Society of Toxicology

29th Annual Meeting
Program

February 12-16, 1990
Fontainebleau Hilton
Resort and Spa
Miami Beach, Florida
SPECIAL EVENTS

EDUCATION PROGRAM FOR MINORITY STUDENTS
Monday, February 12
1:00 p.m.-6:00 p.m.
Imperial I Room
Sponsored by the SOT Education Committee.
Open to all registrants.

PLACEMENT SERVICE SEMINAR
Monday, February 12
5:30 p.m.-6:30 p.m.
Imperial I Room
Sponsored by the SOT Placement Service.
Open to all registrants.

SOT WELCOMING RECEPTION
Monday, February 12
6:30 p.m.-8:00 p.m.
Grand Ballroom
Open to all registrants and guests.

GRADUATE STUDENT BREAKFAST
Tuesday, February 13
7:30 a.m.-8:30 a.m.
Hearn de Lis Room
Sponsored by the SOT Education Committee.
Open to all graduate student registrants.

TOXICOLOGY, TOXIC SUBSTANCES AND THE PUBLIC—WORKSHOP
Tuesday, February 13
9:00 a.m.-12:00 Noon
LeMahay Room
Sponsored by the SOT Committee on Public Communications.

PREDICTIVE VALUE OF ANIMAL STUDIES IN TOXICOLOGY—LECTURE
by Professor Gerhard Zbinden, M.D.
Tuesday, February 13
12:00 Noon-1:00 p.m.
Fontaine Room
Sponsored by the SOT Committee on Animals in Research.

MECHANISMS SPECIALTY SECTION MEETING
Tuesday, February 13
5:00 p.m.-6:30 p.m.
Stateline Room
Shawnee Hotel

RISK ASSESSMENT SPECIALTY SECTION MEETING
Tuesday, February 13
5:00 p.m.-6:30 p.m.
Posteu Room

LATIN FIESTA IN LITTLE HAVANA
Tuesday, February 13
6:30 p.m.-11:00 p.m.
Buses leave from the Fontainebleau Hotel at 6:30 p.m. and return by 11:00 p.m.
Pre-registration only. $52 per person.

POSTER SESSION FOR MINORITY STUDENTS
Wednesday, February 14
10:00 a.m.-11:30 a.m.
Imperial I Room
Sponsored by the SOT ad hoc Task Force on Educational Issues.

SOT ISSUES SESSION
Wednesday, February 14
12:00 Noon-1:00 p.m.
Fontaine Room
Chaired by SOT President Roger O. McClellan, DVM
Bring your lunch and participate in an open forum discussion of SOT affairs.
Open to all registrants.

Robert G. Barnard, Esq., Cleary, Gottlieb, Steen and Hamilton, will give a presentation on government conflict of interest guidelines and their impact on toxicologists. This will be followed by a discussion.

SOT ANNUAL BUSINESS MEETING
Wednesday, February 14
4:00 p.m.-5:30 p.m.
Fontaine Room
Chaired by SOT President Roger O. McClellan, DVM
Open to SOT members only.

FORUM FOR NEW INVESTIGATORS
Wednesday, February 14
4:30 p.m.-5:30 p.m.
Brittany Room
Sponsored by the SOT Education Committee.

REGIONAL CHAPTER MEETINGS
Wednesday, February 14
5:30 p.m.-7:00 p.m.
Many SOT Regional Chapters will be sponsoring meetings and/or receptions at this time. Please check the hotel lobby board for room assignments.

SOT ANNUAL BANQUET AND AWARDS PRESENTATION
Wednesday, February 14
7:30 p.m.-10:00 p.m.
Fontaine Room
Pre-registration only. $32.00 per person.

5TH ANNUAL BURROUGHS WELLCOME TOXICOLOGY SCHOLAR AWARD LECTURE
by J. Glenn Sipes, Ph.D.
Chaired by Tom S. Miyata, Ph.D.
Thursday, February 15
12:00 Noon-1:00 p.m.
Fontaine Room
Open to all registrants.

SPECIALTY SECTION MEETINGS (EXCEPT MECHANISMS AND RISK ASSESSMENT)
Thursday, February 15
5:00 p.m.-6:30 p.m.
Please check the hotel lobby board for room assignments.
Society of Toxicology

29th Annual Meeting
Program

February 12-16, 1990
Fontainebleau Hilton
Resort and Spa
Miami Beach, Florida
# FUTURE MEETINGS

<table>
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<tr>
<th>Meeting</th>
<th>Year</th>
<th>Date</th>
<th>Location</th>
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<tr>
<td>30</td>
<td>1991</td>
<td>February 25-March 1</td>
<td>Loews Anatole Hotel</td>
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<tr>
<td></td>
<td></td>
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<td>Dallas, Texas</td>
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<tr>
<td>31</td>
<td>1992</td>
<td>February 22-27</td>
<td>Seattle Convention Center</td>
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<td></td>
<td></td>
<td></td>
<td>Seattle, Washington</td>
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<tr>
<td>32</td>
<td>1993</td>
<td>February 16-20</td>
<td>Fontainebleau Hilton Hotel</td>
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<td>Miami Beach, Florida</td>
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ANNUAL MEETING REGISTRATION FEES

<table>
<thead>
<tr>
<th></th>
<th>Received Before January 12</th>
<th>Received After January 12</th>
<th>Continuing Education Courses</th>
</tr>
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<tbody>
<tr>
<td>Member or Post-Doctoral in Training</td>
<td>$90.00</td>
<td>$115.00</td>
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<tr>
<td>Non-Member</td>
<td>$150.00</td>
<td>$175.00</td>
<td>$75.00</td>
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<tr>
<td>Student or Full-Time Pre-Doctoral</td>
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<td>$30.00</td>
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<tr>
<td>*Guest</td>
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*Guests must be registered and have a badge in order to be admitted to the Guest Hospitality Center.

Advance registration closes January 12, 1990. After January 12, any registrations received will be charged the additional fee of $25.

Refunds for cancellation of registration will be made, less a $25 processing charge, only if a written request is received at SOT headquarters by FEBRUARY 2, 1990. NO REFUNDS WILL BE MADE FOR CANCELLATIONS RECEIVED AFTER FEBRUARY 2, 1990. There are no refunds for Continuing Education courses, the Banquet, or the social evening in Little Havana.

ENJOY A FIESTA IN LITTLE HAVANA

On Tuesday, February 13, 1990, at 6:30 pm, the Society of Toxicology will "rhumba" into the historic, cultural district of Little Havana. The evening will include a round trip transportation to the authentic Latin enclave. Once there, you will be greeted by a rumba and conga dancers and a variety of Latin music, including Nestor Torres, a national favorite, who has recently produced an album. There will also be a super all-you-can-eat Cuban dinner. Tickets are $32.00 per person, which includes transportation, dinner, sangria, beer, soft drinks and entertainment. Pre-registration only, using the attached form. Sorry, no refunds or exchanges.

SOT ANNUAL BANQUET AND AWARDS PRESENTATION

The Society of Toxicology Annual Banquet and Awards Presentation will be held on Wednesday, February 14, 1990, from 7:00 pm until 10:00 pm at the Fontainebleau Hilton. Tickets are $32.00 per person. Meeting registrants may sponsor and prepay for tables of 10. Registrants who purchase a table are able to choose their seating arrangement prior to the banquet by stopping by the SOT headquarters office at the Fontainebleau. Requests will be honored on a first-come, first-served basis. Sorry, no refunds or exchanges.

REGISTRATION DESK--GRAND GALLERIE

Sunday ........................................ 4:00 p.m.-10:00 p.m.*
Monday ........................................ 7:00 a.m.-6:30 p.m.
Tuesday ........................................ 7:30 a.m.-4:00 p.m.
Wednesday-Thursday .......................... 8:00 a.m.-4:00 p.m.

*You are encouraged to register Sunday in order to avoid delays prior to the Continuing Education courses on Monday morning.

HOTEL ACCOMMODATIONS

The Society of Toxicology 29th Annual Meeting is headquartered at the Fontainebleau Hilton Resort and Spa. The Fontainebleau Hilton is located on beautiful Miami Beach, overlooking the Atlantic Ocean, with its white sandy beaches and boardwalk. SOT has reserved blocks of rooms at other nearby properties; most are within a two block walk. For more information regarding housing, please contact the SOT headquarters office, (202) 293-5935.

AIR TRANSPORTATION

Please make your air reservations as soon as possible.

CONTINENTAL AIRLINES AND EASTERN AIRLINES, in cooperation with the Society of Toxicology, are offering meeting registrants special discounts: 50% discount off Continental's and 55% discount off Eastern's roundtrip coach and first-class fares, both with no restrictions, penalties, or advance booking, and 5% discount off any promotional fares offered by either airline (rules and restrictions apply).

A PRIZE DRAWING WILL BE HELD FOLLOWING THE MEETING. An individual who books a ticket through the Continental/Eastern Convention Desk will receive two roundtrip coach tickets anywhere Continental or Eastern flies in the continental United States, Bahamas or Puerto Rico. To make reservations call the Continental/Eastern reservation desk at 1-800-468-7022 and refer to EZ ACCESS #214.

DELTA AIRLINES is also offering special discounts to SOT meeting attendees: a 40% discount off coach fare with some restrictions. There is also a 35% discount off of fares from Canada. To make reservations call Delta reservation desk at 1-800-241-6760 and refer to file J03831.

AMERICAN AIRLINES is offering special discounts from 40% to 70% off coach air fares to SOT meeting attendees. To make reservations call American's Meeting Services desk at 1-800-433-1790 and refer to file S102909.

AIRPORT TRANSFERS

Miami Beach is located 11 miles from the Miami International Airport, about a 15 minute ride. A taxi costs approximately $18. SOT recommends the SuperShuttle, which will transport you to your hotel for $8 each way (a $1 discount coupon will be enclosed with your meeting registration confirmation).

CAR RENTAL

Budget Rent-A-Car is offering a special discount to attendees during the SOT meeting. Rates start at $22 daily for an economy class car, up to $34 daily for a luxury car. To make your reservations, call 1-800-772-3773, and identify yourself as an SOT meeting attendee.

GUEST HOSPITALITY CENTER AND PROGRAM--CLUB ATLANTIC

A special program has been coordinated for the guests of registrants. Guests will have a hospitality room overlooking the ocean in which to relax and meet other guests, as well as have the opportunity to take part in specially discounted tours of the Miami area. A representative of All Florida Adventure Tours will be available Sunday through Wednesday to provide you with information about the city, register you for tours offered through the Society and distribute tour tickets purchased in advance of the meeting. For information
regarding the tours, contact All Florida Adventure Tours, 11137 N. Kendall Drive, #D105, Miami, FL 33176, 1-800-33-TOUR-3.

Sunday ............................................. 4:00 p.m.-8:00 p.m.
Monday-Wednesday ......................... 9:00 a.m.-4:00 p.m.
Thursday ........................................... 9:00 a.m.-12:00 Noon

SOT HEADQUARTERS--CONFERENCE ROOM 2/LEVEL III

Sunday ............................................. 1:00 p.m.-8:00 p.m.
Monday ............................................. 7:00 a.m.-4:00 p.m.
Tuesday-Thursday ......................... 7:30 a.m.-4:00 p.m.
Friday ............................................. 7:30 a.m.-11:00 a.m.

PLACEMENT SERVICE/LEVEL III

Monday:
Louis Philippe Room ...................... 10:00 a.m.-3:30 p.m.
(Registration only for Candidates and Employers—nosearches, messages or interviews)

Tuesday-Thursday:
Louis Philippe Room ...................... 9:00 a.m.-4:00 p.m.
(All services available)

PRESS ROOM--CONFERENCE ROOM G, MAIN FLOOR

Monday-Thursday ......................... 8:00 a.m.-5:00 p.m.
Friday ............................................. 8:00 a.m.-12:00 Noon

SPEAKERS' SLIDE PREVIEW ROOM--CONFERENCE ROOM D, MAIN FLOOR

Sunday ............................................. 4:00 p.m.-10:00 p.m.
Monday ............................................. 7:00 a.m.-4:00 p.m.
Tuesday-Thursday ......................... 8:00 a.m.-4:00 p.m.
Friday ............................................. 8:00 a.m.-9:00 a.m.

EXHIBITS--GRAND BALLROOM, MAIN FLOOR

Monday ............................................. 6:30 p.m.-8:00 p.m.
Tuesday-Thursday ......................... 8:30 a.m.-4:30 p.m.

RECEIPT OF PROGRAM AND THE TOXICOLOGIST

1. SOT members in the U.S. and Canada will receive the Program and the Toxicoologist prior to the meeting.

2. Non-members in the U.S. and Canada who are pre-registered by January 12 will receive the Program and the Toxicoologist prior to the meeting.

NOTE: Please bring your copy of the Toxicoologist with you to the meeting. Additional copies are available on-site for $10.00.

3. Due to slow postal delivery, SOT members and non-members outside of the U.S. and Canada who are registered for the meeting will receive the Program and Toxicoologist at the registration desk.

4. SOT members outside of the U.S. and Canada who do not attend the meeting will receive their copies of the Program and the Toxicoologist after the meeting.
PROGRAM SUMMARY

Continuing Education Courses
(Pre-Registration Only)

All courses are held on Monday, February 12, 1990
Please check the hotel lobby board for room assignments.

8:00 a.m.-12:00 noon
1. Target Organ Toxicity: Cardiovascular Toxicity
2. Developmental Toxicity: Changing Factors in Embryonic Susceptibility
3. Advanced Metabolism
4. Advanced Hepatotoxicity (repeated in the afternoon)
5. Concepts in Cell Biology (repeated in the afternoon)
6. Carcinogen Risk Assessment (repeated in the afternoon)

1:30 p.m.-5:30 p.m.
7. Advanced Hepatotoxicity (also offered in the morning)
8. Free Radical Toxicology
9. Target Organ Toxicity: Respiratory Tract Toxicology
10. Toxicity of Agents: Pesticides
11. Concepts in Cell Biology (also offered in the morning)
12. Carcinogen Risk Assessment (also offered in the morning)

Symposia—Fontainebleau Ballroom

Day/Time Room Topic/Abstract # Page
Tuesday 8:30 a.m. Ballroom A Comparative Dosimetry of Inhaled Materials: Differences Among Animal Species and Extrapolation to Man # 1–5 15
Tuesday 8:30 a.m. Ballroom B Cellular and Molecular Mechanisms of Learning and Memory: Interactions with Neurotoxic Chemicals # 6–10 16
Tuesday 1:30 p.m. Ballroom A Glutathione-Conjugate Mediated Toxicities # 11–16 29
Tuesday 1:30 p.m. Ballroom B Application of Pharmacokinetics in Developmental Toxicity Risk Assessment # 17–22 29
Wednesday 8:30 a.m. Ballroom A Genetic Determinants of Carcinogen Susceptibility in Rodents and Man # 23–28 43
Wednesday 8:30 a.m. Ballroom B Inhalation Risk Assessment: State-of-the-Art # 29–34 44
Wednesday 1:30 p.m. Ballroom A Macrophage-Xenobiotic Interactions: Modulation of Toxicity and Macrophage Functions # 35–39 58

Workshop

Day/ Time Room Topic/Abstract # Page
Tuesday 9:00 a.m. Le Mans Toxicology, Toxic Substances and the Public

Platform Sessions

Day/ Time Room Topic/Abstract # Page
Tuesday 8:30 a.m. Brittany Metal Toxicology #77–88 17
Tuesday 8:30 a.m. Champagne Oxidative Stress #89–99 17
Tuesday 1:30 p.m. Brittany Fiber Toxicity #275–283 30
Tuesday 1:30 p.m. Champagne Risk Assessment #284–297 31
Wednesday 8:30 a.m. Brittany Developmental #490–503 45
Wednesday 8:30 a.m. Champagne Biotransformation #504–515 45
Wednesday 1:30 p.m. Brittany Environmental/Aquatic Toxicology #699–706 59
Wednesday 1:30 p.m. Champagne Renal Toxicology #707–715 59
Thursday 8:30 a.m. Brittany Immunotoxicology #877–887 71
# Poster/Discussion Sessions

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<tr>
<td>Thursday</td>
<td>8:30 a.m.</td>
<td>Reproductive Toxicology #888-899</td>
<td>Champagne</td>
<td>72</td>
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<tr>
<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Oncogenes/Growth Factors #100-111</td>
<td>Bordeaux</td>
<td>18</td>
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<tr>
<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Dioxin and Gene Expression #112-123</td>
<td>Burgundy</td>
<td>19</td>
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<tr>
<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Gap Junctions #298-309</td>
<td>Le Mans</td>
<td>31</td>
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<tr>
<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>In Vitro Models of Skin Toxicity #310-319</td>
<td>Bordeaux</td>
<td>32</td>
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<tr>
<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Metallothionein #320-331</td>
<td>Burgundy</td>
<td>33</td>
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<tr>
<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Toxicity of Mixtures #332-343</td>
<td>Lorraine</td>
<td>34</td>
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<tr>
<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Calcium and Cytotoxicity #516-527</td>
<td>Le Mans</td>
<td>46</td>
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<tr>
<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Immuno-toxicity of Drugs #529-539</td>
<td>Bordeaux</td>
<td>47</td>
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<tr>
<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Methylmercury Toxicity #540-550</td>
<td>Burgundy</td>
<td>48</td>
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<tr>
<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Peroxisome Proliferation #551-561</td>
<td>Lorraine</td>
<td>48</td>
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<tr>
<td>Wednesday</td>
<td>1:30 p.m.</td>
<td>Cell Proliferation #716-726</td>
<td>Le Mans</td>
<td>60</td>
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<tr>
<td>Wednesday</td>
<td>1:30 p.m.</td>
<td>Peripheral Neuropathies #727-737</td>
<td>Bordeaux</td>
<td>61</td>
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<tr>
<td>Thursday</td>
<td>8:30 a.m.</td>
<td>Methodologies and Approaches to Risk Assessment #900-912</td>
<td>Le Mans</td>
<td>73</td>
</tr>
<tr>
<td>Thursday</td>
<td>8:30 a.m.</td>
<td>Reactive Intermediates #913-924</td>
<td>Bordeaux</td>
<td>74</td>
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<tr>
<td>Thursday</td>
<td>8:30 a.m.</td>
<td>Tumor Promotion and Progression #925-935</td>
<td>Burgundy</td>
<td>75</td>
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<td>Thursday</td>
<td>1:30 p.m.</td>
<td>Chelation of Metals #1078-1086</td>
<td>Le Mans</td>
<td>86</td>
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<tr>
<td>Thursday</td>
<td>1:30 p.m.</td>
<td>In Vitro Systems for Evaluation of Developmental Toxicity #1087-1098</td>
<td>Bordeaux</td>
<td>86</td>
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<td>Thursday</td>
<td>1:30 p.m.</td>
<td>Phagocytic Cells and Tissue Injury #1099-1109</td>
<td>Burgundy</td>
<td>87</td>
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<tr>
<td>Friday</td>
<td>8:30 a.m.</td>
<td>Assessment of Chemical Interactions with DNA #1261-1271</td>
<td>Le Mans</td>
<td>98</td>
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<td>Friday</td>
<td>8:30 a.m.</td>
<td>Glutathione #1272-1283</td>
<td>Burgundy</td>
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## 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.

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<td>8:30 a.m.</td>
<td>Cardiovascular Toxicology #124-142</td>
<td>Grand Ballroom</td>
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<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Developmental Toxicology #143-165</td>
<td>Grand Ballroom</td>
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<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Drug Toxicology #166-197</td>
<td>Grand Ballroom</td>
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<tr>
<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Halogenated Hydrocarbons I #198-233</td>
<td>Fontainebleau Ballroom D</td>
<td>24</td>
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<tr>
<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Hematotoxicology #224-235</td>
<td>Fontainebleau Ballroom D</td>
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<tr>
<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Hepatotoxicity I #256-265</td>
<td>Fontainebleau Ballroom D</td>
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<tr>
<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Reactive Metabolites #266-274</td>
<td>Fontainebleau Ballroom D</td>
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<td>Tuesday</td>
<td>8:30 a.m.</td>
<td>Genotoxicity #363-391</td>
<td>Grand Ballroom</td>
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<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Mechanisms in Inhalation Toxicology #392-406</td>
<td>Grand Ballroom</td>
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<td>Tuesday</td>
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<td>Molecular/Cellular #407-428</td>
<td>Grand Ballroom</td>
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<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Neurotoxicology I #429-453</td>
<td>Fontainebleau Ballroom D</td>
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<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Oxidative Stress I #454-475</td>
<td>Fontainebleau Ballroom D</td>
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<td>Tuesday</td>
<td>1:30 p.m.</td>
<td>Solvents #476-489</td>
<td>Fontainebleau Ballroom D</td>
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<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Acute and Chronic Toxicology #562-572</td>
<td>Grand Ballroom</td>
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<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Carcinogenesis I #573-596</td>
<td>Grand Ballroom</td>
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<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>*Dermal/Ocular Toxicology #597-621</td>
<td>Grand Ballroom</td>
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<td>Wednesday</td>
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<td>Metal Toxicology #622-648</td>
<td>Fontainebleau Ballroom D</td>
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<tr>
<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>*Natural Products/Food #649-672</td>
<td>Fontainebleau Ballroom D</td>
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<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Oxidative Stress II #673-685</td>
<td>Fontainebleau Ballroom D</td>
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<td>Wednesday</td>
<td>8:30 a.m.</td>
<td>Pesticides #686-698</td>
<td>Fontainebleau Ballroom D</td>
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<td>Wednesday</td>
<td>1:30 p.m.</td>
<td>Biotransformation I #738-758</td>
<td>Grand Ballroom</td>
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<td>*Carcinogenesis II</td>
<td>Grand Ballroom</td>
<td>63</td>
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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 Miami program.
CONTINUING EDUCATION COURSES

All courses are held on Monday, February 12, 1990 (Pre-Registration Only)

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

1. **Target Organ Toxicity: Cardiovascular Toxicity**

   **Chairperson:** Daniel Acosta, University of Texas, Austin, TX

   The purpose of this course is to provide a foundation by which toxicologists and other scientists can better understand how the cardiovascular system responds to the toxic effect of xenobiotics. Lectures will be given on the normal physiology, as well as the pathophysiology, of the cardiovascular system. With these basic lectures as a foundation, an overview of the basic principles and mechanisms mediating cardiac toxicity and vascular toxicity will be given as individual lectures.

   **General Principles of Cardiovascular Physiology.** Nicholas Sperkatis, University of Cincinnati, Cincinnati, OH.

   **Pathophysiology of the Cardiovascular System.** Maxinnlion Buja, University of Texas, Dallas, TX.

   **Overview of Cardiac Toxicology.** Eugene Herman, USFDA, Washington, D.C.

   **Basic Concepts of Vascular Toxicology.** Paul Boor, University of Texas, Galveston, TX.

2. **Developmental Toxicity: Changing Factors in Embryonic Susceptibility**

   **Chairperson:** Jeannine M. Manson, Merck Sharp & Dohme, West Point, PA

   This course will emphasize general principles of Developmental Toxicology with specific emphasis on the rapid changes in embryonic susceptibility to prenatal insult. A unique characteristic of the field of Developmental Toxicity is that substantial qualitative and quantitative changes in embryonic susceptibility occur within relatively discrete time intervals, sometimes as short as a few hours to a single day. In the first lecture, a general overview of changing susceptibility with time and patterns of dose-response will be given. The second lecturer will provide a mechanistic underpinning for some of the changes in susceptibility, based on major shifts in intermediary metabolism during the organogenesis period of embryonic development. The third lecturer will describe these principles as they operate within craniofacial development and describe the underlying cellular and molecular processes that control palate morphogenesis. The final presenter will review the underlying principles of developmental neurobiology, with emphasis on the rapid changes in cell interaction and cell survival in the CNS during the perinatal period.

