W Kensler. Dartmouth Medical School, Hanover, NH; Boston University School of Public Health, Boston, MA; Johns Hopkins University, Baltimore, MD.

- #868 **INHIBITORY EFFECTS OF CERTAIN TRICHOHECENES, CYCLOPIAZONIC ACID AND CITREOVIRIDIN ON TETRAHYMENA.** K Nishie, R J Cole\* and J W Dornier\*. USDA-ARS, Russell Res. Cen., Athens, GA; \*Natl. Peanut Res. Lab, Dawson, GA.
- #869 **NEW DEVELOPMENTS IN ESTIMATING AN EFFECT CONCENTRATION FROM CHRONIC AQUATIC TOXICITY TESTS\***. A H Marcus<sup>1</sup>, A P Holtzman<sup>1</sup>, G M DeDraeve<sup>2</sup>, N G Reichenbach<sup>2</sup>, P I Feder<sup>2</sup>, and D I Mount<sup>3</sup>. <sup>1</sup>Battelle Memorial Institute, RTP, NC, <sup>2</sup>Battelle, Columbus, OH, <sup>3</sup>US EPA/ERL, Duluth, MN.
- #870 **SUBCHRONIC TOXICITY OF MERCURY ON FEEDING AND GROWTH IN TWO SPECIES OF CATFISHES.** S R Reddy and G Belliyappa. Department of Zoology, Bangalore University, Bangalore, India. Sponsor: D Desai.
- #871 **ACUTE AND CHRONIC TOXICITY OF ALUMINUM TO FISH AND INVERTEBRATES.** W J Birge, J A Black, T M Short, \*A G Westerman, S B Taylor, and E M Silberhorn, Graduate Center for Toxicology, University of Kentucky, Lexington, KY and \*Kentucky DEP, Frankfort, KY. Sponsor: L W Robertson.
- #872 **ROLE OF RAINBOW TROUT FLAVIN-CONTAINING MONOOXYGENASE IN THE *IN VITRO* BIOTRANSFORMATION OF ALDICARB.** D Schlenk and D R Buhler, Toxicology Program, Oregon State Univ., Corvallis, OR.
- #873 **PHARMACOKINETICS OF ORMETOPRIM IN RAINBOW TROUT.** B F Droy, \*M Goodrich, \*J J Lech, and K M Kleinow. Dept. of Veterinary Physiology, Pharmacology and Toxicology, LSU, Baton Rouge, LA and \*Dept. of Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee, WI.
- #874 **TISSUE DISTRIBUTION OF DIETARILY ADMINISTERED ALDICARB IN RAINBOW TROUT.** D A Erickson, M S Goodrich, and J J Lech, Medical College of Wisconsin and Center for Great Lakes Studies, Milwaukee, WI.
- #875 **PHARMACOKINETICS AND METABOLISM OF TRICLOPYR BEE IN COHO SALMON.** M G Barron, M A Mayes, P G Murphy, R J Nolan. Mammalian and Environmental Toxicology Research Laboratory, The Dow Chemical Company, Midland, MI.
- #876 **PRIMARY CULTURE OF TROUT HEPATOCYTES ON AN EXTRACELLULAR MATRIX.** M M Lipsky, M W Kahng, T R Sheridan, R Reimschuessel, R O Bennett, and E B May. Department of Pathology, University of Maryland School of Medicine, Baltimore, MD. Sponsor: T W Jones.
- #877 **MECHANISMS OF LIPID PEROXIDATION IN THE RAT AND THE TROUT.** Y Singh, G Hall and M G Miller. Department of Environmental Toxicology, University of California, Davis. Sponsor: L Shull.

## THURSDAY MORNING, MARCH 2 GALLERIA

### POSTER SESSION: PESTICIDES

Chairperson: J E Simmons, USEPA, Research Triangle Park, NC

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 8:30 a.m.-10:00 a.m.

- #878 ***IN VITRO* TOXICITY OF NEUROGLIA TO ALDICARB AND CARBARYL.** T Rowles and M Farage-Elawar, VA-MD Blacksburg, VA.
- #879 **FUNCTIONAL ANALYSES OF CELL-MEDIATED IMMUNITY AND QUANTITATION OF LYMPHOCYTE SUBPOPULATIONS IN MICE EXPOSED TO THE CARBAMATE PESTICIDE ALDICARB.** P T Thomas, H V Ratajczak, D Demetral, K Hagen, and R Baron. IIT Research Institute, Chicago, IL and Rhone-Poulenc AG Company, Research Triangle Park, NC.
- #880 **EFFECTS OF MULTIPLE ORAL DOSES OF TWO CARBAMATE INSECTICIDES ON ESTERASE LEVELS IN THE YOUNG AND ADULT CHICKENS.** M Farage-Elawar, M F Ehrlich, B S Jortner and H P Misra. VA-MD Regional College of Veterinary Medicine, Blacksburg, VA.
- #881 **OSMOTIC MINI-PUMP INFUSION OF PHYSOSTIGMINE AND MUSCARINIC RECEPTOR BLOCKERS AS PROTECTION AGAINST SOMAN IN GUINEA PIGS.** D K Lim, Y Ito, B Hoskins and I K Ho. Dept. Pharmacol. and Toxicol., Univ. MS Med. Ctr., Jackson, MS.
- #882 **CLINICAL CHEMISTRY AND HEMATOLOGY VALUES IN CD RATS DURING SUBCHRONIC EXPOSURE TO SARIN AND SOMAN.** J A Crowell, R M Parker, T J Bucci, \*J C Dacre. Pathology Associates Inc., NCTR, Jefferson, AR and \*US Army Biomedical R&D Laboratory, Fort Detrick, MD.
- #883 **ORGANOPHOSPHATE-SENSITIVE ESTERASES IN THE LIVER AND PLASMA OF THE CHICKEN EMBRYO.** S J Smucker and B W Wilson. University of California, Davis, CA.
- #884 **PHYSOSTIGMINE AS AN ADJUNCT TO PYRIDOSTIGMINE PRETREATMENT IN PARAOXON TREATED LONG-EVANS RATS.** S S Singh, W O Cook, J A Dellinger. Southwest Research Institute, San Antonio, Texas.
- #885 **JOINT ACTION OF ORGANOPHOSPHATES ON ACETYLCHOLINESTERASE *IN VITRO*.** J Li and S D Murphy, Department of Environmental Health, University of Washington, Seattle, WA.
- #886 **CHLORPYRIFOS: INHIBITION OF HEN BRAIN ACETYLCHOLINESTERASE (AChE) AND NEUROTOXIC ESTERASE (NTE) *IN VIVO* AND KINETICS OF NTE INHIBITION *IN VITRO*.** T B Moore, U S Kayyali, J H Fowke, and R J Richardson. Toxicology Program, The University of Michigan, Ann Arbor, MI.
- #887 **ENHANCEMENT OF PROPOXUR TOXICITY BY Iso-OMPA PRETREATMENT: EVIDENCE OF POTENTIATION.** R C Gupta and W L Kadel. Breathitt Veterinary Center, Murray State University, Hopkinsville, KY.
- #888 **TOLERANCE TO AN ORGANOPHOSPHORUS INSECTICIDE, CHLORFENVINPHOS, IN RATS.** S Tsuda, T Ikeda, T Kojima, M Yoshida, H Takahashi, and Y Shirasu. Institute of Environmental Toxicology, Mitsukaido, Ibaraki, Japan.
- #889 ***IN VIVO* PENETRATION AND METABOLISM OF METHYL PARATHION IN LARVAE OF THE TOBACCO BUDWORM, HELIOTHIS VIRESCENS (F) FED DIFFERENT HOST PLANTS.** S F Abd-Elghafar, W C Dauterman and E Hodgson. Toxicology Program, North Carolina State Univ. Raleigh, NC.
- #890 **EVALUATION OF THE POTENTIAL DEVELOPMENTAL EFFECTS OF TRICLOPYR IN THE NEW ZEALAND WHITE RABBIT.** H D Kirk, T H Hanley, D L Eisenbrandt and J F Quast, Mammalian and Environmental Toxicology Research Laboratory, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.
- #891 **PRECHRONIC (14-DAY) TOXICITY OF METHYLENE BIS (THIOCYANATE) ORALLY ADMINISTERED TO FISCHER 344 RATS AND B6C3F1 MICE.** B Myers, L Billups, R Irwin\*, L Burka\* and G Wolfe. \*NIEHS/NTP, RTP, NC and HLA, Rockville, MD.
- #892 **INHIBITION OF RAT HEPATIC LOW Km ALDEHYDE DEHYDROGENASE (L Km ALDH) BY MOINATE: POTENTIAL IMPLICATIONS.** M D Faiman, E M Finkbiner, M B Bauer, and B W Hart. Department of Pharmacology and Toxicology, University of Kansas, Lawrence, KS.



- #893 **CLOTTING EFFECTS AND PLASMA DRUG CONCENTRATIONS AFTER SINGLE ORAL DOSES OF BRODIFACOU OR WARFARIN IN THE DOG.** D F Gerken, R A Sams, S Ashcraft, and K Lee. The Ohio State University, Columbus, OH. Sponsor: V L Carter.
- #894 **MEASURING POTENTIAL DERMAL TRANSFER OF SURFACE PESTICIDE RESIDUE GENERATED FROM INDOOR FOGGER USE.** J H Ross, T Thongsinthusak, H Fong, R I Krieger. California Department of Food and Agriculture, Worker Health and Safety Branch, Sacramento, CA.
- #895 **EPIDEMICS OF POISONING CAUSED BY THE CONTAMINATION OF FOODS WITH PESTICIDES.** A Ferrer<sup>a</sup>, J R P Cabral<sup>b</sup>. <sup>a</sup>Servicio de Toxicología, Hospital Clínico, Zaragoza, Spain, and <sup>b</sup>International Agency for Research on Cancer, Lyon, France.
- #896 **BACILLUS THURINGIENSIS ISRAELENIS CYTOYTIC TOXIN: MAPPING THE SITE IMPORTANT FOR BINDING.** E Chow, S Liu, and S S Gill. Department of Entomology, University of California, Riverside, CA.
- #897 **MECHANISM OF TOXICITY OF A UNIQUE PESTICIDE N-ETHYLPERFLUOROCTANE SULFONAMIDE (NEPFOS), AND ITS METABOLITE PERFLUOROCTANE SULFONAMIDE (PFOS) TO ISOLATED RABBIT RENAL CORTICAL MITOCHONDRIA (RCM).** T J Cross and R G Schnellmann. Dept. Physiol./Pharmacol., Coll. Vet. Med., University of Georgia, Athens, GA.

## THURSDAY MORNING, MARCH 2 GALLERIA

### POSTER SESSION: HALOGENATED HYDROCARBONS

Chairperson: J V Bruckner, University of Georgia, Athens, GA

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 10:00 a.m.-11:30 a.m.

- #898 **IN VIVO FREE RADICAL FORMATION DURING THE METABOLISM OF TRICHLOROETHYLENE (TRILENE).** J L Poyer, W H Massion and P Downs. Univ. of Okla. Hlth. Sci. Cntr. Okla. City, OK and Molecular Toxicol. Res. Group, F Okla. Med. REs. Found., OKC, OK.
- #899 **EFFECT OF TOXAPHENE ON <sup>32</sup>P INCORPORATION IN RAT MYOCARDIAL SARCOPLASMIC RETICULUM.** C H Trotman, C Showers, J A Cameron and D Desai<sup>ah</sup>. Depts of Chem and Biol, Jackson State Univ and Dept Neurol, Univ Miss Med Ctr, Jackson, MS.
- #900 **EFFECTS OF PERFLUORODECANOIC ACID ON SELENIUM-DEPENDENT GLUTATHIONE-PEROXIDASE.** L-C Chen, S Knight\*, R A Sunde\*, L W Robertson, H P Glauert, & C K Chow. Graduate Ctr for Toxicol, Univ of Kentucky, Lexington, KY. \*Dept Nutr& Food Sci, Univ of Arizona, Tucson, AZ.
- #901 **SUBCHRONIC TOXICITY OF BETA-CHLORONAPHTHALENE IN MICE,** B Sonawane, R Rubenstein, C DeRosa, A Bathija, H Choudhary and S Irene, U.S. Environmental Protection Agency, Washington, D.C.
- #902 **CORRELATION BETWEEN RENAL DNA DAMAGE AND NECROSIS OF HALOGENATED PROPANES.** E Dybing, G Brunborg, M Lag, E J Soderlund, J G Ormichinski<sup>1</sup>, J A Holme and S D Nelson<sup>2</sup>. Dept. Toxicol., Natl. Inst. Publ. Hlth., Oslo, Norway, Natl. Cancer Inst., Bethesda, MD<sup>1</sup> and Dept. Medicinal Chem., Univ. Washington, Seattle, WA<sup>2</sup>.
- #903 **INHALATION OF CHLOROTRIFLUOROETHYLENE (CTFE) OIL BY F-344 RATS: EXPOSURE AND TISSUE CHEMICAL ANALYSIS.** R L Carpenter, E C Kimmel, H Higman, D L Pollard. NSI Technology Services Corporation Dayton, OH. Sponsor: R S Kutzman.
- #904 **EVALUATION OF HEXACHLOROBENZENE RISK IN A HUMAN POPULATION.** Spain (1981-1988) J To-Figuera, J Gomez-Catalan, M Rodamilans, J Planas, C Conde\*, A Ferrer\*\*, M Camps, J Corbella. Sponsor: J R P Cabral. Toxicology Unit. Facultat de Medicina. Hospital Clinic. Universitat de Barcelona. \*Hospital San Carlos. Madrid.\*\* Hospital Clinic. Zaragoza. Spain.
- #905 **TOXICOLOGICAL ASSESSMENT OF CHLORINATED DIPHENYL ETHERS IN THE RAT.** D C Villeneuve, I Chu, V E Secours and \*V E Valli. Environmental and Occupational Toxicology Division, Environmental Health Directorate, Ottawa and \*Biopath Analyst, Guelph, Canada.
- #906 **CHANGES IN <sup>3</sup>H-MUSCIMOL BINDING TO BRAIN MEMBRANES IN RATS TREATED WITH DIELDRIN.** B D Mehrotra, M Veerepalli and D Desai<sup>ah</sup>. Dept Chem, Tougaloo College and Dept Neurol, Univ Miss Med Ctr, Jackson, MS.
- #907 **DOES ENDOCYTOSIS OF LDL PLAY A ROLE IN THE MOVEMENT OF HEXABROMOBIPHENYL (HBB) INTO PERIPHERAL CELLS?** S I Jang and L A Bernstein. Department of Environmental and Industrial Health Toxicology Program, University of Michigan, Ann Arbor, MI.
- #908 **POLYCHLORINATED BIPHENYL (AROCLOL 1254) INDUCED CHANGES IN FEMUR MORPHOMETRY CALCIUM METABOLISM AND NEPHROTOXICITY.** J E Andrews. US Environmental Protection Agency, HERL, Research Triangle Park, NC. Sponsor: L E Gray.
- #909 **HEPATOTOXICITY AND NEPHROTOXICITY OF INHALED EPICHLOROHYDRIN IN F344 RATS.** B L Robinson, J W Allis, J E Andrews, A McDonald and J E Simmons. Health Effects Research Laboratory, US EPA, and Northrop Services Inc., Research Triangle Park, NC.
- #910 **EFFECT OF MULTIPLE DOSES OF PERFLUORODECANOIC ACID (PFDA) ON GROWTH AND LIPID METABOLISM IN FEMALE SPRAGUE-DAWLEY RATS.** T Borges<sup>1</sup>, H P Glauert<sup>2</sup>, R E Peterson<sup>3</sup>, L W Robertson<sup>1</sup>—. <sup>1</sup>Graduate Center for Toxicology and <sup>2</sup>Nutrition & Food Science, Univ. Kentucky, Lexington, KY. <sup>3</sup>Sch. Pharmacy, Univ. Wisc., Madison, WI.
- #911 **EFFECTS OF HALOACETONITRILES (HAN) ON CYTOCHROME P-450 AND MONO-OXYGENASES IN VITRO AND IN VIVO.** E L C Lin, J K Mattox and B H McFarland, USEPA, HERL, Cincinnati, OH. Sponsor: T V Reddy.
- #912 **GASTRIC, RENAL AND HEPATIC TOXICITY OF CHLOROPROPANONES (CP).** C L Smallwood, L W Condie, B A Merrick. USEPA, HERL, Cincinnati, OH.
- #913 **SUBCHRONIC TOXICITY STUDIES OF PENTACHLOROBENZENE (PeCB) IN F344 RATS AND B6C3F1 MICE.** L E Sendelbach, A S K Murthy, H J Esber, and R S H Yang. NIEHS/NTP, Research Triangle Park, NC and EG & G Mason Research Institute, Worcester, MA.
- #914 **SUBCHRONIC ORAL TOXICITY OF 1,2,3, TRICHLOROBENZENE (TCB) IN RATS.** S Irene, R Rubenstein, C DeRosa, B Sonawane, and A Bathija. US EPA, Washington, DC. B J Payne. Toxicity Research Laboratories Ltd. Sponsor: J Murphy
- #915 **COMPARATIVE PHARMACOKINETICS (PK) AND TARGET ORGAN TOXICITY OF INHALED AND INGESTED CARBON TETRACHLORIDE (CCl<sub>4</sub>) IN RATS.** J V Bruckner, H J Kim, C E Dallas and S Muralidhara. Dept. Pharmacol. & Toxicol., College of Pharmacy, Univ. of Georgia, Athens, GA.
- #916 **DISTRIBUTION AND EXCRETION OF PERFLUORO-N-DECANOIC ACID (PFDA) IN RATS.** M E George, G L Pilcher, and M E Andersen. Harry G. Armstrong Aerospace Medical Research Laboratory, Toxic Hazards Division, Wright-Patterson AFB, OH.

- #917 **INFLUENCE OF THE PATTERN OF INGESTION ON THE PHARMACOKINETICS OF PERCHLOROETHYLENE (PER) IN RATS.** R Ramanathan, S Muralidhara, C E Dallas, \*J M Gallo, and J V Bruckner. Depts. Pharmacology & Toxicology and \*Pharmaceutics, College of Pharmacy, University of Georgia, Athens, GA.
- #918 **PHYSIOLOGICAL PHARMACOKINETIC MODELS FOR 1,1,1-TRICHLOROETHANE (TRI) AND 1,1,1-TRICHLOROETHYLENE (TCE) IN RATS FOLLOWING INHALATION AND ORAL EXPOSURES.** J M Gallo, \*C E Dallas and \*J V Bruckner. Depts. of Pharmaceutics and \*Pharmacology & Toxicology, College of Pharmacy, University of Georgia, Athens, GA.
- #919 **PHYSIOLOGICALLY-BASED COMPUTER SIMULATION OF INHALATION EXPOSURES OF MALE F-344RATS TO CHLOROTRIFLUOROETHYLENE OLIGOMER.** A Vinegar, D L Pollard, K R Kinkead, and R B Conolly. NSI Technology Services Corp., Dayton, OH.
- #920 **PROTECTION AGAINST CARBON TETRACHLORIDE HEPATOTOXICITY WITH ALPHA TOCOPHERYL SUCCINATE ADMINISTRATION.** M W Fariss, E E Hylton, C H Stubin, K L Foster and G E Madge. Environmental and Molecular Toxicology, Department of Pathology, Medical College of Virginia/Virginia Commonwealth University, Richmond, VA.
- #921 **TRICHLOROETHYLENE (TCE) AND TRICHLOROACETIC ACID (TCA) INDUCTION OF MICROSOMAL CYTOCHROME P-452 AND PEROXISOME PROLIFERATION IN RATS AND MICE.** M E Knuckles, University of Alabama at Birmingham, Birmingham, AL. Sponsor: R G Meeks.

**THURSDAY MORNING, MARCH 2  
GALLERIA**

**POSTER SESSION: GENETIC TOXICOLOGY/MUTAGENESIS**

Chairperson: J A S Allen, Glaxo, Inc., Research Triangle Park, NC

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 8:30 a.m.-10:00 a.m.

- #922 **CYTOGENETIC EFFECTS OF INHALED OZONE ON PULMONARY ALVEOLAR MACROPHAGES OF RATS.** K Rithidech, J A Hotchkiss, R F Henderson and A L Brooks. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #923 **EFFECTS OF PARTICLE ADSORPTION ON BENZO(a)PYRENE-INDUCED SISTER CHROMATID EXCHANGE.** P N Atkins, J M Daisey, and J T Zelikoff. New York University Medical Center, New York, NY.
- #924 **ANALYSIS OF CYTOGENETIC EFFECTS IN BONE MARROW CELLS OF RATS SUBCHRONICALLY EXPOSED TO SMOKE FROM CIGARETTES WHICH BURN OR ONLY HEAT TOBACCO.** C K Lee, B G Brown, E A Reed, G D Lowe, C W Fulp, S C McKarns, C R E Coggins, P H Ayres and D J Doolittle. R. J. Reynolds Tobacco Co., Winston-Salem, NC.
- #925 **INDUCTION OF DNA STRAND BREAKS (SB) IN HUMAN CELLS BY CHLOROHYDROXYFURANONES (CHF), DISINFECTION BY-PRODUCTS OF DRINKING WATER.** L W Chang, F B Daniel, C L Potter, and A B DeAngelo. U.S. Environmental Protection Agency, Health Effects Research Laboratory, Cincinnati, OH.
- #926 **ALTERATIONS IN ETHYLATING EFFECTS OF ETHYLENE OXIDE (ETO) USING DIFFERENT TREATMENT REGIMENS.** D G DeBord, T Swearingin, K Begley, R E Savage, Jr., W Moorman, and J McLaurin. NIOSH, DBBS, ETB, TMS, Cincinnati, OH.
- #927 **GENETIC TOXICITY OF THE PLANT HORMONE ANALOG BETA-NAPHTHOXYACETIC ACID (BNOA).** T G Osirnitz, P J Guzzie, E R Morabit, and R S Slesinski. S C Johnson and Son, Inc., Racine, WI and Bushy Run Research Center, Export, PA.
- #928 **GENEOTOXICITY OF LEWISITE IN CHINESE HAMSTER OVARY CELLS.** R F Jostes, R J Rausch, B M Miller, L B Sasser and J C Dacre. Pacific Northwest Laboratory, Richland, WA and U.S. Army Biomedical Research and Development Laboratory, Ft. Detrick, Frederick, MD.
- #929 **GENOTOXICITY OF TETRAETHYLENE GLYCOL (TEG) EVALUATED WITH MULTIPLE *IN VIVO* ASSAYS.** R S Slesinski, P J Guzzie, E R Morabit and B Ballantyne. Bushy Run Research Center/Union Carbide Corporation, Export, PA.
- #930 **COMPARATIVE GENOTOXIC AND NONGENOTOXIC EFFECTS OF TWO STRUCTURALLY SIMILAR NITROPHENYLENEDIAMINE DYES (HC BLUE 1 AND HC BLUE 2) IN FEMALE MOUSE HEPATOCYTES.** S M Driscoll, K M Rudo, F W Kari, S Strom, and R Langenbach. NIEHS, Research Triangle Park, NC. Sponsor: J Bucher.
- #931 **GENOTOXICITY PROFILE OF LITHIUM HYPOCHLORITE.** M L Weiner<sup>1</sup>, K J Batt<sup>1</sup>, L L Yang<sup>2</sup>, R D Curren<sup>2</sup>, D L Putman<sup>2</sup>, and M J Fletcher<sup>1</sup>. <sup>1</sup>FMC Corporation, Princeton, NJ and <sup>2</sup>Microbiological Associates, Rockville, MD.
- #932 **MIREX (MX) INDUCES HEPATIC ORNITHINE DECARBOXYLASE (ODC) ACTIVITY IN RATS.** A K Mitra and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.
- #933 **NO EVIDENCE OF BENZENE INDUCED DNA STRAND BREAKS *IN VIVO*.** E W Lee and C D Garner. Biomedical Science Department, GM Research Labs, Warren, MI.
- #934 **USE OF LIQUID CHROMATOGRAPHY AND P-32 POST-LABELING TO CHARACTERIZE CARCINOGEN-DNA ADDUCTS.** W Ridley, G Yalamanchili, K Asbury, W Hopkins, M Dietrich and R Howe. Monsanto Agricultural Co., A Unit of Monsanto Co., St. Louis, MO.
- #935 **ENHANCEMENT OF 2-AMINOFLOURENE MUTAGENICITY BY 2,4-DIAMINOTOLUENE.** Y L Pan, M J Ryan, and G A Reed. University of Kansas Medical Center, Kansas City, KS.

**THURSDAY AFTERNOON, MARCH 2**

12:00 noon-1:00 p.m.

**BALLROOM A**

**FOURTH ANNUAL BURROUGHS WELCOME TOXICOLOGY SCHOLAR AWARD LECTURE—A LOOK TO THE FUTURE: INTEGRATING MEDICAL SCIENCE AND TECHNOLOGY**

P S Guzzellan, Medical College of Virginia, Richmond, VA

Chairperson: T S Miya, University of North Carolina, Chapel Hill, NC

**THURSDAY AFTERNOON, MARCH 2**

**1:30 p.m.-5:00 p.m.**

**BALLROOM EAST**

**SYMPOSIUM: AIDS DRUG DEVELOPMENT AND TOXICOLOGY**

**Chairpersons:** G Hitchings, The Burroughs Wellcome Co., Research Triangle Park, NC; S Niemi, EG&G Mason Research Institute, Worcester, MA

**Screening AIDS Drugs for Anti-Viral Efficacy.** Ruth Ruprecht, Dana Farber Cancer Institute, Boston, MA.

**AIDS Anti-Viral Drug Discovery and Drug Development for the NCI: Overview.** Michael Boyd, National Cancer Institute, Bethesda, MD.

**AIDS Anti-Viral Drugs Discovery and Drug Development for the NCI: Toxicology.** Charles Grieshaber, National Cancer Institute, Bethesda, MD.

**AZT Toxicity and Efficacy in AIDS Patients.** David Barry, The Burroughs Wellcome Company, Research Triangle Park, NC.

**Conduct of Clinical Trials for AIDS Drugs.** Robert Yarchoan, National Cancer Institute, Bethesda, MD.

**THURSDAY AFTERNOON, MARCH 2**

**1:30 p.m.-5:00 p.m.**

**BALLROOM WEST**

**SYMPOSIUM: MECHANISMS OF LUNG INJURY BY SYSTEMICALLY ADMINISTERED CHEMICALS**

**Sponsored by the SOT Mechanisms Specialty Section**

**Chairpersons:** G Yost, University of Utah, Salt Lake City, UT; A Buckpitt, University of California/Davis, Davis, CA.

**Introduction.** Garold S. Yost, University of Utah, Salt Lake City, UT.

**Pulmonary Vascular Response to Pyrrolizidine Alkaloids.** Robert A. Roth, Michigan State University, E. Lansing, MI.

**Metabolic Mechanisms for Naphthalene-Induced Pulmonary Bronchiolar Necrosis.** Alan R. Buckpitt, University of California/Davis, Davis, CA.