   **General Principles and Patterns of Dose-Response.** Jeanne M. Manson, Merck Sharp & Dohme, West Point, PA.

   **Changes in Intermediary Metabolism During the Organogenesis Period.** Thomas W. Sadler, University of North Carolina, Chapel Hill, NC.

3. **Advanced Metabolism**

   **Chairperson:** J. Donald deBethizy, R.J. Reynolds Tobacco Co., Winston-Salem, NC

   **Metabolism: A Determinant of Toxicity**

   New insights continue to develop on how the balance between detoxication and metabolic activation determines the toxicity of most xenobiotics. This course will provide updates in three rapidly developing areas in xenobiotic metabolism: Glutathione-dependent toxicity, the kinetics of metabolism formation and inactivation, and cytochrome P-450. The first lecture will discuss the role of glutathione conjugation reactions in the bioactivation of several classes of xenobiotics including vicinal dihaloethanes, haloalkenes, and bromobenzene. The second speaker will describe the rate limiting steps that are involved in the processing of xenobiotics and metabolites by the liver and kidney. This talk will emphasize the role that heterogeneity in enzymatic distribution, membrane barriers, and organ perfusion play in creating a concentration-in-space phenomenon that occurs in the direction of flow within the organ. The third presentation will continue to discuss the kinetics of metabolites by describing pharmacokinetic approaches used to classify metabolites according to their ability to leave the enzyme that generates their formation, and to leave the cells, the organ and the body in which they are formed. Procedures to relate blood concentrations of precursors of metabolites that fail to leave organs to enzyme activities in organs will also be described. The final lecture will provide an overview of the current understanding of the so-called super gene family, cytochrome P-450. The lecture will cover the multiplicity of P-450 genes and their products, mechanisms of induction and suppression, catalytic specificity and the relevance of these topics to metabolism and toxicity.

   **Overview.** J. Donald deBethizy, R.J. Reynolds Tobacco Co., Winston-Salem, NC.

   **Glutathione-dependent Toxicity.** Marion W. Anders, University of Rochester Medical Center, Rochester, NY.

   **Determinants of Metabolite Kinetics.** K. Sandy Pang, University of Toronto, Toronto, Canada.

   **Methods Based on the Kinetics of Inactivation of Short-lived Metabolites.** James R. Gillette, National Heart, Lung, and Blood Institute, Bethesda, MD.

   **Cytochrome P-450 Enzymes: Current Understanding of Basic Principles with Relevance to Metabolism and Toxicity.** F. Peter Guengerich, Vanderbilt University, Nashville, TN.
4. **Advanced Hepatotoxicity**  
   (repeated in the afternoon)

   **Chairperson:** James A. Popp, CIIT, Research Triangle Park, NC

Hepatotoxicity is a frequent response in rodents following exposure to xenobiotics. While entire textbooks are available on the subject, new advances are being routinely published. The purpose of this course is to provide the attendees with in-depth information on selected topics in hepatotoxicity. These topics have been chosen based on significant advances in recent years. Studies of hepatotoxicity frequently consider only the role of hepatocytes in the toxic response. In contrast, the first speaker will provide an overview of the role of the non-parenchymal cell in hepatotoxicity. Although the mechanism of hepatocyte toxicity has been evaluated for many years, our understanding of the biochemical mechanism of hepatocyte toxicity is continuing to evolve. The second speaker will describe the current and changing concepts in hepatocyte toxicity. Chemically induced hepatocyte proliferation is frequently suggested as an important toxic response in the liver. The third speaker will describe the current state of knowledge of the hepatocyte growth regulatory system and indicate how chemicals may alter this regulation to induce toxicity, including the development of cancer. The origin and lineage of the various liver cells are important in understanding the response of the liver to toxic agents. The function of hepatic oval cells and their response to toxic insults will be discussed.

**Introduction.** James A. Popp, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

**Role of Non-parenchymal Cells in Hepatotoxicity.** Debra Laskin, Rutgers University, NJ

**Mechanisms of Hepatocyte Toxicity.** Gregory L. Kedderis, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

**Regulation of Hepatocyte Proliferation.** Randy Jirtle, Duke University, NC.

5. **Concepts In Cell Biology**  
   (repeated in the afternoon)

   **Chairperson:** Glenn F. Rush, Toxicology Division, Eli Lilly and Co., Greenfield, IN

This will cover a few selective topics that relate to the study of cell biology from a toxicologist's perspective. Thus, the course will be composed of sessions describing some of the fundamental biochemical and physiological processes that are often targets for a variety of drugs and chemicals as well as discussions on some of the new techniques available for studying these changes. To this end, five topics have been chosen. Cellular Energetics: This session will be focused on intermediary metabolism of the cell and how this function may be adversely affected by a variety of toxicants. In particular, the techniques used to detect metabolic changes as well as the consequences of disruption of intermediary metabolism will be discussed. Cell Growth and Differentiation: This session will cover how cells repair and regenerate from toxicant-induced damage. The majority of the discussion will be centered on the repair and differentiation of renal cells following proximal tubular injury. Signal Transduction and Control: In this session, new developments in our understanding of cellular signal transduction and control will be discussed. Emphasis will be placed on the role of phos-}

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**Cellular Energetics.** Glenn Rush, Eli Lilly and Co., Greenfield, IN.

**Cell Growth and Differentiation.** James Stevens, W. Alton Jones Cell Science Center, Lake Placid, NY.

**Signal Transduction and Control.** Susan Jaken, W. Alton Jones Cell Science Center, Lake Placid, NY.

**Membrane Transport.** Jeff Kasher, Eli Lilly and Co., Indianapolis, IN.

**Fluorescence Image Analysis and Flow Cytometry.** Debra Laskin / Jeffrey Laskin, Rutgers University / RWJ Medical School, Piscataway, NJ.

6. **Carcinogen Risk Assessment**  
   (repeated in the afternoon)

   **Chairperson:** Robert J. Moolenaar, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI

The course is devoted to discussing the use of experimental data for the assessment of risk to humans from exposure to chemical carcinogens. Various schemes devised to classify chemicals according to their potential to induce cancer will be presented and the rationale for selecting the preferred scheme discussed. Procedures for linearizing multistage dose-response relationships will be presented with emphasis given to the assumptions inherent to the model and examples of including experimental data in place of default assumptions. The session will conclude with detailed discussions of two modeling techniques for quantitative risk assessment. The purpose, design, and methods for constructing physiologically based pharmacokinetic models will be presented along with examples of the usefulness for certain aspects of risk assessment. The advantages of biologically motivated models for incorporating considerations of target organ growth and development, cytotoxicity, regenerative hyperplasia, and selective clonal expansion or regression in accounting for irreversible transformations will be discussed with emphasis on the high-dose carcinogenicity of non-genotoxic agents. The focus of the course will be to define the important considerations in assessing human carcinogenic risk and to discuss the various modeling techniques available. Emphasis will be given to the assumptions and limitations inherent to the model design, data requirements and parameter estimation techniques. Examples will be included to demonstrate the utility and limitations of the various models presented.

**Carcinogen Classification.** Robert J. Moolenaar, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.

**Quantitative Dose Response Assessment.** Colin N. Park, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.
Physiologically Based Pharmacokinetic Modeling. Kenneth B. Bischoff, Department of Chemical Engineering, University of Delaware, Newark, DE.

Biologically Motivated Models. Thomas B. Starr, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

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

7. Advanced Hepatotoxicity
(also offered in the morning)

Chairperson: James A. Popp, CIIT, Research Triangle Park, NC.

Hepatotoxicity is a frequent response in rodents following exposure to xenobiotics. While entire textbooks are available on the subject, new advances are being routinely published. The purpose of this course is to provide the attendee with in-depth information on selected topics in hepatotoxicity. These topics have been chosen based on significant advances in recent years. Studies of hepatotoxicity frequently consider only the role of hepatocytes in the toxic response. In contrast, the first speaker will provide an overview of the role of the non-parenchymal cell in hepatotoxicity. Although the mechanism of hepatocyte toxicity has been evaluated for many years, our understanding of the biochemical mechanism of hepatocyte toxicity is continuing to evolve. The second speaker will describe the current and changing concepts in hepatocyte toxicity. Chemically induced hepatocyte proliferation is frequently suggested as an important toxic response in the liver. The third speaker will describe the current state of knowledge of the hepatocyte growth regulatory system and indicate how chemicals may alter this regulation to induce toxicity, including the development of cancer. The origin and lineage of the various liver cells are important in understanding the response of the liver to toxic agents. The function of hepatic oval cells and their response to toxic insults will be discussed.

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Mechanisms of Hepatocyte Toxicity. Gregory L. Kedders, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

Regulation of Hepatocyte Proliferation. Randy Jirtle, Duke University, NC.

8. Free Radical Toxicology

Chairpersons: James P. Kehrer and Terrence J. Monks, Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin.

A free radical is any molecule that contains an odd (unpaired) number of electrons. Free radicals are generated in many metabolic pathways and the potential role of oxygen-centered free radicals in the pathobiology of several human diseases has stimulated extensive research. This course will review several important contemporary issues in free radical toxicology. The chemistry and reactivity of free radicals in biological systems will be introduced. The normal cellular sources of reactive oxygen species will be described and their reaction with vital cellular constituents presented. Current methods for detecting radicals and oxidative injury in biological systems will be discussed. Fortunately, through scientific ingenuity, many of these methods are relatively simple and straightforward. However, sophisticated instrumentation is required for the direct observation of free radicals. The mechanisms by which free radicals interact with biological systems and cause tissue injury will be detailed. An elaborate arsenal of cellular defense mechanisms have evolved that permit cells to thrive despite their continuous bombardment by reactive oxygen species. Despite these defenses, free radicals have been implicated in the injury produced by various xenobiotics (carbon tetra-chloride, paraquat, quinones, etc.) and in the pathology of a variety of human diseases including rheumatoid arthritis (inflammation), atherosclerosis, reperfusion injury, cancer (initiation [?] and promotion) and pulmonary oxygen toxicity. However, because of the inherent reactivity of free radicals, the question of whether such species are a major cause of tissue injury and human disease remains equivocal. Much work remains to be done. Free radical toxicology remains a fertile field for radical-minded scientists.

Overview. Terrence J. Monks, Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin.

Chemistry of Free Radicals. Craig E. Thomas, Toxicology Department, Rohm and Haas Company, Spring House, PA.

Methodology for Detecting Radicals and Oxidative Injury In Biological Systems. Henry J. Forman, Division of Neonatal/Pediatric Pulmonology, Children’s Hospital of Los Angeles, Los Angeles, CA.

Mechanisms of Tissue Injury and Protection. Charles V. Smith, Department of Pediatrics, Baylor College of Medicine, Houston, TX.

Current Topics In Free Radical Mediated Tissue Injury. James P. Kehrer, Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin.

9. Target Organ Toxicity: Respiratory Tract Toxicology

Chairperson: James A. Bond, CIIT, Research Triangle Park, NC.

The respiratory tract is an important portal of entry for inhaled toxicants and carcinogens and is also a target organ for non-inhaled materials. This course will provide an overview of the various mechanisms responsible for toxicant-induced injury in the respiratory tract. The first lecture will focus on cellular responses of the nasal tissue to inhaled toxicants. This presentation will address the morphologic responses, both neoplastic and non-neoplastic, or nasal airway cells to a variety of chemical agents. In addition to providing a brief overview of the structure, function and cell biology of the upper airway in laboratory animals and humans, there will be a discussion of the intranasal sites of toxicant-induced lesions, emphasizing the nasal cells at risk. The second presenter will provide a brief overview of the structure and cell biology of the lung. Mechanisms of xenobiotic-induced lung injury, including direct and indirect injury, metabolic activation, and cyclic oxidation will be addressed. The major pathophysiologic responses of the lung will be covered, including edema, necrosis, inflammation, regeneration, fibrosis and emphysema. The third
Exposure Assessment: Quality of Food and Water Supply in the U.S., Christopher E. Wilkinson, Varsar, Inc., Springfield, VA.

The Regulatory and Risk Management Process. Penelope Fenner-Crisp, U.S. Environmental Protection Agency, Wilmington, DE.

11. Concepts in Cell Biology
(also offered in the morning)

Chairperson: Glenn F. Rush, Toxicology Division, Eli Lilly and Co., Greenfield, IN

This will cover a few selective topics that relate to the study of cell biology from a toxicologist’s perspective. Thus, the course will be composed of sessions describing some of the fundamental biochemical and physiological processes that are often targets for a variety of drugs and chemicals as well as discussions on some of the new techniques available for studying these changes. To this end, five topics have been chosen. Cellular Energetics: This session will be focused on intermediary metabolism of the cell and how this function may be adversely affected by a variety of toxicants. In particular, the techniques used to detect metabolic changes as well as the consequences of disruption of intermediary metabolism will be discussed. Cell Growth and Differentiation: This session will cover how cells repair and regenerate from toxicant-induced damage. The majority of the discussion will be centered on the repair and differentiation of renal cells following proximal tubular injury. Signal Transduction and Control: In this session, new developments in our understanding of cellular signal transduction and control will be discussed. Emphasis will be placed on the role of phosphoinositide metabolism and protein kinase-C. Membrane Transport: This session will be focused on the different mechanisms involved in membrane transport and how changes in toxicological consequences of transport of drugs and chemicals will also be discussed. Fluorescence Image Analysis and Flow Cytometry: This session will describe the new techniques in flow and anchored flow analysis and fluorescence-activated cell sorting and how these techniques may be used to increase our understanding of the mechanisms of toxicant-induced injury.

Cellular Energetics. Glenn Rush, Eli Lilly and Co., Greenfield, IN.

Cell Growth and Differentiation. James Stevens, W. Alton Jones Cell Science Center, Lake Placid, NY.

Signal Transduction and Control. Susan Jaken, W. Alton Jones Cell Science Center, Lake Placid, NY.

Membrane Transport. Jeff Kasher, Eli Lilly and Co., Indianapolis, IN.

Fluorescence Image Analysis and Flow Cytometry. Debra Laskin/Jeffrey Laskin, Rutgers University/RWJ Medical School, Piscataway, NJ.

12. Carcinogen Risk Assessment
(also offered in the morning)

Chairperson: Robert J. Moolenaar, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI

The course is devoted to discussing the use of experimental data for the assessment of risk to humans from exposure to chemical carcinogens. Various schemes devised to classify chemicals according to their potential to induce cancer will
be presented and the rationale for selecting the preferred scheme discussed. Procedures for linearizing multistage dose-response relationships will be presented with emphasis given to the assumptions inherent to the model and examples of including experimental data in place of default assumptions. The session will conclude with detailed discussions of two modeling techniques for quantitative risk assessment. The purpose, design, and methods for constructing physiologically based pharmacokinetic models will be presented along with examples of the usefulness for certain aspects of risk assessment. The advantages of biologically motivated models for incorporating considerations of target organ growth and development, cytotoxicity, regenerative hyperplasia, and selective clonal expansion or regression in accounting for irreversible transformations will be discussed with emphasis on the high-dose carcinogenicity of non-genotoxic agents. The focus of the course will be to define the important considerations in assessing human carcinogen risk and to discuss the various modeling techniques available. Emphasis will be given to the assumptions and limitations inherent to the model design, data requirements and parameter estimation techniques. Examples will be included to demonstrate the utility and limitations of the various models presented.

**Carcinogen Classification.** Robert J. Moolenaar, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.

**Quantitative Dose Response Assessment.** Colin N. Park, Health and Environmental Sciences, The Dow Chemical Company, Midland, MI.

**Physiologically Based Pharmacokinetic Modeling.** Kenneth B. Bischoff, Department of Chemical Engineering, University of Delaware, Newark, DE.

**Biologically Motivated Models.** Thomas B. Starr, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
MONDAY, FEBRUARY 12
4:00 p.m.-6:00 p.m.

EDUCATION PROGRAM FOR MINORITY STUDENTS

Chairperson: Marion Ehrich, Chairperson, SOT Education Committee

SOT members, undergraduate and graduate students, and others interested in toxicology education and early recruitment of minorities are invited to attend this program, which is sponsored by the SOT Education Committee.

4:00  Welcome and Introduction--Marion Ehrich
4:05  Introduction to Toxicology, a Scientific Discipline of Great Diversity. Harihara Meherdale, University of Mississippi.
4:20  Opportunities for Minorities in Toxicology. Faye Calhoun, National Institutes of Health.
4:35  Break
4:45  Perspectives from Graduate Students and Recent Graduates. Dwayne Hill, University of West Virginia; Claude McCowan, Exxon Biomedical Services; Richard Rodriguez, National Cancer Institute.
5:05  Comments from an Employer of Minorities--Robert D’Amato, Procter & Gamble.
5:20  General Discussion and Refreshments.

MONDAY, FEBRUARY 12
5:30 p.m.-6:30 p.m.

PLACEMENT SERVICE SEMINAR

Chairperson: Rudolph V. Von Burg, Co-Director, SOT Placement Service

A panel of guest speakers will present their views on the present and future career opportunities and necessary requirements for entry into the areas of academic, industrial or governmental toxicology. The speakers will also present an overview on what an employer looks for in a candidate interview, an employer’s expectations of job performance and the potential financial remunerations. A professional career planner will discuss strategies and approaches for seeking and obtaining the job for which you are best suited.

Speakers include Frank N. Dost, DVM, Academia; Robert A. Scala, Sc.D., Industry; Penelope Fenner-Crisp, Ph.D., Government; and Terry Leyden, Career Marketing Associates.

MONDAY, FEBRUARY 12
6:30 p.m.-8:00 p.m.
GRAND BALLROOM

SOT WELCOMING RECEPTION

Open to all registrants and guests. Drink tickets for the reception will be available for purchase outside of the Grand Ballroom at 5:30 pm. Additional tickets will be sold during the reception at booths next to each bar throughout the Grand Ballroom.

TUESDAY, FEBRUARY 13
7:30 a.m.-8:30 a.m.
FLEUR DE LIS ROOM

GRADUATE STUDENT BREAKFAST

Sponsored by the SOT Education Committee. Open to all graduate student registrants.

TUESDAY MORNING, FEBRUARY 13
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM A

SYMPOSIUM: COMPARATIVE DOSIMETRY OF INHALED MATERIALS:
DIFFERENCES AMONG ANIMAL SPECIES AND EXTRAPOLATION TO MAN

Chairperson: Alan R. Dahl, Inhalation Toxicology Institute, Albuquerque, NM
Sponsored by the Inhalation Specialty Section

Dose is a fundamental concept in the science of toxicology; yet, for all of its importance, the determination of dose for inhaled materials presents issues with which inhalation toxicologists are still grappling. Amid a myriad of lesser factors, the two major factors influencing dose for inhalants are the physicochemical properties of the inhaled materials and the animal species doing the inhaling. The speakers in this symposium will present the most recent advances in research describing dose for inhaled particles, particle-associated organic compounds, reactive vapors and metabolizable vapors. They will also discuss state-of-the-art methods for extrapolating to man inhaled doses measured in test animals and advances in the search for biomarkers for inhaled carcinogens.

The factors that affect the fate of inhaled particles will be reviewed and particle deposition and clearance patterns will be compared between experimental animals and man. Advances in determining dose for reactive vapors largely absorbed in the nose (exemplified by formaldehyde) and in the lung (exemplified by ozone) will be discussed in terms of relating experimental data to predictive models. The uptake of metabolizable vapors as affected by both the physicochemical properties of the vapors and the metabolic capacities of test animals and man will be explored using specific examples of vapors commonly encountered in the environment. Problems in making interspecies comparisons will be addressed. Finally, methods for indexing dose of inhaled carcinogens using toxic metabolites, DNA adducts, hemoglobin adducts, oncogene activation, gene mutations and chromosomal changes as biomarkers will be reviewed with an emphasis on the use of such markers in risk assessment.

#1 8:30 Introduction. Alan R. Dahl, Inhalation Toxicology Research Institute, Albuquerque, NM.
#2 8:40 Comparative Deposition, Clearance and Retention of Particle-Borne Toxicants. Richard B. Schlesinger, New York University Medical Center, New York, NY.
#3 9:15 Comparative Dosimetry of Inhaled Reactive Vapors. Henry d'A Heck, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.
#4 9:50 Comparative Uptake and Fate of Inhaled Metabolizable Vapors. Michele A. Medinsky, CIIT, Research Triangle Park, NC.
#5 10:25 Molecular Dosimetry of Inhaled Carcinogens: Implications for Epidemiology-Risk Assessment. George W. Lucier, National Institute of Environmental Health Sciences, Research Triangle Park, NC.
11:00 Discussions.

TUESDAY MORNING, FEBRUARY 13
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM B

SYMPOSIUM: CELLULAR AND MOLECULAR MECHANISMS OF LEARNING AND MEMORY: INTERACTIONS WITH NEUROTOXIC CHEMICALS

Chairperson: Hugh A. Tilson, USEPA, Research Triangle Park, NC
Sponsored by the Neurotoxicology Specialty Section

The advances made in the basic neurosciences in the last decade have provided a basis for understanding the mechanisms by which neurotoxicants adversely affect the structure and/or function of sensory, motor, and autonomic systems. Much less is known, however, about how neurotoxicants can affect cognitive processes such as memory and learning. This latter area is of great importance since it is well known that one of the frequent initial complaints following exposure to some neurotoxicants includes difficulty in remembering and confusion in thinking. It also has been suggested that a complete risk assessment of neurotoxicants should include an evaluation of cognitive processes, including learning and memory. The purpose of this symposium is to review, at four levels of neural organization, the processes of learning and memory. The talks will cover: 1) the cellular and molecular mechanisms of learning; 2) the location of the regions in the central nervous system associated with the storage, retrieval and processing of different types of memory; 3) the relative importance of specific neurotransmitter pathways in mediating learning and memory; and 4) measurement and quantification of learning and memory in humans. Speakers will not only explain basic principles involved at each level of neural organization, but also discuss potential sites of action for neuroactive chemicals. In this way, the symposium will provide a systematic presentation of material concerning this complex area of research. The fundamental information concerning the mechanisms by which learning and memory occur should help provide insight into potentially vulnerable sites of attack at which toxic chemicals may act.

#6 8:30 Introduction. Hugh A. Tilson, USEPA, Research Triangle Park, NC.
#7 8:40 The Cellular and Molecular Basis of Learning and Memory. Arven Routtenberg, Northwestern University, Evanston, IL.
#8 9:15 The Anatomical Substrates of Learning and Memory. Deborah Rice, Tox. Research Div., Health and Welfare Canada, Ottawa, Canada.
#9 9:50 The Neurochemical Substrate of Learning and Memory. Hugh A. Tilson, U.S. Environmental Protection Agency, Research Triangle Park, NC.
#10 10:25 Cognitive Effects of Neurotoxicants in Humans. W. Kent Anger, Oregon Health Sciences University, Portland, OR.
11:00 Discussion.
TUESDAY MORNING, FEBRUARY 13
8:30 a.m. - 11:30 a.m.
BRITTANY ROOM

PLATFORM SESSION: METAL TOXICITY

Chairpersons: William H. Benson, University of Mississippi, University, MS and Arthur Furst, Palo Alto, CA.


#79  9:00  MULTIMEDIA LEAD EXPOSURE IN CHILDREN: BIOLOGICAL BASIS FOR AN EXPANDED UPTAKE/BIOKINETIC MODEL. A H Marcus, R Elias, J Cohen. Battelle Memorial Institute, US EPA, RTP, NC.

#80  9:15  CADMIUM-INDUCED FORMATION OF MULTINUCLEATED OSTEOLAST-LIKE CELLS IN VITRO. M H Bhattacharyya, R P Konz, T T Choi, and T M Seed. Argonne National Laboratory, Argonne, IL.

#81  9:30  LEAD IMPAIRS CLEARANCE BUT NOT GENERATION OF 1,25-DIHYDOXYVITAMIN D3-INDUCED [Ca++] SIGNALS IN OSTEOLASTIC BONE CELLS. J G Pounds. Institute of Chemical Toxicology. Wayne State University. Detroit MI.

#82  9:45  LEAD EXPOSURE DURING ADVANCED AGE: ALTERATIONS IN KINETICS AND BIOCHEMICAL EFFECTS. D A Cory-Slechta. Environmental Health Sciences Center, University of Rochester School of Medicine, Rochester, NY.

#83  10:00  NICKEL INTERACTION WITH CATALASE AND SUPEROXIDE DISMUTASE IN THE FISCHER RAT. R E Rodriguez, M Misra, S L North and K S Kaspzak. National Cancer Institute-FCRF, Frederick, MD.

#84  10:15  DECREASED PULMONARY CLEARANCE OF 239PuO2 AND LUNG TOXICITY INDUCED BY INHALED BERYLLIUM METAL IN RATS. T L Finch, M D Hoover, P J Haley, A F Edson, J A Mewhinney, and R G Cuddihy. Inhalation Toxicology Research Institute, Albuquerque, NM.

#85  10:30  CARCINOGENIC EFFECTS OF REPEATED INJECTIONS OF CADMIUM IN WISTAR AND FISCHER RATS. M P Waalkes, N Konishi, S Rehm, R M Bare, and J M Ward. Nat'l Cancer Institute-FCRF, Frederick, MD.


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TUESDAY MORNING, FEBRUARY 13
8:30 a.m. - 11:15 a.m.
CHAMPAGNE ROOM

PLATFORM SESSION: OXIDATIVE STRESS

Chairpersons: George B. Corcoran III, University of New Mexico College of Pharmacy, Albuquerque, NM and Gregory Allen Reed, University of Kansas Medical Center, Kansas City, KS.

#89  8:30  EFFECTS OF ACETAMINOPHEN AND 3-HYDROXYACETANILIDE ON MOUSE LIVER ADENINE NUCLEOTIDE METABOLISM AND PROTEIN THIOLS. M A Timmerstein and S D Nelson. Dept. of Med. Chem., University of Washington, Seattle, WA.

#90  8:45  IDENTIFICATION OF CYSTEINYLGLYCINE-GLUTATHIONE DISULFIDE (Cys-Gly-GS-DS) IN BILE. C Madhu and C D Kaasen. Univ. of Kansas Med. Ctr., Kansas City, KS.

#91  9:00  PHENOBARBITAL-MEDIATED INCREASES IN GS H SYNTHESIS IN ISOLATED HEPATOCYTES INCUBATED WITH MENADIONE. W S Utey and H M Menendez. Training Program in Toxicology. Dept. Pharmacol. & Toxicol., Univ. Miss. Med. Ctr., Jackson, MS.

#92  9:15  EFFECT OF HALOTHANE ON HEPATOCYTE GLUTATHIONE AND VIABILITY DURING HYPOXIA. M E Johnson and R A Van Dyke. Department of Anesthesiology, Mayo Clinic, Rochester, MN. Sponsor: G Powis.
SUPPRESSION OF HORMONE AGONIST-INDUCED Ca2+ OSCILLATIONS IN CULTURED HEPATOCYTES BY CHEMICAL HYPOXIA. T Kawanishi, A L Nieminen, B Herman and J J Lemasters. Dept. of Cell Biology & Anatomy, Univ. of North Carolina, Chapel Hill, NC. Sponsor: R G Thurman.

PROTECTIVE EFFECTS OF ACIDOTIC pH AND FRUCTOSE AGAINST LETAL INJURY TO RAT HEPATOCYTES BY MITOCHONDRIAL INHIBITORS, OXIDATIVE STRESS AND STERONOPHORES. A L Nieminen, G J Gores, T L Dawson, B Herman and J J Lemasters. Department of Cell Biology & Anatomy, University of North Carolina, Chapel Hill, NC. Sponsor: R G Thurman.

THE ANTIOXIDANT ACTIVITY OF b-CAROTENE (BC) IN LIPOSOMES. T A Kennedy, D Rifenbery and D C Letter. Dept. of Pharmacology & Toxicology, University of Arizona, Tucson, AZ.

INHIBITION OF LIPID AND PROTEIN OXIDATION IN RAT LIVER MICROSOMES BY GLUTATHIONE. J Palamanda and J P Keeler. Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin, Austin, TX.

METHYL MERCURY INDUCES PARADOXICAL INCREASE IN REDUCED GLUTATHIONE (GSH) IN CEREBELLAR GRANULE CELL CULTURE. K Weer, T Sarafian and M A Vrenti. Division of Neuropathology and Brain Research Institute, UCLA Medical Center, LA, CA. Sponsor: A Cho.

GLUTATHIONE CONJUGATES STIMULATE ATP HYDROLYSIS IN MEMBRANE VESICLES PREPARED FROM HUMAN ERYTHROCYTES. R Sharma, S Gupta, H Ahmad, G A S Ansari, and Y C Awasthi, The Univ. of Texas Med. Br., Galveston, TX. Sponsor: Y Awasthi.

COMPARISON OF ORGANIC HYDROPEROXIDE AND HYDRAZINE EFFECTS ON MEMBRANE PROTEINS IN HUMAN RED BLOOD CELLS: CORRELATION WITH PROTEOLYSIS. A M Mortensen and R F Novak. Institute of Chemical Toxicology, Wayne State University, Detroit, MI.

TUESDAY MORNING, FEBRUARY 13
BORDEAUX ROOM

POSTER/DISCUSSION SESSION: ONCOGENES/GROWTH FACTORS

Chairpersons: Jay L. Goodman, Michigan State University, East Lansing, MI and Gary David Stoner, Medical College of Ohio, Toledo, OH.

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

Discussion 9:30 a.m.-11:30 a.m.

TOXICITY OF SELECTED CARCINOGENIC CHEMICALS IN ONCOGENE CARRIER TRANSGENIC MICE AND CONTROL MICE. G N Raco, R W Tennant, A Braun*, L R Boone, and P Leder*. National Toxicology Program, NIEHS, Research Triangle Park, NC; *Eg&G Mason Research Institute, Worcester, MA, and Harvard Medical School, Boston, MA.


MUTATIONAL ACTIVATION OF THE H-ras GENE IN RAT ESOPHAGEAL PAPILLOMAS INDUCED BY METHYLBENZYL-NITROSAMINE. Y Wang, M You, S Reynolds, M Anderson and G Stoner. Dept. of Path. Medical Coll. of Ohio, OH & LMT, NIEHS, RTP, NC.

ACTIVATION OF HA-ras IN THE LIVER OF C3H/He MICE TREATED WITH DIETHYLTINOSAMINE OR PHENOBARBITONE. P C Rumsby, N C Barrass, J C Wright and J G Evans. BIBRA, Carshalton, Surrey, UK. Sponsor: S D Gandhi.

HYPOMETHYLATION OF THE HA-ras ONCOGENE IS ASSOCIATED WITH TUMORIGENICITY. J S Ray and J J Goodma. Dept. Pharmacology & Toxicology, Center Environmental Toxicology, Michigan State University, E. Lansing, MI.

IMMUNOHIPOSTOCHEMICAL DETECTION OF RAS P21 PROTEIN IN PRENEOPLASTIC AND NEOPLASTIC LESIONS DURING CHEMICALLY INDUCED HEPATOCARCINOGENESIS. R C Stiles and S D Sleight. Michigan State University, Dept. Pathology, East Lansing, MI.

CORRELATION BETWEEN THE REDUCTION OF GAP JUNCTIONAL COMMUNICATION AND TUMORIGENESIS IN RAT GLIAL AND LIVER EPITHELIAL CELLS CONTAINING THE EXPRESSED NUE ONCOGENE. J E Trosko, J E Kleinig, M Yeager, A Koestner, M El-Fouly, J Buolatz, B Cool, and C C Chang. Michigan State University, E. Lansing, MI, and Department of Pathology, Medical College of Ohio, Toledo, OH.


ACTIVATION AND EXPRESSION OF THE C-K-ras ONCOGENE IN URETHAN-INDUCED MOUSE LUNG TUMORS AND TUMOR-DERIVED CELL LINES. E O Nuzum and D G Beer, Dept. Pharmacol, Toxicol. & Therapeutics, Univ. of Kansas Medical Center, Kansas City, KS. Sponsor: J J Goodman.
DIFFERENTIATION-RELATED EXPRESSION OF PROTO-ONCOGENE src IN CNS MICROMASS CULTURES: EFFECTS OF CHEMICAL EXPOSURE. C Sweeney, and P Faustman. Department of Environmental Health, University of Washington, Seattle, WA.

PROTO-ONCOGENE EXPRESSION DURING THE LATE STAGES OF DICHLOROACETATE AND TRICHLOROACETATE-INDUCED HEPATOCARCINOGENESIS IN B6C3F1 MICE. *M A Nelson, IM Sanchez, R J Buja, and S R Sylvester, Pharmacology/Toxicology Program, Washington State University, Pullman, WA; **Pharmacology/Toxicology Program, University of Arizona, Tucson, AZ.

TRANSFECTION OF NON-TUMORIGENIC, SLOW-GROWING POSTATE TUMOR CELLS WITH HEPARIN-BINDING GROWTH FACTOR-2 INCREASES MALIGNANT PHENOTYPE. G C Yan and W McKeehan. W Alton Jones Cell Science Center, Lake Placid, NY. Sponsor: J L Stevens.

TUESDAY MORNING, FEBRUARY 13
BURGUNDY ROOM

POSTER/DISCUSSION SESSION: DIOXIN AND GENE EXPRESSION

Chairpersons: Linda S. Birnbaum, USEPA, Research Triangle Park, NC and Michael Steven Denison, Michigan State University, East Lansing, MI.

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.

SUSTAINED INDUCTION OF CYTOCHROME P450IA1 mRNA, PROTEIN, AND CATALYTIC ACTIVITY BY 2,3,7,8-TETRACHLORODIBENZOFURAN (2,3,7,8-TCDF) IN THE MARINE TELEOST STENOTOMUS CHRYSPHS. M E Hahn and J J Stegemann. Biology Department, Woods Hole Oceanographic Institute, Woods Hole, MA.

EVALUATION OF THE 4S POLYCYCLIC AROMATIC HYDROCARBON BINDING PROTEIN IN HARLAN SPRAGUE-DAWLEY RATS. W H Houser and K A Woodford, Dept. of Pharm & Tox., W. Virginia University, Morgantown, WV. Sponsor: M J Reasor.


COMPARATIVE IN VITRO EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN AND SELECTED POLYNUCLEAR AROMATIC HYDROCARBONS ON CYP1A1 GENE TRANSCRIPTION IN CELLS WHICH CONTAIN OR ARE DEFICIENT IN THE 4S BINDING PROTEIN. C Kamps and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

KINETICS OF THE ASSOCIATION OF SEVERAL TRITIATED PCDD AND PCDF CONGENERS WITH THE CYTOSOLIC Ah RECEPTOR FROM THE WISTAR RAT. R Rosengren, N J Bunce and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX and Department of Chemistry and Biochemistry, University of Guelph, Guelph, Ontario, Canada.

ISOLATION AND CHARACTERIZATION OF A NOVEL DIOXIN-RESPONSIVE GENE. K W Gaido, D Simpson, L Recio, L Ross, T R Skopek and W F Greenlee. CIIT, Research Triangle Park, NC.

ISOLATION OF TCDD-RESPONSIVE GENES BY DIFFERENTIAL HYBRIDIZATION. T R Sutter, K M Dold, K Guzman and W F Greenlee. CIIT, Research Triangle Park, NC.

CHARACTERIZATION OF THE BINDING OF IN VITRO TRANSFORMED Ah RECEPTOR TO A DIOXIN REACTIVE ENHANCER. M S Denison, C L Phelps and E F Yao. Department of Biochemistry, Michigan State University, East Lansing, MI.

CHARACTERIZATION OF THE BINDING OF IN VITRO TRANSFORMED Ah RECEPTOR TO A DIOXIN REACTIVE ENHANCER. M S Denison, C L Phelps and E F Yao. Department of Biochemistry, Michigan State University, East Lansing, MI.

INTERACTION AND TRANSFORMATION OF THE Ah RECEPTOR BY UV PHOTOPRODUCTS OF TRYPTOPHAN. W G Hefferich, E Braselton and M S Denison. Departments of Food Science and Human Nutrition, Biochemistry and Pharmacology, Michigan State University, East Lansing, MI.

PURIFICATION OF THE Ah-RECEPTOR TO HOMOGENEITY. C A Bradfield and A Poland. McArdle Laboratory for Cancer Research, University of Wisconsin Medical School, Madison, WI.

THE Ah LOCUS MEDIATES THE EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) ON THE EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) THROUGH A MECHANISM WHICH DOES NOT INVOLVE EGFR mRNA. F H Lin, G Clark, S Stohs, L S Birnbaum, G Lucier and J A Goldstein. NIEHS, RTP, NC.

TUESDAY MORNING, FEBRUARY 13
GRAND BALLROOM
POSTER SESSION: CARDIOVASCULAR TOXICOLOGY

Chairperson: Alan B. Combs, University of Texas College of Pharmacy, Austin, TX.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10:00 a.m.

#124 METHYLAMINE METABOLISM TO FORMALDEHYDE BY A VASCULAR ENZYME. P. J. Boor, M B Trent, G A Lyes, G A S Ansari. University of Texas Medical Branch, Galveston, TX.

#125 IN VIVO EFFECTS OF ALLYLANE AND 8-AMINOPROPIONITRILE ON LYSYL OXIDASE AND SEMICARBAZIDE-SENSITIVE AMINE OXIDASE. M B Trent, D Kumar, P J Boor. University of Texas Medical Branch, Galveston, TX.

#126 PURIFICATION AND CHARACTERIZATION OF SEMICARBAZIDE-SENSITIVE AMINE OXIDASE FROM PORCINE AORTA. M Tao, U R Tipsis, P J Boor. University of Texas Medical Branch, Galveston, TX.

#127 DIFFERENTIAL RESPONSIVENESS OF CULTURED AORTIC SMOOTH MUSCLE CELLS (SMC) TO TOXIC INSULT: INFLUENCE OF SPECIES AND GROWTH CONDITIONS IN VITRO. R Bowes and K Ramos. Dept. of Veterinary Physiology and Pharmacology, Texas A & M University, College Station, TX and Dept. of Pharmacology, Texas Tech University Health Sciences Center, Lubbock, TX.

#128 ALTERATIONS IN AORTIC PROTEIN PHOSPHORYLATION INDUCED BY BENZO(a)PYRENE (BaP). K Ramos and J K Sutton. Dept. of Veterinary Physiology and Pharmacology, Texas A & M University, College Station, TX and Dept. of Pharmacology, Texas Tech University Health Sciences Center, Lubbock, TX.

#129 DIFFERENCES IN RESPONSE TO MCTP OF BOVINE AND PORCINE VASCULAR ENDOTHELIN IN CULTURE. C M Hoorn, J F Reindel, J G Wagner, and R A Roth. Michigan State University, East Lansing, MI.

#130 EFFECTS OF PALYTOXIN ON PRIMARY CULTURES OF CHICK EMBRYO HEART CELLS. W I Thompson, K A Bostian and J G Pace. US Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, MD. Sponsor: R W Wannemacher, Jr.

#131 TOXIC EFFECTS OF COCAINE AND ALCOHOL EVALUATED IN PRIMARY MYOCARDIAL CELL CULTURES. J F O’Dell, R B Melchert, J A Eselin, and A A Welder. University of Oklahoma, College of Pharmacy, Oklahoma City, OK.

#132 COMBINED EFFECTS OF COCAINE AND NITRENDBIPINE ON PRIMARY MYOCARDIAL CELL CULTURES. R B Melchert, J A Eselin, J F O’Dell, and A A Welder. University of Oklahoma, College of Pharmacy, Oklahoma City, OK.

#133 EFFECTS OF COCAINE AND NOREPINEPHRINE ON PRIMARY MYOCARDIAL CELL CULTURES. J A Eselin, J F O’Dell, R B Melchert and A A Welder. University of Oklahoma, College of Pharmacy, Oklahoma City, OK.

#134 DIFFERENTIAL MECHANISMS OF DOXORUBICIN AND MITOXANTRONE CARDIO Tox Doxorubicin. G Shipp, R T Dorr and D S Alberts, Dept. Pharmacology/Toxicol. and Arizona Cancer Center, Univ. of Arizona, Tucson, AZ. Sponsor: A J Gandolfi.

#135 SHORT TERM CULTURE OF ADULT RAT HEART SLICES. A R Parrish, N G Shipp, R T Dorr, C L Krumdieck, T P Pretlow, A J Gandolfi and K Brandel. Departments of Pharmacology and Toxicology, U of Arizona, Tucson, AZ; Department of Nutrition Sciences, U of Alabama, Birmingham, AL; Institute of Pathology, Case Western University, Cleveland, OH.

#136 PROTECTION BY RUTHENIUM RED AGAINST HYPOXIA-REOXYGENATION INJURY IN RAT MYOCARDIUM. J P Kehrer and Y Park. Division of Pharmacology and Toxicology, College of Pharmacy, the University of Texas at Austin, TX.


#138 INTERACTION OF CADMIUM WITH ATRIAL NATRIURETIC FACTOR RECEPTORS: LIGAND BINDING AND CELLULAR PROCESSING. J Gridhar, A Rathinavelu and G E Isom. Dept. Pharmacol. & Toxicol., Sch. of Pharmacy & Pharmaceutic Sci., Purdue Univ., W. Lafayette, IN.


TUESDAY MORNING, FEBRUARY 13
GRAND BALLROOM

POSTER SESSION: DEVELOPMENTAL TOXICOLOGY

Chairperson: Narsingh Agnish, Hoffmann-La Roche, Inc., Nutley, NJ.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 10:00 a.m.-11:30 a.m.


#144 DEVELOPMENTAL TOXICITY ASSESSMENT OF BROMOXYNIL IN RATS AND MICE. J M Rogers, B M Francis* and N Chemoff. US EPA, Research Triangle Park, NC. *National Research Council Senior Associate.

#145 THE DEVELOPMENT OF TOXICITY IN THE OFFSPRING OF FISCHER 344 RATS FOLLOWING IN-UTERO OR LACTATIONAL EXPOSURE TO AMIODARONE (AD). D A Hill and M J Reaser. Department of Pharmacology and Toxicology, West Virginia University, Health Sciences Center, Morgantown, WV.


#147 AUDITORY DISORDERS FOLLOWING POSTNATAL EXPOSURE TO KANAMYCIN IN DEVELOPING RATS: RELATIONSHIP WITH DISAPPEARANCE OF INNER AND OUTER HAIR CELLS IN INNER EAR AND AUDITORY FUNCTIONAL DISORDER USING AUDIOMETER. T Watanabe, M Shimada, K Mochida and S Takayama. Drug Safety Research Center, Research Institute, Daiichi Pharmaceutical Co., Ltd.


#150 ADENOSINE ACCUMULATION IN THE GESTATION SITE FOLLOWING MATERNAL TREATMENT WITH DEOXYCOFORMYCN. T B Knudsen, S K Otey, J K Church, M R Blackburn, R S Winters, M J Airhart and R G Skalko. Dept. of Anatomy, East Tennessee State Univ., Johnson City, TN.

#151 POSTNATAL EFFECTS OF IN UTERO EXPOSURE TO ETHYLENE GLYCOL (EG) IN THE CD® RAT. H K Bates, C J Price, J D George, M C Marr, C A Kimmel, R E Morrissey, and B A Schwetz. Research Triangle Institute, Research Triangle Park, NC. *RDTB-OHEA, USEPA, Washington, DC and **National Toxicology Program/NIEHS, Research Triangle Park, NC.

#152 ATTENUATION OF 2-METHOXYETHANOL-INDUCED MALFORMATIONS IN MICE BY D- AND L-SERINE. E Welsch, J M Duignan, D O Clarke, and C A Nebus. CII, Research Triangle Park, NC.


#154 DEVELOPMENTAL TOXICITY OF INHALED DIPROPYLENE GLYCOL MONOMETHYL ETHER (DPGME) IN RABBITS AND RATS. W J Breslin, F S Ciezliak, C L Blozloty, R A Conley, B L Yano and H G Verschueren. Toxicology Research Laboratory, The Dow Chemical Company, Midland, MI.

#155 TERATOLOGY STUDY WITH (2-NAPHTHOXY) ACETIC ACID IN RATS. S Henwood, K Mellon, and T Osimlitz. Hazleton Laboratories America, Inc., Madison, WI and S C Johnson & Son, Inc., Racine, WI.

#156 DEVELOPMENTAL TOXICITY OF BORIC ACID (BORA) IN MICE AND RATS. C J Price, E A Field, M C Marr, C B Myers, R E Morrissey and B A Schwetz. Research Triangle Institute and *National Toxicology Program/NIEHS, Research Triangle Park, NC.


#158 EMBRYONIC AND FETAL FOLATOS FOLLOWING N₂O EXPOSURE. S A Rice and A Carugh. Stanford University & VA Medical Center, Palo Alto, CA.

#159 A SEGMENT II INHALATION TERATOLOGY STUDY OF TEREPTHALIC ACID IN RATS. B M Ryan, N S Hatoum and J D Jermin. IIT Research Institute and Amoco Corporation, Chicago, IL.
TUESDAY MORNING, FEBRUARY 13
GRAND BALLROOM

POSTER SESSION: DRUG TOXICOLOGY

Chairperson: Lori Ann Dostal, Parke-Davis Pharmaceutical Research, Ann Arbor, MI.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10:00 a.m.


CHRONIC TOXICITY STUDY OF THE ANTICANCER DRUG CANDIDATE CI-898 IN RATS. L A Dethloff and J R Watkins. Parke-Davis Pharmaceuticals Research, Ann Arbor, MI.


PRECLINICAL (IN VIVO/IN VITRO) SAFETY EVALUATION OF CGS 8216, A BENZODIAZEPINE ANTAGONIST. G C McCormick, K R Huber, A T Arthur, W O Iverson and V M Traina. CIBA-GEIGY Corporation, Pharm. Div., Research Dept., Tox/Path, Summit, NJ.

SUBCHRONIC SAFETY EVALUATION OF PEGATED SUPEROXIDE DISMUTASE ADMINISTERED INTRAVENOUSLY TO ALBINO RATS AND BEAGLE DOGS. B A Mayes, J B Connoff, T A Barbut, K A Gossott, and Y Greener. Drug Safety Assessment, Sterling Research Group, Rensselaer, NY.


SUBCHRONIC ORAL TOXICITY OF THE ANTIMALARIAL DRUG WR 238605 IN DOGS. B S Levine 1, R Long 2, J H Fischer 3, H Chung 4. University of Ill, at Chicago, IL; 1Pathology Assoc., Inc., Chicago, IL; and 3Walter Reed Army Institute of Research, Washington, DC.


RESPIRATORY AND CARDIOVASCULAR CHANGES ASSOCIATED WITH TOXIC DOSES OF A PEPTIDE ANTAGONIST OF VASOPRESSIN. D J Murphy, M E Walker and D A Culp. Dept. of Investigative Toxicology, Smith Kline and French Lab., King of Prussia, PA.