**3-Methylindole Bioactivation and Lung Injury.** Garold S. Yost, University of Utah, Salt Lake City, UT.

**Expression of Cytochrome P-450's and their Relationship to 4-Ipomeanol Metabolism in Normal Human Lung and Pulmonary Carcinoma Cells.** Theodore L. McLemore, National Cancer Institute, Bethesda, MD.

**THURSDAY AFTERNOON, MARCH 2**

**1:30 p.m.-5:00 p.m.**

**SALON C**

**PLATFORM SESSION: REPRODUCTIVE TOXICOLOGY/TERATOLOGY**

**Chairpersons:** E Faustman, University of Washington, Seattle, WA  
R Morrissey, NIEHS, Research Triangle Park, NC

- #113 1:30 **P4501A1 DURING ORGANOGENESIS.** H L Yang, M J Namkung and M R Juchau, Dept. of Pharmacol, Sch. of Med., Univ. of Washington, Seattle, WA.
- #114 1:45 **DEVELOPMENTAL TOXICITY OF HYDRALAZINE *IN VITRO*: ROLE OF METABOLISM.** D Laflamme, B Grimsted, D Eaton, H Ramsdell and E M Faustman, k Dept. of Env. Health, Univ. of Washington, Seattle, WA.
- #115 2:00 **STIMULATION OF VISCERAL YOLK SAC (VYS) PROTEOLYSIS BY L-BUTHIONINE-S, R-SULFOXIMINE (BSO) IN RAT CONCEPTUSES.** C Harris, K L Stark and M R Juchau, Department of Pharmacology, School of Medicine, University of Washington, Seattle, WA.
- #116 2:15 **INFLUENCE OF ELECTROPHILIC CHARACTER AND GLUTATHIONE DEPLETION ON DYSMORPHOGENESIS IN CULTURED RAT EMBRYOS.** K L Stark, C Harris and M R Juchau, Dept. of Pharmacology, University of Washington, Seattle, WA.
- #117 2:30 **THE ROLE OF ALTERED HEPATIC GLUTATHIONE LEVELS IN REDUCED OVARIAN TOXICITY WITH FRACTIONATED DOSES OF CYCLOPHOSPHAMIDE.** D R Plowchalk and D R Mattison, Natl. Ctr for Tox. Res., and Univ. of AR, Little Rock, AR.
- #118 2:45 **THE ROLE OF EPOXIDATION IN 4-VINYLCYCLOHEXENE (VCH) INDUCED OVARIAN TOXICITY.** B J Smith, D R Mattison\*, and I G Sipes, U. of Arizona, Dept. of Pharm/Tox, Tucson, AZ, \*National Center for Toxicological Research, Jefferson, AR.
- #119 3:00 **EXCRETION OF NICKEL INTO RAT MILK AND THE EFFECT OF NICKEL CHLORIDE ON LACTATING RATS AND THEIR SUCKLING PUPS.** L A Dostal, S M Hopfer, S M Lin, R W Weaver, and F W Sunderman, NTP/NIEHS, Res. Tri. Park, NC and University of Connecticut Med. School, Farmington, CT.
- #120 3:15 **PLACENTAL AND LACTATIONAL TRANSFER OF AMIODARONE (AD) AND DESETHYLAMIODARONE (dAD) IN FISCHER 344 RATS.** D A Hill and M J Reasor, Department of Pharmacology and Toxicology, West Virginia Univ., Health Science Center, Morgantown, WV.
- #121 3:30 **MEDIATIONS OF SECALONIC ACID D TERATOGENICITY BY CHANGES IN MATERNAL CORTICOSTERONE LEVELS.** M M R Eldeib and C S Reddy, Department of Veterinary Biomedical Sciences, University of Missouri, Columbia, MO.
- #122 3:45 **DOES TAURINE PROTECT AGAINST THE EMBRYOTOXIC EFFECTS OF ISOTRETINOIN IN THE RAT?** N D Agnish, G Rusin, and B DiNardo, Department of Toxicology and Pathology, Hoffman-La Roche Inc., Nutley, NJ.
- #123 4:00 **TERATOLOGICAL EVALUATION IN RAT OF SK&F 93944 ADMINISTERED ALONE OR COMBINED WITH PSEUDOEPHEDRINE HCL (P).** S J Freeman, L Irvine\* and TF Walker, SK&F Res Ltd, Welwyn, Herts, UK and Toxicol Labs Ltd, Ledbury, UK\*. Sponsor: T Leonard.

- #124 4:15 **PERINATAL EFFECTS OF PYRANTEL PAMOATE IN MICE.** G M Al-Hachim and Elhaj. College of Medicine King Abdulaziz University, Jeddah, Saudi Arabia. Sponsor: W H Lawrence.
- #125 4:30 **EFFECT OF ARSINE ON PRENATAL DEVELOPMENT OF SWISS (CD-1) MICE AND FISCHER 344 RATS.** R E Morrissey, B A Fowler, M W Harris, M P Moorman, \*B Adkins, and B A Schwetz. NTP/NIEHS and \*NSI Technology Services, Research Triangle Park, NC.
- #126 4:45 **INTERSPECIES COMPARISON OF A/D RATIOS.** G P Daston<sup>1</sup>, J M Rogers<sup>2</sup>, T D Sabourin<sup>3</sup>, and D J Versteeg<sup>1</sup>. <sup>1</sup>Procter & Gamble, Cincinnati, OH, <sup>2</sup>US EPA, Research Triangle Park, NC, and <sup>3</sup>Battelle, Columbus, OH.

## THURSDAY AFTERNOON, MARCH 2

1:30 p.m.-4:30 p.m.

SALON D

### PLATFORM SESSION: TCDD TOXICITY

**Chairpersons:** S Safe, Texas A & M University, College Station, TX  
L Birnbaum, NIEHS, Research Triangle Park, NC

- #127 1:30 **6-SUBSTITUTED-1,3,8-TRICHLORODIBENZOFURANS AS ANTIESTROGENS: ROLE OF THE Ah RECEPTOR.** B Astroff and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #128 1:45 **EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN ON ANDROGEN FUNCTION IN THE MALE RAT.** R Dickerson, L Johnson, and S Safe. Departments of Veterinary Physiology and Pharmacology and Anatomy, Texas A&M University, College Station, TX.
- #129 2:00 **DIRECT BINDING OF RADIOLABELED POLYCHLORINATED DIBENZOFURAN AND DIBENZO-p-DIOXIN CONGENERS TO THE Ah RECEPTOR.** R Rosengren, L Safe and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #130 2:15 **ROLE OF POLYAMINE BIOSYNTHESIS IN THE MECHANISM OF TCDD ACTION.** T Thomas, S MacKenzie, T Umbreit and M A Gallo. Department of Environmental and Community Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.
- #131 2:30 **TCDD ALTERS EMBRYONIC PALATAL CELL DIFFERENTIATION *IN VITRO*.** B D Abbott, J J Diliberto, L S Birnbaum. NIEHS, RTP, NC.
- #132 2:45 **MODULATION OF MALE GERM CELL (MGC) ADENYLATE CYCLASE BY TPA AND TCDD *IN VITRO*.** L Beebe and D A Barsotti. Philadelphia College of Pharmacy & Science, Philadelphia, PA, and ATSDR, Atlanta, GA. Sponsor: R F Orzechowski.
- #133 3:00 **STRUCTURE-DEPENDENT INDUCTION OF ARLY HYDROCARBON HYDROXYLASE BY TCDD AND RELATED COMPOUNDS: MECHANISTIC STUDIES.** T Zacharewski, M Harris and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #134 3:15 **2,2',4,4',5,5'-HEXACHLOROBIPHENYL (HCBP) AS A 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) ANTAGONIST IN C57BL/6 MICE:** L Biegel, D Davis, M Harris, L Safe and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
- #135 3:30 **TRANSPORT, METABOLISM AND CONTROL OF THYROID HORMONES RATS TREATED WITH 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN.** W L Roth and S D Aust. Dept. of Biochem., Michigan State University, E. Lansing, MI.
- #136 3:45 **2,3,7,8 TETRACHLORODIBENZO-P-DIOXIN (TCDD) ENHANCES ESTRADIOL HYDROXYLATION AND SUPPRESSES ESTROGEN-DEPENDENT GROWTH OF MCF-7 HUMAN BREAST CANCER CELLS IN CULTURE.** J F Gierthy, D W Lincoln, S J Kampcik, H W Dickerman, L McKenna, H L Bradlow, T Niwa, and G E Swaneck, Wadsworth Center, NYS DOH, Albany, NY, \*The Rockefeller University, NY, NY. Sponsor: L S Kaminsky.
- #137 4:00 **SUSCEPTIBILITY TO DIOXIN HEPATOTOXICITY IS TRANSMITTED AS AN AUTOSOMAL RECESSIVE IN MICE.** S W Jordan, D C Allison, K K Bose. Sponsor: W M Hadley. School of Medicine, University of New Mexico, Albuquerque, NM and School of Medicine, Johns Hopkins University, Baltimore, MD.
- #138 4:15 **2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN AS A PORPHYRINOGEN: MECHANISTIC STUDIES.** C Yao and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

## THURSDAY AFTERNOON, MARCH 2

CLAYTON ROOM

### POSTER/DISCUSSION SESSION: *IN VITRO* MODELS FOR HEPATOTOXICITY

**Chairpersons:** D Acosta, University of Texas, Austin, TX  
H Mehendale, University of Mississippi Medical Center, Jackson, MS

**Displayed:** 1:30 p.m.-4:30 p.m.

**Discussion:** 3:00 p.m.-4:30 p.m.

- #267 **UPTAKE AND DISTRIBUTION OF MICROCYSTIN IN CULTURED HEPATOCYTES.** W L Thompson, N A Robinson, and J G Pace. US Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, MD. Sponsor: R W Wannemacher.
- #268 **2,5-DI(TERT-BUTYL)-1,4-BENZOHYDROQUINONE (tBuBHQ)-INDUCED CALCIUM RELEASE FROM THE ENDOPLASMIC RETICULUM IN HEPATOCYTES.** G E N Kass, S K Duddy, G A Moore, and S Orrenius. Department of Toxicology, Karolinska Institutet, Stockholm, Sweden. Sponsor: M T S Hsia.
- #269 **SUPPRESSION OF CELL DIVISION IN REUBER HEPATOMA CELLS PRE-EXPOSED TO CHLORDECONE BY CC1<sub>4</sub>.** H M Mehendale and S D Ray, Dept of Pharmacology and Toxicology, Univ of Mississippi Medical Center, Jackson, MS.
- #270 **DISSOCIATION OF DNA DAMAGE FROM THE KILLING OF CULTURED HEPATOCYTES BY AN OXIDATIVE STRESS.** J B Coleman, D Gilfor, J L Farber. Dept. of Pathology, Thomas Jefferson University, Philadelphia, PA.
- #271 **PROTEIN THIOL DEPLETION CAN BE DISSOCIATED FROM THE KILLING OF HEPATOCYTES BY ACETAMINOPHEN.** M E Kyle, I Sakaida, A Serroni, and J L Farber. Thom. Jeff. Univ. Philadelphia, PA.

- #272 **COMPARATIVE TOXICITY OF CYCLIC POLYPEPTIDES AND DEPSIPEPTIDES ON CULTURED RAT HEPATOCYTES.** K A Mereish, R Solow, Y Singh\* and R Bhatnager. Pathophysiology Division, USAMRIID, Fort Detrick, Frederick, MD and \*Laboratory of Chemical Pharmacology, National Institutes of Health, Bethesda, MD. Sponsor: R W Wannemacher.
- #273 **MECHANISMS OF METHYLATING AGENT-INDUCED CYTOTOXICITY IN ISOLATED HEPATOCYTES.** H G Shertzer, M Sainsbury\* and M L Berger. University of Cincinnati College of Medicine, Cincinnati, OH; \*University of Bath, Bath, England.
- #274 **EFFECT OF DEXAMETHASONE ON DRUG METABOLIZING ENZYME ACTIVITIES IN RAT HEPATOCYTE CULTURES.** J Haake, J Leakey, J Shaddock and D Casciano, National Center for Toxicological Research, Jefferson, AR. Sponsor: Jack A. Hinson.
- #275 **HYPERVITAMINOSIS A (HYPER A) ACTIVATES HEPATIC KUPFFER CELLS.** W W Sim, I G Sipes and D L Earnest. Depts. of Pharmacology/Toxicology and Medicine, Univ. of Arizona, Tucson, AZ.
- #276 **SPECIES COMPARISON OF COCAINE HEPATOTOXICITY IN CULTURED RAT LIVER SLICES.** S Connors, A J Gandolfi, C L Krumdieck, and K Brendel. Departments of Pharmacology, U of Arizona, Tucson, AZ and Department of Nutrition Science, U of Alabama, Birmingham, AL.
- #277 **MITOCHONDRIAL DYSFUNCTION AND HEPATOCYTE DEATH: THE MECHANISM OF FRUCTOSE PROTECTION OF OLIGOMYCIN-INDUCED CELL INJURY IN HEPATOCYTES FROM FASTED RATS.** J R Cannon, P J Harvison, and G F Rush\*. Philadelphia College of Pharmacy and Science, Philadelphia, PA and SmithKline and French Laboratories, King of Prussia, PA.\*
- #278 **MITOCHONDRIAL POISONS BLOCK HORMONAL RESPONSE AND RAISE CYTOSOLIC CALCIUM IN SINGLE HEPATOCYTES.** M T Smith<sup>1</sup>, L Blank<sup>1</sup>, T Kawanishi<sup>2</sup> and R Y Tsien<sup>2</sup>, School of Public Health<sup>1</sup> and Dept. of Physiology-Anatomy<sup>2</sup>, University of California, Berkeley, CA.

**THURSDAY AFTERNOON, MARCH 2  
GWINNETT ROOM**

**POSTER/DISCUSSION SESSION: IMMUNE REACTIVITY TO CHEMICALS**

**Chairpersons:** A K Hubbard, University of Arizona, Tucson, AZ  
M J Murray, University of Illinois, IL

**Displayed:** 1:30 p.m.-4:30 p.m.

**Discussion:** 3:00 p.m.-4:30 p.m.

- #279 **ISOLATION OF Ige ANTIBODIES FROM THE GUINEA PIG.** M E Bennedson, P S Thorne and M H Karol. Department of Industrial Environmental Health Sciences, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.
- #280 **A MULTISPECIES COMPARISON OF TRIMELLITIC ANHYDRIDE (TMA)-INDUCED PULMONARY SENSITIZATION.** N S Hatoum, C L Leach, C R Zeiss, M R Andresen, J K Yermakoff, and P J Garvin. IIT Research Institute, Veterans Administration, and Amoco Corporation, Chicago, IL.
- #281 **EVALUATION OF THE MOUSE EAR SWELLING TEST (MEST) AS A REPLACEMENT FOR GUINEA PIG SENSITIZATION TESTING.** S Hignet, J D Dorko, H E Kennah, and C S Barrow. PPG Industries, Inc., Environmental Sciences Center, Pittsburgh, PA.
- #282 **DEVELOPMENT OF DIAGNOSTIC ANTIGENS FOR DETECTION OF ANTIBODIES TO TOLUENE DIISOCYANATE.** R Jin and M H Karol. Department of Industrial Environmental Health Sciences, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.
- #283 **AN IN-VITRO TEST FOR CONTACT SENSITIVITY USING ORGAN-CULTURED GUINEA PIG SKIN.** K G Moore and A M Dannenberg, Jr. Johns Hopkins University Baltimore, MD. Sponsor: T W Kensler
- #284 **IMMUNOGENICITY OF SYNETHIC FOOD COLOURS.** S Nicklin, A P Hutchinson and K Miller. BIBRA, Carshalton, Surrey, UK. Sponsor: S D Gangolli.
- #285 **AN OPTIMIZED IN VITRO LYMPHOCYTE BLASTOGENESIS ASSAY FOR CONTACT SENSITIVITY TO NICKEL SULFATE IN MICE.** M K Robinson, E R Fletcher, and D L Sneller, Procter & Gamble, Cincinnati, OH. Sponsor: M J Murray.
- #286 **INHALATION SENSITIZATION OF GUINEA PIGS TO TOLUENE DIISOCYANATE (TDI): GENERATION OF ANTIBODIES THAT RECOGNIZE TDI AND GUINEA PIG SERUM ALBUMIN (GPSA).** K Sarlo and E Clark, Procter & Gamble Co, Cincinnati, OH. Sponsor: M J Murray.
- #287 **LATE-ONSET AIRWAY AND FEBRILE RESPONSES IN AN ANIMAL MODEL OF PULMONARY HYPERSENSITIVITY TO AIRBORNE ALLERGENS.** P S Thorne and M H Karol. Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.

**THURSDAY AFTERNOON, MARCH 2  
DOUGLAS ROOM**

**POSTER/DISCUSSION SESSION: ORGANOPHOSPHATE INDUCED DELAYED NEUROPATHY: MECHANISMS AND METHODS**

**Chairpersons:** D Graham, Duke University Medical Center, Durham, NC  
S Bursian, Michigan State University, E Lansing, MI

**Displayed:** 1:30 p.m.-4:30 p.m.

**Discussion:** 3:00 p.m.-4:30 p.m.

- #288 **PHENYLMETHYLSULFONYL FLUORIDE (PMSF) PREVENTS MIPAFox-INDUCED CHANGES IN HEN PERIPHERAL NERVE PHOSPHOLIPID METABOLISM.** C N Pope\* and S Padilla. US Environmental Protection Agency, Research Triangle Park, NC.
- #289 **BIOCHEMICAL, PHYSIOLOGICAL AND PATHOLOGICAL CHANGES IN HENS BETWEEN INHIBITION OF NEUROTOXIC ESTERASE (NTE) AND ONSET OF CLINICAL SIGNS DURING ORGANOPHOSPHATE-INDUCED DELAYED NEUROPATHY (OPDN).** M Ehrlich, H El-Fawal, L Gay and B S Jortner, Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA.
- #290 **MODIFICATION OF ORGANOPHOSPHATE-INDUCED DELAYED NEUROPATHY (OPDN) IN HENS WITH NIFEDIPINE.** H El-Fawal, B S Jortner and M Ehrlich, Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA.
- #291 **CLINICAL AND NEUROPATHOLOGICAL EXAMINATION OF HENS DOSED WITH TOCP.** N L Roberts, P A Johns, & C N K Phillips, Huntingdon Research Centre, Huntingdon, England.

- #292 **NEUROTOXIC ESTERASE ASSAY: CORRECTED WAVELENGTH AND EXTINCTION COEFFICIENT.** U S Kayyali, T B Moore, J C Randall, and R J Richardson. Toxicology Program, The University of Michigan, Ann Arbor, MI.
- #293 **SELECTIVE DEGENERATION IN THE CHICKEN CENTRAL NERVOUS SYSTEM AFTER EXPOSURE TO BIS (1-METHYLETHYL) PHOSPHOROFUORIDATE (DEP).** D Tanaka, and S J Bursian, Depts of Anatomy and Animal Science, Michigan State University, East Lansing, MI.
- #294 **EFFECT OF GANGLIOSIDES ON NEUROPATHY TARGET ESTERASE.** A Moretto and M Lotti. Istituto di Medicina del Lavoro dell'Universita di Padova, Padua, Italy.
- #295 **AGE-RELATED SENSITIVITY TO ORGANOPHOSPHATE-INDUCED DELAYED POLYNEUROPATHY.** M Lotti, A Moretto, and F Borlina. Istituto di Medicina del Lavoro dell'Universita di Padova, Padua, Italy.
- #296 **TRIPHENYL PHOSPHITE INHIBITION OF CATECHOLAMINE SECRETION FROM BOVINE ADRENOMEDULLARY CHROMAFFIN CELLS.** M B Abou-Donia and J K Knoth. University Med. Cntr, Durham, NC.
- #297 **HEN BRAIN ACETYLCHOLINESTERASE AND NEUROPATHY TARGET ESTERASE AFTER ACUTE EXPOSURE TO ACEPHATE.** T P Kellner, S F McEuen, J D Henderson, \*L C Griffis and B W Wilson. University of California, Davis, CA and \*Chevron Environmental Health Center, Richmond, CA.
- #298 **NEUROTOXIC POTENTIAL OF TRICRESYL PHOSPHATE (TCP) IN SPRAGUE DAWLEY (SD) RATS.** C C Haggerty, S Morton, Z Ruben, S C Gad, G D Searle & Co., Skokie, IL.
- #299 **NEUROTOXICITY AND REPEATED EXPOSURE OF PHOSPHORAMIDATES TO CHICKENS.** B W Wilson, J D Henderson, R J Higgins and \*J C Dacre. University of California, Davis, CA and \*USABRD, Fort Detrick, Frederick, MD.
- #300 **DELAYED NEUROPATHY INDUCED BY CHLORPYRIFOS: STUDIES IN THE CAT.** J D Fikes, J F Zachary, A J Parker and V R Beasley. College of Veterinary Medicine, University of Illinois, Urbana, IL.

## THURSDAY AFTERNOON, MARCH 2 GALLERIA

### POSTER SESSION: BIOTRANSFORMATION III

Chairperson: G L Sprague, SmithKline Beckman Corporation, Philadelphia, PA

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 1:30 p.m.-3:00 p.m.

- #936 **ALTERATIONS IN THE METABOLIC CAPABILITIES OF ADULT RATS EXPOSED NEONATALLY TO ONE OF FOUR CHEMICAL AGENTS.** R C Zangar<sup>1</sup>, D L Springer<sup>2</sup>, D A Dankovic<sup>2</sup>, and D R Buhler<sup>1</sup>. <sup>1</sup>Oregon State University, Corvallis, OR, and <sup>2</sup>Pacific Northwest Laboratory, Richland, WA.
- #937 **AGE-AND SEX-RELATED CHANGES IN HEPATIC COSUBSTRATE CONCENTRATION AND SYNTHESIS IN GERIATRIC FISCHER 344 RATS.** T Maziasz, D Mitchell, C Madhu, B Gemzik, L Sendelbach and C D Klaassen. University of Kansas Medical Center, Kansas City, KS.
- #938 **EFFECTS OF AGING AND SEX ON THE BIOTRANSFORMATION OF ACETAMINOPHEN(AA) IN FISCHER 344 RATS.** B Gemzik, C Madhu, T Maziasz, L Sendelbach and C D Klaassen. Univ. of Kansas Medical Center, Kansas City, KS.
- #939 **COMPARISON OF *IN VITRO* MICROSOMAL OXIDATION OF ATRAZINE, SIMAZINE, AND TERBUTRYN IN RATS, MICE, AND SEVERAL FARM SPECIES.** N H Adams, P E Levi, and E Hodgson. Toxicology Program, N.C. State University, Raleigh, NC.
- #940 **COMPARATIVE EFFECTS OF VALPROIC ACID (VPA) AND DELTA<sup>4</sup>-VALPROATE (DELTA<sup>4</sup>-VPA) ON METABOLITES OF ISOLEUCINE AND PROPIONIC ACID IN RATS.** A Acheampong, J Lin, R Russell, R H Levy. Department of Pharmaceutics, University of Washington, Seattle, WA. Sponsor: S D Nelson.
- #941 **DISPOSITION AND ELIMINATION OF BIOLF-143, AN ANTIVIRAL AGENT.** D J Ecobichon, K M Mekhael, P Major and K K Ogilvie. Dept. Pharmacology and Therapeutics, McGill University, Montreal, Quebec, Canada.
- #942 **DOSE-DEPENDENT PHARMACOKINETICS OF 5-AMINOSALICYLIC ACID (5-ASA) IN CYNOMOLGUS MONKEYS.** K-K Hwang, A Mandagere, D Drees, J Lacz. Marion Laboratories, Inc, Kansas City, MO.
- #943 **FATE OF HEXACHLOROCYCLOPENTADIENE (HEX) IN FISH.** A A Podowski, and M A Q Khan. University of Illinois, Chicago, IL.
- #944 **P-CYANOPHENOL DISPOSITION IN PREGNANT RATS.** S P Shrivastava, M R Sumler, H L Fisher\*, B C Edwards, M F Copeland\*, L A Oglesby, M T Ebron-McCoy\*, P E Beyer, R J Kavlock\*, P V Shah\* and L L Hall\*. NSI, Inc., and \*USEPA, RTP, NC.
- #945 **NICOTINE ELIMINATION IN SMOKERS FOLLOWING CIGARETTE SMOKING AND INTRAVENOUS ADMINISTRATION** J D deBethizy, J H Robinson, K T McManus, R A Davis, J H Reynolds, G T Burger, A W Hayes. R.J. Reynolds Tobacco Co., Winston-Salem, NC.
- #946 **DOSE-DEPENDENT PHARMACOKINETICS OF [<sup>125</sup>I]-2-iodo-3,7,8-trichlorodibenzo-p-dioxin (ITCDD) IN MICE.** H W Leung, A P Poland\*, F J Murray, D J Paustenbach, M E Andersen\*, Syntex Inc., Palo Alto, CA, \*University of Wisconsin, Madison, WI, \*Consultant, Dayton, OH.
- #947 **EVALUATION OF *IN VITRO* ESTIMATIONS OF TISSUE/BLOOD DISTRIBUTION COEFFICIENTS FOR ORGANOTHIOPHOSPHATE INSECTICIDES.** B Kim, T M Soranno, L Woods, and L G Sultatos. Dept. Pharmacology, UMDNJ, Newark, NJ.
- #948 **A PHYSIOLOGICALLY-BASED PHARMACOKINETIC MODEL FOR CHLOROFORM.** R A Corley<sup>1</sup>, A L Mendrala<sup>1</sup>, F A Smith<sup>1</sup>, M L Gargas<sup>2</sup>, R B Conolly<sup>3</sup>, M E Andersen<sup>2</sup> and R H Reitz<sup>1</sup>. <sup>1</sup>Dow Chemical Company, Midland, MI; <sup>2</sup>AAMRL/TH WPAFB, OH; <sup>3</sup>NSIT, Dayton, OH.
- #949 **A BIOLOGICALLY-BASED PHARMACOKINETIC MODEL FOR ORAL DOSING OF ETHYL ACRYLATE.** C B Frederick, D W Potter, I M Chang-Mateu, M E Andersen\*. Rohm and Haas Co., Spring House, PA and \*AAMRL/TH, Wright-Patterson AFB, OH.
- #950 **EXTRAPOLATION OF EXPERIMENTAL ANIMAL DATA TO MAN USING PHYSIOLOGICAL-PHARMACOKINETIC MODELLING.** W M Provan, T Green, ICI Central Toxicology Laboratory, Alderley Park, Macclesfield, Cheshire, UK. Sponsor: P M D Foster.
- #951 **GASTROINTESTINAL ABSORPTION OF XENOBIOTICS IN PHYSIOLOGICALLY-BASED PHARMACOKINETIC MODELS: A TWO-COMPARTMENT DESCRIPTION.** D A Staats and R B Conolly. NSI Technology Services Corp., Dayton, OH.
- #952 **THE ENZYMIC HYDROLYSIS OF ETHYL ACRYLATE BY RAT TISSUE HOMOGENATES.** J R Udinsky and C B Frederick. Rohm and Haas Co., Spring House, PA.
- #953 **TOXIC INTERACTION OF TRYPTOPHAN AND METHANOL IN MICE.** A B Combs and O Tabora. Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas, Austin, TX.