PRECHRONIC INHALATION TOXICITY STUDIES OF 1-EPINEPHRINE HYDROCHLORIDE IN RODENTS. D D Dietz 1, J R Leininger 1, R A Renno 2, and H A Ragan 1. NIEHS/NTP, Research Triangle Park, NC and 2 Battelle-Pacific Northwest Laboratories, Richland, WA.

AMIODARONE-INDUCED PULMONARY TOXICITY IN RATS: A TISSUE-SPECIFIC MANIFESTATION. S Kacoe, University of Ottawa, Ottawa, Ontario, Canada, and M J Reason. West Virginia University Health Sciences Center, Morgantown, West Virginia.

AMIODARONE AND DESETHYLAMIODARONE INHIBIT PULMONARY PHOSPHOLIPASES IN VIVO. U P Kodavanti and H M Mehendale. Training Program in Toxicology, Dept. Pharmacol. & Toxicol., Univ. of Miss. Med. Ctr., Jackson, MS.


THE EFFECTS OF VERAPAMIL ON ISOLATED HYPOTHERMIC RAT HEARTS. C R Rasmussen and R F Burlington. Biology Department, Central Michigan University, Mt. Pleasant, MI. Sponsor: W H Siddiqui.


EFFECTS OF PYRANTEL PAMOATE ON BLOOD ENZYME LEVELS IN MICE. G M Al-Hachim, Aal-Waseef, M Hashim. Environmental Toxicology Laboratory, Dept. of Environmental Sciences, King Abdulaziz University, Jeddah, Saudi Arabia.


MECHANISM OF PHOTOHEMOLYTIC ACTION OF PD 117596, A QUINOLONE ANTIBACTERIAL AGENT. D G Robertson, D L Bailey, and J S Kiely. Department of Pathology Exper. Toxicology, Park-Davis Pharmaceutical Research Division, Warner-Lambert Company, Ann Arbor, MI.


AUTOINDUCTION OF ANTIPYRINE ELIMINATION IN DOGS AT A DOSE (5 MG/KG) USED TO ASSESS ENZYME INDUCTION OF OTHER DRUGS. D E Amacher, M R Nocerini, R A Ronfeld, and J A Reynolds. Pfizer Inc., Central Research, Groton, CT.

ASSESSMENT OF HEPATIC ENZYME INDUCTION BY ML 1012 AS PART OF ITS SAFETY EVALUATION IN RATS. T N Thompson, J L Geary, S E Unwin, J P Lacz, K K Hwang. Marion Laboratories, Inc, Kansas City, MO.

PERINATAL AND POSTNATAL EFFECTS OF CGB 16617, AN ANGIOTENSIN CONVERTING ENZYME INHIBITOR, IN RATS. G Basta, K Wilmot, F You, and V Traina. Research Department, Pharmaceuticals Division, Ciba-Geigy Corp., Summit, NJ.

CARCINOGENICITY STUDIES IN RODENTS WITH THE ANGIOTENSIN CONVERTING ENZYME (ACE) INHIBITOR QUINAPRIIL HYDROCHLORIDE. E J McGuire, J A Anderson, A W Gough, and F A de la Iglesia. Pathology and Experimental Toxicology, Parke-Davis Pharmaceutical Research Division, Ann Arbor, MI.
POSTER SESSION: HALOGENATED HYDROCARBONS I

Chairperson: Jane Ellen Simmons, U.S. EPA, Research Triangle Park, NC.

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

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

#198 DISPOSITION OF PERFLUOROOCANIC ACID (PFOA) IN RATS. B Kuslikis, J P Vanden Heuvel, M J Van Ralfehgm and R E Peterson, Environmental Toxicology Center and School of Pharmacy, University of Wisconsin, Madison, WI.

#199 EFFECTS OF PERFLUORODECANOCANIC (PFDA) AND PERFLUOROOCANIC (PFOA) ACIDS ON HEPATIC CARBONIC PALMITOLYTICALFERENCE (CPT) ACTIVITY IN RATS. J P Vanden Heuvel, B I Kuslikis and R E Peterson. Environmental Toxicology Center and School of Pharmacy, University of Wisconsin, Madison, WI.

#200 DISPOSITION OF PERFLUORODECANIC ACID (PFDA) IN RATS. M J Van Ralfehgm, J P Vanden Heuvel, B I Kuslikis and R E Peterson. Environmental Toxicology Center and School of Pharmacy, University of Wisconsin, Madison, WI.


#202 MODULATION OF GLUCOSE METABOLISM IN RAT HEPATOCYTE (RH) SUSPENSIONS BY FLUOROCARBON R-134A. M J Olson, C A Relicy and J T Johnson. Biomedical Science Dept., GM Research Labs., Warren, MI.

#203 ORAL TOXICITY OF TRANS 1,2-DICHLOROETHYLENE (DCE) AND 1,1,1-TRICHLOROETHANE (TCE) GIVEN ALONE AND IN COMBINATION TO RATS. C Wittcer, K R Cooper, L Iwasa, and G Post. Rutgers University, Piscataway, NJ and NJ Department of Environmental Protection, Trenton, NJ.

#204 PROTECTION BY PANTETHINE, CYSTAMINE AND PANTOTHENIC ACID AGAINST CARBON TETRACHLORIDE TOXICITY IN THE RAT. J B Nagel, C A Lau-Cam and A L Kapoor, St. John’s University, College of Pharmacy, Jamaica, N.Y. Sponsor: L Trombeta.

#205 POTENTIATION OF CARBON TETRACHLORIDE AND CHLOROFORM TOXICITY BY KETONES IN THREE TARGET ORGANS. P Raymond and G L Piaa. Dept. de Pharmacol. J. de Montreal, Montreal, Canada.

#206 CCL4 INDUCED LIPID PEROXIDATION AND ENZYME LOSS IN RAT LIVER SLICES. S Azri, H P Mata, A J Gandolfi, and K Breda. Dept. of Anesthesiology, University of Arizona, Tucson, AZ.


#209 LETHALITY AND HEPATOTOXICITY OF HALOMETHANES IN CHLORODECON (CD), PHENOBARBITAL (PB) OR MIREX (MX) PRETREATED GERBILS. Z Cai and H M Mendeleas. Dept. Pharmacol & Toxicol., Univ. Miss. Med. Center, Jackson, MS.


TOXIC INTERACTIONS BETWEEN CARBON TETRACHLORIDE (CC14) AND TRICHLOROETHYLENE (TCE) IN CULTURED RAT HEPATOCYTES. R G Lamb, C Gennings, J F Borozellina and P Bercz. Deps. of Pharmacol./Toxicology and Biostatistics, MCV, Richmond, VA and *US EPA, Cincinnati, OH.

TOXIC INTERACTIONS BETWEEN CARBON TETRACHLORIDE (CC14) AND PERCHLOROETHYLENE (PCE) IN CULTURED RAT HEPATOCYTES. J F Borozellina, C Gennings, P Bercz and R G Lamb. Deps. of Pharmacol./Toxicology and Biostatistics, MCV, Richmond, VA and USEPA, Cincinnati, OH.

PRETREATMENT WITH 6-HYDROXYDOPAMINE REDUCES THE HEPATOTOXIC RESPONSE TO SYNERGISTIC COMBINATIONS OF CARBON TETRACHLORIDE AND OTHER CHLORINATED HYDROCARBONS IN MALE, F-344 RATS. D R Steup, S C Mitchell, and L G Sipes. Dept. of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

ABSORPTION OF 2,3,7,8-TETRA BROMODIBENZODIOXIN (TBDD) IN MALE RATS. J J Diliberto, L R Kedders, L S Brumbaum. NIEHS, Research Triangle Park, NC and Curriculum in Toxicology, UNC Chapel Hill, NC.

PBB ENHANCED HEPATOTOXICITY AND SERUM TUMOR NECROSIS FACTOR (TNF) RELEASE IN LPS-TREATED RATS. S Shethkay, L R Redman, A Swimm, D Y Hou, L Robertson, P F Robinson. Dept. of Cancer Research, University of Kentucky, Lexington, KY.

SYNTHESIS OF HYDROXY DERIVATIVES OF 3,3',4,4'-TETRA BROMOBIPHENYL AND THEIR IDENTIFICATION AS MICROSMAL METABOLOTIES BY GC/MS. G A Kubiecz, J L Platt, F Oesch and L W Robertson. Graduate Center of Toxicology, University of Kentucky, Lexington, KY and Institute of Toxicology, University of Mainz, Mainz, FRG.

VINYL FLUORIDE DOMINANT LEthal MUTATION STUDY. N C Chorney, S J Mullin and D P Kelly. E I du Pont de Nemour & Co., Haskett Laboratory for Toxicology and Industrial Medicine, Newark, DE.

METHYLENE CHLORIDE (1): MORPHOLOGICAL, IMMUNOHISTOCHEMICAL AND BIOCHEMICAL EFFECTS ON MOUSE LUNG FOLLOWING INHALATION EXPOSURE. R L Smith, J W Wyatt, T Green, R W Lewis, P M Hext and J R Foster. ICI PLC Central Toxicology Laboratory, MacClesfield, Cheshire, UK.

METHYLENE CHLORIDE (2): MORPHOLOGICAL AND BIOCHEMICAL EFFECTS ON ISOLATED LUNG CLARA CELLS FOLLOWING INHALATION EXPOSURE. R W Lewis, J L Wyatt, J R Foster, T Green, P M Hext and L L Smith. ICI PLC Central Toxicology Laboratory, MacClesfield, Cheshire, UK.

SUBCHRONIC ORAL TOXICITY STUDY OF DIBROMOMETHANE IN THE RAT. P A Miller, R D Alsaker, M Robinson, and J B Ternell. Hazleton Laboratories, Rockville, MD and USEPA, Cincinnati, OH.

SUBCHRONIC INHALATION TOXICITY STUDY OF 1,1,1,3-TETRA CHLOROPROPANE IN THE RAT. H H Siddiqui, G S Kolesar, M A Zimmer and E B Hobbs. Dow Corning Corporation, Midland, MI.

HYPERTHYROIDISM ALTERS EXCRETION OF DICHLOROETHYLENE METABOLITES INTO SERUM AND BILE. M F Kanz and M T Moslen. Department of Pathology, University of Texas Medical Branch, Galveston, TX.

TUESDAY MORNING, FEBRUARY 13
FONTAINEBLEAU BALLROOM D

POSTER SESSION: HEMATOXICOLOGY

Chairperson: Carl O. Schulz, University of South Carolina School of Public Health, Columbia, SC.

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

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


Baboons exposed to electric fields do not show alterations in blood composition or chemistry. W R Rogers, Dept of Biosciences and Bioengineering, Southwest Research Institute, San Antonio, TX.


THE METABOLISM OF BENZENE IN MICE TO TRANS, TRANS-MUConIC ACID IN RELATION TO STRAIN SENSITIVITY. G Wilt, W M Maniarla, V J Mylavarapu, and B D Goldstein. Joint Graduate Program in Toxicology, UMDNJ-Robert Wood Johnson Medical School/Rutgers University, and EOHSI, Piscataway, NJ.


SUPPRESSION OF ERYTHROPOIESIS IN MICE BY COMBINED TREATMENT WITH THE BENZENE METABOLITES P-BENZOQUINONE (BQ), MUCONALDEHYDE (MUC) AND HYDROQUINONE (HQ). P Hu, R L Guy, G Wilt, B D Goldstein and R Snyder. Joint Graduate Program in Toxicology, Rutgers University/UMDNS/Robert Wood Johnson Medical School, Piscataway, NJ.

HYDROQUINONE (HQ)-INDUCED TOXICITY TO MACROPHAGES. M J Reppol, D R Cutler, J S Strobel, D Wierda and K S Landreth. West Virginia University Health Science Center, Morgantown, WV.


PHENOL-INDUCED STIMULATION OF HYDROQUINONE BIOACTIVATION IN MOUSE BONE MARROW IN VIVO: POSSIBLE IMPLICATIONS IN BENZENE MYELOTOXICITY. P Doane-Setzer, V V Subrahmanyam, K L Steinmetz, and M T Smith. School of Public Health, University of California, Berkeley, CA.

TUESDAY MORNING, FEBRUARY 13
FONTAINEBLEAU BALLROOM D

POSTER SESSION: HEPATOTOXICITY I

Chairperson: Mostata Z. Badr, University of Missouri, Kansas City, MO.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 10:00 a.m.-11:30 a.m.

ANALYSIS OF KUPFFER CELL (K) FUNCTION USING THE ISOLATED PERFUSED RAT LIVER. D L Laskin, J D Laskin, C R Gardner, S J. Joint Grad. Prog. Toxicology, Rutgers University & UMDNJ Piscataway, NJ.


A COMPUTER MODEL OF THE EFFECTS OF PHENYLEPHRINE (PE) ON HEPATIC RESPIRATION AND THE PORTAL PRESSURE IN THE ISOLATED PERFUSED RAT LIVER. R Guy and S J. Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.


HEPATOTOXICANTS ELEVATE SERUM BILIRUBIN BY INCREASING FORMATION NOT DECREASING ELIMINATION OF BILIRUBIN. D V Mitchell, C Madhu, and C D Klaassen. Univ. Kansas Med. Ctr., Kansas City, KS.


FLUORESCENT LABELING TO MONITOR KUPFFER CELL PHAGOCYTIC ACTIVITY IN PERFUSED RAT LIVER. P E Ganey, J J Lemasters, and R G Thurman. Lab. of Hepatobiology and Toxicology, Depts. of Pharmacology and Cell Biology and Anatomy, University of North Carolina, Chapel Hill, NC.

ULTRASTRUCTURE AND BIOCHEMICAL STUDIES OF CHLORODECONE-POTENTIATED BROMO-TRICHLOROMETHANE (BrCCL3) HEPATOTOXICITY. O M Farooq, R W Henry, M G Soni, H M Mehendale. Training Program in Toxicology, Dept. Pharmacology and Toxicology, University of Mississippi Medical Center, Jackson, MS.


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LIPOPOLYSACCHARIDE (ENDOTOXIN) PROTECTS C3H/OUJ BUT NOT C3H/HEJ MICE FROM THE
HEPATOTOXIC EFFECTS OF ACETAMINOPHEN AND CARBON TETRACHLORIDE.
L E Sendelbach, A Parkinson, and C D Klaassen. EG & G Mason Research Institute, Worcester, MA and Univ. Kansas Med. Ctr., Kansas City, KS.

THE EFFECT OF TEN OLEANANE-TYPE TRITERPENOIDS COMPOUNDS ON EXPERIMENTAL LIVER
INJURY IN MICE. Y P Liu, J Liu, Q Mao and C D Klaassen. Univ. Kansas Med. Ctr., Kansas City, KS.

ACETYLSALICYLIC ACID PRETREATMENT DECREASES ACETAMINOPHEN-INDUCED HEPATO-
TOXICITY IN MICE. P Rozman, C Madhu and C D Klaassen. Univ. Kansas Med. Ctr., Kansas City, KS.

THE PROTECTIVE EFFECT OF OLEANOLIC ACID ON ACETAMINOPHEN HEPATOTOXICITY IN
MICE. C D Klaassen, Y P Liu, J Liu and C Madhu. Univ. of Kansas Med. Ctr., Kansas City, KS.

ETHIONINE POTENTIATES ENDOTOXIN (LPS) HEPATOTOXICITY IN RATS. J A Hewett, A E Schultz, and R A Roth. Deps. Pharmacology/Toxicology and Pathology, Michigan State University, East Lansing, MI.

REMARKABLY ENHANCED SENSITIVITY IN THE DETECTION OF PROTEINS BY WESTERN BLOT
USING CHEMILUMINESCENCE. A P Schaap, R F Novak, L Romano, A M Mortensen, S G Kim, and H Akhavan, Institute of Chemical Toxicology and Department of Chemistry, Wayne State University, and Lumigen, Inc., Detroit, MI.

FURTHER OPTIMIZATION OF THE CRYOPRESERVATION PROCEDURES FOR RAT AND HUMAN
HEPATOCYTES. A P Li, J C Merrill and D J Beck. Environmental Health Laboratory, Monsanto Co., St. Louis, MO.

ISOLATION AND CULTURING OF HUMAN HEPATOCYTES. J C Merrill, J J Brems, A P Li. Monsanto Company, Environmental Health Laboratory. St. Louis, MO.

DIFFERENTIAL EFFECTS OF PREGNAN-3-ONE AND ETHYNYL-ESTRADIOL (EE2) ON THE UPTAKE
OF 3H-ESTRAADIOL-17B-(D-GLUCURONIDE) (E217G), 3H-TAUROCHOLATE (TC) AND 3H-L-ALANINE (ALA)
IN ISOLATED RAT HEPATOCYTES (H4). M Vorg and S Tag. Graduate Center of Toxicology and Department of Pharmacology, University of Kentucky, Lexington, KY.

DIFFERENTIAL EFFECTS OF MIREX (M), CHLORDECONE (C) AND PHENOBARBITAL (P) ONBILE
SECRETORY FUNCTION IN VIVO AND TRANSPORT IN ISOLATED RAT HEPATOCYTES (H4). S Tag and M
Vorg. Graduate Center of Toxicology, Department of Pharmacology. University of Kentucky, Lexington, KY.

TOXICITY OF PHENACETIN AND ITS HOMOLOGS IN RAT LIVER CELL CULTURES. P J Davis,
J V Divila, C G Reddy and D Acosta. Div. of Pharmacology & Toxicology, Div. of Medicinal Chemistry, College of Pharmacy, The University of Texas, Austin, TX.

STUDIES IN VITRO ON THE MECHANISM OF PAPAVERINE-INDUCED HEPATOTOXICITY. J C Divila,
D Acosta and P J Davis. Div. of Pharmacology & Toxicology, Div. of Medicinal Chemistry, College of Pharmacy, The University of Texas, Austin, TX.

DIFFERENT MECHANISMS OF LIVER HYPERTROPHY INDUCED BY TWO 2-QUINOLINYL METHOXY LEUKOTRIENE AN-
TAGONISTS. M Kelley, M Faulkner, A Groth-Watson, D Kornblust, and J Sanders. Drug Safety Division, Rorer Central Research, Horsham, PA.

EVALUATION OF POTENTIAL CHEMOPROTECTANTS AND ANTIDOTES AGAINST MICROCYSTIN-
LR HEPATOTOXICITY. S J Stohe and S J Hermanek. Creighton University Health Science Center and University of Nebraska Medical Center, Omaha, NE.

HEPATIC LIPID PEROXIDATION, SULFHYDRYL STATUS AND TOXICITY OF THE BLUE-GREEN ALGAL

MIREX ADMINISTRATION LEADS TO DEPLETION OF HEPATIC CYTOSOLIC GLUCOCORTICOID

MECHANISM OF ALUMINUM-INDUCED INHIBITION OF HEPATIC GLYCOlysIS. M Badir, Z X Xu,
L Fox, S Molethil and L Winberg. University of Missouri-Kansas City, Kansas City, MO.

HEPATOTOXICITY OF MENADIONE IN SPRAGUE-DAWLEY RAT LIVER SLICES. S J Waters,
T C Spaulding, R Brandle and A J Gandolfi. Anaquest-BOC Health Care, Murray Hill, NJ and Department of Pharmacology, University of Arizona, Tucson, AZ.

GLUTATHIONE DEPLETION POTENTIATES A GUINEA PIG MODEL OF HALOTHANE-ASSOCIATED
HEPATOTOXICITY. R C Lind and A J Gandolfi. Dept. of Anesthesiology, University of Arizona, Tucson, AZ.

EXAMINATION OF THE STRUCTURAL COMPONENTS RESPONSIBLE FOR THE IN VITRO HEPATO-
TOXICITY OF M-741, AN EXPERIMENTAL NEUROMUSCULAR BLOCKING AGENT. K Gafa, T C Spaulding, A J
Gandolfi and S J Waters. Anaquest-BOC Health Care, Murray Hill, NJ and Department of Pharmacology, University of Arizona, Tucson, AZ.

TUESDAY MORNING, FEBRUARY 13
FONTAINBLEAU BALLROOM D
POSTER SESSION: REACTIVE METABOLITES

Chairperson: Garoid S. Yost, University of Utah, Salt Lake City, UT.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10:00 a.m.

#266 BIOACTIVATION OF 5,6-DICHLORO-4-TIA-5-HEXENOATE IN ISOLATED RAT HEPATOCYTES.
M W Anders, M E Fitzsimmons. Dept. of Pharmacology, University of Rochester, Rochester, NY.

#267 MECHANISMS OF OXIDATIVE METABOLISM OF THE SYSTEMIC PNEUMOTOXIN 3-METYLINDOLE
IN MICE. G L Skiles and G S Yost. Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.

#268 GLUTATHIONE (GSH) DEPLETION AND CLARA CELL INJURY BY NAPHTHALENE OXIDE (NO)

#269 DNA ADDUCTS IN THE RESPIRATORY AND NONRESPIRATORY TISSUES OF CIGARETTE SMOKE-
EXPOSED RATS. R C Gupta1,2 and G Garcia1,2. Dept. of Prev. Med.1, Tobacco & Health Res. Inst.2, and the Grad. Center for Toxicol.3, Univ. of Kentucky, Lexington, KY.

#270 CHARACTERIZATION OF SULFITE-ENHANCED DIOL EPOXIDE MUTAGENICITY.
J L Green and G A Reed. Dept. of Pharm. & Tox., Univ. of Kansas Medical Center, Kansas City, KS.

#271 CHARACTERIZATION OF BENZ(A)PYRENE (BAP) ADDUCTS TO THE PLASMID, PXP-14.
J E Hulla, D B Mann and D L Springer. Battelle Pacific Northwest Laboratory, Richland, WA.

#272 APPARENT FORMATION OF DNA-PROTEIN CROSSLINKS IN LIVERS OF MICE EXPOSED TO
METHYLENE CHLORIDE OR BROMOCHLOROMETHANE. M Casanova, D F Deyo, and H D Heck. CIIT, Research Triangle Park, NC.

#273 IN VIVO MACROMOLECULAR BINDING AND TISSUE DISTRIBUTION OF ortho- AND para-METHYLAMINOANILINE.
W J Brock, S G Hundley and P H Lieder, E I. du Pont, Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#274 ACTIVATION OF METHANOL BY S-9: FORMATION OF A CONDENSATIONPRODUCT WITH 2,4-
DIAMINOTOLUENE. L T Burka, H B Matthews, and M L Cunningham. NIEHS, Research Triangle Park, NC.

TUESDAY, FEBRUARY 13
9:00 a.m.-12:00 Noon

TOXICOLOGY, TOXIC SUBSTANCES AND THE PUBLIC—WORKSHOP

Chairpersons: Arthur L. Craigmill, UC/Davis, Davis, CA and Michael A. Kamrin, Michigan State University, East Lansing, MI.

The presence of chemical residues in foods, problems with hazardous waste disposal, and other aspects of environmental contamination have become increasingly important public issues. Toxicologists are being called upon to deal with these public problems and to help communicate complex ideas, often to scientifically uneducated audiences. Public education programs are an important responsibility for scientists, who often must serve as expert advisors to public policy makers. The SOT Committee on Public Communications has been involved in organizing and assembling information about public education programs in toxicology for grade schools, non-science major undergraduates, the general public, and the news media. An overview of these programs will be presented, followed by an open discussion between speakers and workshop participants on how we, as trained toxicologists, can facilitate public understanding of the complexities of the issues surrounding environmental contamination, residues in foods, and chemical safety, and what our responsibilities are in the area of public policy development and promoting public understanding.

9:00 Welcome and Introduction
9:30 Public Education Programs in Toxicology for Grades K-12. Jon Seymour, The Procter & Gamble Company
9:50 Teaching Toxicology to Non-Science Major Undergraduates. Michael Kamrin, Michigan State University
10:10 Educational Programs for the General Public. Herbert Thier, University of California
10:30 Public Education Materials. Arthur Craigmill, University of California
10:50 Panel Discussion and Floor Participation
11:45 Concluding Remarks
TUESDAY, FEBRUARY 13
12:00 Noon-1:00 p.m.