- #954 **IN VITRO PRODUCTION OF TRYPTOPHAN DERIVATIVES IN RAT FECES CAPABLE OF BINDING TO THE  $A_h$  RECEPTOR.** G H Perdew, and C F Babbs. Department of Foods and Nutrition and Hillenbrand Biomedical Engineering Center, Purdue University, West Lafayette, IN. Sponsor: G Carlson.
- #955 **EFFECT OF ETHYLENE GLYCOL (EG) METABOLITES ON ENZYMIC ACTIVITIES IN TISSUE HOMOGENATES.** J P Bercz, J Tsuei, S Tsuei, L Jones. Toxicology and Microbiology Division, HERL, USEPA, Cincinnati, OH. Sponsor: L W Condie.
- #956 **COMPARATIVE METABOLISM OF GLYCOL ETHERS IN RAT AND HUMAN HEPATOCYTES.** C E Green, G R Gordon, E Lin, P M Cohen, H W Nolen, J H Peters, and C A Tyson. SRI International, Menlo Park, CA.
- #958 **QUANTITATIVE TRITIUM EXCHANGE OF (3H) AFLATOXIN B1 DURING PENETRATION THROUGH ISOLATED HUMAN SKIN.** R T Riley, B W Kempainen, and W P Norred. Russell Res. Ctr. USDA/ARS, Athens, GA.
- #959 **METABOLISM OF 7-ETHOXYCOUMARIN (7-EC) BY ADULT F-344 RAT SKIN.** S Thohan, J Barr and I G Sipes. Department of Pharmacology & Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ.
- #960 **THE EFFECT OF NEAR-ULTRAVIOLET LIGHT ON THE METABOLISM OF BENZO(A)PYRENE BY MOUSE SKIN MICROSOMES.** W B Peirano<sup>1,2</sup> and D Warshawski<sup>1</sup>. <sup>1</sup>University of Cincinnati Medical Center, Department of Environmental Health, Cincinnati, OH and <sup>2</sup>Environmental Criteria and Assessment Office, U.S. Environmental Protection Agency, Cincinnati, OH.
- #961 **THE METABOLISM AND CLEARANCE OF NIFEDIPINE AND 4-<sup>2</sup>H-NIFEDIPINE IN THE ISOLATED PERFUSED RAT LIVER.** D L Kaplan, N Harper, and J L Born. The University of New Mexico College of Pharmacy, Albuquerque, NM. Sponsor: G B Corcoran.
- #962 **N-ACETYLATION IN HUMAN AND RABBIT LIVER SLICES.** L Gunawardhana, J Barr, A J Weir, K Brendel and I G Sipes. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.
- #963 **SULFOXIDASE ACTIVITY OF HEMOGLOBIN.** B H Magee and M A Marletta. E C Jordan Co., Wakefield, MA. Sponsor: T F Schrage.
- #964 **METABOLISM AND CYTOTOXICITY OF 2-METHYLNAPHTHALENE (WMN) IN MURINE ISOLATED HEPATOCYTES (IH) AND DISSECTED BRONCHIOLAR AIRWAYS (BA).** A Pang, C Suverkropp, D Morin, A Buckpitt and C Plopper. Veterinary Anatomy and Pharmacology and Toxicology, UC Davis, Davis, CA.
- #965 **ISOLATED PERFUSED AND VENTILATED MOUSE LUNG: A MODEL FOR THE STUDY OF THE RELATIONSHIP BETWEEN METABOLISM AND TOXICITY OF PULMONARY TOXICANTS.** S Kanekal, D Morin, C G Plopper and A R Buckpitt. Vet. Pharm/Tox and Anatomy, UC Davis, Davis, CA.
- #966 **PERFUSED ORGAN TECHNIQUES FOR DETERMINING RECYCLED FRACTION OF DRUGS WHICH UNDERGO REVERSIBLE METABOLISM.** M P Carver, C T Gombar, E Burak and B R Smith. Drug Metabolism Department, Smith Kline and French Laboratories, King of Prussia, PA.

## THURSDAY AFTERNOON, MARCH 2 GALLERIA

### POSTER SESSION: DERMAL/OCULAR: HYPERSENSITIVITY, PHOTOTOXICITY

**Chairperson:** L L Hall, USEPA, Research Triangle Park, NC

**Displayed:** 1:30 p.m.-4:30 p.m.

**Attended:** 3:00 p.m.-4:30 p.m.

- #967 **ASSESSMENT OF CUTANEOUS IRRITATION OF FORMALDEHYDE, SALICYLIC ACID AND SODIUM LAURYL SULFATE USING TRANSDERMAL LASER DOPPLER VELOCIMETRY.** L E Blalock and N A Monteiro-Riviere. College of Vet. Medicine and Toxicology Program, North Carolina State University, Raleigh, NC.
- #968 **EVALUATION OF SENSITIZING POTENTIAL OF DISTEARYL DIMONIUM CHLORIDE IN GUINEA PIGS.** C E Dick and H I Maibach. S C Johnson & Son, Inc., Racine, WI and University of California, San Francisco, CA.
- #969 **CLOSED-PATCH REPEATED INSULT DERMAL SENSITIZATION STUDY IN GUINEA PIGS WITH GLYOXAL.** R E Ouellette, C S Auletta, and R A Davis. Hoechst-Roussel Pharmaceuticals Inc., Somerville, NJ; Bio/dynamics Inc., East Millstone, NJ; American Cyanamid Company, Wayne, NJ.
- #970 **EVALUATION OF THE CONTRACT SENSITIZATION POTENTIAL OF A FABRIC SOFTENER ACTIVE.** J D Innis, P H S Bay, C M Bergholz, and M K Robinson. The Procter & Gamble Co., Cincinnati, OH and Brussels, Belgium. Sponsor: W B Gibson.
- #971 **LOCAL IRRITATION POTENTIAL OF HYPERTONIC SALINE/DEXTRAN 70<sup>R</sup> IN RABBITS.** G M Zaucha, D F Frost, G D Young, and D W Korte. Letterman Army Institute of Research, San Francisco, CA. Sponsor: S T Omaye.
- #972 **SUBCUTANEOUS TISSUE REACTION TO SILICONE IN THE RAT.** C L Smith, J Wosu and G J Davis. Research Laboratories, Ortho Pharmaceutical Corporation, Raritan, NJ.
- #973 **SPECIES SPECIFIC PHOTOHEMOLYTIC POTENTIAL OF PD 117596, A QUINOLONE ANTIBACTERIAL AGENT.** D G Robertson, D L Bailey and R A Martin. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #974 **A COMPARISON OF THE PHOTOTOXIC POTENTIAL OF HIGH SPF VERSUS LOW SPF OVER-THE-COUNTER SUNSCREEN DRUG PRODUCTS.** P M Silber, T Stoudemayer, K Gabriel and T J Stephens. Mary Kay Cosmetics, Inc., Dallas, TX. Biosearch Inc., Philadelphia, PA.
- #975 **PREDICTIVE PHOTOALLERGY (PA) AND PHOTOTOXICITY (PT) TESTING IN THE MOUSE.** G F Gerberick, C A Ryan, and G R Johnson. The Procter and Gamble Co. Miami Valley Lab., Cincinnati, OH. Sponsor M J Murray.
- #976 **A RAPID CELL CULTURE CYTOTOXICITY ASSAY FOR ESTIMATING OCULAR IRRITANCY.** M G Rozen, A Rudolph, G Goldberg, and A Rothenstein. Lever Research Inc., Edgewater, NJ. Sponsor: B D Goldstein.
- #977 **EYE IRRITATION PREDICTED WITH TWO IN VITRO ASSAYS-CYTOTOXICITY AND PROTEIN DENATURATION.** H E Kennah, J D Dorko, S Hignet and C S Barrow, PPG Industries, Inc., Environmental Sciences Center, Pittsburgh, PA.
- #978 **COMPARISON OF TEST METHODS FOR EVALUATING EYE IRRITATION POTENTIAL.** M C Capdevielle, D Bagley, B M Kong, S J DeSalva. Colgate-Palmolive Co., Piscataway, NJ.
- #979 **DEVELOPING AN ALTERNATIVE TO THE DRAIZE SKIN TEST: COMPARISON OF HUMAN SKIN CELL RESPONSES TO IRRITANTS IN VITRO.** G S Lamont, D M Bagley, B M Kong, S J De Salva. Colgate-Palmolive Co., Piscataway, NJ.
- #980 **EVALUATION OF THE IN VITRO EYTEX SYSTEM AS AN ALTERNATIVE OR ADJUNCT TO IN VIVO OCULAR IRRITANCE TESTS.** W J Powers, K C Norbury, G J Davis. Research Laboratories, Ortho Pharmaceutical Corp., Raritan, NJ.

- #981 **EXPOSURE ROUTE AND SPECIES DIFFERENCES IN THE OCULAR TOXICITY PRODUCED BY 2-PHENYL-APB-144.** A W Singer and R Valentine. E.I. du Pont de Nemours & Co., Wilmington, DE.
- #982 **ASSESSMENT OF THE OCULAR LESIONS INDUCED BY PD 126213 IN FEMALE RATS.** H M Ulloa, M D Seefeld, J A Petre and K L Hawkins. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #983 **LOCALIZED EYE AREA SENSITIVITY SYNDROME.** T J Stephens, J McCulley, M Tharpe, H I Maibach, E Patrick, P M Silber, K Drake and A K Floyd. Mary Kay Cosmetics, Inc., Dallas, TX., UTHSC, Dallas, TX, Univ. Pittsburgh, Pittsburgh, PA, and UCSF, San Francisco, CA.
- #984 **USE OF ANIMAL EYE TEST DATA AND HUMAN MARKETING EXPERIENCE FOR DETERMINING THE OCULAR IRRITATION POTENTIAL OF SHAMPOOS.** G S Allgood. The Procter & Gamble Co., Cincinnati, OH.
- #985 **OCULAR EVALUATION OF HAIR CARE PRODUCTS.** G A Smith and C E Dick. S C Johnson and Son, Racine, WI. T B Osgood, J L Ubels, H F Edelhauser, and M G Hattenhauer. Medical College of Wisconsin, Milwaukee, WI.
- #986 **SPONTANEOUS CORNEAL OPACITIES IN MICE.** D Abrutyn, L Hagerman, G E Korte and A N Johnson. Research Laboratories, Ortho Pharmaceutical Corporation, Raritan, NJ.
- #987 **METHANOL INDUCED OCULAR TOXICITY IN THE RAT.** J T Eells. Medical College of Wisconsin, Milwaukee, WI.

## THURSDAY AFTERNOON, MARCH 2

### GALLERIA

### POSTER SESSION: SOLVENTS

Chairperson: M E Hurtt, Warner-Lambert Company, Ann Arbor, MI

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 1:30 p.m.-3:00 p.m.

- #988 **SUBCHRONIC INHALATION TOXICITY OF ETHYLBENZENE IN MICE, RATS, AND RABBITS.** S T Cragg<sup>1</sup>, E A Clarke<sup>2</sup>, I W Daly<sup>3</sup>, R R Miller<sup>4</sup>, J B Terrill<sup>5</sup>, R E Ouellette<sup>6</sup>; <sup>1</sup>WESTON, West Chester, PA, <sup>2</sup>SOCMA, Washington, DC, <sup>3</sup>Bio/dynamics, E Millstone, NJ, <sup>4</sup>Dow, Midland, MI, <sup>5</sup>Hazleton, Washington DC, <sup>6</sup>Hoechst-Roussel, Somerville, NJ.
- #989 **COMPARATIVE TOXICITY OF 2-ETHYLHEXANOL (2EH) IN THE FISCHER 344 RAT BY DIFFERENT ROUTES OF ADMINISTRATION.** E V Weaver, M W Gill, E H Fowler, C M Troup. Bushy Run Research Center, Export, PA.
- #990 **PRECHRONIC TOXICITY STUDIES OF ACETONE ADMINISTERED IN THE DRINKING WATER OF RODENTS.** D D Dietz<sup>1</sup>, J R Leininger<sup>1</sup>, M B Thompson<sup>1</sup>, L T Mulligan<sup>2</sup>, R L Morrissey<sup>2</sup>, and B S Levine<sup>2</sup>. <sup>1</sup>NIEHS/NTP, Research Triangle Park, NC and <sup>2</sup>Microbiological Associates Inc., Bethesda, MD.
- #991 **EXPOSURE OF WORKERS TO CARBON DISULFIDE IN A VISCOSE RAYON FACTORY.** R K Tripathi<sup>1</sup>, C L Clouse<sup>2</sup>, and R D Mitchell<sup>2</sup>. <sup>1</sup>V.A. Dept. of Health, Richmond, VA and <sup>2</sup>VA Dept. of Labor & Industry, Staunton, VA.
- #992 **THERMOREGULATORY ACTION OF SULFOLANE FOLLOWING SYSTEMIC AND CENTRAL INJECTION.** F S Mohler and C J Gordon, US EPA, Health Effects Research Laboratory, Research Triangle Park, NC. Sponsor: R C MacPhail
- #993 **30 AND 90 DAY RAT ORAL TOXICITY STUDY OF PROPARGYL ALCOHOL.** R Rubenstein, S Irene, B Sonowane, C DeRosa, and A Bathija. US EPA, Washington, D.C. B J Payne. Toxicity Research Laboratories, Ltd. Sponsor: J Murphy.
- #994 **COMPARATIVE ACUTE TOXICITY OF THREE GLYCOL ETHERS IN RODENTS EXPOSED VIA DRINKING WATER.** G M Henningsen<sup>\*</sup>, L E Sendelbach, A G Braun, and M E P Goad. \*NIOSH, DBBS, ABPB, Cincinnati, OH; and EG&G Mason Research Institute, Worcester, MA.
- #995 **MONOCHLOROACETATE (MCA) INCREASES TOXICITY OF CARBON TETRACHLORIDE (CCl<sub>4</sub>) AND HEXACHLOROBUTADIENE (HCBD).** M E Davis and W O Berndt. West Virginia U. Health Science Ctr, Morgantown, WV.
- #996 **INHIBITION OF MITOCHONDRIAL ATP SYNTHESIS BY DIBASIC ESTERS *IN VITRO*.** M S Bogdanffy, and T Londergan. E I du Pont de Nemours & Co. Inc. Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.
- #997 **INFLUENCE OF PRETREATMENTS WITH KETONIC SOLVENTS ON THE METHEMOGLOBINEMIA (mHb) INDUCED BY N, N-DIMETHYLANILINE (DMA).** K Krishnan, J Brodeur, P du Souich and G L Plaa. Dep. de pharmacologie et Dep. de medecine du travail et d'hygiene du milieu, Universite de Montreal, Quebec, Canada.
- #998 **SUBCHRONIC TOXICITY STUDY OF 2, 3-DICHLOROPROPANOL IN RATS.** C DeRosa, H Choudhury, S Irene, A Bathija, B Sonowane and R Rubenstein. U.S. EPA, Washington, D.C.
- #999 **EVIDENCE OF METABOLIC INTERACTION BETWEEN TOLUENE AND XYLENE IN RATS AFTER INHALATION.** R Tardif, G L Plaa and J Brodeur. Dep. de pharmacologie et Dep. de med. du travail et d'hygiene du milieu, Fac. de Medecine, Univ. de Montreal, Montreal (Quebec), Canada.
- #1000 **THE METABOLISM OF BENZENE AND TRANS, TRANS-MUCONALDEHYDE TO URINARY TRANS, TRANS-MUCONIC ACID IN DBA AND CD-1 MICE.** W M Maniara, V B Mylavarapu, J Joselevitz, T A Kirley, B D Goldstein, and G Witz. Joint Graduate Program in Toxicology, Rutgers University/UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.
- #1001 **m-XYLENE AND p-XYLENE INHIBIT PULMONARY MICROSOMAL BENZO(a)PYRENE METABOLISM BUT PRODUCE DISSIMILAR CHANGES IN RAT LUNG MICROSOMAL MEMBRANE LIPIDS.** J Stickney, A Roberts, D Silverman and R Schatz. Toxicology Prog., Northeastern University, Boston, MA.
- #1002 **TOLUENE DECREASES RAT SYNAPTOSOMAL PHOSPHATIDYLETHANOLAMINE (PE) BUT STIMULATES PE SYNTHESIS.** C LeBel and R Schatz. Toxicology Program, Northeastern University, Boston, MA.
- #1003 **THE EFFECTS OF XYLENE ISOMERS ON GLUTATHIONE METABOLISM.** T AuCoin and R Schatz. Toxicology Program, Northeastern University, Boston, MA.
- #1004 **ORGANIC SOLVENT TOXICITY IN RAT PULMONARY MICROSOMES: ROLE OF METABOLIC ALDEHYDE FORMATION *IN VIVO*.** G Furman, J Stickney and R Schatz. Toxicology Program, Northeastern University, Boston, MA.



**THURSDAY AFTERNOON, MARCH 2  
GALLERIA**

**POSTER SESSION: FOOD/DRUG**

Chairperson: S Green, USFDA, Washington, DC

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 3:00 p.m.-4:30 p.m.

- #1006 **RAT MODEL TO SCREEN INJECTABLE FORMULATIONS FOR PAIN/MUSCLE DAMAGE.** G J Chellman, L Lollini, S Badgett, G Faurot, and T E McCullough. Syntex Research, Inst. Tox. Sciences, Palo Alto, CA.
- #1007 **THE VALUE OF AN INTERNATIONAL TOXICOLOGY DATA BASE IN CHALLENGING REGULATORY GUIDELINES FOR NEW MEDICINES.** C E Lumley & S R Walker. Centre for Medicines Research. Woodmansterne Road, Carshalton, UK. Sponsor: S Gangolli.
- #1008 **MORPHOLOGICAL CHANGES INDUCED IN RATS BY CHRONIC ADMINISTRATION OF THE ANTI-DEPRESSANT DRUG FEZOLAMINE.** R J Fabian, B A Mayes, T A Barbolt and M A Egy. Sterling-Winthrop Research Institute, Rensselaer, NY.
- #1009 **SINGLE-DOSE AND MULTIPLE-DOSE ORAL AND INTRAVENOUS TOXICITY STUDIES OF TRIMETREXATE IN RATS.** M J Graziano and J R MacDonald. Parke-Davis Pharm. Res. Div., Warner-Lambert Co., Ann Arbor, MI.
- #1010 **TOXICOLOGIC STUDIES WITH THE ANTIEMETIC AGENT, BMY-25801.** C R Comereski, R A Buroker, R S Hirth, C L Bregman, D F Johnson, L P Yotti, F B Oleson, and H Madissoo, Bristol Myers Company, Syracuse, NY.
- #1011 **CARDIOVASCULAR TOXICITY IN DOGS GIVEN INOTROPIC AGENTS BY CONTINUOUS INTRAVENOUS INFUSION.** G E Sandusky, J R Means, and G C Todd. Lilly Research Laboratories, Division of Eli Lilly and Company, Greenfield, IN.
- #1012 **SUBCHRONIC (13/26-WEEK) TOXICITY OF CGP 31608, A PENEM ANTIBIOTIC, IN RATS AND DOGS.** G C McCormick, J W Richig, W O Iverson, A T Arthur and V M Traina. CIBA-GEIGY Corp., Pharma Res. Div., Dept. of Tox/Path, Summit, NJ.
- #1013 **COMPARATIVE SUBCHRONIC (91-DAY) PERORAL TOXICITY OF NE-11740 IN RAT AND DOG.** D B Mitchell and D J Dobrozsi. The Procter & Gamble Company, Cincinnati, OH. Sponsor: M J Winrow
- #1014 **CHRONIC ORAL TOXICITY AND CARCINOGENICITY STUDY OF CGS 10787B IN RATS.** G Batastini, L M Longo, D N McMartin, G C McCormick, E T Yau, A T Arthur, and V M Traina. Research Dept., Pharmaceuticals Div., CIBA-GEIGY Corp., Summit, NJ.
- #1015 **TOXICOLOGIC EVALUATION OF AN AROMATASE INHIBITOR, CGS 18320B, IN DOGS.** A T Arthur, G C McCormick, J W Richig, D J Pisacreta, D J Sullivan, W O Iverson and V M Traina. CIBA-GEIGY Corp., Pharma Res. Div., Dept. of Tox/Path, Summit, NJ.
- #1016 **SUBCHRONIC TOXICITY AND PHARMACOKINETICS OF SPIRONOLACTONE IN RATS AND MICE.** K M MacKenzie<sup>1</sup>, B Boynton<sup>1</sup>, R Hall<sup>1</sup>, W Field<sup>1</sup>, S Gad<sup>2</sup>, and C Cook<sup>2</sup>, 1) Hazleton Laboratories America, Inc., Madison, WI; 2) G D Searle & Co., Skokie, IL.
- #1017 **TOXICITY OF A FLUORINATED-BIPHENYL HMG COA REDUCTASE INHIBITOR IN BEAGLE DOGS.** H L Allen, R J Gerson, J S MacDonald, and D L Bokelman. Merck Sharp and Dohme Research Labs, West Point, PA.
- #1018 **SUBCUTANEOUS TOXICITY OF PHYSOSTIGMINE SALICYLATE ADMINISTERED CONTINUOUSLY TO RATS VIA 28-DAY ALZET MINIPUMPS.** D F Frost, S T Omaye, G M Zaucha, C B Clifford, C R Wheeler, S T Schuschereba, and D W Korte, Jr. Letterman Army Institute of Research, San Francisco, CA.
- #1019 **TOXICITY OF AZIDOTHYIMIDINE (AZT) TO CATS.** W M Haschek, C de Vera, R Weigel, R Fienmehl, G Scherba, P Solter, M B Tompkins and W A F Tompkins. Department of Veterinary Pathobiology, Univ. of Illinois, Urbana, IL.
- #1020 **ACUTE AND SUBACUTE TOXICOLOGIC EVALUATIONS OF LIPOSOMAL FORMULATIONS OF METAPROTERENOL SULFATE (MPS).** P Mihalko, N Roosdorp. Sponsor: R Hill Liposome Technology Inc., Menlo Park, CA, Cooper Labs, Mountain View, CA.
- #1021 **ACUTE AND TWO-WEEK ORAL TOXICITY EVALUATIONS OF A LIPOXYGENASE INHIBITOR IN COMBINATION WITH THEOPHYLLINE IN MICE AND RATS.** K R Majors, B Buratto, M B Friedman, R W Krasula, P K Cusick, and D Patterson. Drug Safety Evaluation Division, Abbott Laboratories, Abbott Park, IL.
- #1022 **PROTECTION AGAINST TETRAPLATIN TOXICITY IN THE FISCHER 344 RAT.** P F Carfagna, S G Chaney, D J Holbrook and J Chang. University of North Carolina, Biochemistry Department, Chapel Hill, NC.
- #1023 **SALMONELLA MUTAGENICITY ASSAY OF BLEACH-DEACTIVATED DOXORUBICIN.** T M Sullivan, T E Lawlor. Adria Labs, Columbus, OH and Microbiological Associates, Inc., Rockville, MD.
- #1024 **INTRADERMAL AND VASCULAR IRRITATION ASSAYS OF DOXORUBICIN PRESERVATIVE-FREE SOLUTIONS: PRECLINICAL DEMONSTRATION OF SAFETY.** R Landes, L Wong, T Sullivan, Adria Labs, Columbus, OH.
- #1025 **DIET AND STRAIN INFLUENCES ON THE PROLIFERATIVE EFFECT OF SODIUM SACCHARIN ON THE RAT URINARY BLADDER.** E M Garland, T Sakata, M C Jackson, T Masui, M Cano, and S M Cohen. Univ. Nebraska Medical Center, Omaha, NE.
- #1026 **MYOCARDIAL AND NEPHROTIC LESIONS FROM CYCLAMATE OVERDOSAGE IN HAMSTERS.** L R Weiss and J M Vick. Biotox Associates, Wheaton, MD.
- #1027 **LACK OF ABSORPTION OF OLESTRA (OL) FOLLOWING CHRONIC FEEDING TO RATS AND MONKEYS.** B R Demark, F E Wood, E J Hollenbach, and R M Kaffenberger. Procter & Gamble, Cincinnati, OH. Sponsor: G P Daston.
- #1028 **CHRONIC TOICITY AND CARCINOGENICITY STUDIES OF OLESTRA IN FISCHER 344 RATS.** F E Wood and W J Tierney. Procter & Gamble, Cincinnati, OH, and Bio/dynamics, Inc., East Millstone, NJ.
- #1029 **ACUTE SUBCHRONIC, CHRONIC AND FERTILITY ASSESSMENT STUDIES OF TURMERIC, OLEORESIN F344 RATS AND B6C3F1 MICE.** J French<sup>1</sup>, R Fleischman, H J Esber, A B Russfield, and L E Sendelbach. <sup>1</sup>NIEHS/NTP, Research Triangle Park, NC and EG&G Mason Research Institute, Worcester, MA.
- #1030 **THE EFFECT OF COOKING METHODS ON THE MUTAGENICITY OF FOOD AND ON URINARY MUTAGENCY OF HUMANS FOLLOWING CONSUMPTION.** D J Doolittle, C A Rahn, E A Reed and C K Lee. R.J. Reynolds Tobacco Co., Winston-Salem, NC.
- #1031 **AN EVALUATION OF FOOD FLAVORING INGREDIENTS IN A GENETIC TOXICITY SCREENING BATTER.** J D Heck, T A Vollmuth, M A Cifone, D R Jagannath, B Myhr, and R D Curren\*\*, Lorillard, Inc., Greensboro, NC; \*Hazleton Labs, Kensington, MD; and \*\*Microbiological Associates, Rockville, MD.
- #1032 **EVALUATION OF THE PROTEIN QUALITY OF MEAL FROM DETOXIFIED CANAVALLIA MARITIMA SEEDS.** \*H D Graham, C McGowan, and L Matthews. \*Chemistry Department, Univ. of Mayaguez, Mayaguez, PR and Food Science and Human Nutrition Department, Univ. of Florida, Gainesville, FL.
- #1033 **DIETARY FLAVONOIDS, A POSSIBLE SOURCE OF OXYRADICAL DAMAGE TO THE INTESTINE.** A T Canada, E Giannella, R Mason, and T Nguyen. Duke University Medical Center Durham, NC and National Institute of Environmental Health Sciences, Research Triangle Park, NC.

- #1034 **NATURAL OCCURRENCE OF FUMONISINS IN CORN ASSOCIATED WITH EQUINE LEUKOENCEPHALOMALACIA (ELEM).** W P Norred, R D Plattner\*, K A Voss, C W Bacon and J K Porter. Russell Research Center, ARS/USDA, Athens, GA and \*Northern Regional Research Center, ARS/USDA, Peoria, IL.
- #1035 **HEPATOTOXICITY IN RATS OF AQUEOUS EXTRACTS OF FUSARIUM MONILIFORME STRAIN MRC 826 CORN CULTURES.** K A Voss, W P Norred, \*R D Plattner, C W Bacon and J K Porter. Russell Research Center, USDA/ARS, Athens, GA and the \*Northern Regional Research Center, USDA/ARS, Peoria, IL.
- #1036 **BRAIN CHEMICAL MEASUREMENTS IN RATS FED FUSARIUM MONILIFORME (FM) CONTAMINATED CORN SCREENINGS ASSOCIATED WITH EQUINE LEUKOENCEPHALOMALACIA (ELEM).** J K Porter, K A Voss, C W Bacon, and W P Norred. Richard B. Russell Agric. Res. Center, USDA/ARS, Athens, GA.
- #1037 **TOXICITY OF VENOMS FROM OPISTHOGLYPHOUS SNAKES: AN OVERVIEW.** R A Young. Health and Safety Research Division, Oak Ridge National Laboratory\*, Oak Ridge, TN.

**THURSDAY AFTERNOON, MARCH 2  
GALLERIA**

**POSTER SESSION: METHODS IN TOXICOLOGY**

Chairperson: S Baksi, USEPA, Naragansett, RI

Displayed: 1:30 p.m.-4:30 p.m.

Attended: 1:30 p.m.-3:00 p.m.

- #1038 **FLUORESCENT PROBES INDICATE CELL MEMBRANE AND INTRACELLULAR ORGANELLE TOXICITY OF EPITHELIAL CELLS AND EPIDERMAL KERATINOCYTES GROWN ON MICROPOROUS MEMBRANES.** J E Gabriels, R G Van Buskirk, J Cook, and L Rainen. Millipore, Bedford, MA and SUNY, Binghamton, NY. Sponsor: A M Goldberg.
- #1039 **RAPID *IN-VITRO* TOXICOLOGY WITH A SILICON BASED BIOSENSOR.** K M Kercso, V C Muir, J C Owicki, J W Parce, Molecular Devices Corporation, Palo Alto, CA. Sponsor: A M Goldberg.
- #1040 **CONTINUED VALIDATION AND IN USE EXPERIENCE OF AN *IN-VITRO* TEST FOR THE SKIN CORROSIVE POTENTIAL OF CHEMICALS.** A Barlow, G J A Oliver, P A Botham and M A Pemberton. ICI Plc CTL, Macclesfield, Cheshire, UK. Sponsor A E Lock.
- #1041 **INITIAL VALIDATION OF AN *IN VITRO* TECHNIQUE FOR THE ASSESSMENT OF SKIN IRRITANT CHEMICALS.** M A Pemberton, G J A Oliver, I Pate, C Rhodes, A Barlow, J E Doe and P A Botham. ICI PLC CTL, Macclesfield, Cheshire, UK. Sponsor: E A Lock.
- #1042 ***IN VIVO* VALIDATION OF AN *IN VITRO* SKIN CORROSIVITY TEST IN HUMAN VOLUNTEERS.** G J A Oliver, M A Pemberton and J Leaser, ICI PLC CTL, Macclesfield, Cheshire, England. Sponsor: E A Lock.
- #1043 ***IN VITRO* CELL LINE SENSITIVITY MAY NOT CORRELATE WITH *IN VIVO* TARGET ORGAN TOXICITY OF SELECT XENOBIOTICS.** D A Linseman and T J Racznik. Drug Safety Research, The Upjohn Company, Kalamazoo, MI.
- #1044 **AUTOMATIC IMAGE ANALYSIS OF SPLENIC HEMOSIDERIN DEPOSITION IN RATS.** E B Gordon, W Kuehnberg, A Nyska, T Waner, A Zuckerman and M Skolnik. Makhteshim-Agan (America) Inc., New York, NY and Life Science Research Israel, Ness Ziona, Israel.
- #1045 **DEVELOPMENT OF A VIBRATION SENSITIVITY BASELINE FOR OCCUPATIONAL HEALTH.** J P J Maurissen and G J Chrzan. Mammalian and Environmental Toxicology Research Laboratory, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.
- #1046 **INCREASING THE DURATION OF INDUCTION IN THE BUEHLER CONTACT SENSITIZATION TEST DOES NOT RESULT IN LOWERING THE EFFECT LEVEL FOR DINITROCHLOROBENZENE (DNCB) ELICITATION.** T L Nusair. The Procter & Gamble Company, Cincinnati, OH. J F Griffith.
- #1047 **TEMPERATURE REGULATION IN LABORATORY MAMMALS FOLLOWING ACUTE TOXIC INSULT.** C J Gordon and W P Watkinson, U.S. EPA, Hith. Effects Res. Lab., Research Triangle Park, NC. Sponsor: J S Tepper.
- #1048 **A PROCEDURE FOR THE ISOLATION AND PURIFICATION OF PERFLUORODECANOIC AND PERFLUOROOCTANOIC ACIDS FROM RAT TISSUES.** J P Vanden Heuvel, M J Van Rafelghem, L A Menahan, and R E Peterson. School of Pharmacy, University of Wisconsin Madison, WI.
- #1049 **A COMPARISON OF PHYSIOLOGICAL AND BIOCHEMICAL PARAMETERS IN TWO SPECIES OF MINIPIG.** G J Ikeda, T C Michel, D W Gaines, V L Olivito, P P Sapienza, L Friedman, C N Barton, and M W O'Donnell. FDA, Washington, DC.
- #1050 **QUANTITATION OF DIELDRIN AND ALDRIN IN SOIL AND TISSUE VIA THERMAL EXTRACTION GC/MS.** T R Irvin, T R Sharp, and T Junk. Depts. of Veterinary Anatomy and Chemistry, and TEES Engineering Toxicology Division, Texas A&M Univ., Coll Sta., TX. Sponsor: A Ray.
- #1051 **COMPUTER AUTOMATED STRUCTURE EVALUATION (CASE) COMPARISON OF MOUSE SKIN PAPILLOMA AND HYPERVITAMINOSIS A BIOASSAYS AMONG SELECTED RETINOIDS.** F A Mielach, M R Frierson, B S Rigby, and R W Naismith. Biofor Inc., Waverly, PA.
- #1052 **A COMPUTER APPLICATION FOR IMPLEMENTING CURRENT STATISTICAL ANALYSIS TECHNIQUES FOR CHRONIC STUDIES INVOLVING TUMOR PREVALENCE DATA.** G S Bieler. Research Triangle Institute, RTP, NC. Sponsor: D E Rickett.
- #1053 **EMPIRICAL DEFINITION OF BIOLOGICAL MEANINGFUL DIFFERENCES IN TOXICITY STUDIES AND INTEGRATION INTO STATISTICAL TESTS.** C Y Meng, A J Roth, J T Stevens and C B Breckenridge. CIBA-GEIGY Corporation, Summit, NJ, Greensboro, NC.
- #1054 **STATISTICAL DESIGN CONSIDERATIONS FOR STAGewise ADAPTIVE DOSE ALLOCATION STUDIES.** P I Feder, D W Hobson, C T Olson, and R L Joiner. Battelle Columbus Division, Columbus, OH.
- #1055 **ANALYSIS OF FREE AND BOUND MALONALDEHYDE IN LIVER FROM CC1/4 TREATED RATS.** T Ichinose, K Dennis, M Miller, and T Shibamoto. Department of Environmental Toxicology, University of California, Davis. Sponsor: B Wilson.
- #1056 **VAPOR PHASE BIOMARKERS FORMED FROM *IN VIVO* LIPID PEROXIDATION.** K J Dennis, T Ichinose, M Miller, T Shibamoto. Department of Environmental Toxicology, University of California, Davis, CA. Sponsor: B W Wilson.
- #1057 **COLOR DIFFERENCES IN TAIL TATTOOING B6C3F1 MICE.** D L Goldsteen, P A McMurray, L Farwell, D C Haines. Hazleton Laboratories America, Inc., Rockville, MD. Sponsor: M R Moore.
- #1058 **IMMUNOASSAY AND DRUG TESTING: THE WAVE OF THE FUTURE.** S Stanley, D Watt, J W Blanke, J McDnald and T Tobin. University of Kentucky, Lexington, KY. Sponsor: L Robertson.

- #1059 **ANALYSIS OF DETOMIDINE IN EQUINE BLOOD AND URINE BY RADIOIMMUNOASSAY.** P Earle, D Watt, D Taylor, J W Blake, T Wood and T Tobin. Sponsor: L Robertson.
- #1060 **THE USE OF IMMUNOASSAYS TO MONITOR FUROSEMIDE ADMINISTRATION IN RACING HORSES.** T Wood, C L Tai, J McDonald, C A Prange, J W Blake and T Tobin. University of Kentucky, Lexington, KY. Sponsor: L Robertson.
- #1061 **DETECTION AND QUANTITATION OF PHENYLBUTAZONE IN EQUINE BLOOD AND URINE BY PARTICLE CONCENTRATION FLUORESCENCE IMMUNOASSAY AND ELISA.** T Tobin, S Kwiatkowski, J McDonald, C A Prange, H-H Tai, and D Watt. Sponsor: L Robertson.
- #1062 **THE USE OF IMMUNOASSAYS TO MONITOR THE ADMINISTRATION OF SUFENTANIL.** J-M Yang, C L Tai, D Watt, D Taylor, N Pedigo and T Tobin. Sponsor: L Robertson.
- #1063 **COMPONENTS OF VARIATION IN RAT PLASMA AND ERYTHROCYTE CHOLINESTERASE RESULTS.** M C Carakostas, M L Deaton, L A Knight, M A Landis. E I du Pont de Nemours & Co. Inc. Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE. Sponsor: D B Warheit.
- #1064 **RECENT DEVELOPMENTS IN REDUCING AND REPLACING ANIMAL USE IN TOXICOLOGIC RESEARCH.** S C Gad, G D Searle & Co., Skokie, IL.

## FRIDAY MORNING, MARCH 3

8:30 a.m.-12:00 noon

BALLROOM EAST

### SYMPOSIUM: RISK ASSESSMENT FOR CARCINOGENS

Co-Sponsored by the SOT Carcinogenesis and Risk Assessment Specialty Sections

Chairperson: T Farber, USEPA, Washington, DC; T Starr, CIIT, Research Triangle Park, NC

Perspectives on Carcinogenic Risk. Bruce Ames, University of California at Berkeley, Berkeley, CA.

Physiologic-Based Pharmacokinetic Modeling for High- to Low-Dose and Cross-Species Extrapolation. Robert H. Reitz, Dow Chemical Company, Midland, MI.

Critical Factors that Drive Dose-Response Relationships. James Swenberg, CIIT, Research Triangle Park, NC.

Potential for Incorporating Mechanistic Data into Quantitative Risk Assessment. William Farland, U.S. Environmental Protection Agency, Washington, DC.

## FRIDAY MORNING, MARCH 3

CLAYTON ROOM

### POSTER/DISCUSSION SESSION: DEPOSITION/CLEARANCE OF INHALED PARTICLES AND GASES

Chairpersons: P E Morrow, Rochester, NY  
A R Dahl, Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM

Displayed: 8:30 a.m.-11:30 a.m.

Discussion: 10:00 a.m.-11:30 a.m.

- #301 **REVERSIBILITY OF CLEARANCE IMPAIRMENT AFTER SUBCHRONIC TEST TONER INHALATION.** B Bellmann<sup>1</sup>, H Muhle<sup>1</sup>, O Creutzenberg<sup>2</sup>, R Kilpper<sup>2</sup>, P Morrow<sup>3</sup> and R Mermelstein<sup>2</sup>. <sup>1</sup>Fraunhofer Institute of Toxicology, Hannover 3000 FRG. <sup>2</sup>Corporate Environmental Health & Safety, Xerox Corp. Rochester NY. <sup>3</sup>University of Rochester, Rochester, NY.
- #302 **REGIONAL DEPOSITION PATTERNS FOR INHALED PARTICLES AND FIBERS ARE DEPENDENT UPON AIRWAY BRANCHING PATTERNS.** M A Hartsky, C G Plopper, and D B Warheit. Du Pont-Haskell Lab., Newark, DE and Univ. of Cal. Davis, CA.
- #303 **DEPOSITION OF CIGARETTE SMOKE PARTICLES IN THE RAT RESPIRATORY TRACT.** B T Chen, R E Weber and H Mauderly. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM. Sponsor: R F Henderson.
- #304 **DEPOSITION OF ULTRAFINE PARTICLES IN F-344 RAT NASAL CASTS.** Y S Cheng, G K Hansen, Y F Su, H C Yeh and K T Morgan\*. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM, \*CIIT, RTP, NC. Sponsor: C H Hobbs.
- #305 **REVERSIBILITY OF BIOCHEMICAL ALTERATIONS IN BRONCHO-ALVEOLAR LAVACATE UPON CESSATION OF DUST EXPOSURE.** O Creutzenberg<sup>1</sup>, H Muhle<sup>2</sup>, B Bellmann<sup>2</sup>, R Kilpper<sup>2</sup>, R Mermelstein and P Morrow<sup>3</sup>. <sup>1</sup> Fraunhofer Institute for Toxicology, Hannover 3000, FRG <sup>2</sup>. Corporate Environmental Health & Safety, Xerox Corp. Rochester NY <sup>3</sup> University of Rochester, Rochester, NY.
- #306 **AIRWAY INTRA-LUMINAL MACROPHAGES: ORIGIN AND ROLE IN LUNG CLEARANCE.** J Powdrill, C Buckley, Y E Valdez, B E Lehnert. Los Alamos National Laboratory, Los Alamos, NM.
- #307 **KINETICS OF APPEARANCE OF POLYMORPHONUCLEAR LEUKOCYTES AND THEIR PARTICLE BURDENS DURING THE ALVEOLAR CLEARANCE OF A HIGH LUNG BURDEN OF PARTICLES.** B E Lehnert, A Cline, J E London, Los Alamos National Laboratory, Los Alamos, NM.
- #308 **REGIONAL UPTAKE OF VAPORS IN THE RESPIRATORY TRACTS OF RATS AND BEAGLE DOGS.** A R Dahl, M B Snipes, J L Mauderly. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM.
- #309 **SULFUR DIOXIDE DEPOSITION IN THE HUMAN RESPIRATORY TRACT.** D B Menzel, R L Wolpert and J R Boger, III. Depts. Pharmacology and Medicine, Comprehensive Cancer Center and Inst. for Statistics and Decision Sciences, Duke University, Durham, NC.
- #310 **EXERCISE IS PREDICTED TO ENHANCE THE DEPOSITION OF SULFUR DIOXIDE IN THE LUNG.** R L Wolpert, D B Menzel and J R Boger, III. Depts. of Pharmacology and Medicine, Comprehensive Cancer Center and Inst. of Statistics and Decision Sciences, Duke University, Durham, NC.
- #311 **NASAL DEPOSITION AND CLEARANCE OF INHALED PHOSGENE IN RATS.** E A Gross, K T Morgan, R Slade\* and G Hatch\*. CIIT and\* USEPA, RTP, NC.
- #312 **DIRECT MEASUREMENTS OF PERCHLOROETHYLENE IN THE BLOOD AND EXHALED BREATH OF RATS DURING AND FOLLOWING INHALATION EXPOSURE.** C E Dallas, R Ramanathan, S Muralidhara, \*J M Gallo, R O Manning, and J V Bruckner. Depts. of Pharmacology & Toxicology and \*Pharmaceutics, College of Pharmacy, University of Georgia, Athens, GA.

**FRIDAY MORNING, MARCH 3  
GWINNETT ROOM**

**POSTER/DISCUSSION SESSION: MECHANISMS OF RENAL TOXICITY**

**Chairpersons:** J Gandolfi, University of Arizona, Tucson, AZ  
G Rankin, Marshall University School of Medicine, Huntington, WV

**Displayed:** 8:30 a.m.-11:30 a.m.

**Discussion:** 10:00 a.m.-11:30 a.m.

- #313 **CHARACTERISTICS OF 2,4,4-TRIMETHYL-2-PENTANOL (TMPOH) BINDING TO  $\alpha$ 2u-GLOBULIN AND OTHER COMPOUNDS THAT CAUSE PROTEIN DROPLET NEPHROPATHY.** S J Borghoff, P B Upton, J A Swenberg. CIIT, Research Triangle Park, NC.
- #314 **LYSOSOMAL DEGRADATION OF  $\alpha$ 2u-GLOBULIN ( $\alpha$ 2u): ROLE OF CYSTEINE AND ASPARTIC PROTEINASES AND EFFECT OF d-LIMONENE BINDING.** M I Rivera Torres, D Caudill and L D Lehman-McKeeman. Miami Valley Laboratories, Procter & Gamble Co, Cincinnati, OH.
- #315 **RENAL ALPHA-2-MICROGLOBULIN DEPOSITION FOLLOWING EXPOSURE OF MALE F-344 RATS TO 2,2,4-TRIMETHYLPENTANE, TRICHLOROETHYLENE, TETRACHLOROETHYLENE OR CHLOROFORM.** C L Potter, A B DeAngelo and F B Daniel, U.S. Environmental Protection Agency, Cincinnati, OH.
- #316 **COMPARATIVE MOLECULAR WEIGHT DISTRIBUTION OF RAT AND HUMAN MALE URINARY PROTEINS.** M J Olson, J T Johnson and C A Reidy. Biomedical Science Dept., GM Research Labs., Warren, MI.
- #317 **LYSOSOMAL CHANGES IN RENAL TUBULAR EPITHELIAL CELLS OF MALE SPRAGUE-DAWLEY RATS FOLLOWING DECALIN EXPOSURE.** T E Eurell\*, R D Parker, and C L Alden. \*College of Vet. Med., Univ. of IL, Urbana, IL and Procter & Gamble, Cincinnati, OH.
- #318 **THE EFFECT OF GENTAMICIN ON LYSOSOMES OF HUMAN PROXIMAL TUBULAR CELLS.** A L Trifillis, B F Trump, and A L Regec, Department of Pathology, University of Maryland School of Medicine, and MIEMSS, Baltimore, MD. Sponsor: T W Jones.
- #319 **TOXICITY, TRANSPORT AND METABOLISM OF N-ACETYL S-(1,2-DICHLORO-VINYL) -L-CYSTEINE (NAC-DCVC) IN RABBIT RENAL CORTICAL SLICES.** G H I Wolfgang, A J Gandolfi, \*J L Stevens and K Brendel. Dept Pharmacology/Toxicology, University of Arizona, Tucson, AZ and W. Alton Jones Cell Science Center, Lake Placid, NY.
- #320 **INFLUENCE OF AMINOXYACETIC ACID (AOA) AND PROBENECID ON THE NEPHROTOXICITY DUE TO N-ACETYLCYSTEINE CONJUGATE OF STYRENE.** S Chakrabarti, A Malick and C Denniel, Med. trav. hyg. mil., Fac. medecine, Univ. Montreal, Montreal, Quebec, Canada.
- #321 **ACUTE NEPHROTOXIC ACTION OF GLUTATHIONE-S-CONJUGATE OF STYRENE IN FISCHER-344 RATS.** A Malick and S Chakrabarti. Med. trav. hyg. mil., Fac. medecine, Universite de Montreal, Montreal, Que., Canada.
- #322 **EFFECT OF BUTHIONINE SULFOXIMINE ON ACUTE N-(3,5-DICHLOROPHENYL) SUCCINIMIDE-INDUCED NEPHROTOXICITY.** G O Rankin, V J Teets, D W Nicoll, and P I Brown. Marshall University School of Medicine, Huntington, WV.
- #323 **COMPARISON OF THE ACUTE NEPHROTOXICITY OF N-(3,5-DICHLOROPHENYL) HYDROXSUCCINAMIC ACID(3,5-NDPSA-OH).** R J Griffin and P J Harvison, Phila. College of Pharm. and Science, Phila., PA. Sponsor: H.D. Colby.
- #324 **TOXICITY OF 2-BROMOHYDROQUINONE (BHQ) TO ISOLATED RABBIT RENAL CORTICAL MITOCHONDRIA (RCM).** S A Hall and R G Schnellmann. Dept. Physiol./Pharmacol., Coll. Vet. Med., University of Georgia, Athens, GA.
- #325 **ROLE OF CYTOCHROME P450 IN CARBON DISULFIDE (CS<sub>2</sub>)-INDUCED RENAL TOXICITY.** R B Kroll and R J Rubin, Johns Hopkins University, Baltimore, MD.

**FRIDAY MORNING, MARCH 3  
GALLERIA**

**POSTER SESSION: REPRODUCTIVE TOXICOLOGY/TERATOLOGY**

**Chairperson:** J W Henck, Warner-Lambert Company, Ann Arbor, MI

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 8:30 a.m.-10:00 a.m.

- #1065 **STANDARDIZATION OF TEST PROTOCOL FOR REPRODUCTIVE TOXICITY TESTING BY CONTINUOUS BREEDING IN CD RATS.** D K Gulati\*, E Hope\*, R E Chapin, L H Barnes\*, and K L Christman\*, \*Environmental Health Research & Testing, Inc., Lexington, KY, National Toxicology Program, NIEHS, Research Triangle Park, NC.
- #1066 **REPRODUCTIVE TOXICITY OF BORIC ACID (BORA) IN MICE AS EVALUATED BY THE CONTINUOUS BREEDING PROTOCOL.** P A Fail, J D George, T B Grizzle, and J J Heindel.\* Research Triangle Institute and \*NTP/NIEHS, Research Triangle Park, NC. Sponsor: R E Chapin.
- #1067 **THE SENSITIVITY OF FERTILITY TO OTHER REPRODUCTIVE ENDPOINTS.** L Earl Gray, J S Ostby, J M Ferrell, R Linder, R Cooper, J Goldman, G Rehnbergh and R Sigmon. RTB, HERL, USEPA, RTP, NC.
- #1068 **COMPUTER AUTOMATED STRUCTURE EVALUATION (CASE) OF RETINOIDS IN TERATOGENESIS BIOASSAYS.** M R Frierson, F A Mielach, D Kochhar, B Rigby and R W Naismith. Biofor Inc., Waverly, PA.
- #1069 **INTERSPECIES COMPARISON OF A/D RATIOS: XENOPUS.** T D Sabourin<sup>1</sup>, S S Marsh<sup>1</sup>, V L Murchake<sup>1</sup>, D J Versteeg<sup>2</sup>, G P Daston—<sup>2</sup>, and J M Rogers<sup>3</sup>. <sup>1</sup>Battelle, Columbus, OH; <sup>2</sup>Procter & Gamble, Cincinnati, OH; <sup>3</sup>USEPA, Research Triangle Park, NC.
- #1070 **INTERSPECIES COMPARISON OF A/D RATIOS: FATHEAD MINNOW.** D J Versteeg<sup>1</sup>, C R Ritchie<sup>1</sup>, G P Daston<sup>1</sup>, J M Rogers<sup>2</sup>, and T D Sabourin<sup>3</sup>. <sup>1</sup>Procter & Gamble, Cincinnati, OH, <sup>2</sup>U.S. EPA Research Triangle Park, NC, and <sup>3</sup>Battelle-Columbus, OH.
- #1071 **INTERSPECIES COMPARISON OF A/D RATIOS: DROSOPHILA.** D Baines<sup>1</sup>, G P Daston<sup>1</sup>, J M Rogers<sup>2</sup>, T D Sabourin<sup>3</sup> and D J Versteeg<sup>1</sup>. <sup>1</sup>Procter & Gamble, Cincinnati, OH, <sup>2</sup>US EPA, Research Triangle Park, NC and <sup>3</sup>Battelle, Columbus, OH.
- #1072 **SOME STATISTICAL PROPERTIES OF THE A/D RATIO.** R W Setzer\*, J M Rogers. US EPA, Research Traingle Park, NC. \*National Research Council Associate. Sponsor: N Chernoff.
- #1073 **INTERSPECIES COMPARISON OF A/D RATIOS: MOUSE.** J M Rogers, E A Rushin, L M Burkhead, B D Barbee, R J Kavlock, T D Sabourin\*, D J Versteeg\*\*, and G P Daston\*. U.S. EPA, Res. Triangle Pk., NC, \*Battelle, Columbus, OH and \*\*Procter and Gamble, Cincinnati, OH.