PREDICTIVE VALUE OF ANIMAL STUDIES IN TOXICOLOGY—LECTURE

The SOT Committee on Animals in Research sponsors this presentation by professor Gerhard Zbinden, M.D., Institute of Toxicology, University of Zurich, on the benefits of using animals in toxicology/safety testing protocols.

TUESDAY AFTERNOON, FEBRUARY 13
1:30 p.m.-4:30 p.m.
FONTAINEBLEAU BALLROOM A

SYMPOSIUM: GLUTATHIONE-CONJUGATE MEDIATED TOXICITIES

Chairperson: Terrence J. Monks, University of Texas School of Pharmacy, Austin, TX.

Sponsored by the Mechanisms Specialty Section

Glutathione (γ-glutamyl-L-cysteinylglycine; GSH) is present in high concentrations in most living cells and participates in a variety of vital cellular reactions. In particular, GSH plays an important role in the detoxification of potentially toxic electrophiles by either reductive or conjugative mechanisms. Compounds that form GSH conjugates are usually readily excreted in urine as their corresponding mercapturic acids, which are S-conjugates of N-acetyl cysteine. However, in recent years evidence has accumulated suggesting that GSH conjugation plays an important role in the formation of reactive (toxic?) metabolites from a variety of chemicals. Thus, several classes of compounds are converted via conjugation with GSH into either cytotoxic, genotoxic or mutagenic metabolites. This symposium will highlight recent advances in our knowledge of: 1) the types of compound that undergo activation via conjugation with GSH; 2) the enzymology and regulation of GSH conjugate metabolism; and 3) the mechanism(s) and cellular toxicity of these GSH conjugates.

The halogenated alkanes were the first class of compounds for which conjugation with GSH was demonstrated to result in the formation of reactive metabolites. Viscous dihaloalkanes form sulfur mustards upon GSH-conjugation. Subsequent rearrangement results in the formation of highly reactive epoxides that can react with cellular nucleophiles and are implicated in the cytotoxicity and mutagenicity of these compounds. In contrast, haloalkenals GSH conjugates require processing by the enzymes of the mercapturic acid pathway, and ultimately by cysteine conjugate B-lyase to give rise to various thiol containing reactive metabolites. The distribution and properties of the enzymes of the cysteine conjugate B-lyase pathway will be discussed. In particular, those factors that may regulate B-lyase activity and thus modulate B-lyase dependent activation will be presented.

Other compounds that require GSH dependent activation exhibit B-lyase independent toxicities. For example, oxidation of benzoquinols in the presence of GSH gives rise to multi-GSH substituted conjugates that are potent nephrotoxicants. The toxicity of these conjugates is dependent upon their metabolism by renal tubular γ-glutamyl transpeptidase but does not appear to require the involvement of B-lyase. Finally, several reactions of thiols with electrophiles are reversible. For example, benzyl or allyl isothiocyanate form GSH conjugates that are in equilibrium with the parent compound. The position of this equilibrium is influenced by conditions of pH and the concentration of the reactants. The conjugates of the isothiocyanates thus display a cytotoxicity similar to the parent compound. These conjugates thus serve as storage forms of the electrophile with initial detoxication being followed by release of the electrophile at sites where local conditions favor a shift in the reversible equilibrium.

In conclusion, several different classes of compounds have now been shown to undergo activation via conjugation with GSH. Differences in the processing of these conjugates result in a variety of toxicities, the mechanistic basis of which also varies.

#11 1:30 Introduction. Terrence J. Monks, University of Texas at Austin.

#12 1:40 Glutathione-Dependent Bioactivation of Haloalkanes and Haloalkenes. Marion W. Anders, University of Rochester, Rochester, NY.

#13 2:10 Genotoxicity of Amino Acid S-Conjugates. Wolfgang Dekant, University of Wurzburg, FRG, Germany.

#14 2:40 Enzymes of the Cysteine Conjugate B-Lyase Pathway. James L. Stevens, Alton Jones Cell Science Center, Lake Placid, NY.

#15 3:10 Quinol-Linked Glutathione Conjugate-Mediated Toxicities. Serrine S. Lau, University of Texas at Austin.


4:10 Discussion.

TUESDAY AFTERNOON, FEBRUARY 13
1:30 p.m.-4:30 p.m.
FONTAINEBLEAU BALLROOM B

SYMPOSIUM: APPLICATION OF PHARMACOKINETICS IN DEVELOPMENTAL TOXICITY RISK ASSESSMENT

Chairperson: Robert J. Kavlock, U.S. EPA, Research Triangle Park, NC.
Advancements in the art of performing risk assessments on suspected developmental toxicants will primarily occur as research progresses in four distinct areas: 1) better understanding of the relevance and biological significance of the manifestations of developmental toxicity; 2) application of pharmacokinetic information to assist in high-to-low dose and species-to-species extrapolations; 3) increased knowledge of mechanisms of dysmorphogenesis; and 4) better characterization of human exposure patterns. In the near future, it is likely that significant contributions to the risk assessment process will be derived mainly from the first two areas. The presenters will discuss the utilization of pharmacokinetic information to detect developmental hazards and to extrapolate developmental risk. The state-of-the-art in terms of pregnancy-related alterations in physiology that impact on pharmacokinetics, and the actual utilization of pharmacokinetic information in improving study design, study interpretation, and within and between species comparisons of adverse developmental outcomes will be discussed. Each speaker will highlight those research needs that, when addressed, will best facilitate the incorporation of pharmacokinetic information into the risk assessment process. While this research area is still in its infancy, sufficient progress has been made over the last five years to suggest that such efforts will be fruitful.


#18  1:40  Physiological Alterations During Pregnancy: Impact on Toxicokinetics. Donald R. Mattison and Carol Cistola, University of Arkansas Medical Sciences, Little Rock, AR.

#19  2:10  Pharmacokinetic Considerations in the Design of Developmental Toxicology Studies. Heinz Nau, Free University, Berlin, FR Germany.

#20  2:40  Correlation of Pharmacokinetic Data With Endpoints of Developmental Toxicity. John F. Young, National Center for Toxicological Research, Jefferson, AR.


4:10  Discussion.

TUESDAY AFTERNOON, FEBRUARY 13
1:30 p.m. - 3:45 p.m.
BRITANNY ROOM

PLATFORM SESSION: FIBER TOXICITY


#275  1:30  IN VITRO EFFECTS OF SILICON CARBIDE WHISKERS. N F Johnson, D G Thomassan, Y S Cheng and M D Hoover. Inhalation Toxicology Research Institute, Albuquerque, NM. Sponsor: R F Henderson.


#277  2:00  ACUTE INHALATION EFFECTS OF CROCIDENTE ASBESTOS AND WOLLASTONITE FIBERS IN RATS. M A Hartsky, K A Moore, M C Carakostas, and D B Warheit. DuPont Haskell Lab., Newark, DE.

#278  2:15  SUBCHRONIC INHALATION TOXICITY STUDY IN RATS EXPOSED TO SHORT CROCIDENTE ASBESTOS FIBERS. D K Craig, C A Lapin, M G Valero, Battelle, Columbus, OH. ARCO, Los Angeles, CA. Rorer Central Research, Ft. Washington, PA; formerly at Litton Bionetics Inc., Rockville, MD.


#281  3:00  RELATIVE MESOTHELIOMA INDUCTION IN RATS. D Coffin, US EPA, Research Triangle Park, NC; P Cook, US EPA, Duluth, MN; J Pajak, NCI, Rockville, MD; J Creason, US EPA, Research Triangle Park, NC.

#282  3:15  EVALUATION OF LUNG DIGESTION METHODS FOR LUNG RECOVERY OF FIBERS. H C Hwang and D B Warheit. Du Pont Haskell Lab., Newark, DE.

#283  3:30  SOLUBILITY OF NATURAL AND MANMADE MINERAL FIBERS IN KARNOVSKY’S FIXATIVE. B Law and T Hesterberg. Marvime Corporation, Denver, CO.
TUESDAY AFTERNOON, FEBRUARY 13
1:30 p.m. - 5:00 p.m.
CHAMPAGNE ROOM

PLATFORM SESSION: RISK ASSESSMENT


#284 1:30 PHARMACOKINETIC MODELING OF TRICHLOROETHYLENE RELEVANT TO ITS HEPATOCARCINOGENICITY. B Allen, J Fisher, A Shipp, M E Andersen, and M Gargas. Clement Associates, K S Crump Division, Ruston, LA; Toxicology Division, Hazard Assessment Branch, WPAFB, OH; and Chemical Industry Institute of Toxicology, Research Triangle Park, NC.


#286 2:00 NEGLIGIBLE RISK: LIMITS IMPOSED BY ENDOGENOUS CELLULAR PROCESSES. J A Todhunter. SRS International, Washington, DC.


#288 2:30 COMPARATIVE DATA BASE UTILIZATION IN FEDERAL REGULATION DECISIONS. M A Kamrho. Center for Environmental Toxicology, Michigan State University, East Lansing, MI.

#289 2:45 THE CURE: A DATABASE OF HEALTH RISK ASSESSMENT INFORMATION FOR FUTURE RESEARCH. D J Reisman and C DeRosa. US Environmental Protection Agency, Cincinnati, OH; M W Francis and P V Lu. Oak Ridge National Laboratory, Oak Ridge, TN.


#292 3:30 DOSE-EFFECT MODELS FOR USE IN RISK ASSESSMENT FOR LEAD IN DRINKING WATER. A H Marcus Battelle Memorial Institute, RTP, NC.


#294 4:00 A PRAGMATIC RISK ASSESSMENT OF CTFE OLIGOMERS. D R Mattie, H J Clewell III, and M E Andersen AAMR/THT. Wright-Patterson AFB, OH.


#297 4:45 RELATIVE RISKS OF A SECOND GENERATION COAL-BASED POWER PRODUCTION TECHNOLOGY. E J Hixson and D P Faden. Radian Corporation, Austin, TX.

TUESDAY AFTERNOON, FEBRUARY 13
LE MANS ROOM

POSTER/DISCUSSION SESSION: GAP JUNCTIONS


Displayed 1:30 p.m. - 4:30 p.m.
Discussion 2:30 p.m. - 4:30 p.m.

#298 MEZEREIN INHIBITION OF INTERCELLULAR COMMUNICATION AND ACTIVATION OF PROTEIN KINASE C IN HUMAN KIDNEY EPITHELIAL CELLS. W J Pardee, B V Madhukar and J E Trosko. Department of Pediatrics/Human Development, Michigan State University, East Lansing, MI.

UP-REGULATION OF A METALLOTHIONEIN-RAST24 FUSION GENE IN RAT LIVER EPITHELIAL CELLS IS CORRELATED WITH THE DOWN-REGULATION OF GAP JUNCTION FUNCTION. A W de Feijter, M W Lieberman and J E Trosko. Meridian Instruments, Inc., Ckemos, MI, Baylor College of Medicine, Houston, TX and Michigan State University, East Lansing, MI.

RESTORATION OF GAP JUNCTIONAL INTERCELLULAR COMMUNICATION BY LOVASTATIN IN WB-H-ras211 RAT LIVER EPITHELIAL CELLS. R J Ruch, J E Trosko, B V Madhukar, P Somani, and J E Klaunig. Departments of Pathology and Pharmacology, Medical College of Ohio, Toledo, OH and Department of Pediatrics and Human Development, Michigan State University, East Lansing, MI.

CHANGES IN THE FATTY ACYL COMPOSITION OF MEMBRANE PHOSPHOLIPIDS ARE ASSOCIATED WITH MODULATION OF GAP JUNCTIONAL INTERCELLULAR COMMUNICATION IN RAT LIVER EPITHELIAL CELLS. C M Hasier, M R Bennink and J E Trosko. Michigan State University, East Lansing, MI.

INHIBITION OF CARDIAC GAP JUNCTIONAL INTERCELLULAR COMMUNICATION (GJIC) BY AMPHIPHILIC COMPOUNDS: ROLE OF EXTRACELLULAR PH. Z Xie, A Askari, and J E Klaunig. Departments of Pharmacology & Experimental Therapeutics and Pathology, Medical College of Ohio, Toledo, OH.

INHIBITION OF INTERCELLULAR COMMUNICATION IN CARDIAC MYOCYTES BY HALOGENATED HYDROCARBONS. M Terrason, M J Breitenstein and H E Wey. Cellular Toxicology Section, ETB, DBBS, CDC-NIOSH, Cincinnati, OH.

INHIBITION OF GAP JUNCTIONAL INTERCELLULAR COMMUNICATION (GJIC) IN MYOCYTES BY OXYGEN FREE RADICALS. P J Schelter, Z Xie, A Askari, and J E Klaunig. Depts. of Pathology and Pharmacology, Medical College of Ohio, Toledo, OH.

INHIBITION OF GAP JUNCTIONAL INTERCELLULAR COMMUNICATION (GJIC) BY DECREASED INTRACELLULAR PH. J A Hampton and J E Klaunig. Department of Pathology, Medical College of Ohio, Toledo, OH.

EFFECTS ON GAP-JUNCTIONAL INTERCELLULAR COMMUNICATION BY ESSENTIAL AMINO ACIDS. A R Malcolm, L J Mills and S M Nelson. United States Environmental Protection Agency and Science Applications International Corporation, Narragansett, RI.

INHIBITION OF INTERCELLULAR COMMUNICATION BY ENVIRONMENTAL CHEMICALS IN RAT LIVER CELLS IN VITRO. B V Madhukar, B Lockwood, and J E Trosko. Department of Pediatrics/Human Development, Michigan State University, East Lansing, MI.

THE INFLUENCE OF MAINSTREAM SMOKE CONDENSATE FROM CIGARETTES WHICH BURN OR ONLY HEAT TOBACCO ON INTERCELLULAR COMMUNICATION BETWEEN CULTURED MAMMALIAN CELLS. S C McKarns and D J Diotterle. R.J. Reynolds Tobacco Company, Winston-Salem, NC.

TUESDAY AFTERNOON, FEBRUARY 13
BORDEAUX ROOM

POSTER/DISCUSSION SESSION: IN VITRO MODELS OF SKIN TOXICITY

Chairpersons: Daniel Acosta, University of Texas College of Pharmacy, Austin, TX and Nancy Monteiro-Riviere, North Carolina State University, Raleigh, NC.

Displayed 1:30 p.m. - 4:30 p.m.
Discussion 2:30 p.m. - 4:30 p.m.

2:30 p.m. Presentation by the Recipient of the 1988 Colgate-Palmolive Fellowship Award in In Vitro Toxicology:

IN VITRO EVALUATIONS OF PHARMACOLOGIC EFFECTS USING CULTURED HUMAN SKIN MODELS. E Bloom, R B Crook, H I Malbach, J R Polansky. Laboratory of Cellular Pharmacology and the Department of Dermatology, University of California, San Francisco, CA.

The ability to propagate human skin keratinocytes and fibroblasts has provided a means to obtain defined experimental material to examine pharmacological/toxic responses of the cells and to begin an exploration of disease and therapeutic mechanisms. In addition to parameters such as cell viability under subconfluent conditions, it is possible to propagate these cells under controlled conditions in which reproducible data concerning drug effects on specific protein synthesis, prostaglandin and other eicosanoid production, as well as important receptor-mediated second messenger systems can be obtained. Our evaluations of tetradecanoyl phorboyl acetate (TPA), phosphatidylinositol, and H2O2 effects demonstrate that different irritants show different patterns of response in keratinocyte cultures, including the induction (and repression) of different proteins defined using pulse 35S-methionine labelling and gel electrophoresis. TPA treatment resulted in a major induction at 44 kDa, with a deinduction at 46 kDa. H2O2 also produced a major induction at 44 kDa and a smaller relative induction at approximately 49 kDa. EPP showed no major inductions, but deinduced proteins at 48 and 46 kDa. TPA and EPP stimulated PGE2 production, whereas H2O2 treatment decreased it. In human skin organ culture, TPA produced the same major induction seen in the cell culture system, but EPP treatment resulted in different alterations in this system. Glucocorticoid treatment decreases PGE2 production and shows protein inductions in the range of 50–58 kDa. 2-dimensional gel electrophoresis of human skin fibroblasts in culture show inductions of specific proteins which are different from those observed in the keratinocyte cultures, offering the possibility of important cell-cell interactions which could play an important role in both therapeutic and disease mechanisms. Studies of the regulation of the inositol phosphate second messenger system in the
keratinocytes showed minor effects with irritants but showed major effects with histamine, bradykinin, as well as thrombin on this pathway. Continued investigation of these and other biochemical markers of injury and glucocorticoid effects may help to better define cell specific responses to human skin and help in the discovery of underlying subcellular mechanisms.

#310 EVALUATION OF SKINTEX™, AN IN VITRO METHOD FOR DETERMINING DERMAL IRRITATION.


#312 WATER BARRIER FUNCTION IN THE STRATIFIED CORNIFIED CULTURE OF RAT KERATINOCYTES.

#313 THE EFFECT OF KNOWN IRRITANTS ON AN IN VITRO MODEL OF RAT EPIDERMIS.


#315 THE EVALUATION OF A METHOD FOR PREDICTING SKIN IRRITATION POTENTIAL USING AN IN VITRO CYTOTOXICITY ASSAY WITH NORMAL HUMAN EPIDERMAL KERATINOCYTES (NHEK). S L Polizotto, F E Laux, H E Kershaw, S Hinton, C S Barrow, PPG Industries, Inc. Environmental Sciences Center, Pittsburgh, PA.

#316 EVALUATION OF AN IN VITRO DERMAL IRRITATION METHOD. R J Solo and V C Gordon. S C Johnson & Son, Inc, Racine WI and National Testing Corporation, Irvine, CA.

#317 THE USE OF PRIMARY CULTURED RAT KERATINOCYTES AS A MODEL FOR STUDYING IN VITRO CYTOTOXICITY OF DERMATOXIC AGENTS, C C Hsieh, D Acosta, and J R Lee. Department of Pharmacology and Toxicology, College of Pharmacy, University of Texas, Austin, TX.

#318 CUTANEOUS TOXICITY OF 2-CHLOROETHYL METHYL SULFIDE ON ISOLATED PERFUSED PORCINE SKIN. J R King and N A Monteiro-Riviere. Cutaneous Pharmacology and Toxicology Center, North Carolina State University, Raleigh, NC.

#319 EFFECTS OF ACIDS AND BASES ON THE ISOLATED PERFUSED PORCINE SKIN FLAP.
V Sreekrishna and N A Monteiro-Riviere. Cutaneous Pharmacology and Toxicology Center, North Carolina State University, Raleigh, NC.

TUESDAY AFTERNOON, FEBRUARY 13
BURGUNDY ROOM

POSTER/DISCUSSION SESSION: METALLOTHIONEIN

Chairpersons: Bruce R. Fowler, University of Maryland, Baltimore, MD and George M. Cherian, University of Western Ontario, London, ON.

Displayed 1:30 p.m. - 4:30 p.m.
Discussion 2:30 p.m. - 4:30 p.m.

#320 DETERMINATION OF METALLOTHIONEIN II CONCENTRATIONS USING BICINCHONINIC ACID.
M Akerman, R B Aoki, G E DuVal, B A Fowler. The University of Maryland, Baltimore MD.

#321 ARSENITE INDUCTION OF METALLOTHIONEIN IN MICE. H Krapel, J W Baum, J Liu and C D Haggard. Univ. of Kansas Med. Ctr, Kansas City, KS.

#322 SODIUM ARSENITE (AsIII) INDUCES METALLOTHIONEIN SYNTHESIS IN RAT LIVER BUT NOT IN THE KIDNEY. A Albores, R A Goyen, and M G Cherian. Department of Pathology, University of Western Ontario, London, ON, Canada.

#323 PROTECTION AGAINST ADRIAMYCIN TOXICITY BY INDUCING METALLOTHIONEIN IN APPROPRIATE TISSUES. M Satoh, A Nagano and N Ihara. Dept. of Public Health, School of Pharmaceutical Sciences, Kitasato University, Minato-ku, Tokyo, Japan.

#324 STUDIES ON THE INTERACTIONS OF CIS-DIAMMINEDICHLOROPLATINUM (C-DDP) WITH METALLOTHIONEIN (MT) AND GLUTATHIONE (GSH) IN RAT. C A Suzuki and M G Cherian. Dept. of Pathology, University of Western Ontario, London, Ont., Canada.

#325 OCCUPATIONAL CADMIUM EXPOSURE: URINARY METALLOTHIONEIN AS AN INDICATOR OF BODY BURDEN. Z A Shaik, K J Ellis, S S Subramanian and A Greenburg. Department of Pharmacology & Toxicology, University of Rhode Island, Kingston, RI; Brookhaven National Laboratory, Upton, NY; Health and Welfare, Ottawa, Canada and University of Pittsburgh, Pittsburgh, PA.
#326 
CADMIUM ACCUMULATION AND METALLOTHIONEIN INDUCTION IN THE TISSUES OF MICE CHRONICALLY EXPOSED TO MAINSTREAM AND SIDESTREAM CIGARETTE SMOKE. C G Garialee, R T Talwalkar, P C Tewari, and Z A Shaikh, Tobacco & Health Res. Inst., Dept. of Gastroenterol., Univ. of Kentucky, Lexington, KY, and Dept. of Pharmacol. & Toxicol., Univ. of Rhode Island, Kingston, RI.

#327 
COMPARISON OF CADMIUM ACCUMULATION AND METALLOTHIONEIN INDUCTION IN SUSCEPTIBLE AND RESISTANT STRAINS OF MICE. P C Tewari and Z A Shaikh, Department of Pharmacology & Toxicology, University of Rhode Island, Kingston, RI.

#328 
a-HEDERIN PROTECTS AGAINST CADMIUM INDUCED LIVER INJURY BY INDUCING METALLOTHIONEIN. S Choudhuri, J Liu, Y P Liu, H Kreppel, G K Andrews and C D Klaassen, Univ. of Kansas Med. Ctr., Kansas City, KS.

#329 
STUDIES ON THE MARKED INDUCTION OF HEPATIC METALLOTHIONEIN BY CADMIUM-METALLOTHIONEIN. J M McKim, J Liu, Y P Liu and C D Klaassen, Univ. Kansas Med. Ctr., Kansas City, KS.

#330 
CADMIUM TOXICITY AND METALLOTHIONEIN EXPRESSION IN ROS 17/2.8 CELLS. D J Thomas, C R Angle and SA Swanson, Department of Pediatrics, University of Nebraska Medical Center, Omaha, NE.

#331 
ROLE OF METALLOTHIONEIN IN GASTROINTESTINAL ABSORPTION OF CADMIUM. H Ohta and M G Cherian, Dept. of Pathology, Univ. of Western Ontario, London, Ontario, Canada.

TUESDAY AFTERNOON, FEBRUARY 13
LORRAINE ROOM

POSTER/DISCUSSION SESSION: TOXICITY OF MIXTURES

Chairpersons: Gabriel L. Plaa, University of Montreal, Montreal, CANADA and Harinara M. Methendale, University of Mississippi Medical Center, Jackson, MS.

Displayed 1:30 p.m. - 4:30 p.m.
Discussion 2:30 p.m. - 4:30 p.m.

#332 

#333 

#334 
TOXICOLOGY PROGRAM OF CHEMICAL MIXTURES AT THE NTP: A NEW ENDEAVOR ON PESTICIDES/FERTILIZER MIXTURES. T Goehi, R S H Yang, D Harbin, R Brown, D Armeson, NIEHS/NTP, Research Triangle Park, NC, "Midwest Research Institute, Kansas City, MO.