- #1074 **2-METHOXYETHANOL (2-ME) TERATOGENICITY FOLLOWING BOLUS AND CONSTANT-RATE ADMINISTRATIONS IN MICE.** D O Clarke and F Welsch. CIIT, Research Triangle Park, NC.
- #1075 **THE ROLE OF SARCOSINE IN 2-METHOXYETHANOL-INDUCED DEVELOPMENTAL TOXICITY.** F Welsch, J M Duignan, and C A Mebus. CIIT, Research Triangle Park, NC.
- #1076 **ENHANCED TERATOGENICITY OF ETHYLENE GLYCOL MONOMETHYL ETHER WHEN ADMINISTERED DERMALLY IN SOLUTION WITH WATER.** J R Cooper, D W Hobson\*, Armstrong Aerospace Medical Research Laboratory, Veterinary Sciences Division, Wright-Patterson AFB, Dayton, OH, \*Batelle, Columbus Division, Sponsor: M E Andersen.
- #1077 **CRITICAL PERIOD AND STRAIN DIFFERENCES IN VENTRICULUR SEPTAL DEFECT INDUCTION IN RATS BY TRANSPLACENTAL TREATMENT WITH 1,1,3-TRIMETHYL-5-PHENYLBUIRET (ST-281).** O Yamakita<sup>1</sup>, N Wakasugi<sup>2</sup>, T Tomita.<sup>2</sup> and N Ito<sup>3</sup>. <sup>1</sup>Drug Safety Laboratory, Taiho Pharmaceutical, Co., Tokushima, <sup>2</sup>Laboratory of Animal Genetics, Faculty of Agriculture, Nagoya Univ., Nagoya, and <sup>3</sup>1st Dept. Pathol., Nagoya City Univ. Med Sch., Nagoya, Japan.
- #1078 **TERATOLOGIC EVALUATION OF CORN OIL (CO) OR DISTILLED WATER (DW) IN CD-1 MICE AND CD RATS.** C J Price, J D George, B M Sadler, M C Marr, \*C A Kimmel, \*B A Schwetz, and \*R E Morrissey. Research Triangle Institute, Research Triangle Park, NC. \*NTP/RDTB-OHEA, USEPA, Washington, DC, and \*NTP/NIEHS, Research Triangle Park, NC.
- #1079 **DEVELOPMENTAL TOXICITY OF 2-ETHYLHEXANOIC ACID (2-EHA) BY GAVAGE IN FISCHER 344 RATS AND NEW ZEALAND WHITE RABBITS.** L C Fisher, R W Tyl, L J Fosnight, M F Kubena and M A Vrbanc, Bushy Run Research Center, Export, PA.
- #1080 **DEVELOPMENTAL TOXICITY OF ETHYLENE GLYCOL (EG) AEROSOL BY WHOLE-BODY EXPOSURE IN CD RATS AND CD-1 MICE.** R W Tyl, B Ballantyne<sup>a</sup>, L C Fisher, D L Fait, T A Savine, D R Klonne, I M Pritts and D E Dodd. Bushy Run Research Center, Export, PA and Union Carbide Corp.<sup>a</sup>, Danbury, CT.
- #1081 **EVALUATION OF ESPERAMICIN (BMY-28175) FOR DEVELOPMENTAL TOXICITY IN RATS.** J T Liao· R A Buroker<sup>2</sup>, and D E Rodwell<sup>1</sup>. <sup>1</sup>Springborn Life Sciences, Inc., and <sup>2</sup>Bristol-Myers Company, Syracuse, NY.
- #1082 **MATERNAL AND FETAL TOXICITY OF NITROFEN ANALOGS.** B M Francis, University of Illinois, Urbana, IL.
- #1083 **PERINATAL AND POSTNATAL STUDY OF CEFEPIME (BMY-28142) IN RATS.** M D Mercieca<sup>1</sup>, T J Davidson<sup>2</sup>, J C Siglin<sup>1</sup> and D E Rodwell<sup>1</sup>. <sup>1</sup>Springborn Life Sciences, Inc., Spencerville, OH and <sup>2</sup>Bristol-Myers Co., Syracuse, NY.
- #1084 **TERATOLOGY STUDY OF CEFEPIME (BMY-28142) IN RATS.** T J Davidson<sup>1</sup>, J C Siglin<sup>2</sup>, M D Mercieca<sup>2</sup>, H Madissoo<sup>1</sup>, and D E Rodwell<sup>2</sup>. <sup>1</sup>Bristol-Myers Co., Syracuse, NY and <sup>2</sup>Springborn Life Sciences, Inc., Spencerville, OH.
- #1085 **PLACENTAL PASSAGE AND MATERNAL-FETAL DISTRIBUTION OF PHENAZOPYRIDINE (PAP) IN THE RAT.** H S Buttar, B H Thomas and J H Moffatt. Bureau of Drug Research, Health Protection Branch, Ottawa, Canada.
- #1086 **ORAL GENERAL REPRODUCTION STUDY OF CITRAL IN FEMALE RATS.** A M Hoberman, M S Christian, M B Bennett\* and T A Vollmuth\*. Argus Research Laboratories, Inc., Horsham, PA and \*Lorillard Inc., Greensboro, NC.
- #1087 **DEVELOPMENTAL TOXICITY EVALUATION OF INHALED CITRAL IN RATS.** R G York<sup>1</sup>, T A Vollmuth<sup>2</sup> and C L Gaworski<sup>3</sup>. <sup>1</sup>Pathology Associates, Inc., Cincinnati, OH, <sup>2</sup>Lorillard, Inc., Greensboro, NC. and <sup>3</sup>IIT Research Institute, Chicago, IL.
- #1088 **EFFECTS OF NEONATAL EXPOSURE TO IVERMECTIN IN RATS AND RHESUS MONKEYS.** G R Lankas, D H Minsker and R T Robertson. Merck Sharp & Dohme Research Laboratories, West Point, PA.
- #1089 **AMELIORATION OF CADMIUM TERATOGENICITY BY DITHIOCARBAMATES.** A HATORI, C C Willhite, R P Sharma, W B Howard and M M Jones. Toxicology Program, Utah State University, Logan, UT California Dept. of Health Services, Berkeley, CA and Dept. of Chemistry, Vanderbilt University, Nashville TN.
- #1090 **THE DEVELOPMENTAL EFFECTS OF NICKEL CHLORIDE IN DRINKING WATER.** E L George, J A Stober, \*G L Kimmel, M K Smith. USEPA, HERL, Cincinnati, OH and \*OHEA, USEPA, Washington, DC.
- #1091 **DEVELOPMENTAL EFFECTS ON MICE AFTER PRENATAL AND POSTNATAL EXPOSURE TO URANIUM.** J L Domingo, A Ortega, J L Paternain, J M Llobet, and J Corbella. Laboratory of Toxicology & Biochemistry. School of Medicine. E-43201, Reus, Spain.
- #1092 **TERATOLOGY STUDY OF ALUMINUM HYDROXIDE IN MICE.** M Gomez, J L Domingo, A Bosque, J L Paternain, and J Corbella, Laboratory of Toxicology & Biochemistry, School of Medicine, University of Barcelona, San Lorenzo 21, 43201-Reus, Spain.
- #1093 **A TERATOLOGICAL EVALUATION OF POTASSIUM DIMETHYLDITHIOCARBAMATE IN RATS AND RABBITS.** K D Drake, S L Helmhout, G L Bonner, G P Adam, K G Michlewicz and D E Rodwell, Buckman Laboratories, Inc., Memphis, TN and Springborn Life Sciences, Inc., Spencerville, OH.
- #1094 **TERATOLOGIC EVALUATION OF ACRYLAMIDE (ACRL) IN CD-1 MICE AND CD RATS.** E A Field, C J Price, R B Sleet, M C Marr, \*R E Morrissey, and \*B A Schwetz. Research Triangle Institute and \*NTP/NIEHS, Research Triangle Park, NC.
- #1095 **PERINATAL DOSE STUDY OF DIBUTYL PHTHALATE IN RATS AND MICE.** J Killinger, A Basaran, L Mezza, R Persing, A Peters, and R Melnick. Battelle, Columbus, OH and NIEHS, RTP, NC.
- #1096 **DEVELOPMENTAL TOXICITY OF TETRAHYDROFURAN IN MICE AND RATS.** T J Mast, R L Rommereim, R J Weigel, K H Stoney, B A Schwetz\* and R E Morrissey\*. Pacific Northwest Laboratory, Richland, Washington. \*NIEHS/NTP, Research Triangle Park, NC.
- #1097 **TWO GENERATION REPRODUCTION STUDY OF SULFUR MUSTARD IN RATS.** L B Sasser, J A Cushing, R L Buschbom and J C Dacre. Pacific Northwest Laboratory, Richland, WA and U.S. Army Biomedical Research Development Laboratory, Ft. Detrick, Frederick, MD.

## FRIDAY MORNING, MARCH 3 GALLERIA

### POSTER SESSION: ENDOCRINE SYSTEM

**Chairperson:** R M McClain, Hoffmann-La Roche, Inc., Nutley, NJ

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 10:00 a.m.-11:30 a.m.

- #1098 **THE EFFECT OF PHENOBARBITAL (PB) ON THE METABOLISM AND EXCRETION OF THYROXINE IN RATS.** R M McClain, A A Levin, R Posch, and J C Downing. Department of Toxicology and Pathology, Hoffmann-La Roche Inc., Nutley, NJ.
- #1099 **DIFFERENTIAL EFFECTS OF DIETHYLSTILBESTROL AND ESTRADIOL-17beta IN COMBINATION WITH TESTOSTERONE ON RAT PROSTATE LOBES.** M C Bosland and P Ofner, NYU Medical Center, New York, NY and Tufts University School of Medicine, Boston, MA.

- #1100 **THE ALTERATION OF SERUM HORMONE LEVELS BY SINGLE AND REPEATED ETHER ANESTHESIA.** S Roberts, T d'Elia, P Fourney and R Stoll. Dept of Preclinical Safety Assessment, Sandoz Research Institute, E Hanover, NJ.
- #1101 **THYROID TOXICITY IN RATS TREATED WITH HISTAMINE RECEPTOR ANTAGONISTS-AN INSIGHT INTO THEIR MECHANISM OF ACTION.** A Poole and R Jones, Smith Kline and French Research Ltd., The Frythe, Welwyn, Herts, UK. Sponsor: T Leonard.
- #1102 **INHIBITION OF CHOLESTEROL (CHOL) MOBILIZATION TO CYTOCHROME P-450<sub>8cc</sub> IN TESTES OF 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD)-TREATED RATS.** R W Moore and R E Peterson. Sch. of Pharmacy and Env. Toxicol. Ctr., Univ. of Wis., Madison, WI.
- #1103 **2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) TREATMENT DECREASES PITUITARY RESPONSIVENESS TO GONADOTROPIN-RELEASING HORMONE (GnRH) IN MALE RATS.** R C Bookstaff, F Kamel, R W Moore, and R E Peterson. School of Pharmacy and Dept. of Physiol., Univ. of Wisconsin, Madison, WI.
- #1104 **COMPARISON OF THE EFFECTS OF I<sub>2</sub> AND I<sup>2</sup> ON THYROID FUNCTION ON THE RAT.** K D Thrall, T T Sherer, and R J Bull. Pharmacology/Toxicology Program, College of Pharmacy, Washington State University, Pullman, WA.
- #1105 **T-2 TOXIN AND ADRENAL CORTICAL NECROSIS.** D A Creasia, J D Thurman and R W Trotter. Pathophysiology Division and Pathology Division, USAMRIID, Fort Detrick, Frederick, MD. Sponsor: R W Wannemacher.
- #1106 **PANCREATIC TOXICITY OF DIETHYLTOLUENEDIAMINE (DETD).** M L Hardy, L J Ackerman, R W Naismith, T G Pullin and G L Ter Haar. Ethyl Corporation, Baton Rouge, LA.
- #1107 **EFFECT OF UDP-GLUCURONOSYLTRANSFERASE (UDP-GT) INDUCERS ON SERUM LEVELS OF THYROID HORMONES.** R A Barter and C D Klaassen. Univ. of Kansas Medical Center, Kansas City, KS.

## FRIDAY MORNING, MARCH 3

### GALLERIA

### POSTER SESSION: CARDIOVASCULAR TOXICOLOGY

**Chairperson:** G C Haggarty, G. D. Searle & Company, Skokie, IL

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 8:30 a.m.-10:00 a.m.

- #1108 **VASCULAR TOXICITY OF ALLYLAMINE (AAM) IN AVIAN AND RODENT SPECIES.** K Ramos. Texas Tech University Health Sciences Center, Lubbock, TX.
- #1109 **CARDIAC TOXICITY IN F-344 RATS FOLLOWING SUBCHRONIC EXPOSURE TO INHALED ALLYLAMINE (AA) VAPOR.** D W Lynch, W J Moorman, T R Lewis, P Stober, R D Hamlin\*, and R L Scheuler\*\*. NIOSH, Cincinnati, OH; \*Dept. Vet. Physiol. and Pharmacol., Ohio State Univ., Columbus, OH; and \*\*Research Pathol. Assoc., Inc., Sykeville, MD.
- #1110 **PROTECTION AGAINST DOXORUBICIN INDUCED REACTIVE OXYGEN SPECIES BY RUTHENIUM RED AND FRUCTOSE-1,6-DIPHOSPHATE.** E Chacon, A A Welder, J Swann, and D Acosta. The University of Texas, Austin, TX.
- #1111 **OXIDATIVE CHANGES IN HYPOXIC-REOXYGENATED RAT MYOCARDIUM.** Y Park and J P Kehrer. Division of Pharmacology and Toxicology, College of Pharmacy, The University of Texas at Austin, Austin, TX.
- #1112 **SKF96079, A GASTRIC PROTON PUMP INHIBITOR, AFFECTS CALCIUM HANDLING IN CARDIAC TISSUE.** D L Forman, R A Macia, D LaMonte, W D Matthews. Department of Investigative Toxicology, Smith Kline & French Lab., Swedeland, PA.
- #1113 **POSSIBLE ROLE OF MAGNESIUM DEFICIENCY (Mg-D) IN HYDRALAZINE'S (H) CARDIOTOXICITY.** O M Adeyemo<sup>1</sup>, T Balaza<sup>2</sup>, S Bloom<sup>3</sup>, —X Joseph<sup>2</sup>, and W L West<sup>1</sup>. <sup>1</sup>Howard University, Washington, D C, <sup>2</sup>Food and Drug Administration, Washington, D C, <sup>3</sup>G W University, Washington, D C.
- #1114 **BEMITRADINE INDUCED CARDIOTOXICITY IN RATS.** C P Chengelis, S C Gad, S Levin, and E Burton. Product Safety Assessment, G.D. Searle R. & D., Skokie, IL; and V Mallory. Pharmakon Research International, Waverly, PA.
- #1115 **1,2,3-TRICHLOROPROPANE (TCP) INDUCED HEART AND LIVER TOXICITY.** M Robinson, D L McKean, L W Condie and B A Merrick. USEPA, HERL, Cincinnati, OH.
- #1116 **AMITRIPTYLINE TOXICITY IN PRIMARY CULTURES OF ADULT MYOCARDIAL CELLS.** A A Welder, E Chacon, R Grant, J Bradlaw<sup>1</sup>, and D Acosta. University of Texas, College of Pharmacy, Austin, TX, \*University of Oklahoma, College of Pharmacy, Oklahoma City, OK and <sup>1</sup>FDA, Washington, DC.
- #1117 **LEAD (Pb)-RELATED HYPERTENSION: EFFECT ON VASCULAR REACTIVITY (*IN VIVO*).** F Khail-Manesh, E Weiler, H Gonick, M Weber, B Prins. Depts. of Med., Cedars-Sinai, Los Angeles, CA & UCI, Irvine, CA.
- #1118 **A COMPARISON OF CARDIOVASCULAR PARAMETERS IN FULLY CONSCIOUS HORMEL-HANFORD AND YUCATAN MINIPIGS.** T C Michel, G J Ikeda, V L Olivito, P P Sapienza, C N Barton, and M W O'Donnell. FDA, Washington, DC.
- #1119 **ECG ANALYSES IN ANIMAL DRUG TOXICITY STUDIES.** D A Rop, B K J Leong, and D Branstetter. The Upjohn Company, Kalamazoo, MI.
- #1120 **CARDIOVASCULAR ACTIONS OF THE GASTRIC PROTON PUMP INHIBITOR, SK&F 96079.** R A Gabel, D L Forman, R A Macia and W D Matthews. Department of Investigative Toxicology, Smith Kline & French Lab., King of Prussia, PA.
- #1121 **SAFETY ASSESSMENT OF WIN 54,177-4: AN ANTIARRHYTHMIC WITH A UNIQUE PHARMACOLOGIC PROFILE.** B A Mayes, T A Barbolt, A M Ezrin, D Rosi, C C Eames, D J Bradley and Y Greener. Sterling-Winthrop Research Institute, Rensselaer, NY.
- #1122 **SUBCHRONIC TOXICITY STUDY OF A COMBINATION OF TERAZOSIN AND ENDURON IN DOGS.** C L Yang, S Tekeli, P Cusick, and R Patterson. Drug Safety Evaluation Division, Abbott Laboratories, Abbott Park, IL.
- #1123 **CARDIOVASCULAR EFFECTS OF EXCITATORY AMINO ACIDS (EAA) IN RATS AT PROCONVULSIVE AND BEHAVIORALLY ACTIVE DOSES.** T J Shetler, D L Modlin, D R Helton, and P D Williams. Toxicology Division, Lilly Research Laboratories, Eli Lilly & Company, Greenfield, IN.

**FRIDAY MORNING, MARCH 3  
GALLERIA**

**POSTER SESSION: BIOTRANSFORMATION IV**

Chairperson: A Parkinson, University Of Kansas Medical Center, Kansas City, KS

Displayed: 8:30 a.m.-11:30 a.m.

Attended: 10:00 a.m.-11:30 a.m.

- #1124 **CROSSLINKING OF PROTEINS *IN VITRO* BY REACTION WITH TRANS, TRANS-MUCONALDEHYDE, A RING-OPENED METABOLITE OF BENZENE.** V B Mylavarapu, S Madra, B D Goldstein, and G Witz. UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.
- #1125 **HYDROQUINONE METABOLISM BY HUMAN MYELOPEROXIDASE IS STIMULATED BY PHENOL AND SEVERAL OTHER COMPOUNDS.** K L Steinmetz, D A Eastmond and M T Smith. School of Public Health, University of California, Berkeley, CA.
- #1126 **RELATIONSHIP BETWEEN BENZENE TOXICITY AND URINARY MUCONIC ACID LEVELS.** P Hu and R Snyder. Joint Graduate Program in Toxicology, Rutgers University and UMDNJ/Robert Wood Johnson Medical School, Piscataway, NJ.
- #1127 **HEMOGLOBIN ADDUCTS REFLECT EXPOSURE BUT NOT TOXICITY IN RODENTS TREATED WITH BUTADIENE, ISOPRENE, OR BENZENE.** R F Henderson, J D Sun, A R Dahl, P J Sabourin, J A Bond, G Lucier\*, and L S Birnbaum\*. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM and \*NIEHS, RTP, NC.
- #1128 **EFFECT OF REPEATED BENZENE INHALATION EXPOSURES ON SUBSEQUENT METABOLISM OF BENZENE.** P J Sabourin, J D Sun, L S Birnbaum\*, G Lucier\*, and R F Henderson. Lovelace Inhalation Toxicology Research Institute, Albuquerque, NM, \*National Institute of Environmental Health Sciences, RTP, NC.
- #1129 **LIVER SLICES: AN *IN VITRO* SYSTEM FOR THE STUDY OF SPECIES DIFFERENCES IN HEPATIC DRUG METABOLISM.** J Barr, M Shallis, K Brendel and L G Sipes. Dept. of Pharmacology & Toxicology, Colleg of Pharmacy, Univ. of Arizona, Tucson, AZ.
- #1130 **THE USE OF HUMAN CRYOPRESERVED PRECISION-CUT LIVER SLICES IN HEPATOTOXICITY STUDIES.** R L Fisher, A J Gandolfi, C L Krumdieck, and K Brendel. Departments of Pharmacology, U of Arizona, Tucson, AZ and Department of Nutrition Science, U of Alabama, Birmingham, AL.
- #1131 **THE EFFECTS OF SHORT TERM STORAGE ON XENOBIOTIC METABOLISM OF VITRIFIED HUMAN LIVER SLICES** S M Wishnies, A R Parrish, I G Sipes, A J Gandolfi, C L Krumdieck, and K Brendel. Dept. of Pharmacology, U of Arizona, Tucson, AZ and Dept. of Nutrition Science, U of Alabama, Birmingham, AL.
- #1132 **XENOBIOTIC METABOLISM IN MICROSOLICES FROM DISTINCT REGIONS OF THE LIVER** W T Klimecki, S M Wishnies, A J Gandolfi, C L Krumdieck, and K Brendel. Dept. of Pharmacology, U of Arizona, Tucson, AZ and Dept. of Nutrition Science, U of Alabama, Birmingham, AL.
- #1133 **BIOTRANSFORMATION OF HALOTHANE IN GUINEA PIG LIVER SLICES.** J Fernando, H N Ghantous, A J Gandolfi, K Brendel. Dept Anesthesiology, University of Arizona, Tucson, AZ.
- #1134 **COMPARISON OF THE METABOLISM OF AMPHETAMINE IN FRESHLY ISOLATED AND CRYOPRESERVED HEPATOCYTES FROM SEVERAL SPECIES.** L J Loretz, A P Li, R D Holm, and A G E Wilson. Monsanto Environmental Health Laboratory, St. Louis, MO.
- #1135 **COMPARISON OF PAPAVERINE METABOLISM IN CULTURE SYSTEMS OF RAT HEPATOCYTES AND FUNGAL CELLS.** D Acosta, G C Hsieh, J C Davila, G D Reddy, and P J Davis. College of Pharmacy, University of Texas, Austin, TX.
- #1136 **SPECIES DIFFERENCES IN THE METABOLISM OF ACRYLONITRILE (ACN) TO 2-CYANOETHYLENE OXIDE IN LIVER AND LUNG OF THE F-344 RAT AND THE B6C3F1 MOUSE.** A E Roberts, M J Turner, and J Swenberg. Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #1137 **EFFECT OF CYTOCHROME P-450 INHIBITORS AND ETHANOL ON THE ACUTE TOXICITY OF ACRYLONITRILE AND ITS *IN VIVO* METABOLISM TO CYANIDE.** D E Nerland, F W Benz, C Babjuk, and W M Pierce. Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY and BP America, Inc., Cleveland, OH.
- #1138 **METABOLISM OF INHALED BUTADIENE IN MONKEYS: COMPARISON TO RODENTS.** J D Sun, A R Dahl, J A Bond, L S Birnbaum\* and R F Henderson. Lovelace inhalation Toxicology Research Institute, Albuquerque, NM; \*NIEHS, Research Triangle Park, NC.
- #1139 **SEX AND SPECIES DIFFERENCES IN METABOLISM OF DIBASIC ESTERS BY NASAL CARBOXYLESTERASE.** C R Kee\*, M S Bogdanffy\*, C M Keenan\*, K P Keenan\*, and J Resau\*. \*E I DU Pont de Nemours & Co., Inc, Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE and \*University of Maryland Dept. of Pathology, Baltimore, MD.
- #1140 **TESTICULAR METABOLISM AND TOXICITY OF DINITROBENZENES.** D D Nystrom, P K Working, and D E Rickert. CIIT, Research Triangle Park, NC.
- #1141 **EFFECT OF GLUTATHIONE (GSH) DEPLETION ON COVALENT BINDING (CB) OF DINITROBENZENE (DNB) ISOMERS IN ISOLATED HEPATOCYTES.** S F McEuen and M G Miller. Department of Environmental Toxicology, University of California, Davis. Sponsor: L Shull.
- #1142 **BROMOBENZENE-GLUTATHIONE EXCRETION INTO RAT BILE REFLECTS TOXIC ACTIVATION OF BROMOBENZENE.** C Madhu and C D Klaassen. Univ. of Kansas Medical Center, Kansas City, KS.
- #1143 **BILIARY EXCRETION OF 1,2-DICHLOROETHANE (DCE) METABOLITES IN THE RAT.** D H Marchand, K Tulip, and D J Reed. Oregon State University, Corvallis, OR.
- #1144 **THE ROLE OF GLUTATHIONE IN THE HEPATIC MICROSOMAL METABOLISM OF SENEACIONINE.** R L Reed, C L Miranda, M C Henderson, and D R Buhler. Toxicology Program and Dept. of Agric. Chem., Oregon State Univ., Corvallis, OR.
- #1145 **CONJUGATION OF CHLOROACETIC ACID WITH CHOLESTEROL** H K Bhat and G A S Ansari, Division of Biochemistry and Chemical Pathology, University of Texas Medical Branch, Galveston, TX.
- #1146 **SOMAN DOES NOT INHIBIT MONOAMINE OXIDASE (MAO) OR CATECHOL-O-METHYLTRANSFERASE (COMT) IN RABBIT TISSUES *IN VITRO*.** C-H Hsu, C-Y Hu, and C P Robinson. College of Pharmacy, University of Oklahoma, Health Sciences Center, Oklahoma City, OK.

- #1147 **4, 4'-METHYLENE-BIS(2-CHLOROANILINE) (MOCA). COMPARISON OF MACROMOLECULAR ADDUCT FORMATION AFTER ORAL OR DERMAL ADMINISTRATION IN THE RAT.** K L Cheever, D E Richards, W W Weigell, K B Begley, D G DeBord, T F Swearngin and R E Savage Jr. NIOSH, DBBS, ETB, TMS. Cincinnati, OH.
- #1148 **QUANTITATION OF WHOLE-BODY AUTORADIOGRAMS UTILIZING AN IMAGE ANALYSIS SYSTEM.** T K Byrd and R C Pohland. Toxicology Division, Lilly Research Laboratories, Eli Lilly and Co., Greenfield, IN.
- #1149 **GC/MS DETERMINATION OF URETHANE PHARMACOKINETICS IN MICE.** N Kurata, R A Kemper, H E Hurst, W M Pierce, W J Waddell. Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY.