#335 
TOXICITY OF COMPLEX MIXTURES OF FIRE GASES. B C Levin, M Paabo, L Highbarger, and N Eller, National Institute of Standards and Technology (NIST), Gaithersburg, MD.

#336 

#337 
TOXICITY OF METHANOL AND ETHANOL IN COMBINATION. A F Youseuf, Department of Forensic Medicine & Toxicology, Cairo University, Egypt, and Environmental Health Sciences Center, University of Rochester School of Medicine, Rochester, NY. Sponsor: Bernard Weiss.

#338 
INHALED METHANOL ENHANCES THE HEPATOTOXICITY OF ORALLY ADMINISTERED CARBON TETRACHLORIDE. J E Simmons, J W Allis, A McDonald, J C Seely, and B L Robinson, "Health Effects Research Laboratory, U.S. EPA, "NSIT and "PATHCO, RTP, NC.

#339 
ADDITIVE EFFECTS OF MULTIPLE AROMATIC HYDROCARBONS IN VITRO. A C Beach and H J Harmon, Dept. Zoology, Oklahoma State University, Stillwater, OK. Sponsor: L W Robertson.

#340 
BENZOA(P)PYRENE-DNA ADDUCT FORMATION IN RAT LUNG IS MODIFIED BY SIMPLE MIXTURES. S S Bentivegna and C M Wimer, Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

#341 
SEX DIFFERENCE IN 1,3-DICHLOROPROPENE PRETREATMENT EFFECTS ON CHLOROFORM TOXICITY IN RATS. H M Yang, M E Davis and W O Berndt, West Virginia Univ., Health Science Ctr., Morgantown, WV.

#342 
MONOCHLOROACETATE (MCA) DOES NOT DECREASE VINYLDENE CHLORIDE (VDC) TOXICITY BY INHIBITING CYTOCHROME P450. J B Wijeweera, M E Davis and W O Berndt, Dept. of Pharmacology and Toxicology, West Virginia University, Morgantown, WV.
MONOCHLOROACETATE (MCA) POTENTIATES VINYLIDENE CHLORIDE (VDC) TOXICITY IN OLDER RATS, BUT NOT IN YOUNG ADULT RATS. M E Davis and W O Berndt, Dept. of Pharmacol. & Toxicol., Health Sciences Center, West Virginia University, Morgantown, WV.

TUESDAY AFTERNOON, FEBRUARY 13
MONACO ROOM

POSTER/Demonstration Session: Communicating Concepts

Chairperson: Arthur L. Craigmill, University of California-Davis, Davis, CA

Attended 1:30 p.m.-4:30 p.m. Tuesday only.
Displayed 8:30 a.m.-11:30 a.m. Wednesday only.


Database Tracks Research in Multidisciplinary Toxicology Laboratory. M J Gage, Health Effects Research Laboratory, US EPA, RTP, NC.


The Toxicology Resource Information Service. A L Craigmill. Environmental Toxicology, University of California, Davis, CA.

Toxicology, Decision-Making, and CEUP. H D Thier and R C Laugen. Chemical Education for Public Understanding Program (CEUP), Lawrence Hall of Science, University of California, Berkeley, CA. Sponsor: A L Craigmill.

Is Your Health in Jeopardy? Interactive Educational Computer Program for Junior and Senior High School Students. E Faustman, N Horike, H MacQueen, and D L Eaton. Department of Environmental Health, University of Washington, Seattle, WA.

Toxicology Guide for Installation Restoration Program Application. P Y Lu, R A Young, M W Francis, R H Ross, Biomedical and Environmental Information Analysis, Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN. J W Fisher, AAMRL/THA, Wright Patterson AFB, OH.


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TUESDAY AFTERNOON, FEBRUARY 13
GRAND BALLROOM

POSTER SESSION: GENOTOXICITY

Chairperson: Michael J. Olson, General Motors Corporation, Warren, MI.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 1:30 p.m.-3:00 p.m.


#364  THE GENOTOXIC POTENTIAL OF LINEAR ALKYL BENZENES IN A SHORTTERM TEST BATTERY. E C Robinson and R S Nair. Monsanto Co., St. Louis, MO.


#367  AZIDE MUTAGENESIS: EFFECTS OF DEUTERATION OF MUTAGENIC INTERMEDIATES. J B Mangold, J M Latyka, and M R Mischke. Toxicology Program, School of Pharmacy, University of Connecticut, Storrs, CT.

#368  MICRONUCLEUS ASSAY OF PHYSOSTIGMINE SALICYLATE IN RATS AND DOGS. G M Zaucha, G A Omer, D F Frost, S T Omany, D W Korte, Jr. Letterman Army Institute of Research, San Francisco, CA.


#370  SPECIFICITY IN THE CO-MUTAGENICITY OF 2,4-DIAMINOTOLUENE. Y L Pan and G A Reed. University of Kansas Medical Center, Kansas City, KS.

#371  REDUCTION OF RADIATION CYTOTOXICITY BY DNA BINDING AGENT HOECHST 33342 IN CULTURED CHINESE HAMSTER OVARY CELLS. C Shi and P C Keng. Department of Biophysics and Cancer Center, School of Medicine and Dentistry, University of Rochester, Rochester, NY. Sponsor: T W Clarkson.

#372  BENZENE-INDUCED MICRONUCLEI FORMATION IN MOUSE FETAL LIVERBLOOD, PERIPHERAL BLOOD, AND MATERNAL BONE MARROW CELLS. H Hing, N Y Kado, P A Kuzmicky, and D P H Hsieh. Dept. of Environ. Toxicol., Univ. of California, Davis, CA. Research Division, California Air Resources Board, Sacramento, CA. Institute of Industrial Hygiene, Ministry of Railways, Beijing, China.


#375  A DIRECT COMPARISON OF THE GRAVITY-FLOW ALKALINE ELUTION TO THE CONVENTIONAL PUMPING METHOD IN THE DETECTION OF DNA DAMAGE. J R Hincks and N E Gibson. Laboratory of Pharmacology, AMC Cancer Research Center, Denver, CO.

#376  ALTERED GI ENZYME ACTIVITY IN CD-1 MICE AND F-344 RATS AFER 2- AND 4-WEEKS OF PENTACHLOROPHENOL TREATMENT. F W Chadwick, S E George, J Chang, M J Kohan, J P Dekker, J E Long, and M C Duff. USEPA, HERL, Research Triangle Park, NC; UNC, Chapel Hill, NC; EHRT, Research Triangle Park, NC.

#377  FORMATION OF 8-HYDROXYGUANOSINE AND NICKS IN DNA EXPOSED TO METHYLENE BLUE PLUS LIGHT. J E Schneider, S Price, L Maitid, J M C Gutteridge, and B A Floyd. Molecular Toxicology Research Group, Oklahoma Medical Research Foundation, Oklahoma City, OK.


DOSE-DEPENDENT GENOTOXIC RESPONSE IN HUMAN BLOOD LYMPHOCYTES EXPOSED TO STYRENE IN VITRO. C L Richer 1, S Chakrabarti 2, M A Duhur 1, and M Senecal-Quevillon 2. Department d'Anatomie 1 and Medecine du Travail Hgy. Milieu, 1 Faculte de Medecine, Univ. de Montreal, Montreal, Quebec, Canada.

BIOASSAY DIRECTED FRACTIONATION OF THE URINARY METABOLITES FROM FISCHER 344 RATS TREATED WITH 2,5-DINITROTOLUENE AND PENTACHLOROPHENOL. J P Dekker, R W Williams, G R Lambert, S E George, M J Kohan, and R W Chadwick. EHRT, Inc. and HERL, USEPA, Research Triangle Park, NC.

POTENTIATION OF 2, 6-DINITROTOLUENE GENOTOXICITY BY PENTACHLOROPHENOL IN CD-1 MICE AND FISCHER 344 RATS. S E George, R W Chadwick, M J Kohan, and J P Dekker. Health Effects Research Laboratory, USEPA, and Environmental Health Research and Testing, Inc., Research Triangle Park, NC.


CYTGENETIC STUDY IN BONE MARROW CELLS OF MICE EXPOSED BY NOSE-ONLY INHALATION TO SMOKE FROM CIGARETTES WHICH BURN OR ONLY HEAT TOBACCO. C K Lee, B G Brown, D J Doftolte, D C Bolin, P H Ayres, G T Burger, A Whayes, and C F E Coggins. J Reynolds Tobacco Co., Winston-Salem, NC and Veritas, Burlington, NC.


THE EFFECT OF Cr 3+ IONS ON DNA REPLICATION IN VITRO. L Xu, M D Cohen, and E T Snow. Institute of Environmental Medicine, NYU Medical Center, New York, NY.

INDUCTION OF CYTOTOXICITY, MICRONUCLEI, SCE AND MUTATIONS BY VARIOUS QUINONES OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN V79 CELLS. G Ludwig, F Oesch and H R Giatt. Institute of Toxicology, University of Mainz, Mainz, FRG. Sponsor: L W Robertson.


COMPARISON OF DNA STRAND BREAK INDUCTION BY ENVIRONMENTAL GENOTOXINS IN TWO HUMAN LYMPHOBLASTOID CELL LINES. L W Chang, P Mysztkowski, A B DeAngelo and F B Daniel. U S Environmental Protection Agency, Cincinnati, OH.

TUESDAY AFTERNOON, FEBRUARY 13
GRAND BALLROOM

POSTER SESSION: MECHANISMS IN INHALATION TOXICOLOGY

Chairperson: Douglas Alan Keller, E.I. du Pont de Nemours & Co., Newark, DE.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 3:00 p.m.-4:30 p.m.

DEVELOPMENT OF A SUBCHRONIC BLEOMYCIN HAMSTER MODEL OF LUNG FIBROSIS. S Zia, D M Hyde and S N Gin; Depts. of Vet. Pharmacol. & Toxicol., and Anatomy. Univ. of California, Davis, CA.


METABOLISM OF BLEOMYCIN BY NORMAL AND DAMAGED MOUSE LUNG TISSUE. L Fraser and J P Kehrer, Division of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin, Austin TX.


THE UPTAKE OF VAPORS INHALED AT 50 OR 500 ppm MAY BE ESTIMATED FROM THE LOG OF THE WATER/ OR BLOOD/AIR PARTITION COEFFICIENTS. A F Dahl, S E Jones, and J W Sopo. Inhalation Toxicology Research Institute, Albuquerque, NM.


INFLUENCE OF PARTICULATE LOAD ON MACROPHAGE PROLIFERATION. R F Lehneit, J B Ortiz, Y E Valdez, J A Steinkamp. Los Alamos National Laboratory, Los Alamos, NM.


A COMPARISON OF AMIODARONE (AD) AND DESETHYLAMIODARONE (DO-AD) CYTOTOXICITY IN RAT ALVEOLAR MACROPHAGES (AMs). C L Ogle and M J Reasor, Dept. Pharmacology and Toxicology, WV Univ., Morgantown, WV.

RED BLOOD CELLS FROM MONOCROTALINE TREATED RATS DECREASE SEROTONIN REMOVAL IN ISOLATED PERFUSED LUNGS. L C Pan, D W Wilson, H J Segall, M W Lame, and D Morin. Dept. of Pharmacol. and Toxicol. Univ. of California, Davis, CA.

ALVEOLAR MACROPHAGE PRODUCTION OF GROWTH FACTORS FOR TYPE II CELLS FOLLOWING IN VIVO HYPEROXIA. J N Finkelstein and M E Brandes. Dept. of Pediatrics and EHS Center, University of Rochester, Rochester, NY.

IN VITRO METABOLISM OF CYCLOPENTADIENYL MANGANESE TRICARBONYL IN LUNG AND LIVER HOMOGENATES OF THE RAT. P J Clay and J B Morris, Toxicology Program, Univ. of Connecticut, Storrs, CT.

CALCIUM DEPENDENT UPTAKE OF PULMONARY SURFACTANT BY TYPE II CELLS. C E B Statravowich*, J N Finkelstein*, B A Holm*, W M Maniscalco*. EHS Center and Dept of Pediatrics, University of Rochester, Rochester, NY.* Perinatal Center, Children's Hospital, Buffalo, NY.


TUESDAY AFTERNOON, FEBRUARY 13
GRAND BALLROOM

POSTER SESSION: MOLECULAR/CELLULAR

Chairperson: Jon Calvin Cook, E.I. du Pont de Nemours & Co., Newark, DE.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 1:30 p.m.-3:00 p.m.

#407 PYRIDINE NUCLEOTIDE METABOLISM IN HEPATOCYTES INTOXICATED WITH TERT-BUTYL HYDROPEROXIDE. K Yamamoto and J L Farber. Thomas Jefferson University, Philadelphia, PA.


#409 QUINONE CYTOTOXICITY ASSOCIATED WITH A CELL DENSITY-DEPENDENT INCREASE IN THE LEVELS OF CELLULAR QUINONE REDUCTASE (DT-DIAPHORASE). J J Schlager and Q Powis. Department of Pharmacology, Mayo Clinic & Foundation, Rochester, MN.

#410 PHOSPHOLIPID METABOLISM IN CYANIDE-INTOXICATED HEPATOCYTES. I Sakaida and J L Farber. Thomas Jefferson University, Philadelphia, PA.
#411 CYANIDE TRANSPORT STUDIES IN GUINEA PIG CARDIAC MITOCHONDRIA. A J Wisler, D E Lenz, M D Dunlay and L S Pellicore. USAMRICD, APG, MD. Sponsor: C E Ulrich.

#412 CELLULAR ATP LEVELS AND ULTRASTRUCTURAL CHANGES IN MITOCHONDRIA IN LLC-PK1 CELLS AFTER HgCl2 AND CH3HgOH INSULT. L Bravo and S M Ford. Toxicology Program, St. John's U., Jamaica, NY.

#413 RELATIONSHIP BETWEEN MITOCHONDRIAL TRANSMEMBRANE POTENTIAL OF ATP AND CYTOOTOXICITY. E Y Wu, M T Smith, and D J D'Oré. School of Public Health, University of California, Berkeley, CA.

#414 MECHANISM OF Na+/K+--ATPASE (NKA) INHIBITION BY TRICYCLIC DRUG ANALOGS. M A Carfagna and B B Mahoherac. Dept. of Pharm. and Tox., IU School of Medicine,* and Dept. of Chem., Indiana University-Purdue University,* Indianapolis, IN. Sponsor: R B Farnham, Sr.*

#415 MOLECULAR STUDIES ON RETINOID-INDUCED REDUCTIONS IN PLASMARETINOL. D A Lucas, A A Levin, J F Grippo, O T Jackson and S K Durham, Dept. of Toxicology and Pathology, Hoffmann-La Roche Inc., Nutley, N J. Sponsor: E A Pitzer.

#416 NOVEL FILTER TECHNIQUE FOR USE OF S9 ACTIVATION SYSTEMS IN IN VITRO STUDIES OF DNA DAMAGE MECHANISMS. W B Mattes, S D O'Lone and D W Matheson. Ciba-Geigy, Farmington, CT. Sponsor: J R Saunders.

#417 ALTERATIONS IN HISTONE PHOSPHORYLATION IN RAT SPLEEN CELLS AFTER IN VITRO TREATMENT WITH 4,4'-METHYLENE-BIS-(2-CHLOROANILINE) (MOCA). D G DeBord, K L Cheever, T F Swearengen, NIOSH, DBBS, EBT, BSH, Cincinnati, OH.


#419 RAT MESOTHELIAL CELL GENE EXPRESSION. E Bermudez, J Everitt, C Walker, CMT, Research Triangle Park, NC.


#422 ROLE OF PROTEIN KINASE C IN RADIATION-INDUCED DECREASE CALCIUM-UPTAKE IN RAT BRAIN SYNAPTOSOMES. S B Kandasamy and W A Hunt. Behavioral Sciences Department, Armed Forces Radiobiology Research Institute, Bethesda, MD. Sponsor: V Bogo.

#423 SELECTIVE INHIBITION OF 45Ca2+ PTAKE INTO SYNAPTOSOMES AND PRIMARY CELL CULTURES BY TRIPHENYL PHOSPHITE, A TYPE II OPIDN. M B Abou-Donia, D M Lapadula and J K Anderson. Duke University Medical Center, Durham, NC.

#424 STUDIES ON THE TOXIC EFFECTS OF MPP+ IN MOUSE BRAIN SYNAPTOSOMES. D D Monti, K P Scatone, I. I. Irwin, L E DeLamney and J W Langston. The Institute for Medical Research and Caliornia Parkinson's Foundation, San Jose, CA.


#426 EFFECTS OF PRESYNAPTIC PHOSPHOLIPASE A2 (PLA2) TOXINS AND NONSPECIFIC PLA2 ENZYMES ON ACETYLCOLINE (ACH) RELEASE RAT BRAIN SYNAPTOSOMES. A Ghassemi and P Rosenburg. Sec. of Pharmacol. and Toxicol., Univ. of Conn., Storrs, CT.

#427 STUDIES ON THE MECHANISM OF THE ANTIDOTAL ACTION OF ANTICONVULSANTS ON THE ACUTE TOXICITY OF ACRYLONITRILE. D E Nerland and F W Benz. Dept. of Pharmacology and Toxicology, University of Louisville, KY. Sponsor: W J Waddell.

#428 ASSESSMENT OF BIOCHEMICAL CHANGES IN CHICKEN LYMPHOCYTES INDUCED BY IN VIVO EXPOSURE TO A NEUROPATHY-INDUCING ORGANOPHOSPHATE. A Nosnert and M Ehrlich. Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA.

TUESDAY AFTERNOON, FEBRUARY 13
FONTAINBLEAU BALLROOM D

POSTER SESSION: NEUROTOXICOLOGY I

Chairperson: Mohamed B. Abou-Donia, Duke University Medical Center, Durham, NC.


#432 TRIMETHYLTIN DISRUPTS AUDITORY FUNCTION AND COCHLEAR MORPHOLOGY IN PIGMENTED RATS. V Hoffding and L D Fechter. The Johns Hopkins University, Baltimore, MD.


#434 RAPID IMPAIRMENT OF INNER EAR FUNCTION BY TRIMETHYLTIN. L D Fechter and V Hoffding. The Johns Hopkins School of Hygiene and Public Health, Baltimore, MD.


#436 LONG-TERM-POTENTIATION (LTP) MECHANISMS ARE MAINTAINED IN RATS PRETREATED WITH TRIMETHYLTIN (TMT). D L Armstrong, T Osaka, M J Wrayner and H Yamashita. Division of Life Sciences, Univ. of Tx. and Depart. of Physiol., Univ. of Occup. and Environ. Health, Kitakyushu, Japan.

#437 NEUROTOXIC PROFILE INDUCED BY SUBACUTE EXPOSURE TO TRIMETHYLTIN IN SPRAGUE DAWLEY (SD) RATS. G C Haggerty, S Morton, S Levin, Z Ruben, and S C Gad. Searle, Skokie, IL.

#438 NEUROTOXIC AMINO ACIDS FROM THE CARCHARODONT MAMMALXAMETHION (MAM). G Kirby and P Spenero. Center for Research on Occupational and Environmental Toxicology, Oregon Health Sciences University, Portland, OR.


#440 METABOLISM OF b-N-METHYLAMINOLANINE BY L-AMINO ACID OXIDASE. M Hashimi and M W Anders. Dept. of Pharmacology, University of Rochester, Rochester, NY.

#441 Ni(II) EFFECT(S) ON MICROTUBULE POLYMERIZATION IN VITRO. K Lin, C Andry and J N Chou. Deps. Pathology and Microbiology, Boston University School of Medicine, Boston, MA.

#442 NEURONAL NECROSIS AND DEATH AFTER 3-ACETLYPYRIDINE (3-AP): INFLUENCE OF AXOTOMY. C M Beiwanger, T L Roscoe, H E Lowndes. Neurotoxicology Laboratories, Rutgers College of Pharmacy, Piscataway, NJ.


#444 MODULATION OF RAT RETINAL Na,K-ATPase (Na,K) AND Ca,Mg-ATPase (Ca,Mg) BY Pb, Ca, Na and Mg. D A Fox, S D Rubinstein and P Hsu. College of Optometry, University of Houston, Houston, TX.

#445 EFFECT OF TRIETHYLTIN ON SYNAPTOSOMAL TRANSMITTER RELEASE. D Minnema, M Schamer, and G Cooper. Environmental Health, Univ of Cincinnati, Cincinnati, OH. Sponsor: E O'Flaherty.


#447 DISTRIBUTION AND METABOLISM OF 3 H-SAXITOXIN IN RAT BRAIN. S M Naseem, H H Henes, and R W Wandemerger, Jr. US Army Medical Research Institute of Infectious Diseases, Frederick, MD.

#448 SPECIES DIFFERENCES IN PYRETHROID ACTIONS ON SYNAPTIC MEMBRANE EXCITABILITY. J T Wells, P B Banciotti and J M Propp. Medical College of Wisconsin, Milwaukee, Wi.

#449 CORRELATION OF IN VITRO WITH IN VITRO MONOHALOMETHANE NEUROTOXICITY. M Bonnefoi, C Davenport, and K Morgan. CIT, Research Triangle Park, NC. Sponsor: M B St. Clair.
STUDIES OF BRAIN MOHONAMINES & GLUTATHIONE-S-TRANSFERASES IN RATS EXPOSED TO METHYL BROMIDE. C J Davenport, M Bonneloi, S F Ali and K T Morgan. CIFT, Research Triangle Park, NC and NCTR, Jefferson, AR.

SPLANCHNIC ARTERIAL EFFECTS OF THE DOPAMINE RECEPTOR AGONIST ABBOTT-68979 IN RATS. R H Holtman, S Tekell, M B Friedman, R W Krasula, P K Cusick and D R Patterson. Abbott Laboratories, Abbott Park, IL.


A TOXICOLOGIC EVALUATION OF THE OPIOID ANALGESIC, PICENADOL (LY150720), IN COMBINATION WITH ACETAMINOPHEN IN RATS AND MONKEYS. M P Roessner, J L Zimmerman, C A Lochmueller, R W User, J R Shouler and G K Hanasono. Toxicology Division, Lilly Research Laboratories, Eli Lilly and Co., Greenfield, IN.

TUESDAY AFTERNOON, FEBRUARY 13
FONTAINEBLEAU BALLROOM D

POSTER SESSION: OXIDATIVE STRESS I

Chairperson: Helmut A. Greim, GSF, Neuherberg, FRG.

Displayed: 1:30 p.m.-4:30 p.m.
Attended: 1:30 p.m.-3:00 p.m.


EFFECTS OF REPEATED EXPOSURES AND CONCENTRATION VS TIME OXENHANCED SUSCEPTIBILITY TO STREPTOCOCCAL INFECTION DUE TO OZONE EXPOSURE. M J K Selgrade. U S Environmental Protection Agency, Research Triangle Park, NC.

THE ROLE OF INFLAMMATION IN SPECIES SENSITIVITY TO OZONE (O3) - INDUCED AIRWAY HYPERREACTIVITY. J S Tepper, J R Lehmann, D L Costa, M C Madden* S Fitzgerald. NSI-ES, RTP, NC, *US EPA, RTP, NC and **UNC, Chapel Hill, NC.

OZONE-MEDIATED EFFECTS ON MACROPHAGE (MO) FUNCTIONS IMPORTANT IN TUMOR SURVEILLANCE OF THE LUNG. J T Zeikler, G L Kreamer, M C Vogel, D Bowser, and R B Schlesinger. NYU Medical Center, NY, NY.