**FRIDAY MORNING, MARCH 3  
GALLERIA**

**POSTER SESSION: IMMUNOTOXICOLOGY/HEMATOTOXICOLOGY**

**Chairperson:** P D Williams, Bristol-Myers Company, Syracuse, NY

**Displayed:** 8:30 a.m.-11:30 a.m.

**Attended:** 8:30 a.m.-10:00 a.m.

- #1150 ***IN VITRO* EVIDENCE THAT AN ANTIARRHYTHMIC-INDUCED LEUKOPENIA MAY BE MEDIATED BY A CELL TYPE SPECIFIC MECHANISM.** T J Racznik and D A Linseman, Drug Safety Research, The Upjohn Company, Kalamazoo, MI.
- #1151 **EVALUATION OF HEMATOLOGIC ENDPOINTS IN RESPONSE TO SULFUR MUSTARD EXPOSURE IN RATS AND RABBITS.** T H Snider, D W Hobson, C T Olson, G S Dill, and R L Joiner, Battelle Columbus Division, Columbus, OH.
- #1152 **VANCOMYCIN-INDUCED RELEASE OF HISTAMINE FROM A RAT BASOPHILIC CELL LINE (RBL-1).** P D Williams, D A Laska, and T J Shetler. Toxicology Division, Lilly Research Laboratories, Eli Lilly & Company, Greenfield, IN.
- #1153 **HEMOLYSIS IN RATS AFTER 28-DAY ORAL ADMINISTRATION OF 4-NITRO-N-METHYL-PHTHALIMIDE (4-NP1).** M R Osheroff<sup>1</sup>, L W Smith<sup>2</sup>, and S L Yurasovecz<sup>3</sup>. <sup>1</sup>Hazleton Labs, Vienna, VA; <sup>2</sup>Occidental Chemical, Niagara Falls, NY; <sup>3</sup>GE Plastics, Pittsfield, MA.
- #1154 **EFFECTS OF BRAZILIAN ERYTHROCYTE DEFORMABILITY IN STREPTOZOTOCIN-INDUCED DIABETIC RATS.** C K Moon, J H Chung, Y M Lee, and S H Lee. College of Pharmacy, Seoul Natl. University, Seoul, Korea. Sponsor: Y N Cha
- #1155 **HEMATOLOGIC EFFECTS OF 2-BUTOXYETHANOL (BE) *IN VIVO* AND ITS EFFECTS ON THE MORPHOLOGY OF RAT ERYTHROCYTES.** S Ward, P C Blair, and B I Ghanayem. NIH/NIEHS, RTP, NC.
- #1156 **CYANIDE (CN) INHIBITS THE FORMATION OF NITROSYLHEMOGLOBIN (HbNO) FROM DEOXYHEMOGLOBIN (Hb) AND SODIUM NITROPRUSSIDE (SNP).** R P Smith, D W Wilcox\*, H Kruszyna, R Kruszyna. Dept. Pharmacol./Toxicol, Dartmouth Medical School & \*Dept. Chem., Dartmouth College, Hanover, NH.
- #1157 **POTENTIAL ROLE OF INTERLEUKIN-1 IN BENZENE INDUCED BONE MARROW TOXICITY.** F M Robertson, L MacEachern, J B Leisch, R Snyder and D L Laskin, Joint Grad Prog Toxicol, UMDNJ-R W Johnson Medical School/Rutgers Univ, Piscataway, NJ.
- #1158 **ENHANCED PRODUCTION OF TUMOR NECROSIS FACTOR (TNF) BY STROMAL MACROPHAGES FOLLOWING BENZENE TREATMENT OF MICE.** L MacEachern, R Snyder and D L Laskin. Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.
- #1159 **QUINONE REDUCTASE (QR) AS A DETERMINANT OF STROMAL CELL SUSCEPTIBILITY TO HYDROQUINONE (HP).** L E Twerdok and M A Trush. John Hopkins University, Baltimore, MD.
- #1160 **BONE MARROW STROMAL CELL BIOACTIVATION OF THE BENZENE METABOLITE HYDROQUINONE: COMPARISON OF MACROPHAGE AND FIBROBLASTOID CELLS.** D J Thomas<sup>1</sup>, V V Subrahmanyam<sup>2</sup>, A Sadler<sup>2</sup>, M J Reasor<sup>1</sup>, D Wierda<sup>1</sup>, and D Ross<sup>2</sup>. <sup>1</sup>Pharmacology/Toxicology, West Virginia University Health Science Center, Morgantown, WV and <sup>2</sup>Molecular & Environmental Toxicology Program, School of Pharmacy, University of Colorado, Boulder, CO.
- #1161 **ALVEOLAR MACROPHAGE ACTIVATION: RELATIONSHIP TO MINERAL FIBER TOXICITY.** G J Rosenthal, R P Stranahan, M M Fort, K J Schwab, and M I Luster. NIH, NIEHS, STB Research Triangle Park, NC.
- #1162 **IMMUNOMODULATION BY A RECOMBINANT HUMAN ALPHA INTERFERON -EVIDENCE FOR DIVERGENT EFFECTS ON IMMUNE EFFECTOR CELL FUNCTION.** R P Stranahan, M Fort, D R Germolec, M Ackermann, P Blair, K J Schwab, M I Luster, and G J Rosenthal. NIH, NIEHS, NTP, RTP, NC.
- #1163 **EFFECT OF 7,12-DIMETHYLBENZ [A] ANTHRACENE (DMBA) ON INTERLEUKIN-2 (IL-2) RESPONSIVENESS IN MURINE SPLENOCYTE CULTURES.** M J Pallardy, R V House and J H Dean. Dept. of Cellular and Molecular Toxicology, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
- #1164 **A SUBACUTE INTRAVENOUS TOXICITY STUDY OF MACROPHAGE-COLONY STIMULATING FACTOR (M-CSF) IN THE RAT.** J P Nachtman, H L Moon, J R Kopplin. Cetus Corporation, Emeryville, CA and R Cimprich, Cimprich Associates, Elmer, NJ.
- #1165 **EFFECT OF RECOMBINANT ERYTHROPOIETIN (rHuEPO) ADMINISTRATION IN MONKEYS.** A M Dempster, I L Smith and G J Davis. Research Laboratories, Ortho Pharmaceutical Corporation, Raritan, NJ.
- #1166 **DEVELOPMENT OF TOLERANCE TO RECOMBINANT HUMAN INTERLEUKIN-1 ALPHA IN A TWO-WEEK IV TOXICITY STUDY IN MICE.** D Lucas, W Benjamin, T D Anderson, and T J Hayes. Departments of Toxicology and Pathology, and Immunopharmacology, Hoffman-La Roche Inc., Nutley, NJ.
- #1167 **PRECLINICAL TOXICITY OF RECOMBINANT INTERLEUKIN-2.** J R Kopplin, G J Jesmok, C W Johnson, J D Young, C Paradise, W R Richter, Cetus Corporation, Emeryville, CA. Sponsor: J D Nachtman.



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**World Federation of Association of Clinical Toxicology Centers and  
Poison Control Centers**

Frederick W. Oehme

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- Abbott Laboratories**  
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- AMOCO Corporation**  
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- ARCO Chemical Company**  
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- Ciba-Geigy Corporation**  
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- The Coca-Cola Company**  
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- Colgate-Palmolive Company**  
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- Dow Chemical Company**  
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- E.I. du Pont de Nemours & Company**  
Wilmington, Delaware
- Eastman Kodak Company**  
Rochester, New York
- Eli Lilly & Company**  
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- Exxon Biomedical Sciences, Inc.**  
East Millstone, New Jersey
- FMC Corporation**  
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- G.D. Searle & Company**  
Skokie, Illinois
- General Motors Research Laboratories**  
Warren, Michigan
- Glaxo**  
Research Triangle Park,  
North Carolina
- Hazleton Laboratories Corporation**  
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- Hercules Inc.**  
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- Hoechst-Celanese Corporation**  
Somerville, New Jersey
- Hoechst-Pharmaceuticals, Inc.**  
Somerville, New Jersey
- Hoffmann-La Roche, Inc.**  
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- ICI Americas, Inc.**  
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- Marion Laboratories**  
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- Merck Sharp & Dohme Research Laboratories**  
West Point, Pennsylvania
- Merrell Dow Research Institute**  
Cincinnati, Ohio
- Microbiological Associates, Inc.**  
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- Mobay Chemical Corporation**  
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- Mobil Oil Corporation**  
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- Monsanto Company**  
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- Organogenesis Inc.**  
Cambridge, Massachusetts
- Ortho Pharmaceutical Corporation**  
Raritan, New Jersey
- Pennwalt Corporation**  
King of Prussia, Pennsylvania
- PEPSICO**  
Valhalla, New York
- Pfizer, Inc.**  
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- Phillip Morris USA**  
Richmond, Virginia
- The Procter & Gamble Company**  
Cincinnati, Ohio
- Rhone-Poulenc Inc.**  
Research Triangle Park,  
North Carolina
- RJR Nabisco, Inc.**  
Winston-Salem, North Carolina
- Rohm & Haas Company**  
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- Sandoz Research Institute**  
East Hanover, New Jersey
- Schering Corporation**  
Bloomfield, New Jersey
- Smith Kline & French Laboratories**  
King of Prussia, Pennsylvania
- Squibb Institute for Medical Research**  
New Brunswick, New Jersey
- Stauffer Chemical Company**  
Westport, Connecticut
- Sterling-Winthrop Research Institute**  
Rensselaer, New York
- Syntex Research**  
Palo Alto, California
- Union Carbide Corporation**  
Danbury, Connecticut
- Uniroyal Inc.**  
Middlebury, Connecticut
- The Upjohn Company**  
Kalamazoo, Michigan
- Warner-Lambert Company**  
(Parke-Davis Pharmaceutical Research)  
Ann Arbor, Michigan
- Wyeth-Ayerst Research**  
Philadelphia, Pennsylvania

# AWARDS

## Achievement

1967	Gabriel L. Plaa
1968	Allan H. Conney
1969	Samuel S. Epstein
1970	Sheldon D. Murphy
1971	Yves Alarie
1972	Robert L. Dixon
1973	No Award
1974	Morris F. Cranmer
1975	Ian C. Munro
1976	Curtis D. Klaassen
1977	James E. Gibson
1978	Raymond D. Harbison
1979	Michael R. Boyd
1980	Philip G. Watanabe
1981	No Award
1982	Frederick P. Guengerich
1983	No Award
1984	Melvin E. Andersen
1985	Alan R. Buckpitt
1986	Sam Kacew
1987	James S. Bus
1988	Jeanne M. Manson

## Arnold J. Lehman

1980	Allan H. Conney
1981	Gabriel L. Plaa
1982	Gary M. Williams
1983	David P. Rall
1984	Tibor Balasz
1985	Frederick Coulston
1986	Gerrit Johannes Van Esch
1987	John P. Frawley
1988	Kundan S. Khera

## Merit

1966	Henry F. Smyth, Jr.
1967	Arnold J. Lehman
1968	R.T. Williams
1969	Harold C. Hodge
1970	Don D. Irish
1971	Kenneth P. DuBois
1972	O. Garth Fitzhugh
1973	Herbert E. Stokinger
1974	William B. Deichmann
1975	Frederick Coulston
1976	Verald K. Rowe
1977	Harry W. Hays
1978	Julius M. Coon
1979	David W. Fassett
1980	Bernard L. Oser
1981	John H. Weisburger
1982	Harold M. Peck
1983	Perry J. Gehring
1984	Tom S. Miya
1985	Carrol S. Weil
1986	Ted A. Loomis
1987	Bo Holmstedt
1988	Seymour L. Friess

## Education

1975	Harold C. Hodge
1976	Ted A. Loomis
1977	Robert B. Forney
1978	No Award
1979	Sheldon D. Murphy
1980	Herbert H. Cornish
1981	Frederick Sperling
1982	Lloyd W. Hazleton
1983	Julius M. Coon
1984	Frank Guthrie
	Ernest Hodgson
1985	William B. Buck
1986	Robert I. Krieger
1987	Gabriel L. Plaa
1988	John Autian

## Frank R. Blood

1974	Yves Alarie
1975	Donald J. Ecobichon
	G.J. Johnstone
	O. Hutzinger
1976	Richard D. Brown
1977	J. Dedinas
	George D. DiVincenzo
	C.J. Kaplan
1978	Perry J. Gehring
	E.O. Madrid
	G.R. McGowan
	Philip G. Watanabe
1979	R. Fradkin
	E.J. Ritter
	W.J. Scott
	James G. Wilson
1980	Jerold A. Last
	Peter F. Moore
	Otto G. Raabe
	Brian K. Tarkington
1981	Yves Alarie
	Martin Brady
	Christine Dixon
	Meryl Karol
1982	Melvin E. Andersen
	Michael L. Gargas
	Lawrence J. Jenkins, Jr.
	Robert A. Jones
1983	Henry D. Heck
1984	Erik Dybing
	Sidney Nelson
	Erik Soderlund
	Christer Von Bahr
1985	Nobumasa Imura
	Masae Inokawa
	Kyoko Miura
1986	Calvin C. Willhite
	M.I. Dawson
	K.J. Williams
1987	Perry J. Gehring
	John Kao
	Frances K. Patterson
	Jerry Hall
1988	Debra L. Laskin
	Sungchul Ji
	Anne M. Pilaro

### Burroughs Wellcome Toxicology Scholar

1981-86	Alan P. Poland
1982-87	Curtis D. Klaassen
1983-85	R. Craig Schnell
1983-88	Frederick P. Guengerich
1984-89	Philip Guzelian
1985-90	I. Glenn Sipes
1986-91	Daniel Acosta
1987-92	Richard P. Mailman
1987-92	Bruce D. Hammock
1988-93	Harihara M. Mehendale

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## 1988 SOCIETY OF TOXICOLOGY GRADUATE FELLOWSHIP AWARD RECIPIENTS' PRESENTATIONS

### HAZLETON LABORATORIES CORPORATION FELLOWSHIP

Recipient: Caroline J. Decker, UCSF, Dept. of  
Pharmacology, San Francisco, Ca.  
#765—"Inactivation of Cytochrome P-450 by  
Spironolactone (SPL)"

### HOFFMANN-LA ROCHE, INC. FELLOWSHIP

Recipient: Dori J. Thomas, West Virginia University  
Health Science Center, Morgantown, W.V.  
#1160—"Bone Marrow Stromal Cell Bioactivation of the  
Benzene Metabolite Hydroquinone: Comparison of  
Macrophage and Fibroblastoid Cells"

### Hazleton Laboratories Corporation Fellowship

1984	Patricia Ganey
1985	Kevin Gaido
1986	Lisa Naser
1987	Marjorie Romkes
1988	Caroline J. Decker

### Hoffmann-La Roche, Inc. Fellowship

1987	Andrew G. King
1988	Dori J. Thomas

### THE PROCTER & GAMBLE COMPANY FELLOWSHIP

Recipient: Lawrence J. Dahm, Michigan State  
University, East Lansing, MI.  
#669—"Administration of Polyethylene Glycol (PEG)  
Coupled-Catalase (CAT) and -Super-Oxide Dismutase  
(SOD) to Rats Does Not Alter gamma-  
Naphthylisothiocyanate (anit)-Induced Hepatotoxicity"

### STAUFFER CHEMICAL COMPANY FELLOWSHIP

Recipient: Hyo J. Kim, Dept. of Pharmacology and  
Toxicology, College of Pharmacy, University of GA,  
Athens, GA.  
#779—"Effect of Dietary Corn Oil on the Induction of  
Hepatic Microsomal Cytochrome P-450 Isozymes"

### Procter & Gamble Fellowship

1979	Paul W. Ferguson
1980	Anthony P. De Caprio
1981	Cheng Wang
1982	Samson Chow
1983	Laurie Basting
1984	Philip Bartholomew
1985	Russell Esterline
1986	Leonard Sauers
1987	Randall Ruch
1988	Lawrence J. Dahm

### Stauffer Chemical Company Fellowship

1987	Lydia R. Cox
1988	Hyo J. Kim



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Brown, P.I.	322	Cave, D.A.	258	Clouse, C.L.	991
Brown, R.	218	Cavender, FL.	2,717	Coats, E.	15
Brown, R.D.	800	Chacon, E.	1110,1116	Cocanougher, T.A.	740
Bruce, E.D.	562	Chadwick, M.	330,341,342,344	Coccini, T.	595
Bruckner, J.V.	312,915,917,918	Chadwick, R.	672	Cocke, K.S.	807
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Bucks, D.A.W.	243,654,661	Chang, J.	672,1022	Cojocel, C.	692
Buehler, L.A.	362	Chang, K-M	780	Cole, R.J.	868
Buhler, D.R.	155,170,872,936,1144	Chang, L.L.	173	Coleman, D.	243
		Chang, L.W.	19,925	Coleman, J.B.	270

Collier, S.W.	241,242,245,655	Daniel, F.B.	315,925	DiNardo, B.	122
Collingsworth, N.	863	Daniels, G.	755	Dinoff, T.M.	37
Collins, M.A.	435	Daniels, M.J.	68,176	Dinterman, R.E.	28,353
Combs, A.B.	953	Dankovic, D.A.	936	Diwan, B.A.	84,515
Comereski, C.R.	1010	Dannenber, A. M.	283	Dixon, D.	588
Comment, C.	370	Das Gupta, S.	591	DiZio, S.M.	7,722
Conaway, C.C.	52	Dasenbrock, C.	548	Djuric, Z.	833
Conde, C.	904	Daston, G.P.	126,1069,1070,1071,1073	Dobrozsi, D.J.	1013
Condie, L.W.	229,233,235,238,912,1115	Daughtrey, W.C.	573,847	Dodd, D.E.	565,566,571,1080
Conis, J.M.	516	Dauterman, W.C.	352,889	Doe, J.E.	1041
Connors, S.	276	Davenport, C.J.	592	Doerfler, D.	182
Conolly, R.B.	73,919,948,951	Davenport, L.	590	Domingo, J.L.	541,1091,1092
Constantin-Teodosiu, D.	615	Davidovich, A.	603	Dominick, M.A.	700
Cook, C.	1016	Davidson, K.A.	721	Donaldson, R.H.	648
Cook, D.	763	Davidson, T.J.	1083,1084	Donaldson, W.E.	400,401
Cook, D.C.	366	Davies, D.W.	172	Donarski, W.J.	46
Cook, J.	1038	Davies, M.H.	763	Doody, L.A.	829
Cook, W.K.	264	Davies, R.	71	Doolittle, D.J.	486,924,1030
Cook, W.O.	884	Davies, R.D.	329	Dorian, C.	33
Coombs, J.K.	736	Davila, J.C.	1135	Dorko, J.D.	281,977
Cooper, J.C.	415	Davis, D.	134,157	Dorner, J.W.	868
Cooper, J.R.	567,1076	Davis, G.J.	106,972,980,1165	Dostal, L.A.	119
Cooper, K.R.	168,169	Davis, J.M.	712	Dowd, T.L.	396
Cooper, R.	1067	Davis, M.E.	995	Downing, J.C.	1098
Copeland, C.B.	806,810	Davis, P.J.	1135	Downs, P.	898
Copeland, M.F.	944	Davis, R.A.	789,854,945,969	Drake, K.D.	21,983,1093
Corbella, J.	541,904,1091,1092	de Rojas, T.C.	582	Drawbaugh, R.B.	415
Corcoran, G. B.	108	De Salva, S.J.	979	Drees, D.	942
Corley, R.A.	948	de Vera, C.	1019	Driscoll, K.E.	211,212,728
Cornacoff, J.B.	817	Dean, J.H.	817,1163	Driscoll, S.M.	930
Correia, M. A.	765	Dean, K.F.	414,533	Drown, D.B.	62
Cory-Slechta, D.A.	77	DeAngelo, A.B.	315,925	Droy, B.F.	873
Cosmides, G.J.	456	Deaton, M.L.	1063	Drozdzowski, D.	578
Costa, D.L.	3,178,179,182,183	deBethizy, J.D.	780,945	Drummer, L.	593
Costa, L.G.	595,614	DeBord, D.G.	926,1147	Dryzga, M.D.	328
Costa, M.	87	Decker, C.	765	du Souich, P.	997
Coulombe, Jr. R.A.	616,866	Decker, J.R.	577	Duddy, S.K.	268,646
Couture, L.A.	466	deFeyter, E.	16,490	Dudek, B.R.	580
Cox, L.R.	632	DeGraeve, G.M.	869	Duffy, M.K.	672
Cox, S.K.	340	Deisinger, P.J.	347	Duignan, J.M.	1075
Cragg, S.T.	988	DeLanney, L.	602	Dulak, L.H.	585,716
Craig, D.K.	552	Delio, D.A.	386	Dunn, B.J.	651
Craigmill, A.L.	455	Dellinger, J.A.	884	Dunn-Rakin, D.	725
Crapo, J.D.	173	DeLong, M.J.	600	Durham, S.K.	266,364,564,757,758
Creasia, D.A.	1105	DeMarini, D.M.	231	DuVal, G.E.	392
Creasy, D.M.	260	DeMark, B.R.	1027	Dybing, E.	902
Crespi, C.	71	Demetral, D.	879	Eacho, P.I.	254,255
Creutzenberg, O.	301,305	Denniel, C.	320	Eames, C.C.	1121
Crissman, K.	177,181,753	Dennis, K.J.	1055,1056	Earle, P.	1059
Crofton, K.M.	414,533	Depster, M.	1165	Early, J.L.	83,526
Cromer, E.A.	165	Derelanko, M. J.	679	Earnest, D.L.	275
Crosby, L.L.	211	DeRosa, C.	544,711,901,914,993,998	Easterling, R.E.	380
Cross, R.M.	436	Desaiah, D.	587,899,906	Eastman, H.B.	223
Cross, T.J.	897	DeSalva, S.J.	978	Eastmond, D.A.	53,1125
Crouse, C.L.	568	Deshpande, S.B.	591	Eaton, D.L.	114,759,832
Crowell, J.A.	188,190,431,882	Dethloff, L.A.	214,701	Eberhart, D.C.	32
Cuddihy, R.G.	142,549,729,734	Detwiler, K.	751	Ebling, W.F.	351
Culp, D.A.	741	Devito, M.J.	478,481	Ebron-McCoy, M.T.	944
Culpepper, B.T.	576	Devor, D.E.	226	Ecobichon, D.J.	739,941
Cunningham, M.L.	56	DeWoskin, R.S.	699	Edelhauser, H.F.	985
Curren, R.D.	931,1031	Deyo, L.C.	619	Edwards, B.C.	944
Curtis, J.	35	Di Giulio, R.T.	171,257	Edwards, C.K.	156
Curtis, L.R.	96,97,109	Diaz de Toranzo, G.	112	Edwards, J.K.	369
Cushing, J.A.	791,1097	DiBiasio, K.W.	770	Eells, J.T.	987
Cusick, P.K.	1021,1122	Dichter, M.	596	Egan, G.F.	451
Cutler, D.S.	803	Dick, C.E.	968,985	Egner, P.A.	867
d'Elia, T.	1100	Dick, D.L.	333	Egy, M.A.	1008
Dacre, J.C.	299,431,791,882,928,1097	Dickerman, H.W.	136	Ehrich, M.F.	289,290,880
Dady, J.M.	41	Dickerson, R.	128	Ehrlich, J.P.	148,180,804
Dahl, A.R.	308,1127,1138	Dieter, M.P.	493	Eilrich, G.L.	611
Dahlem, A.M.	111,670	Dietrich, M.	934	Einsele, H.	112
Dahm, L.J.	669	Dietz, D.D.	990	Eisenbrandt, D.L.	418,890
Dai, K-S	593	Dietze, E.C.	434	Eisenhut, K.	332
Daisey, J.M.	161,923	Diliberto, J.D.	345	El-Fawal, H.	289,290
Dallas, C.E.	312,915,917,918	Diliberto, J.J.	131,350	El-Fouly, M.	490
Dalvi, R.R.	790	Dill, G.S.	811,1151	Elcombe, C.R.	249,250
Daly, I.W.	988	Dimitriadis, A.	100	Eldeib, M.M. R.	121
Dange, M.	378	Dimmock, J.R.	502	Elfring, G.L.	708

Eling, T.E.	35,54,507	Fitzsimmons, A.W.	861	Garman, R.H.	566,571
Ellefson, D.D.	63	Fleischman, R.	1029	Garner, C.D.	933
Eller, N.	551	Flesher, J.W.	629	Garren, L.	850
Elliget, K.A.	826	Fletcher, A.P.	329	Garvin, P.J.	280
Elliott, G.A.	708	Fletcher, E.R.	285	Gasiewicz, T.A.	153
Ellis, M.K.	258	Fletcher, M.J.	663,931	Gatchett, A.M.	201
Ellwein, L.B.	824	Flory, W.	764	Gavett, S.H.	215
Elmore, E.E.	482	Floyd, A.K.	983	Gavin, C.E.	219
Elsayed, N.M.	102	Floyd, R.A.	50,51	Gaworski, C.L.	556,557,1087
Elsner, P.	442	Foltz, R.L.	36	Gay, L.	289
Elstein, K.H.	380	Fong, H.	894	Gearhart, J.M.	73
Elwell, M.R.	468,649	Ford, R. A.	20	Gemzik, B.	937,938
Emeigh Hart, S.G.	192,702	Forehand, L.R.	672	Gennings, C.	229,233
Eneff, K.	51	Forman, D.L.	1112,1120	Geoghegan-Barek, K.	634
Engel, A.	5	Forman, H.J.	210	George, E.	1090
Engles, D.R.	31	Forrest, V.J.	567	George, J.D.	1066,1078
English, J.C.	347	Fort, M.M.	1161,1162	George, M.E.	916
Erickson, D.A.	874	Fosnight, L.J.	1079	Gerberick, G.F.	975
Erker, E.F.	849	Foster, K.L.	920	Gerken, D.	893
Ernst, G.G.	806,810	Foster, P.M.	258	Germolec, D.R.	60,863,1162
Ernst, S.W.	471	Foulkes, E.C.	227,756	Gerson, R.J.	29,783,1017
Esber, H.J.	709,913,1029	Foureman, G.L.	35	Getek, T.A.	187
Eshleman, A.J.	594	Fourney, P.	1100	Ghanayem, B.I.	628,1155
Estabrook, R. W.	630	Fowke, J.H.	886	Ghantous, H.N.	103,1133
Esterline, N.L.	476	Fowler, B.A.	125,392,393	Gharaibe, A.M.	112
Esterline, R. L.	642	Fowler, E.H.	989	Ghosh, S.	359
Esterline, R.L.	213	Fox, D.A.	387,390	Gianella, E.	1033
Eurell, T.E.	317	Foxworthy, P.S.	255	Gierthy, J.F.	136
Evans, J.E.	756	Fradkin, L.	203	Gijbels, M.J.	757
Everitt, J.I.	139,735	Fragge, M.	203	Gilbert, S.G.	389,411
Ewald, W.	726	Francis, B.M.	1082	Gilfor, D.	270
Exon, J.H.	816,836	Francis, J.E.	834	Gill, M.W.	406,407,408,989
Ezrin, A.M.	1121	Francomarcaro, D.	741	Gill, S.S.	802,896
Fabel, T.	261	Frank, H.	112	Gilligan, L.R.	672
Fabian, R.J.	1008	Franklin, C.A.	658	Ginsberg, G.L.	510
Fail, P.A.	1066	Franklin, M.R.	92,778	Gladen, B.C.	355
Faiman, M. D.	892	Frankos, V.	716	Glascott, P.A.	703
Fait, D.L.	1080	Frantz, S.W.	244,338,339	Glauert, H.P.	854,900,910
Fan, A.M.	205	Franz, D.R.	754	Goad, M.E.P.	709,994
Farage-Elawar, M.	878,880	Frayssinet, C.	59	Goehl, T.	863
Farber, J.L.	270,271	Frazier, J.M.	223,664	Goering, P.L.	529
Fariss, M.W.	920	Frederick, C.B.	648,949,952	Gold, B.G.	583
Farooqui, M.Y.H.	336	Freeman, J.J.	572,647,839,847	Goldberg, D.	976
Farr, C.H.	574	Freeman, S.J.	123	Goldman, A. S.	377
Farwell, L.	1057	French, J.E.	493,709,1029	Goldman, J.	1067
Faulkin, L.J.	829	Frey, J.	596	Goldstein, D.L.	1057
Faurot, G.	1006	Friedman, L.	1049	Goldstein, B.D.	30,532,582,584,976,1000,1124
Faustman, E.M.	114,373	Friedman, M.A.	585,716,789	Goldstein, J.A.	464
Feder, P.I.	869,1054	Friedman, M.B.	1021	Goldstein, R.S.	690,703,704,705
Federici, T.M.	847	Frierson, M.R.	1051,1068	Goldsworthy, T.L.	828
Fedtko, N.	45	Fries, G.F.	167	Gombar, C.T.	966
Feenstra, K.L.	708	Friesen, M.	850	Gomez, M.	541,1092
Fennell, T.R.	509	Frith, C.H.	823	Gomez-Catalan, J.	904
Ferguson, D.	190	Frost, D.F.	971,1018	Gonick, H.	1117
Fernando, J.	103,1133	Fry, K.L.	856	Goodman, J.I.	504,505
Fernando, Q.	76	Fuchs, B.A.	160,809	Goodrich, M.S.	873,874
Ferrala, N.F.	342	Fukushima, S.	514	Goodrow, T.	503
Ferrell, J.M.	1067	Fulp, C.W.	924	Goon, D.	767
Ferrer, A.	895,904	Furman, G.	1004	Gootz, T.D.	639
Ferry, M.A.	346	Furuhama, K.	186,187	Gordon, C.J.	429,992,1047
Ferslew, K.E.	340	Gabel, R.A.	1120	Gordon, D.R.	433
Fey, M.L.	686	Gabriel, K.	974	Gordon, E.B.	1044
Fiala, E.S.	52	Gabriels, J.E.	1038	Gordon, G. R.	831,956
Field, E.A.	1094	Gad, S.C.	298,1016,1064,1114	Gordon, L.R.	783
Field, W.	1016	Gaeta, G.B.	104	Gordon, V.C.	23,27
Fienmehl, R.	1019	Gaines, D.W.	1049	Goun, B.D.	80
Fikes, J.D.	300	Gairola, C.	581,740	Goyer, R.A.	520
Finch, G.L.	734	Galand, E.M.	1025	Graefe, J.F.	416
Fine, J.S.	153	Galbo, M.	602	Graham, D.	753
Finkbiner, E. M.	892	Galendo, D.	841,850	Graham, H.D.	1032
Finkelstein, I.	207	Gallo, J.M.	312,917,918	Graham, J.A.	172
Finkelstein, J.N.	215	Gallo, M.A.	25,130,168,395,475,476,477,478,479,480,481	Graichen, E.	704
Firriolo, J. M.	220	Gandolfi, A.J.	103,276,319,635,667,681,788,1130,1131,1132,1133	Grandjean, C.J.	461
Fischer, L.J.	449	Gandy, J.	237,362,363	Grane, T.L.	354
Fisher, H.L.	657,944	Gardner, C.R.	57	Grant, R.	1116
Fisher, L.C.	1079,1080	Gargas, M.L.	948	Gray, L.E.	1067
Fisher, R.L.	1130			Gray, T.J.B.	260,264,487
Fitzgerald, S.	179,182			Graziano, M.J.	701,1009