ELEVATED CELLULAR GLUTATHIONE CONTENT IN PARAQUAT EXPOSED MOUSE 3T3 CELLS. W Li and L N Ghoul. Depts. of Microbiol. & Pathol., Boston University School of Medicine, Boston, MA.

BIOCHEMICAL AND MORPHOLOGIC RESPONSE OF NASAL EPITHELIUM TO HYPEROXIA. K J Nikula, P J Sabourin, A J Birdwhistell, B C Freitag, and J R Harkema. Inhalation Toxicology Research Institute, Albuquerque, NM.

RECOVERY OF LUNG PYRIDINE NUCLEOTIDES FOLLOWING ACUTE OXIDANT INJURY. M R Montgomery, P Raska-Emery and J U Bais. VA Hospital and University of S. Florida, Tampa, FL.


FREE RADICAL CONTENT OF SMOKE FROM A TOBACCO-BURNING (1RF) AND A NEW CIGARETTE (NC) THAT HEATS TOBACCO. W W Pryor*, D F Church*, M D Evans*, W Y Rice, J R Hayes, J R Hayes. *Biodynamics Institute, Louisiana State University, Baton Rouge, LA and +R J Reynolds Tobacco Company, Winston-Salem, NC.

RAT LUNG FUNCTION EFFECTS AFTER CHRONIC EXPOSURE TO NO2. D W Wrnsett, J S Tepper, M A Stevens and D L Costa*. NSI-ES, RTP, NC and *EPA, RTP, NC.

TUESDAY AFTERNOON, FEBRUARY 13
FONTAINEBLEAU BALLROOM D

POSTER SESSION: SOLVENTS

Chairperson: Kenneth Ramos, Texas Tech University, Lubbock, TX.

Displayed: 1:30 p.m.-4:30 p.m.
Attended: 3:00 p.m.-4:30 p.m.

#476

#477
INHALATION VS. INTRAPERITONEAL ADMINISTRATION OF p-XYLENE TO RATS: A COMPARISON OF PULMONARY AND HEPATIC PARAMETERS OF TOXICITY. D Silverman, J Stickney, A Roberts and B Schatz. Northeastern University, Toxicology Program, Boston, MA.

#478
SUBCHRONIC INHALATION TOXICITY OF PROPYLENE GLYCOL TERTIARY-BUTYL ETHER IN FISCHER 344 RATS. S T Crapp, G Luham, and S A Ridlon. Radion Corp., Herndon, VA; BioResearch Laboratories, Montreal, Canada; ARCO Chemical Co., Newtown Square, PA.

#479
STRUCTURE ACTIVITY RELATIONSHIP OF TOULUENE, p-XYLENE, p-NITROTOLUENE (PNT) AND p-CHLOROTOLUENE (PCT) ON RAT LUNG & LIVER MICROSOMAL FUNCTION AND COMPOSITION. T Zewdie, G Furman, A Roberts and B Schatz. Toxicology Program, Northeastern University, Boston, MA.

#480

#481
ROLE OF ISOZYME-SPECIFIC INHIBITION OF CYTOCHROME P450 ACTIVITY IN m-XYLENE-INDUCED ALTERATIONS IN RAT LUNG BENZO(a)PYRENE METABOLISM. J Stickney, D Silverman, R Schatz. Toxicology Program, Northeastern University Boston, MA.

#482
SUBCHRONIC INHALATION TOXICITY STUDY OF ETHYLENEDIBENZENE IN F344/N RATS AND B6C3F1 MICE. C Arapi, C L Gaworski, P B Senese, R Long, B S LeVine, K M Abdo and R S H Yang. IITRI, Chicago, IL; PAI, Chicago, IL; Univ. of IL, Chicago, IL; NIEHS/NTP, RTP, NC.
TUESDAY, FEBRUARY 13
5:00 p.m.-6:30 p.m.
SURFSIDE ROOM (SHAWNEE HOTEL)

MECHANISMS SPECIALTY SECTION MEETING

TUESDAY, FEBRUARY 13
5:00 p.m.-6:30 p.m.
PASTEUR ROOM

RISK ASSESSMENT SPECIALTY SECTION MEETING

TUESDAY, FEBRUARY 13
6:30 p.m.-11:00 p.m.

LATIN FIESTA IN LITTLE HAVANA

"Rhumba" into the historic, cultural district of Little Havana with your SOT colleagues and friends. The evening will include roundtrip transportation to the authentic Latin enclave. Once there, you will be greeted by rhumba and conga dancers and a variety of Latin music, including Nestor Torres, a national favorite, who has recently produced an album. There will also be a super all-you-can-eat Cuban dinner. Tickets are $32.00 per person, which includes transportation, dinner, sangria, beer, soft drinks and entertainment. Pre-registration only, using the attached form. Sorry, no refunds or exchanges.

WEDNESDAY MORNING, FEBRUARY 14
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM A

SYMPOSIUM: GENETIC DETERMINANTS OF CARCINOGEN SUSCEPTIBILITY IN RODENTS AND MAN

Chairperson: Cheryl Walker, CIT, Research Triangle Park, NC.

Sponsored by the Molecular Biology Specialty Section

Tumor induction is a multi-stage process, influenced by at least two types of genes: (1) cellular oncogenes and (2) tumor suppressor genes. Whereas oncogenes are activated by chemical carcinogens via mechanisms such as point mutations, tumor suppressor genes must be inactivated in order for neoplastic transformation to occur. Hereditary inactivation of a tumor suppressor gene is the strongest known risk factor for human cancer. Therefore, this class of genes can act as determinants of carcinogen susceptibility. This symposia will examine how such genetic determinants of susceptibility influence neoplastic transformation in rodents and man. In various rodent models, the role of tumor susceptibility genes in the process of chemical carcinogenesis has been examined in some detail. This area will be covered in the symposia by
utilizing three rodent models as specific examples. First, an introduction to oncogenes and tumor suppressor genes will be presented in the context of a rat model for renal carcinogenesis. In this model, susceptibility to kidney tumors is due to the inactivation of a putative tumor suppressor gene, and the interaction of this inactivated gene with activated cellular oncogene(s) results in tumor formation. The second presenter will discuss how susceptibility to chemically induced lung tumors in inbred mice can be determined by at least three Pas (pulmonary adenoma susceptibility) genes, one of which may be the proto-oncogene K-ras. There are two alleles of this K-ras gene; strains with the 0.55 kb RFLP allele develop tumors, whereas those with the 0.70 kb RFLP allele are resistant. The last rodent model will indicate how a single gene, Hcs, that acts during the promotion phase of hepatocarcinogenesis has been found to be largely responsible for susceptibility to liver tumors in male C57 mice. The last two speakers will present information on how such genes act as a factor in determining human risk to carcinogens. One will present work using normal human fibroblasts isolated from individuals with a hereditary predisposition to cancer. These cells spontaneously transform to immortality in tissue culture and undergo complete transformation to tumorigenicity following transfection with a single activated H-ras oncogene. The final presenter will describe how information regarding specific tumor susceptibility genes can be utilized in the process of risk assessment by use of the two stage MVK model.

#23 8:30 Introduction. Cheryl Walker, CIIT, Research Triangle Park, NC.

#24 8:40 Tumor Suppressor Gene and Cellular Oncogene Interactions in a Rat Model for Renal Carcinogenesis. Cheryl Walker, Chemical Industry Institute of Technology, Research Triangle Park, NC.

#25 9:10 Genetic Determinants of Chemically Induced Lung Cancer in Mice and Humans. Gary Stoner, Medical College of Ohio, Toledo, OH.

#26 9:40 Genetic Control of Murine Hepatocarcinogenesis. Norman R. Drinkwater, University of Wisconsin, Madison, WI.

#27 10:10 Human Cells In Vitro: Analysis of Cancer Susceptibility and Mechanisms of Tumorigenesis. Michael A. Tainsky, University of Texas, Houston, TX.

#28 10:40 Genetic Determinants of Carcinogen Susceptibility: Implications for Risk Assessment. Thomas Starr, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

11:10 Discussion.

WEDNESDAY MORNING, FEBRUARY 14
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM B

SYMPOSIUM: INHALATION RISK ASSESSMENT: STATE-OF-THE-ART


Sponsored by the Risk Assessment and Inhalation Specialty Sections

Traditionally, quantitative risk assessment has focused on the risk of oral exposure to chemicals. However, inhalation presents additional complexities, such as issues of regional deposition in the respiratory tract or unique portal-of-entry effects. Part of the reason for the heightened interest in inhalation risk assessment is a result of the continuing efforts of the U.S. Congress to restructure the 1970 Clean Air Act, as amended in 1977, and the increasing recognition of the importance of inhalation exposures from volatilization of chemicals from a variety of sources, such as hazardous waste sites.

The goal of the symposium is to present five major approaches to the quantitative risk assessment of inhaled chemicals. The topics were chosen based upon their current and future use in risk assessment, their novelty to the scientific community, and their scope/approach to risk assessment. Studies of exposure to inhaled particles are being used to assess qualitative differences in response as a function of exposure level which indicate anomalous responses at levels frequently employed in toxicological studies. Physiologically-based pharmacokinetic models are being used to predict more accurately the dose of toxicologically relevant compounds in exposures to inhaled gases. These issues are critical in the development of risk assessment models. EPA has recently started to use the newly developed inhalation reference dose methodology for chronic exposures to toxic air pollutants and other inhaled pollutants related to pesticides and other hazardous wastes. The decision analytic approach is being applied by EPA to criteria pollutants such as ozone and SO2. The Emergency Response Planning Guidelines represent a new approach to estimating risks from short-term exposures, frequently for chemicals with limited data bases on acute exposures.

#29 8:30 Introduction. Barbara D. Beck, Gradient Corp., Cambridge, MA.

#30 8:40 High Level Particle Inhalation Experiments: Possible Mechanisms and Extrapolation to Man. Gunter Oberdoerster, University of Rochester, Rochester, NY.

#31 9:10 The Use of Acute Data to Set Exposure Standards. George M. Rusch, Allied-Signal, Inc., Morristown, NJ.


#34 10:40 Predicting Target Tissue Dose for Inhaled Gases Through Physiological Modeling Strategies: Melvin E. Anderson, Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

11:10 Discussion.
PLATFORM SESSION: DEVELOPMENTAL

Chairpersons: Stephen B. Harris, Stephen B. Harris Group, La Mesa, CA and Carole A. Kimmel, USEPA, Washington, D.C.

#490 8:30 ESTIMATING FETAL EXPOSURE TO TOXIC MATERIALS. B J Kelman and M R Sikov. Life Sciences Center, Pacific Northwest Laboratory, Richland, WA.


#492 9:00 REPRODUCTIVE AND DEVELOPMENTAL TOXICITY RISK ASSESSMENT FOR SHORT-TERM EXPOSURE TO ETHYLENE OXIDE (ETO). G L Kimmel, C A Kimmel, and H Zanick. Reproductive and Developmental Toxicology Branch/HHAG/OHEA and Health Effects Research Laboratory/OHR, US Environmental Protection Agency, Washington, DC and Research Triangle Park, NC.


#494 9:30 DEVELOPMENTAL TOXICITY OF 2,3'-DIDEOXYCYTIDINE (DDC) IN MICE. R Lindstrom, M Harris, A M Hoberman*, J K Dunnick and R E Morrissey. National Toxicology Program, NIEHS, Research Triangle Park, NC; and *Argus Research Laboratories, Horsham, PA.

#495 9:45 STUDIES OF PRENATAL DEVELOPMENT IN THE RAT FOLLOWING ORAL EXPOSURE TO T-2 TOXIN. M S Bean, K Mayura, B A Clement, J F Edwards, J B Harris, and J D Phillips. Department of Veterinary Public Health and 1 Pathology, Texas A&M University and 2USDA/ARS, College Station, TX.

#496 10:00 SODIUM AZIDE (NaN3) HAS WEAK TERATOGENIC EFFECTS IN THE GOLDEN HAMSTER (GH). T F Sano, V H Ferrin and R P Smith. Department of Pharmacology/Toxicology and Department of Anatomy, Dartmouth Medical School, Hanover, NH.

#497 10:15 THE EFFECTS OF LOW PROPYLTHIOURACIL DOSES ON THE RAT NEONATE. T T Sherer and R J Bull. Pharmacology/Toxicology Program, College of Pharmacy, Washington State University, Pullman, WA.


#499 10:45 TERATOGENICITY OF 5-FLUOROURACIL IN DROSOPHILA MELANOGASTER. W D Lynch, R L Schuler, D G Davis*, and R D Hood*. NICSH, Div. Biomedical and Behavioral Science, Experimental Toxicol. Br., Cincinnati, OH and "Department of Biology, The University of Alabama, Tuscaloosa, AL.

#500 11:00 TERATOGENIC INTERACTION OF DNA SYNTHESIS INHIBITORS. D A Dawson, T W Schultz, and T S Wilke. College of Veterinary Medicine, University of Tennessee, Knoxville, TN. Sponsor: P L Frazier.

#501 11:15 REVERSAL OF BROPRIIMINE EMBRYOLETALITY WITH PROGESTERONE OR INDOMETHACIN. T A Marks, D L Black, D G Branstetter and K T Kirton. Drug Safety Research, The Upjohn Co., Kalamazoo, MI.

#502 11:30 MECHANISTIC STUDIES OF THE ATTENUATION OF 2-METHOXYETHANOL(2-ME) TERATOGENICITY BY SERINE ISOMERS IN MICE. D O Clarke, D B Stefan and F Welsh. CIT, Research Triangle Park, NC.

#503 11:45 STUDIES ON THE TERATOGENESIS OF CYSTEINE PROTEINASE INHIBITION. G P Daston, D Baines and L D Lehman-McKeeman. Miami Valley Laboratories, Procter & Gamble, Cincinnati, OH.

WEDNESDAY MORNING, FEBRUARY 14
8:30 a.m.-12:00 noon
BRITTANY ROOM

PLATFORM SESSION: BIOTRANSFORMATION

Chairpersons: Robert Snyder, Rutgers University, Piscataway, NJ and Joseph Donald deBethizy, RJR Tobacco Company, Winston-Salem, NC.

#504 8:30 P450III E1 ENZYME EXPRESSION IN ISOLATED AND CULTURED HEPATOYCYTES. J Kraner, G Carpano, S Ray, J Lasker, J Raucy. Toxicology Program, U. New Mexico College of Pharmacy, Albuquerque, NM; Alcohol Research and Treatment Ctr., Bronx VA Medical Center, Bronx, NY.

#505 8:45 REGULATION OF RAT LIVER CYTOCHROME P-450 III A ISOZYMES. J E A Leakey, J M McMillan, J J Bazzare, J R Harmon, H C Cuny and M P Arlotta. Divisions of Reproductive and Developmental Toxicol. and
STUDIES ON TESTOSTERONE OXIDATION AND THE OXIDATIVE CLEAVAGE OF DIGITOXIN BY RAT LIVER MICROSOMAL CYTOCHROME P-450 (III A 1). D C Eberhart and A Parkinson. University of Kansas Medical Center, Kansas City, KS.

COMPARISON OF THE TISSUE DISTRIBUTION OF TWO ISOZYMES OF RAT LIVER MICROSOMAL CARBOXYESTERASE (HYDROLASES A AND B). E W Morgan and A Parkinson. University of Kansas Medical Center, Kansas City, KS.


BENZENE METABOLISM BY TWO PURIFIED, RECONSTITUTED RAT HEPATIC MIXED FUNCTION OXIDASE SYSTEMS. T A Chepiga, C S Yang, and R Snyder. Joint Graduate Program in Toxicology, Rutgers University/RWJ Medical School, Piscataway, NJ.

N-OXIDATION AND MICROSOMAL ENZYME EFFECTS OF IN VIVO EXPOSURE TO PRIMARY AROMATIC AMINES IN JAPANESE MEDAKA. J M Dady and S B Bradbury. University of Wisconsin, Superior, WI. US EPA Environmental Research Laboratory, Duluth, MN.


TOXICITY OF NAPHTHALENE-1,2-DIHYDRODIOL IN ISOLATED MOUSE HEPATOCYTES. R E Billings, N E Miller, J E Dabbs, S E LeValley, and C E Green. Dept. of Biochemical Toxicology, SRI International. Menlo Park, CA and Depts. of Surgery and Pharmacology, University of Nevada, Reno, NV.

IN VIVO SPIN-TRAPPING OF METABOLITES OF 3,3-DICHLOROBENZIDINE. M M Iba*. A Ghoshal, J L Poyart**, P Downs*** and W H Masson**. Dept. of Pharmacology and Toxicology, Rutgers Univ., Piscataway, NJ (**), Oklahoma Health Sciences Center, (**), and Oklahoma City, OK.


ROLE OF MATERNAL DIETARY CARBOHYDRATES IN HEPATIC DRUG METABOLISM OF PROGENY. H Karkik, S Mohla, and B Sonawane, Colleges of Allied Health Science and Medicine, Howard University, and U.S. Environmental Protection Agency, Washington, DC. Sponsor: D V Singh.

WEDNESDAY MORNING, FEBRUARY 14
LE MANS ROOM

POSTER/DISCUSSION SESSION: CALCIUM AND CYTOTOXICITY

Chairpersons: Thomas W. Jones, University of Maryland, Baltimore, MD and M.W. Anders, University of Rochester, Rochester, NY.

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.


PERTURBATION OF Ca2+ HOMEOSTASIS IN KIDNEY CELLS INDUCED BY NEPHROTOXIC CYSTEINE S-CONGUJATES: NEW INSIGHTS WITH FLUORESCENCE DIGITAL IMAGING MICROSCOPY. S Vanvakas and M W Anders. Dept. of Pharmacology, University of Rochester, Rochester, NY.

INTRACELLULAR CALCIUM CHELATORS INDUCE LIPID PEROXIDATION IN ISOLATED HEPATOCYTES. L C Deyo and D J Reed. Department of Biochemistry and Biophysics and Environmental Health Sciences Center, Oregon State University, Corvallis, OR.


A SIMPLE MODEL TO IDENTIFY MOLECULAR MECHANISMS OF ENERGY FAILURE INDUCED BY OXIDATIVE STRESS. J H Richburg, M M Hallock and F C Kaufman. Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

MITOCHONDRIAL Ca TRANSPORT COUPLED TO SUPEROXIDE FORMATION SUGGESTS AN ALTERNATE MECHANISM FOR THE CARDIOTOXICITY OF DOXORUBICIN. E Chacon, D Acosta. The University of Texas, Austin, TX.
IONOMYCIN-INDUCED Ca^{2+}-DEPENDENT INJURY IN PRIMARY RAT MYOCARDIAL CELLS. J R Babson and J M Dougherty, Dept. of Pharmacology & Toxicology, College of Pharmacy, University of Rhode Island, Kingston, RI. Sponsor: Z A Shaikh.

EFFECTS OF ETHACRYNIC ACID ON PRIMARY RAT MYOCARDIAL CELL THIOL STATUS AND INTRACELLULAR Ca^{2+} HOMEOSTASIS. C M Dhanbhoola and J R Babson, College of Pharmacy, University of Rhode Island, Kingston, RI. Sponsor: Z A Shaikh.

LOCALIZATION OF CISPLATIN STIMULATED CALCIUM UPTAKE BY RENAL ENDOPLASMIC RETICULUM: A BIOMARKER FOR PLATINATE TOXICITY. A Varma and S H Snyder, Johns Hopkins University, Departments of Neuroscience & Environmental Health Sciences, Baltimore, MD. Sponsor: L Fechter.


EFFECTS OF A 21-AMINO-STEROIDS, LAZAROID (U-74006F), ON THE INHIBITION OF DOXORUBICIN-INDUCED INTRACELLULAR FORMATION OF REACTIVE OXYGEN SPECIES. R G Ulrich*, E Chacon, and D Aceveda. *The Upjohn Company, Kalamazoo, MI and The University of Texas, Austin, TX.


WEDNESDAY MORNING, FEBRUARY 14
BORDEAUX ROOM

POSTER/DISCUSION SESSION: IMMUNOTOXICITY OF DRUGS

Chairpersons: Gary R. Burleson, U.S. EPA, Research Triangle Park, NC and Albert E. Munson, Medical College of Virginia, Richmond, VA.

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.


EVALUATION OF SORBINIL ACTIVITY IN THE MOUSE POPITIVE LYMPH NODE (PLN) ASSAY. D. Viarda, P Wilson, G D Williams. Lilly Research Laboratories, Eli Lilly and Company, Greenfield, IN.


2,3-DIDEOXYADENOSINE SELECTIVELY AFFECTS B LYMPHOCYTE DIFFERENTIATION Wai Cao, M L Stern, M L Luster and A E Munson. Department of Pharmacology and Toxicology, Medical College of Virginia, Richmond, VA and Systemic Toxicology Branch, National Institute of Environmental Health Sciences, NIH Research Triangle Park, NC.

IMMUNOTOXICOLOGICAL EVALUATION OF ALDICARB OXIME IN FEMALE B6C3F1 MICE. A E Munson, J A McCoy, D L Musgrove, R D Brown, M L Stern, B A Fuchs, K L White, Jr. Dept. Pharmacol. & Toxicol. and Biostatistics. Medical College of Virginia/VCU, Richmond, VA.

IMMUNOGENICITY STUDIES OF A SYNTHETIC ANTIGEN OF ALPHA-METHYL DOPA. C L Lohr, A J Gandolli and A K Hubbard. School of Pharmacy, Univ. of Conn., Storrs, CT and Dept. of Anes., Univ. of Ariz., Tucson, AZ.

IMMUNOTOXICOLOGICAL EVALUATION OF OXYMETHOLONE, AN ANABOLIC STEROID. K L White, Jr, J A McCoy, D L Musgrove, R D Brown, M L Stern, and A E Munson. Dept. Pharmacol. & Toxicol. and Biostatistics, Medical College of Virginia/VCU, Richmond, VA.

FLOW CYTOMETRIC ANALYSES OF LEUKOCYTES FROM WORKERS EXPOSED OCCUPATIONALLY TO OPIATES. C M Henningsen, R E Bagian, S L Klinecizewicz, J S Gallagher, and L S Trinkle. NIOSH, DSHEFS and DBBS, University of Cincinnati, Cincinnati, OH.

SELECTIVE AUGMENTATION OF HOST RESISTANCE TO INFECTION IN MICE TREATED WITH PYREXOL. House RV*, Pearson P** and Thomas, PT*. *Dept. of Life Sciences, ITIRI, Chicago, IL and **Cell Technology Inc., Boulder, CO.
IN VITRO EVALUATION OF DRUG-INDUCED TOXIC EFFECTS ON THE IMMUNE SYSTEM.
M J Pallardy1,2, H N Lebrec1,2, G R Burleson1, and C Bohuon1,2, Laboratory de Toxicologie, Faculte de Pharmacie, Chateray-Malabry, France. 1 UNITé de biologie clinique, Instinct G. Roussy, Villejuif, France. 2 Health Effects Research Laboratory, US EPA, Research Triangle Park, NC.

WEDNESDAY MORNING, FEBRUARY 14
BURGUNDY ROOM

POSTER/DISCUSION SESSION: METHYLmercury TOXICITY

Chairpersons: William D. Atchison, Michigan State University, East Lansing, MI and Kenneth Reuhl, Rutgers University, Piscataway, NJ.
Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.

#540 METHYLmercury (MeHg) TOXICITY IN RAT PRIMARY ASTROCYTE CULTURES. M Alshner, N Eberle, K Miller and H K Kimelberg. Department of Pharmacology and Toxicology, Division of Neurosurgery, and the Interdepartmental Neuroscience Training Program, Albany Medical College, Albany, NY.