Greaves, P.	710,787	Hare, M.F.	385	Hinz, J.P.	573
Green, C. E.	831,956	Harkema, J.R.	140,141,142,549	Hirata F.	598
Green, M.D.	88	Harper, N.	40,961	Hirose, M.	491
Green, T.	950	Harris, C.	115,116	Hirota, K.	689
Greener, Y.	1121	Harris, C.C.	640	Hirth, R.S.	1010
Greenlee, W.F.	462	Harris, M.	133,134,495	Hixson, C.J.	567
Greenman, D.L.	501	Harris, M.W.	125,463,466,468	Ho, I.K.	881
Greenspan, B.J.	577	Harris, R.	218,863	Hoberman, A.M.	1086
Greenspan, M.D.	29	Hart, B. W.	892	Hobson, D.W.	346,811,1054,1076,1151
Greenway, D.J.	39	Hart, S.	194	Hodgson, E.	766,773,889,939
Gregory, A.R.	516	Hartig, P.	598	Hoffman, A.D.	41
Greim, H.	470	Hartnett, J.A.	488	Hoffman, D.	498
Grey, A.J.	199	Hartschy, M.A.	64,302,570	Hoke, G.D.	666
Griffin, H.E.	701	Harvis, C.A.	670	Holbrook, D.J.	1022
Griffin, R.J.	323	Harvison, P.J.	277,323	Hollenbach, D.E.	415
Griffis, L.C.	297,562	Hasan, Z.	593	Hollenbach, E.J.	1027
Griffith, W.C.	729	Haschek, W.M.	110,111,1019	Holm, R.D.	1134
Grimes, G.S.	785	Hasegawa, R.	491,514,843,855	Holme, J.A.	902
Grimsted, B.	114	Hassan, A.S.	349	Holmes, K.R.	111
Grizzle, T.B.	1066	Hassett, C.	12	Holsapple, M.P.	150,152,800,808,809
Groopman, J.D.	867	Hastings, C.E.	823	Holt, P.	67
Grose, E.C.	172,174,175	Hastings, K.L.	681	Holtzman, A.P.	869
Gross, E.A.	145	Hastings, L.	756	Hong, J.S.	19
Gross, M.L.	838	Hatch, G.E.	3,177,181,183,311,753	Hook, J.B.	705
Grosse, C.M.	338,339	Hatori, A.	1089	Hooper, N.	602
Grossman, S.J.	783	Hatoum, N.S.	280	Hooser, S.B.	110,111
Grunwald, H.	438	Hattenhauer, M.G.	985	Hoover, D.M.	255
Guengerich, F.P.	72,779	Hatzinger, P.B.	17	Hoover, M.D.	734
Guerra, W.	388	Haust, M.D.	520	Hope, E.	1065
Guest, D.	240,347	Hawkins, K.L.	444,695,982	Hopfer, S.M.	119
Gulati, D.K.	740,1065	Hayashi, Y.	855	Hopkins, P.J.	418
Gunawardhana, L.	962	Hayes, A.W.	945	Hopkins, W.	934
Gunnison, A.	206,207	Hayes, D.	344	Hopson, W.L.	92
Gunter, K.K.	219	Hayes, M.A.	163,354	Horan, K.L.	601
Gunter, T.E.	219	Hayes, T.J.	1166	Horn, P.A.	821
Gunther, W.	47	Hazen, R.	714	Hoskins, B.	881
Gupta, R.C.	887	Healy, C.E.	62	Hotchkiss, J.A.	140,141,142,922
Gupta, R.K.	396	Hebert, C.D.	468	Houchens, D.P.	811
Gupta, R.P.	774	Hecht, S.S.	498	House, D.E.	684
Guy, R.H.	661	Heck, H.D.	139	House, R.V.	1163
Guy, R.L.	605	Heck, J.D.	822,1031	Hovatter, P.S.	721
Guzzie, P.J.	927,929	Hedli, C.C.	604	Howard, W.B.	38,1089
Ha, J.R.	152	Heidrick, M.	763	Howd, R.A.	719
Haake, J.M.	274,777	Heindel, J.J.	372,1066	Howe, R.	934
Haasch, M.L.	776	Hejtmancik, M.	500,844	Hsieh, G.C.	815,1135
Habig, C.	171,775	Held, S.D.	335	Hsieh, W.T.	17
Hackett, D.S.	539	Helmhout, S.L.	1093	Hsu, C-H	1146
Hagen, K.	879	Helton, D.R.	1123	Hu, C-Y	1146
Hagerman, L.	986	Henck, J.W.	410	Hu, P.	1126
Haggerty, G.C.	298	Henderson, J.D.	297,299	Huang, Y.	173
Haggerty, H.G.	150	Henderson, M.C.	155,170,1144	Hubbard, A.K.	681
Hagiwara, A.	514	Henderson, R. F. °	140,141,142,337,549,922,1127,1128,1138	Hughes, B.J.	813
Hague, A.K.	830	Henningsen, G.M.	994	Hughes, M.F.	507
Haines, D.C.	1057	Hensby, C.N.	378	Huie, J.M.	616
Hakin, B.	860	Hensley, M.	854	Hume, A.S.	747
Hakkinen, P.J.	432,439	Hermansky, S.J.	671	Hurst, H.E.	1149
Hall, A.	556,557	Herpol, C.H.	563	Hutabarat, R.M.	88
Hall, G.	877	Herr, D.W.	343,588	Hutchinson, A.P.	284,820
Hall, L.L.	657,848,944	Herrinton, L.J.	202	Hwang, K.K.	942
Hall, R.	1016	Hess, J.R.	707	Hylton, E.E.	920
Hall, S.A.	324	Hewetson, J.	637	Iba, M.M.	436
Halpert, J.R.	70,91	Hewett, J.A.	668	Ichinose, T.	1055,1056
Halvorson, M.R.	32,33,34	Higgins R.J.	299	Ikeda, G.J.	1049,1118
Hamel, D.M.	759	Higgins, J.M.	211,212	Ikeda, T.	888
Hamilton, C.M.	786	Highbarger, L.	551	Imaida, K.	855
Hamilton, J.D.	398	Highfill, J.W.	181,183	Imbra, R.J.	87
Hamilton, P. B.	428	Higman, H.	903	Imura, N.	86
Hamlin, R.D.	1109	Hignet, S.	281,977	infurna, R.N.	572,647
Hammock, B.D.	434,829	Hilaski, R.J.	568	Innis, J.D.	432,970
Hampton, J.A.	483,485	Hildebrandt, R.	696	Irene, S.	544,711,901,914,993,998
Hamrick, R.C.	414	Hill, B.A.	610	Irgolic, K.J.	545
Han-Shu, H.	190	Hill, D.A.	120	Irvin, T.R.	375,376,545,1050
Hanasono, G.K.	785	Hill, T.	452	Irvine, L.	123
Hanley, T.H.	890	Hincks, J.R.	616	Irwin, R.	891
Hansen, G.K.	304	Hines, H.B.	612	Irwing, I.	602
Harada, K.I.	670	Hinson, J.A.	185,186,187,188,189,190,777	Iszard, M.B.	526
Harbison, R.D.	237,362,363,675,676,677	Hintze, T.H.	112	Ito, N.	491,494,514,837,843,855,1077
Hardy, M. L.	1106			Ito, Y.	881

Iverson, P.	55	Kalf, G.F.	607	Klaunig, J.E.	483,485,487,488,489,490,
Iverson, W.O.	1012,1015	Kamel, F.	1103		492,513,853,856
Iwasaki, M.	752	Kaminski, N.E.	808	Klein, K.	720
Iyer, P.	375,376	Kaminsky, L.S.	70	Kleinow, K.M.	162,873
Jackson, C.D.	556	Kampcic, S.J.	136	Klibaner, M.I.	437
Jackson, M.C.	1025	Kamps, C.	93	Klimecki, W.T.	1132
Jackson, R.J.	205	Kamrin, M.A.	449	Klinefelter, G.	263
Jagannath, D.R.	1031	Kanekal, S.	965	Klonne, D.R.	566,571,1080
Jairaj, K.	535	Kaphalia, B.S.	99	Knecht, E.A.	558
Jamall, I.S.	547	Kaplan, D.L.	40,696,961	Knecht, K.T.	54
James, A.	372	Kari, F.W.	930	Knezovich, J.P.	722
James, M.O.	164,165	Karol, M.H.	279,282,287	Knight, L.A.	1063
James, R.C.	237,675,676,677	Kasprzak, D.J.	563	Knight, S.	900
Jameson, C.W.	493,863	Kasprzak, K.S.	536,537,842	Knoblock, C.E.	631
Jang, S.I.	907	Kass, G.E.N.	268,646	Knoth, J.K.	296
Jannssens, M.	563	Kasti, P.E.	328	Knuckles, M.E.	921
Janssen, I.	80	Katz, L.S.	599	Kobayashi, K.	86
Janssen, R.	533	Kaufman, M.	598	Kochhar, D.	1068
Jarvis, B.B.	813	Kavlock, R.J.	944	Kocsis, J.J.	703
Jaskot, R.H.	174,175	Kawabata, T.T.	158,801,818	Kodavanti, P.R.S.	236,680
Jaw, J-Y	70	Kawanishi, T.	278	Kojima, T.	888
Jaw, S.	224	Kaylock, R.J.	1073	Konantakietti, C.	403
Jean, P.A.	608	Kaysen, K.L.	627	Kong, B.M.	978,979
Jefcoate, C.R.	772	Kayyali, U.S.	292,886	Kopplin, J.R.	1164,1167
Jeffery, E.H.	224,674	Kedderis, G.L.	335	Koren, H.	181,753
Jenkins, W.L.	797	Keenan, C.M.	1139	Korte, G.E.	986
Jensen, C.B.	338,339	Keenan, K.P.	1139	Korte, Jr., D.W.	102,425,971,1018
Jepson, G.W.	73	Kefalas, V.	230	Kosson, D.S.	395
Jesmok, G.J.	1167	Kehrer, J.P.	624,1111	Kowolenko, M.	399
Jett, D.A.	392	Keller B.	252	Krajnc, E.I.	61
Ji, S.	100,105,641,799	Keller, W.J.	861	Kramer, W.	692
Jin, R.	282	Kelley, K.W.	156	Krasula, R.W.	1021
Johannsen, E.R.	574,846	Kellner, T.P.	297	Krieger, R.I.	197,448,894
Johns, P.A.	291,860	Kelly, C.P.	23	Krishnan, K.	997
Johnson, A.N.	986	Kelly, D.P.	559	Kroll, R. B.	325,688
Johnson, C.W.	1167	Kelly, J.A.	332	Krumdieck, C.L.	276,1130,1131,1132
Johnson, D.E.	685,823	Kelner, M.	733	Kruszyna, H.	1156
Johnson, D.F.	1010	Kemper, R.A.	1149	Kruszyna, R.	1156
Johnson, E.F.	70	Kemppainen, B.W.	246,247,958	Ku, W.W.	402
Johnson, G.R.	975	Kenna, J.G.	18	Kubena, M.F.	1079
Johnson, J.T.	316	Kennah, H.E.	281,977	Kuehnberg, W.	1044
Johnson, L.	128	Kennedy, T.A.	626	Kuhlenschmidt, M.S.	110
Johnson, N.F.	140,142,549	Kensler, T.W.	867	Kulkarni, A.P.	366,367,368,369,589,932
Johnson, P.J.	172	Kercso, K.M.	1039	Kumaroo, V.	46
Johnson, R.K.	521	Kerecsen, L.	473	Kurata, N.	1149
Johnson, S.A.	80	Kerkvliet, N.I.	96,154,155	Kurata, Y.	514
Johnson, S.W.	496	Kershaw, W.C.	85,523	Kurosky, L.	376
Joiner, R.L.	811,1054,1151	Kessler, W.	112	Kurosu, T.	222
Jonah, M.M.	228	Kester, M.B.	638	Kusewitt, D.F.	144,550
Jones, A.B.	512	Keyes, L.L.	180,805	Kuszynski, C.	812
Jones, A.D.	37	Khairallah, E.A.	192,193,194,195,702	Kutzman, R.S.	576
Jones, L.	955	Khalil-Manesh, F.	1117	Kwiatkowski, S.	1061
Jones, M.M.	1089	Khan, M. A. Q.	943	Kyle, M.	271
Jones, R.	1101	Khera, K.S.	441	Lacy, S.A.	146,735
Jones, R.T.	640	Khoury, M.M.	492,854	Lacz, J.	942
Jones, T.W.	631,644,697	Killeen, J.C.	405,611	Laflamme, D.	114
Jordan S.W.	137	Killinger, J.M.	1095	Lag, M.	902
Jordan, S.D.	808	Kilpper, R.	301,305,548	LaHann, T.R.	755
Jordan, W.H.	785	Kim, B.	947	Lamb, R.G.	233
Jortner, B.S.	289,290,880	Kim, B.S.	150,152	Lambert, C.E.	535
Joselevitz, J.	1000	Kim, D.H.	72	Lamm, S.H.	5,438
Joseph, X.	1113	Kim, E.H.	621	Lamont, G.S.	979
Josephy, P.D.	54	Kim, H.J.	779,915	LaMonte, D.	1112
Joshi, S.S.	838	Kim, H.Y.	616	Landes, R.	1024
Joshi, U.M.	743	Kim, N.K.	199	Landis, M.A.	1063
Jostes, R.F.	928	Kim, S.G.	769	Lane, A.T.	381
Jowa, L.	218	Kimmel, C.A.	1078	Lang, B.	436
Juchau, M.R.	113,115,116	Kimmel, E.C.	560,737,738,903	Langenbach, R.	56,71,930
Jung, K.H.	100,105,799	Kimmel, G.L.	1090	Langston, J.W.	602
Jungermann, E.	21	King, J.R.	248	Lanier, T.L.	254
Junk, T.	1050	Kinhead, E.R.	576,919	Lankas, G.R.	1088
Kacew, S.	694	Kinney, L.A.	360,569	Lansing, A.J.	497
Kadel, W.L.	887	Kirby, G.M.	163,354	Lapadula, D.M.	585,774,775
Kadry, A.	327	Kirk, H.D.	890	Lapin, C.A.	552
Kaempfe, T.A.	580	Kirley, T.A.	30,1000	Larson, D.N.	617
Kaffenberger, R.M.	1027	Kla, J.M.	458	Larson, J.L.	89
Kagami, T.	86	Klaassen, C.D.	85,522,523,673,767,781,794,	Laska, D.A.	1152
Kahng, M.W.	876		937,938,1107,1142	Laskey, J.	263

Laskin, D.L.	57,1157,1158	Little, A. D.	49	Manis, M.	708
Laskin, J.D.	24,25,26	Litwak, M.S.	603	Mann, D.B.	10
Lau, S.S.	610	Liu, J.	522,523,794	Manning, R.O.	312
Lau-Cam, C.A.	798	Liu, S.	896	Mannschreck, A.	683
Laugen, R.C.	452	Liu, Y.P.	523,794	Manson, M.M.	834,835
Law, M.Y.L.	256	Llobet, J.M.	541,1091	Manzo, L.	595
Lawlor, T.E.	1023	Lock, E.A.	14	Marchand, D.H.	609,1143
Lawrence, D.A.	74,399	Lockwood, J.F.	69,156	Marciniszyn, J.P.	611
Lawrence, F.	216	Lofthus, N.J.	435	Marcus, A.H.	869
Lawrence, W.B.	28	Loh, J-P	761	Marijanovic, D.	67
Lawson, T.	55	Lollini, L.	1006	Markham, P.M.	330,341
Le Bel, C.	1002	Londergan, T.	996	Markin, R.S.	671
Leach, C.L.	280,575	London, J.E.	307,550	Markowitz, M.E.	394
Leahy, H.F.	560	Long, G.J.	79	Marletta, M.A.	963
Leakey, J.E.A.	274,777,852	Long, G.L.	397	Maronpot, R.R.	493,503
LeBoeuf, R.A.	826	Long, J.E.	672	Marquis, J.K.	599
Lebofsky, M.	470	Long, R.M.	13	Marr, M.C.	1078,1094
Lech, J.J.	776,873,874	Longo, L.M.	1014	Marsh, S.S.	1069
Lee, C.K.	924,1030	Loretz, L.J.	1134	Martin, B.M.	18
Lee, E.W.	933	Losco, P.E.	565	Martin, E.	478
Lee, J.Y.	697	Lotti, M.	294,295	Martin, F.M.	459
Lee, K.	893	Louis-Ferdinand, R.T.	403	Martin, J.E.	375,376
Lee, K.P.	360	Loveday, K. S.	49	Martin, J.L.	18
Lee, L.H.	567	Lovell, R.A.	111	Martin, P.M.	391
Lee, S.	412	Lowe, G.D.	924	Martin, R.A.	814,851,973
Lee, S.H.	1154	Lower, W.R.	858	Mash, E.A.	70
Lee, Y.M.	1154	Lowndes, H.E.	386	Mason, R.P.	507,1033
Leeser, J.	1042	Lowry, W.H.	198	Massa, E.	336
Lehert, B.E.	214	Lowther, W.T.	734	Massaro, E.J.	380
Lehman-McKeeman, L.D.	314,686	Lu, P.Y.	459,715,726	Massiona, W. H.	898
Lehmann, C.L.	685	Lubet, R.A.	515,862	Mast, T.J.	1096
Lehmann, J.R.	182	Lubow, J.	714	Masten, J.L.	785
Lehnert, B.E.	144,306,307,550,744,745,746	Lucas, D.	1166	Masui, T.	1025
Leininger, J.R.	990	Luchtel, D. L.	12	Mather, G.G.	816,836
Leisch, J.B.	1157	Lucier, G.	464,1127,1128	Mather-Mihaich, E.	257
Leonard, T.	704,1101	Luebke, R.W.	806,810	Matheson, DW	47
Leong, B.K.J.	736,1119	Lulham, G.	579	Matheson, S.F.	583
Leung, H.W.	946	Lumley, C.E.	1007	Mathis, J.E.	52
Leung, M.F.	634,636	Lundgren, D.L.	303	Matlock, J.P.	331
Leung, Peter.	42	Luster, M.I.	60,160,370,863,1161,1162	Matson, C.F.	353
Levi, P.E.	766,773,939	Lutz, W.	477	Matsuura, K.	670
Levin, A.A.	266,364,1098	Lynch, D.W.	1109	Mattes, WB	47
Levin, B.C.	551	Lynch, J.R.	196,451	Matthews, H.B.	56,326,343,588,628
Levin, E.D.	423	Macallum, G.E.	710,787	Matthews, L.	1032
Levin, S.	1114	MacDonald, J.R.	700,795,1009	Matthews, W.D.	741,1112,1120
Levine, B.S.	990	MacDonald, J.S.	29,783,1017	Mattie, D.R.	415,687,793
Levy, R.H.	940	MacEachern, L.	1157,1158	Mattison, D.R.	117,118
Lewis, C.M.	425	Macia, R.A.	1112,1120	Mattox, J.D.	911
Lewis, D.C.	4	MacKenzie, J.	548	Mattsson, J.L.	418
Lewis, S.C.	196,451,839	MacKenzie, K.M.	1016	Mauderly, J.L.	142,303,308,549,729
Lewis, T.R.	1109	MacKenzie, S.A.	130,478,481	Maurer, J.K.	212,784
Li, A.P.	251,1134	Mackerer, C.R.	496	Maurissen, J.P.	1045
Li, J.	885	MacKinnon, M.A.	651	May, E.B.	876
Liao, C.L.	717	MacNeela, J.P.	509	Mayer, D.	692
Liao, J.T.	1081	Macys, D.A.	567	Mayes, B.A.	1008,1121
Lichtveld, M.Y.	454	Madge, G.E.	920	Mayes, M.A.	875
Liebler, D.C.	626,627	Madhu, C.	781,937,938,1142	Mayura, K.	374
Lilly, S.G.	489,490	Madhukar, B.V.	16,490	Maziasz, T.J.	781,937,938
Lim, D.K.	881	Madissoo, H.	1010,1084	McCabe, M.J.	74
Lim, S.	802	Madra, S.	1124	McCarty, J.D.	663
Lin, E.	831,956	Magee, B.H.	963	McCay, J.A.	800,814,818,819,819
Lin, E.L.C.	911	Mahmood, N.A.	334	McClain, R.M.	1098
Lin, F.H.	464	Maibach, H.I.	21,22,243,442,654,659,661,968,983	McComish, M.F.	341,342
Lin, F.S.	465			McConnell, E.E.	500,848
Lin, J.	940	Mailman, R.B.	391	McCormick, D. L.	506
Lin, S.M.	119	Maiorino, R.	542	McCormick, G.C.	1012,1014,1015
Linaris, M.	578	Maiorino, R.M.	404	McCulley, J.	983
Lincoln, D.W.	136	Major, P.	941	McCullough, T.E.	1006
Lind, A.J.	788	Majors, K.R.	1021	McDonald, A.	232,909
Lindenschmidt, R.C.	212	Makovec, G.T.	425,563	McDonald, G.	346
Linder, R.E.	357	Malick, A.	320,321	McDonald, J.	1058,1060,1061
Linder, R.L.	356,1067	Mallory, V.	1114	McElroy, A.E.	162,166
Lindstrom, P.	370	Maltby, D.	765	McEuen, S.F.	297,1141
Linn, S.	5	Mandagere, A.	942	McFarland, B.H.	911
Linseman, D.A.	1043,1150	Mandel, H.G.	835	McGarrigle, B.P.	467
Lipe, G.W.	535	Mandel, L.J.	706	McGavran, P.D.	731
Lipsett, M.J.	205	Mangum, J.B.	735	McGinnis, P.	203
Lipsky, M.M.	393,876	Maniara, W.M.	30,1000	McGowan, C.	443,1032

McGuire, E.J.	253,851	Miura, G.A.	353,665	Mylavarapu, V.B.	1000,1124
McGuirk, P.R.	639	Mobayen, M.M.	243	Naas, D.J.	427,651
McGunagle, D. L.	833	Modlin, D.L.	1123	Nachreiner, D.J.	566
McGurk, S.R.	423	Moffatt, J.H.	1085	Nachtman, J.P.	1164
McKarns, S.C.	486,924	Mohler, E.S.	992	Naganuma, A.	86
McKean, D.L.	231,1115	Mohr, U.	548	Nagiel, I.	798
McKee, R.H.	839,840,847	Moldeus, P.	615	Nagle, R.B.	635
McKeigue, P.	5	Monks, T.J.	610	Nair, R.S.	574,846
McKenna, L.	136	Monte, D. Di.	602	Naismith, R.W.	1051,1068,1106
McKone, T.E.	722	Monteiro-Riviere, N.A.	248,652,967	Nakada, J.	690
McLamb, R.	412	Montgomery, M.R.	184	Nakamura, A.	843
McLaurin, J.L.	417,926	Monticello, T.M.	143,198	Namkung, M.J.	113
McMahon, T.F.	350	Moody, D.E.	256,446	Nan, N.	94
McManus, K.T.	945	Moon, C.K.	1154	Narahashi, T.	596
McManus, M.F.	527	Moon, H.L.	1164	Naseem, S.M.	612
McMartin, D.N.	1014	Moore, G.A.	268	Nath, R.	519
McMaster, J.	654	Moore, K. G.	283	Neal, G.E.	835
McMillan, D.C.	777	Moore, L.B.	731	Neely, M.D.	75
McMurray, P.A.	1057	Moore, M.R.	649	Nelson, M.A.	497
McQueen, C.A.	48	Moore, R.W.	1102,1103	Nelson, S.D.	191,902
McRae, T.A.	185,187	Moore, S.J.	747	Nerland, D.E.	633,1137
Means, J.R.	1011	Moore, T.B.	292,886	Nessel, C.S.	480
Mebus, C.A.	265,1075	Moorman, M.P.	125	Newell, T.K.	687
Medh, R.D.	830	Moorman, W.J.	558,926,1109	Newkirk, L.R.	550
Medinsky, M.A.	337	Morabit, E.R.	927,929	Newport, G.D.	535
Medrano, C.J.	390	Moreland, D.E.	766	Nguyen, Q.	82
Meeke, R.J.	480	Moretto, A.	294,295	Nguyen, T.	1033
Mehendale, H.M.	101,234,236,269,680,743,762	Morgan, D.L.	447	Nichols, W.K.	617
Mehrotra, B.D.	906	Morgan, E.W.	39,425	Nicklin, S.	284,820
Mehta, M.	246,247	Morgan, K.T.	139,143,145,146,147,	Nickols, J.	838
Mekhael, K.M.	941		198,304,311,592	Nicoll, D. W.	322
Melendez, A.	578	Morin, D.	964,965	Nikiforov, A.I.	196,451,573
Mellick, P.W.	575,791	Morris, J.B.	750	Nikurs, A. R.	359
Melnick, R.L.	797,1095	Morrisson, S.A.	332	Nims, R.W.	515,862
Menache, M.G.	533	Morrissey, L.T.	990	Nishanian, E.V.	195
Menahan, L.A.	1048	Morrissey, R.E.	125,370,463,863,1078,1094,1096	Nishie, K.	868
Mendrala, A.L.	948	Morrow, P.	301,305,548	Niwa, T.	136
Meng, C.Y.K.	1053	Morse, C.C.	795	Nolan, C.C.	597
Mennear, J.H.	447	Mortensen, A.	622	Nolan, R.J.	329,875
Menzel, D.B.	309,310	Morton, S.	298	Nolen, H. W.	956
Mercep, M.	67	Mosberg, A.T.	553,555	Nomeir, A.A.	330,341,342,344
Mercioca, M.D.	1083,1084	Moseman, R.	863	Nonavinakere, V.	83,526
Mereish, K.A.	272,637	Moser, G.J.	499	Norbeck, K.	615
Mermelstein, F.H.	25	Moser, V.C.	586	Norbury, K.C.	106,980
Mermelstein, R.	301,305,548	Moss, O.R.	577	Norred, W.P.	67,958,1034,1035,1036
Merrick, B.A.	231,238,763,912,1115	Mount, D.I.	869	Norwood, J.	177,181,753
Merrill, J.C.	251	Mount, E.A.	573	Novak, R.F.	622,645,760,769
Meyers, L.L.	702	Mudzinski, S.P.	151	Novitzky, W.P.	766
Meynders, P.J.	564	Mueller, W.F.	94,348	Nusair, T. L.	1046
Mezza, L.	1095	Muhle, H.	301,305,548	Nuzzo, N. A.	377
Michel, T.C.	1049,1118	Muhoberac, B.B.	546	Nyska, A.	1044
Michlewicz, K.G.	1093	Muir, J.C.	1039	Nystrom, D.D.	1140
Mielach, F.A.	1051,1068	Muller, D.J.G.	432	O'Donnell, M.W.	1049,1118
Mihalko, P.	579,1020	Mulligan, L.T.	990	O'Flaherty, E.J.	221,385,398
Miles, P.R.	742	Mundie, T.	144,744,745,746	O'Gara, T.S.	521
Miller, B.M.	928	Mundy, W.	412	O'Hara, T.M.	229,235
Miller, F.J.	172	Munson, A.E.	160,800,814	Oberdorster, G.	215
Miller, K.	216,284,820	Muralidhara, S.	312,915,917	Ofner, P.	1099
Miller, M.G.	259,770,877,1055,1056,1141	Murchake, V.L.	1069	Ogilvie, K.K.	941
Miller, M.J.	199	Murdoch, D.	658	Ogle, C.L.	742
Miller, M.S.	512	Murphy, D.J.	741	Oglesby, L.A.	944
Miller, R.R.	988	Murphy, M.E.	624	Oh, S.Y.	16
Milmani, H.A.	482	Murphy, M.J.	782	Ohanian, E.V.	662,713
Minck, D.R.	421,422	Murphy, P.G.	875	Ohno, Y.	689
Minsker, D.H.	1088	Murphy, S.D.	885	Okamiya, H.	855
Mirabelli, C.K.	666	Murray, E.J.	946	Okamoto, Y.	689
Miranda, C.L.	170,1144	Murray, M.J.	821,975	Oleson, F.B.	1010
Mirly, K.J.	511	Murray, T.F.	594	Oliver, G.J.A.	409,1040,1041,1042
Mirsalis, J.C.	786	Murray, W.J.	460	Olivito, V.L.	1049,1118
Mirvish, S.S.	838	Murthy, A.S.K.	913	Olson, C.T.	346,1054,1151
Misra, H.P.	880	Muse, W.T.	568	Olson, J. R.	467
Misra, M.	107	Musgrove, D.L.	800	Olson, M.J.	316
Mitchell, C.E.	538	Mutinga, M.L.	790	Olsson, L-I	615
Mitchell, D.B.	1013	Myers, B.	891	Omaye, S.T.	38,1018
Mitchell, D.Y.	673,829,937	Myers, M.J.	69,156	Omichinski, J.G.	902
Mitchell, J.M.	26	Myers, R.C.	426	Omiecinski, C. J.	11,12
Mitchell, R.D.	991	Myers, S.R.	629	Orme, J.	713
Mitra, A.K.	932	Myhr, B.	1031	Orr, J.L.	419,420



Orrenius, S.	268,646	Pierce, W.M.	633,1137,1149	Reape, M.J.	663
Ortega, A.	541,1091	Pilcher, G.L.	916	Reasor, M.J.	120,742,1160
Osgood, T.B.	985	Pinon, R.	610	Recio, L.	44
Osheroff, M.R.	1153	Pinto, L.	435	Reddy, C. S.	121
Osimitz, T.G.	927	Piper, W.N.	402	Reddy, G.	332,864
Ostby, J.S.	1067	Pisacreta, D.J.	1015	Reddy, G.D.	1135
Oswalt, M.D.	358	Piskorska-Plisczcynska, J.	474	Reddy, S.R.	870
Oudiz, D.	720	Plaa, G.L.	997,999	Reed, D.J.	608,609,623,625,643,1143
Ouellette, R.E.	969,988	Placke, M.E.	728	Reed, E.A.	924,1030
Overton, J.	3	Planas, J.	904	Reed, G.A.	935
Owicki, J.C.	1039	Plattner, R.D.	1034,1035	Reed, R.L.	1144
Ozaki, K.	494	Plopper, C.G.	302,770,964,965	Reer, P.J.	784
Paabo, M.	551	Plowchalk, D.R.	117	Regec, A.L.	318
Pace, J.G.	267,353,665	Plummer, J.M.	818,819	Rehm, S.	525,529
Padilla, S.	288	Plutnick, R.T.	840,847	Rehnbergh, G.	1067
Pagano, D.	54	Podowski, A. A.	943	Reichenbach, N.G.	869
Page, R.L.	698	Pohl, L.R.	13,18	Reidy, C.A.	316
Pakuts, A.	43	Pohland, R.C.	1148	Reifenrath, W.G.	660
Pallardy, M.J.	1163	Poland, A.P.	946	Reimschuessel, R.	876
Pan, L.	935	Polansky, J.R.	22	Reinhardt, C.F.	570
Pang, A.	964	Pollanen, M.S.	354	Reitz, R.H.	948
Papa, L.R.	200,201	Pollard, D.L.	903,919	Remmer, H.	112
Papac, D.I.	36	Ponsler, G.D.	546	Resau, J.	1139
Paradise, C.	1167	Poole, A.	1101	Rettie, A.	765
Paradisin, W.M.	53	Pope, C.N.	288	Reuhl, K.R.	383,386
Parce, J.W.	1039	Popp, J.A.	139	Reynolds, J.H.	945
Park, H.S.	827	Poria, M.P.S.	236	Reynolds, S.	503
Park, Y.	1111	Porter, J.K.	1034,1035,1036	Rezazadeh, M.	385
Parker, A.J.	300	Posch, R.	1098	Rhodes, C.	1041
Parker, R.D.	317,815	Poss, P.M.	356	Rhodes, S.W.	226
Parker, R.M.	431,882	Pottenger, L.H.	772	Ribeiro, P.L.	373
Parkinson, A.	32,33,34,39,90	Potter, C.L.	315,925	Ribelin, W.E.	574
Parmer, D.L.	80	Potter, D. W.	949	Rice, D.C.	389,411
Parrish, A.R.	1131	Pounds, J.G.	79,397	Rice, J.M.	84,498,515
Parrott, C.	801	Powdrill, J.	306	Rice, S.A.	351
Pate, I.	1041	Powers, W.J.	980	Richards, D.E.	1147
Paternain, J.L.	1091,1092	Poyer, J. L.	898	Richards, I.S.	589
Patrick, E.	21,983	Poynter, J.I.	211	Richards, J.H.	174,175
Patterson, D.R.	1021,1122	Prange, C.A.	1060,1061	Richardson, R.J.	292,886
Paustenbach, D.J.	946	Price, C.J.	1078,1094	Richieri, S.P.	818,819
Pearce, M.J.	425	Price, S.	50	Richig, J.W.	1012,1015
Peckham, J.C.	649	Primiano, T.	760	Richter, W.R.	562,1167
Pedigo, N.	1062	Prince, R.	169	Rickert, D.E.	1140
Pegg, D.G.	445,695,795	Pringle, L.	58	Riddle, M.M.	806,810
Pegram, R.A.	508	Prins, B.	1117	Ridley, W.	934
Peiran, W.B.	960	Pritts, I.M.	566,1080	Rigby, B.S.	1051,1068
Pemberton, M.A.	1040,1041,1042	Procter, B.	579	Riley, A.R.	216
Pendino, K.J.	149	Provan, W.M.	950	Riley, R.T.	67,958
Perdew, G. H.	954	Pruett, S.B.	159	Rinehart, K.L.	670
Pereira, M.A.	492,854	Pullin, T.G.	1106	Ring, B.J.	771
Perkins, J.M.	329	Pumford, N.R.	185,186,188,189	Ripple, G.	144,744,745,746
Perkins, M.A.	212	Putman, D.L.	931	Ritchie, C.R.	1070
Perkins, M.L.	457	Putnam, T.	578	Rithidech, K.	549,922
Perreault, S.D.	356,357,371	Puttmann, M.	683	Rivedal, E.	484
Perrino, B.A.	518	Quast, J.F.	890	Rivera Torres, M.I.	314
Perry, L.G.	347	Quinn, B.A.	354	Rivera, J.A.	567
Persing, R.	500,1095	Raczniak, T.J.	1043,1150	Rivera, M.	76
Peters, A.C.	500,844,1095	Rahn, C.A.	1030	Riviere, J.E.	239,698,699
Peters, J. H.	831,956	Rainen, L.	1038	Roberts, A.	1001
Petersen, D.R.	678	Rajanna, B.	78,382	Roberts, A.E.	335,1136
Petersen, D.W.	430	Rajanna, S.	78	Roberts, D.W.	185,186,187,188,189,190
Peterson, D.P.	80	Raje, R.	792	Roberts, N.L.	291,860
Peterson, D.R.	331	Rajendran, N.	557	Roberts, S.	1100
Peterson, R.E.	910,1048,1102,1103	Ramanathan, R.	312,917	Roberts, S.M.	237,675,676,677
Petrere, J.A.	444,982	Ramos, K.	632,1108	Robertson, D.G.	973
Petry, T.W.	46,54	Ramsdell, H.S.	114,832	Robertson, F.M.	26,1157
Petterson, J.C.	539	Randall, J.C.	292	Robertson, L.W.	683,768,900,910
Pfeifer, K.	197,720	Rankin, G.O.	322	Robertson, M.L.	53
Pfeifer, R.W.	65	Rao, K.S.	450	Robertson, R.T.	1088
Pfeiffer, B.D.	473	Raos, N.	537	Robinson, B.L.	684,909
Phalen, R.F.	725	Rappaport, S. M.	595	Robinson, C.P.	754,1146
Phelps, J.L.	262,355	Rashed, M.	765	Robinson, J.H.	945
Phelps, P.C.	640	Raska-Emery, P.	184	Robinson, M.	1115
Philbert, M.A.	597	Ratajczak, H.V.	822,879	Robinson, M.K.	285,970
Phillips, C.N.K.	291	Rausch, R.J.	928	Robinson, N.A.	267,353
Phillips, P.M.	586	Ray, J.S.	505	Robison, T.	210
Phillips, R.D.	572,647,839,847	Ray, S.D.	234,269	Robl, M.G.	242,245
Phillips, T.D.	374	Reagor, A.C.	782	Rochelle, L. G.	109

Rodamilans, M.	904	Sadler, A.	1160	Sette, W.F.	586
Rodgers, K.	63	Sadler, B.M.	1078	Setzer, R.W.	1072
Rodman, L.E.	683	Sadrieh N.	532	Sevanian, A.	621
Rodriguez, P.A.	686	Safe, L.	129,134	Shaddock, J.	274
Rodriguez, R.E.	536	Safe, S. 93,127,128,129,133,134,138,157,474,495		Shafer, T.J.	384
Rodwell, D.E.	650,853,1081,1083,1084,1093	Sagarts, J.W.	554	Shah, P.V.	657,944
Roebuck, B.D.	867	Saini, R.S.	864	Shaikh, Z.A.	225
Roger, J.M.	1072,1073	Sainsbury, M.	15,273	Shalis, M.	1129
Rogers, A.E.	437	Sakaida, I.	271	Shara, M.A.	460
Rogers, B.C.	424	Sakata, T.	1025	Sharma, R.P.	38,62,813,815,1089
Rogers, J.M.	1069,1070,1071	Salazar, D. E.	108	Sharp, T.R.	1050
Rogers, R.A.	698	Sams, R.A.	893	Shedlofsky, S.I.	683
Rogers, R.R.	806,810	Sanchez, I.M.	497,845	Sheldon, R.	409
Rogers, W.R.	420	Sanders, J.M.	326	Shelton, D.	202
Roloff, M.V.	574,580	Sandhu, S.S.	858	Sherer, T.T.	1104
Romanovicz, D.	864	Sandusky, G.E.	1011	Sheridan, T.R.	876
Rombout, P.J.A.	61	Sanner, T.	484	Shertzer, H.G.	15,273
Romkes, M.	495	Sapienza, P.P.	1049,1118	Shetler, T.J.	1123,1152
Rommereim, R.L.	1096	Sarafian, T.S.	388	Shi, C.	381
Roosdorp, N.	579,1020	Sarlo, K.	286	Shibamoto, T.	1055,1056
Rop, D.A.	1119	Sasser, L.B.	540,791,928,1097	Shigenaga, M.K.	95
Roque, H.	547	Satoh, H.	13	Shimoji, N.	855
Rosado, R.R.	48	Satoh, M.	86	Shindell, S.	663
Rose, J.E.	423	Sauers, L.J.	784	Shinohara, Y.	501
Rose, R.L.	773	Savage, R.E.	926,1147	Shirai, T.	843
Rosen, J.F.	79,394,396	Savides, M.C.	611	Shirasu, Y.	888
Rosenbach, T.	462	Savine, T.A.	1080	Short, B.	705
Rosenbaum, D.P.	825	Sawant, S.G.	790	Short, T.M.	871
Rosengren, R.	129	Scala, P.L.	477	Showers, C.	899
Rosenstein, L.S.	458	Scala, R.A.	196	Shrivastava, S.P.	657,944
Rosenthal, G.J.	60,1161,1162	Schaeffer, D.J.	111	Shroot, B.	378
Rosi, D.	1121	Schanne, F.A.X.	396	Shull, L.R.	770
Rosner, M. H.	217	Schaper, M.	748,749,751	Shupack, S.I.	218
Ross, D.	1160	Schatz, R.	1001,1002,1003,1004	Shurina, R.D.	607
Ross, F.W.	378	Schaumburg, H.H.	603	Sickles, D.W.	584
Ross, J.H.	894	Schell, J.D.	164,165	Sigell, L.T.	453
Ross, P.E.	569	Schepis, J.P.	344	Siglin, J.C.	650,853,1083,1084
Ross, P.M.	371	Scherba, G.	1019	Sigmon, R.	1067
Ross, R.H.	721,726	Scheuler, R.L.	1109	Signorin, J.	573
Ross, S.M.	8	Schiavo, D.M.	653	Sikorski, E.E.	160
Roth, A.J.	1053	Schieferstein, G.J.	501	Silber, P.M.	974,983
Roth, R.A.	619,668,669,730	Schlenk, D.	872	Silbergeld, E.K.	81
Roth, W.L.	135	Schlesinger, R.B.	206,207,208,209	Silberhorn, E.M.	379,871
Rothenstein, A.	976	Schlicklin, J.K.	708	Silkworth, J.B.	803
Rothwell, C.E.	851	Schlosser, M.J.	607	Sills, M.	81
Rousseaux, C.G.	502	Schmidt, L.J.	400	Silva, M.H.	829
Rowland, K.L.	186	Schmidt, R.R.	149	Silveira, D.M.	341,342
Rowles, T.	878	Schneider, J.E.	50,51	Silverman, D.	1001
Roy, T.A.	496	Schnell, R.C.	107,763	Silverstone, A.E.	153
Roycroft, J.H.	575	Schnellmann, R.G.	14,324,897	Sim, W.W.	275
Rozen, N.G.	976	Schollenberger, J.M.	405	Simmons, H.F.	676
Rozman, K.	470,471,472,473	Schomaker, S.J.	639	Simmons, J.E.	232,356,684,909
Ruan, D.Y.	387	Schook, L.B.	69,156	Simpson, D.	44
Ruangyuttikarn, W.	446	Schroeder, C.E.	603	Simpson, M.G.	409
Rubenz, Z.	298	Schultz, N.E.	487	Singer, A.W.	981
Rubenstein, R.	544,711,901,914,993,998	Schultz, T.W.	9	Singer, G.	337
Rubin, R. J.	325,688	Schum, G.M.	725	Singh, S.S.	884
Rubinstein, S.D.	390	Schuman, S.	681	Singh, S.V.	830
Ruch, R.J.	483,485,488,489	Schumann, A.M.	333	Singh, Y.	272,877
Rudo, K.M.	71,930	Schuschereba, S.T.	707,1018	Sipes, I.G.	118,275,682,959,962,1129,1131
Rudolph, A.	976	Schwab, K.J.	1161,1162	Sisson, J.D.	166
Ruegg, C.E.	706	Schwab, T.L.	440	Skiles, G.L.	618
Runge-Morris, M.	622,645	Schwetz, B.A.	125,863,1078,1094,1096	Skolnik, M.	1044
Rusch, G.M.	651	Scott, M.P.	820	Skopek, TR	44
Rush, G.F.	277,666	Secours, V.E.	905	Skoulis, N.P.	675
Rushin, E.A.	1073	Sedman, R.J.	6	Skowronski, G.	327
Rusin, G.	122	Seefeld, M.D.	444,982	Slade, R.	177,181,311,753
Russell, L. D.	359	Seeley, J.C.	232	Slaughter, L.J.	849
Russell, R.	940	Selgrade, M.J.K.	68,176	Sleet, R.B.	1094
Russell, S.R.	740	Selkirk, J.K.	763	Slesinski, R.S.	927,929
Russfield, A.B.	1029	Sendelbach, L.	937,938	Slikker, W.	535
Russo, J.M.	417	Sendelbach, L.E.	709,913,994,1029	Slott, V.L.	263,356
Ryan, C.A.	975	Seng, J.F.	677	Slowiejko, D.	402
Ryan, M.	844	Sengupta, S.K.	825	Smallwood, C.L.	238,912
Ryan, M.J.	935	Serrone, D.M.	405	Smart, R.C.	499
Sabaitis, C.P.	736	Serroni, A.	271	Smialowicz, R.J.	806,810
Sabourin, P.J.	337,1127,1128	Serve', M. Paul	346	Smith, A.G.	834
Sabourin, I.D.	126,1069,1070,1071,1073	Servi, M.J.	27	Smith, B.J.	118

Smith, B.R.	966	Stoney, K.H.	1096	Thomas, D.J.	521,1160
Smith, C.D.	707	Storm, J.E.	655	Thomas, M.A.	740
Smith, C.L.	972	Stoudemayer, T.	974	Thomas, P.E.	771
Smith, E.E.	374	Strader, L.F.	356,357	Thomas, P.T.	822,879
Smith, E.A.	948	Stranahan, R.P.	1161,1162	Thomas, T.	130
Smith, G.A.	985	Strasser, J.	828	Thomassen, D.G.	549
Smith, G.S.	710,787	Streeter, C.M.	418	Thompson, C.A.	260
Smith, I.L.	1165	Strodtbeck, F.	58	Thompson, D.C.	615
Smith, I.R.	163	Strom, S.	930	Thompson, M.B.	990
Smith, L.W.	348,1153	Stubin, C.H.	920	Thompson, R.D.	751
Smith, M.A.	237,696	Stutzman, J.D.	805	Thompson, W.L.	267
Smith, M.K.	1090	Styles, J.A.	249,250	Thomson, S.A.	568
Smith, M.T.	53,278,602,1125	Su, W.Y.	207	Thongsinthusak, T.	894
Smith, M.W.	640	Su, Y.F.	304	Thorne, P.S.	279,287
Smith, P.F.	783	Suarez, J.D.	263,356	Thrall, D.A.	698
Smith, R.P.	1156	Sublet, V.H.	440,453	Thrall, K.D.	1104
Smucker, S.J.	883	Subrahmanyam, V.V.	1160	Thurman, J.D.	1105
Sneller, D.L.	285	Sullivan, D.J.	1015	Thurman, R.G.	252
Snider, T.H.	1151	Sullivan, T.M.	1023,1024	Tierney, WJ	1028
Snipes, M.B.	303,308	Sultatos, L.G.	947	Tilson, H.A.	412,424,588
Snyder, N.K.	809	Sumler, M.R.	657,944	Timchalk, C.	328
Snyder, R.	100,604,605,606,1126,1157,1158	Sun, J.D.	538,1127,1128,1138	Tirmenstain, M.A.	191
Soderlund, E.J.	902	Sunde, R.A.	900	To-Figuera, J.	904
Sokolove, P.M.	638	Sunderman, F.W.	119	Tobin, T.	1058,1059,1060,1061,1062
Soliman, S. A.	761	Sunouchi, M.	689	Todd, G.C.	1011
Solleveld, H.A.	705	Surber, C.	661	Todhunter, J.A.	204
Solomonraj, G.	43	Susick, R.L.	695,700	Tokars, M.	682
Solow, R.	272,637	Susking, R. R.	20	Tomar, R.S.	802
Solter, P.	1019	Sutton, W.W.	858	Tomita, T.	1077
Sonawane, B.R.	544,711,901,998	Suverkropp, C.	964	Tomlinson, H.L.	648
Sonderfan, A.J.	34	Suzuki, M.	670	Tompkins, M.B.	1019
Sonich-Mullin, C.	200,201	Svendsgaard, D.J.	232,712	Tompkins, W.A.F.	1019
Sonowane, B.	914,993	Swaneck, G.E.	136	Tong, C.	578
Soranno, T.M.	947	Swann, J.	693,1110	Topping, Douglas C.	433
Soto, R.J.	27	Swanson, S.A.	517	Toulon, M.	527
Sozio, R.S.	705	Swanson, S.P.	349	Townsend, H.G.	502
Spalding, J.W.	786	Swearengin, T.F.	926,1147	Toyoda, H.	86
Spann, M.L.	457	Swenberg, J.A.	45,313,509,1136	Traina, V.M.	653,1012,1014,1015
Spencer, P.S.	8	Swim, A.T.	683	Treinen, K.A.	372
Sprankle, C.S.	828	Sylvester, D.M.	42	Trifillis, A.L.	318
Sprague, G.L.	539	Ta, P.	102	Trimmer, G.W.	647
Springer, D.L.	10,936	Tabor, M.W.	15	Tripathi, R.K.	991
Sriharan, S.	864	Tabora, O.	953	Tripodi, M.F.	104
Srinivas, P.	345	Tai, C.L.	1060,1062	Trombetta, L.D.	527,547
St. Clair, M.B.	145,147	Tai, H-H	1061	Trosko, J.E.	16,490
Staats, D.A.	951	Takahashi, H.	888	Trotter, R.W.	1105
Stacey, N.H.	230	Takahashi, M.	855	Trottman, C.H.	587,899
Stafford, R.G.	246,247	Takanaka, A.	689	Troup, C.M.	565,989
Standeven, A.M.	867	Takenaka, S.	548	Trump, B.F.	318,640,697,826
Stanley, S.	1058	Takigiku, R.	686	Trush, M. A.	642,1159
Stanton, M.E.	534	Tallant, M.J.	244,338	Trush, M.A.	213
Stark, K.L.	115,116	Talmage, S.S.	859	Tsao, W.	160
Starnes, D.M.	68	Tamm, R.	22	Tsien, R.Y.	278
Starr, T.B.	1,198	Tamura, R.N.	785	Tsuda, H.	494,837
Stavert, D.M.	144,744,745,746	Tan, W.Y.	1	Tsuda, S.	888
Stead, A.G.	174,175	Tana, H.	838	Tsuei, J.	955
Stebbing, J.H.	80	Tanaka, D.	293	Tsuei, S.	955
Steinhagen, W.H.	139	Tardif, R.	999	Tulip, K.	609,1143
Steinmetz, K.L.	786,1125	Tate, T.M.	764	Turkall, R.	327
Stephens, T.J.	21,974,983	Tatematsu, M.	494,837	Turner, M.J.	45,335,509,1136
Steppan, L.B.	155	Taylor, D.	1059,1062	Turner, T.	71
Stern, M.L.	160,800,818	Taylor, M.J.	59	Twerdok, L. E.	642,1159
Steup, D.	682	Taylor, S.B.	871	Twitty, L.D.	331
Stevens, D.K.	448	Teets, V.J.	322	Tyl, R.W.	1079,1080
Stevens, J.L.	17,319	Teetsel, N.M.	240	Tyler, T.R.	571
Stevens, J.T.	1053	Tekeli, S.	1122	Tyrrell, K.	704
Stevens, M.A.	182	Tephly, T.R.	88	Tyson, C. A.	831,956
Stevens, W.D.	152	Tepper, J.S.	178,179	Ubels, J.L.	985
Stewart, R.E.	241	Ter Haar, G.L.	1106	Udinsky, J.R.	952
Stickney, J.	1001,1004	Terrill, J.B.	988	Ulland, B.M.	447
Stiegler, G.L.	10	Tesh, J.M.	378	Ulloa, H.M.	444,982
Stober, J.A.	1090	Tharpe, M.	983	Ulrich, R.G.	46
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