#542 METHYLmercury TRANSPORT ACROSS THE BLOOD-BRAIN BARRIER BY MOLECULAR MIMICRY. L E Kerper, N Ballato and T W Clarkson, Environmental Health Sciences Center, University of Rochester School of Medicine, Rochester, NY.


#544 METHYL MERcury, N-CAM EXPRESSION AND DYSMORPHOGENESIS. K R Reuhl and B Borgeson. Neurotoxicology Laboratories, Rutgers College of Pharmacy, Piscataway, NJ.

#545 SYNAPTOsomAL MEMBRANE DEPOLARIZATION IN VITRO BY MERCURIALS. M F Hare and W D Atchison, Dept. Pharmacol./Toxicol., & Neuroscience Program, Michigan State Univ., East Lansing, MI.

#546 METHYL mercury DISTURBS NEURONAL PROTEIN PHOSPHORYLATION. T A Sarafian and M A Verty, Dept. of Pathology, UCLA, LA, CA. Sponsor: A Cho.

#547 EVIDENCE FROM RADIOTrACER FLUX AND BINDING STUDIES SUGGESTS THAT METHYLmercury BLOCKS Ca CHANNELS IN A VOLTAGE-DEPENDENT MANNER AND MAY INTERACT WITH MORE THAN ONE TYPE OF Ca CHANNEL. T J Shafert, and W D Atchison, Dept. of Pharm./Tox. and Ctr. Env. Tox., Michigan State Univ., E. Lansing, MI.

#548 MATURATION-DEPENDENT SENSITIVITY OF NEURON MICROtUBES TO METHYLmercury. M M Falconer*, D L Brown*, A P Christiano, T L Roscoe, and K R Reuhl, *Univ. of Ottawa, Canada, and Neurotoxicology Laboratories, Rutgers College of Pharmacy, Piscataway, NJ.

#549 ULTRASTRUCTURAL EFFECTS OF METHYLmercury (MeHg) ON CYTOSKELETAL ARCHITECTURE. L Kromidas and L D Trombetta. St. John's University, Queens, NY.

#550 EFFECTS OF REPEATED METHYLmercury EXPOSURE ON INTERPHASE MICROtUBES. R D Graff, K R Reuhl, Joint Graduate Program in Toxicology, Neurotoxicology Labs, Rutgers College of Pharmacy, Piscataway, NJ.

WEDNESDAY MORNING, FEBRUARY 14
LORRAINE ROOM

POSTER/DISCUSION SESSION: Peroxisome PROLIFERATION

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.


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FURTHER STUDIES ON THE EFFECTS OF PERFLUORODECANOIC ACID (PFDA) ON PEROXISOMAL B-OXIDATION IN THE RAT. T Borges, J W Robertson, and H P Glauert. Graduate Center for Toxicology and Department of Nutrition and Food Science, University of Kentucky, Lexington, KY.

SPECIES DEPENDENT INDUCTION OF PEROXISOME PROLIFERATION BY HALOXYFOP, A NEW HERBICIDE. W T Stott, B L Yano, D M Williams, S D Barnard, M A Hannah and F S Cieslak. Dow Chemical Co., Midland, MI; Merrell Dow PharmaceuticaIs, Indianapolis, IN.

EFFECTS OF PERFLUORODECANOIC ACID ON HEPATIC HYDROGEN PEROXIDE-METABOLIZING SYSTEMS IN RATS: A TIME COURSE STUDY. L C Chen, M Baker, L Wilson, H P Glauert, and C K Chow. Graduate Center for Toxicology and Department of Nutrition and Food Science, University of Kentucky, Lexington, KY.

LONG-TERM EFFECTS OF PEROXISOME PROLIFERATORS ON HEPATIC PEROXIDES AND DNA. T Suga, H Tamura, T Iida and T Watanabe. Department of Clinical Biochemistry, Tokyo College of Pharmacy, Tokyo, Japan.

EFFECT OF 2-ETHYHEXANOL ON HEPATIC ENERGY STATE AND MITOCHONDRIA IN THE RAT. B J Keller, D Liang and R G Thurman. Lab of Hepatology and Toxicology, Dept of Pharmacology, Univ of North Carolina at Chapel Hill, Chapel Hill, NC.

THE EFFECT OF SHORT-TERM EXPOSURE TO ETHYLHEXANOL IN VIVO ON HEPATIC OXYGEN UPTAKE IN ALCOHOL DEHYDROGENASE DEFICIENT DEERME. B U Brandford, B J Keller, and R G Thurman. Laboratory of Hepatology and Toxicology, Departments of Pharmacology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

CONFORMATIONAL ANALYSES ON TERAZOLE SUBSTITUTED ACETOPHENONES THAT INDUCE PEROXISOME PROLIFERATION IN RAT LIVER. P S Foxworth, D K Herron, R D Dillard, C A Whitesitt, W S Marshall, and P I Eacho. Lilly Research Labs, Eli Lilly and Co., Indianapolis, IN.

WEDNESDAY MORNING, FEBRUARY 14
GRAND BALLROOM

POSTER SESSION: ACUTE AND CHRONIC TOXICOLOGY

Chairperson: Charles Lindamood, III, Southern Research Institute, Birmingham, AL.

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

REDUCTION IN ANIMALS USED FOR ACUTE TOXICITY TESTING BASED ON RETROSPECTIVE ANALYSIS. H M Olson, R Fabian, Y Greener, F Pack, D Zelinger, J H Dean. Department of Toxicology, Drug Safety Assessment Division, Sterling Research Group, Rensselaer, NY.


TOXICOLOGY OF PHENYLHYDROQUINONE. G L Kennedy. Haskell Laboratory for Toxicology and Industrial Medicine, E J Du Pont De Nermours & Company, Inc., Newark, DE.


CHANGES IN THE ACUTE PHASE PROTEINS AND SERUM CHOLESTEROL IN EXPERIMENTAL SEPTICEMIA. C O Crockett, J O Olubadewo, and R F Ochillo. Labs of Pharmacology and Toxicology, Biomedical Research Center, Xavier University of Louisiana, New Orleans, LA.

POSTER SESSION: CARCINOGENESIS I

CHRONIC TOXICITY AND CARCINOGENICITY DOSED-WATER STUDIES OF SODIUM FLUORIDE IN F344 RATS AND B6C3F1 MICE. M Heitmanek, J R Bucher, A Peters, and P Kurz. Battelle, Columbus, OH and NEIHS, Research Triangle Park, NC.

INHIBITION OF RODENT HEPATOCYTE GAP JUNCTIONAL INTERCELLULAR COMMUNICATION (GJIC) BY LOVASTATIN. S Bandypadhyay, R J Pluch, P Somani, and J E Klumpp. Departments of Pharmacology and Experimental Therapeutics and Pathology, Medical College of Ohio, Toledo, OH.

IN VITRO INHIBITION OF GAP JUNCTIONAL INTERCELLULAR COMMUNICATION (GJIC) BY TUMOR PROMOTORS IN THE RAT LIVER. J A Hartnett, C M Weghorst, and J E Klumpp. Dept. of Pathology, Medical College of Ohio, Toledo, OH.

GAP JUNCTIONAL INTERCELLULAR COMMUNICATION (GJIC) IN HUMAN LIVER. L E Schrump, J H Reesau, J R Cottrell and J E Klumpp. Dept. of Pathology, Medical College of Ohio, Toledo, OH and Dept. of Pathology, University of MD, Balt., MD.

EFFECTS OF DIETARY RESTRICTION ON HEPATIC DNA SYNTHESIS AND AFLATORIN B1 (AFR1) BINDING TO DNA IN RATS AFTER MULTIPLE AFB1 DOSING. R.A. Pegram, P Gao, W.T. Alab, and M W Chou. National Center for Toxicology Research, Jefferson, AR.

HUMAN SUSCEPTIBILITY TO AFLATOXIN B1: CARCINOGENESIS: INDIVIDUAL VARIATIONS IN BIOTRANSFORMATION. D L Eaton and H S Ramsdell. Department of Environmental Health, University of Washington, Seattle, WA.

GLUTATHIONE-S-TRANSFERASE (GT) ACTIVITY IN HUMAN LIVER AND LYMPHOCYTES AND ITS ROLE IN REGULATING CARCINOGEN-DERIVED DNA ADDUCT FORMATION. Y H Lu, C R Miller, J A Taylor, D Nagorney, G Lucier and C L Thompson. NEIHS, RTP, NC and Mayo Clinic, Rochester, MN.

THE EFFECT OF GENDER AND PHENOBARBITAL PROMOTION UPON THE SENSITIVITY OF INFANT C57 MICE TO CHEMICAL CARCINOGENS. M A Pereira, K K Wasmund, M S Hensley, J E Klumpp and M D Khoury. Environmenatal Health Research and Testing, Inc., Cincinnati. OH and Medical College of Ohio, Toledo, OH.

GLUTATHIONE S-TRANSFERASE EXPRESSION IN HEPATIC NEOPLASMS INDUCED BY AFLATOXIN B1 AND DMBA IN RAINBOW TROUT. G M Kirby, M Staiker, J Hendricks*, C Metcaife H Ferguson and M A Hayes. Department of Pathology, University of Guelph, Guelph, Ontario, Canada. *Dept of Food Science and Technology, Oregon State University, Corvallis, OR.


WEDNESDAY MORNING, FEBRUARY 14
GRAND BALLROOM

POSTER SESSION: DERMAL/OCULAR TOXICOLOGY

Chairperson: Gillian Caroline Haggerty, G.D. Searle & Company, Skokie, IL.

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

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


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WEDNESDAY MORNING, FEBRUARY 14
FONTAINEBLEAU BALLROOM D

POSTER SESSION: METAL TOXICOLEG

Chairperson: Maryka Horsting Bhattacharyya, Argonne National Laboratory, Argonne, IL.
Displayed: 9:30 a.m.-11:30 a.m.
Attended: 10:00 a.m.-11:30 a.m.

#622

#623
BIOAVAILABILITY IN RATS OF METAL ADSORBED TO SOILS. R Rubenstein, S Griffin, S Irene, C DeRosa and H Choudhury. US EPA, Washington, DC.

#624
PULMONARY TOXICITY AFTER CHRONIC INHALATION EXPOSURE TO ANTIMONY TRIOXIDE (SbO3) IN RATS. P E Newton, H J Boile and A W Sheldon*. Biodynamics, Inc., East Millstone, NJ; "A.O.I.A.**, Washington, DC.

#625
SUBCUTANEOUS AND INTRAPERINEAL INFUSION OF RATS WITH HEXAVALENT URANIUM: A PILOT STUDY. M W Himmelstein and F J O Flaherty. Environmental Health, University of Cincinnati, Cincinnati, OH.

#626
UPTAKE AND ABSORPTION OF TWO COBALT COMPOUNDS BY THE GASTROINTESTINAL TRACT. J M Firriolo and D F Carter. Dept. Pharm. and Tox., University of Arizona, Tucson, AZ.

#627
DIETARY AND IN VITRO EFFECTS OF IRON (FE) ON ORNITHINE DECARBOXYLASE (ODC) ACTIVITY IN RAT TISSUE PREPARATIONS. D W Gaines, P Whittaker, W G Warner, and L L Friedman. FDA, CFSAN, Washington, DC.

#628
HUMAN HEALTH IMPLICATIONS OF DIETARY SELENIUM INTAKE. A M Fan, Y W Lowney and M J DiBartolomeo. California Department of Health Services, Berkeley, CA.

#629

#630
STIMULATION OF FREE RADICAL-MEDIATED PORPHYRINOGEN OXIDATION BY MERCURY: GLUTATHIONE COMPLEX. J S Woods, C A Calas and L Aicher. Department of Environmental Health, University of Washington, Seattle, WA.

#631
EXAMINATION OF CHANGES IN PROTEIN PHOSPHORYLATION FOLLOWING THE ACQUISITION OF NICKEL RESISTANCE IN BALB/C-3T3 CELLS. X W Wang and M Costa. Instit. of Environ. Med., NYU Medical Center, New York, NY.

#632

#633
INJUENCE OF INHIBITION METABOLISM IN TOLERANCE TO CADMIUM IN TESTICULAR INTERSTITIAL CELLS. Z Z Wahba, L Hernandez, H J Issaq and M P Wanka. National Cancer Institute-FCRF, Frederick, MD.

#634
Carcinogenic and Anticarcinogenic Effects of Single Dose Cadmium in Fischer Rats. B Sassa, N Konishi, R M Bare, J M Ward, S Rehm, and M P Wealkes. Nat'l Cancer Institute-FCRF, Frederick, MD.


Further Characterization of Cadmium Uptake by Rat Liver Sinusoidal Plasma Membrane Vesicles as a CARRIER MEDIATED PROCESS. H B Eastman and J M Frazier. Johns Hopkins University, Baltimore, MD.

Metal-Binding Characteristics of the Low Molecular Weights, High Affinity Cytosolic Lead-Binding Protein in Male Rat Brain. G E DuVal, B A Fowler. The University of Maryland at Baltimore, Toxicology Program, Baltimore, MD.


Differential Effects of Lead on Parathyroid Hormone-Induced Responses in Osteoblastic Osteosarcoma Cells Using [125I] FSHR. J F Rosen, F A X Schanne, T L Dowd, R J Gupta. Department of Pediatrics, Pathology, Physiology, Biophysics and Biochemistry, Albert Einstein College of Medicine, NY.


Effects of Metal Ions on Agonist-Stimulated Accumulation of Inositol Phosphates in Hippocampal and Cortical Slices. M J Bonner and H A Tinsley. Curr. Topic in Toxicology, UNC-Chapel Hill, NC; LMIN, NIEHS, NIH, Research Triangle Park, NC; and Neurotoxicology Division, EPA, Research Triangle Park, NC.

Lead Inhibits the Responses of a Rat Osteoblast Cell Line ROS 17/28 to 1 a, 25-Di-Hydroxyvitamin D3 and IGF-I. C B Angulo, D J Thomas, and S A Swanson. Department of Pediatrics, University of Nebraska Medical Center, Omaha, NE.

Does Pb Delay Drosophila Development? J Cohn, D Wdowski, M J Pokora and D A Corl-Slecht. Environmental Health Sciences Center, University of Rochester School of Medicine and Dentistry, NY.

Lead Exposures to Firearm Instructors in an Outdoor Firing Range from Non-Jacketed and Jacketed Ammunition. R K Tripathi and P C Sherertz. VA Dept. of Health, Richmond, VA.

Cadmium Induced Nephrotoxicity in Rhesus Monkeys (Macaca Mulatta) in Relation to Protein Calorie Malnutrition. R Prasad, V K Parwani and R Math. Department of Biochemistry, PGIMER, Chandigarh, India.

Wednesday Morning, February 14
Fontainebleau Ballroom D

Poster Session: Natural Products/Food

Chairperson: Elaine S. Wright, General Motors Corporation, Warren, MI.

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

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

Reduction of Aflatoxin M1 Residues in Milk Utilizing Hydrated Sodium Calcium Aluminosilicate. J A Ellis, R B Harvey*, L F Kubena*, R H Bailey, B A Clement and T D Phillips. Department of Veterinary Public Health, Texas A&M University and USDA/ARS, College Station, TX.

Effects of Molecular Structure on the Chemisorption of Aflatoxin B1 and Related Compounds by Hydrated Sodium Calcium Aluminosilicate. A B Sarr, B A Clement and T D Phillips. Department of Veterinary Public Health, Texas A&M University, College Station, TX.

Fate of Aflatoxins in Lime Processed Corn. R H Bailey, B A Clement, J M Phillips, A B Sarr, T A Turner and T D Phillips. Department of Veterinary Public Health, Texas A&M University, College Station, TX.
TOXICITY OF 15-MONOACETOXYSCIRPENOL FED TO YOUNG CHICKENS. A A Ademowo, and P B Hamilton. Toxicology Program and Department of Poultry Science, North Carolina State University, Raleigh, NC.

HEMATOLOGY, CHEMICAL VALUES AND BLOOD CHOLESTEROL ACTIVITY IN F-344 RATS FOLLOWING A SINGLE DOSE OF OCHRATOXIN A. V Reddy, T Douglas and N Indacochea-Redmond. Midwest Research Institute (MRI), Life Sciences Department, Kansas City, MO.


INVESTIGATIONS ON THE ENHANCED TOXICITY OF INHALED SAXITOXIN. D A Creasia. US Army Medical Research Institute of Infectious Diseases, Frederick, MD.

ACUTE LETHAL EFFECT OF T-2 TOXIN IN CATS RESULTS FROM SEQUENTIAL LOSS OF PLASMA AND BLOOD. H L Peterson, M L Goodheart and D C Thul. Dept. Pharmcol. & Toxicol., Dartmouth Med. Sci., Hanover, NH.


EFFECT OF FUSARIUM MONILIFORME METABOLITES ON UNSCHEDULED DNA SYNTHESIS (UDS) IN RAT PRIMARY HEPATOCEYES. W P Norred, R D Plattner, R F Vesonder, P M Hayes, C W Bacon and K A Voss. Russell Research Center, ARS/USDA, Athens, GA and *Northern Regional Research Center, ARS/USDA, Peoria, IL.

ALIPHATIC ALCOHOLS AND OXIDATIVE DAMAGE. W M Pierce. Jr. Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY. Sponsor: T S Chen.

METABOLISM OF L-CANALINE IN THE RAT. M A Barge and G A Rosenthal, Graduate Center of Toxicology, University of Kentucky, Lexington, KY. Sponsor: L W Robertson.


TOXICITY, STABILITY, AND INACTIVATION OF RICIN (RCA10). R W Wannemacher, Jr., D A Creasia, H B Hines, W L Thompson, and R E Ditterman. Pathophysiology Division, USAMRDC, Fort Detrick, Frederick, MD.

AGE-RELATED TOXICITY OF ACORNS IN RATS. R R Dalvi and S P Govindwar. Toxicology Laboratory, School of Veterinary Medicine, Tuskegee University, Tuskegee, AL.

CATECHIN AS AN ANTIMUTAGEN AND ANTICARCINOGEN. M Nagabhushan. Northwestern University, Department of Pathology, Chicago, IL. Sponsor: E Kaminski.


30-DAY GAVAGE STUDY IN RATS USING PURIFIED OMEGA-3 FATTY ACIDS. D McClure, R Jackson, G Ruffin, A Arnold and C Frazier, Food and Drug Administration, Division of Toxicological Sciences, Washington, DC. Sponsor: S Green.

FEEDING STUDY IN RATS WITH HEATED OLEASTRA/VEGETABLE OIL BLENDS. K W Miller and P H Long. The Proctor & Gamble Company, Winton Hill Technical Center, Cincinnati, OH.


POSTER SESSION: OXIDATIVE STRESS II

Chairperson: Martyn Smith, University of California-Berkeley School of Public Health, Berkeley, CA.

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

MODULATION OF DIQUAT-INDUCED TOXICITY IN VIVO BY NOVEL INHIBITORS OF LIPID PEROXIDATION AND THE ANTIOXIDANT DIPHENYL-P-PHENYLENEDIAMINE. R A Jolly, G H Wolfgang, W J Donarski, R Ochoa and T W Petry. The Upjohn Company, Kalamazoo, MI.

INHIBITION OF DIQUAT-INDUCED LIPID PEROXIDATION AND TOXICITY IN VITRO BY NOVEL ANTIOXIDANTS. G H Wolfgang and T W Petry, Investigative Toxicology Research, The Upjohn Company, Kalamazoo, MI.

CYCLOPIAZONIC ACID (CPA) SUPRESSES PATULIN (PAT) INDUCED FREE RADICAL DAMAGE IN CULTURED RenAL CELLS. R T Riley and J L Showker, Toxicology and Mycotoxins Research Unit, Russell Research Center, USDA-ARS, Athens, GA. Sponsor: W P Norred.

IN VITRO AND IN VIVO SUSCEPTIBILITIES OF RAT TISSUES TO CADMIUM-INDUCED LIPID PEROXIDATION. D Marca, A C Ricard, B Trottier, and G Chavaller, Environmental Toxicology Lab., University of Quebec in Montreal, Montreal, Canada.

EFFECT OF CHRONIC FE OVERLOAD ON FE STATUS, LIPID PEROXIDATION AND THYRIDINE KINASE (TK) ACTIVITY. P Whittaker, R J Calvert, W Warmer, D W Gaines and L Friedman, FDA Nutrition and Toxicology Divisions, Washington, DC.


HYDROGEN PEROXIDE: A POTENT ACTIVATOR OF DIOXYGENASE ACTIVITY OF SOYBEAN LIPOXYGENASE. A K Mitra and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

DIOXYGENASE AND PEROXIDASE ACTIVITIES OF SOYBEAN LIPOXYGENASE: SYNERGISTIC INTERACTION BETWEEN LINOLEIC ACID AND HYDROGEN PEROXIDE. J Chauchuri and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

XENOBIOTIC CO-OXIDATION BY FEMALE RAT LUNG CYTOSOLIC LIPOXYGENASE. Y Cai, S K Roy, and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

RAT LUNG LIPOXYGENASE-CATALYZED EPOXIDATION OF BENZO (a) PYRENE-7,8-DIHYDRODIOL. A P Kulkarni and J Z Byczkowski. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

XENOBIOTIC METABOLISM BY RAT LIVER CYTOSOLIC LIPOXYGENASE. S K Roy, Y Cai and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

ROLE OF LIPOXYGENASE IN FOREIGN COMPOUND METABOLISM: S-OXIDATION OF THIOBENZAMIDE BY PURIFIED SOYBEAN ENZYME. A K Naidu and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

PEROXIDATION OF LINOLEIC ACID BY ENVIRONMENTAL POLLUTANTS: HYDRATED SO2, REDUCED VANADIUM AND ASBESTOS. J Z Byczkowski and A P Kulkarni. Florida Toxicology Research Center, College of Public Health, University of South Florida, Tampa, FL.

POSTER SESSION: PESTICIDES

Chairperson: Merle G. Paule, U.S. FDA, Jefferson, AR.

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

DETOXIFICATION OF CARBARYL BY ANAEROBIC GASTROINTESTINAL ORGANISMS. S J Laszewski and J M Hankin. Foth & Van Dyke, Green Bay, WI and University of Wisconsin-Madison, Madison, WI. Sponsor: R E Peterson.

BIOAVAILABILITY OF BOUND RESIDUES OF [14C]FEBANTEL TO RATS. M R McLean, G R Krautler, T B Waggoner and L J Lawrence. Pharmacology and Toxicology Research Laboratory & Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

CORRELATION OF THE CHANGES IN SGPT, SGOT AND LDH AFTER ADMINISTRATION OF PARAQUAT (PQ). P A Dimiris, J M Mitchell and P Epivatos*. Joint Program in Toxicology, Rutgers University, Piscataway, NJ and "Institute of Forensic Medicine, Salonika University, Greece.

TETRAHYDROPTHALIMIDE (THPI) IN URINE AS A BIOLOGICAL INDEX FOR CAPTAN EXPOSURE IN HUMANS. R Kreger, S Margetich and T Thongsitthisak. Worker Health and Safety Branch, California Department of Food and Agriculture, Sacramento, CA.

REGULATION OF METHYLMETHYL ENZYMES IN GRAPE VINEYARDS. J H Ross, M O'Malley, S Bissell, and R I Kreger. Worker Health and Safety Branch, Calif. Dept. of Food and Agric., Sacramento, CA.

RESPIRATORY EFFECTS OF AEROSOLS FROM FOUR DIFFERENT PYRETHROID-CONTAINING INSECTICIDAL FUMIGATING FORMULAS. T G Germanz, C E Manderfield, M Stock*, M Schaper*, and Y Alarie*. "University of Pittsburgh, Pittsburgh, PA and S C Johnson, Inc., Racine, WI.

ALCOHOL SENSITIZING ACTION OF THIOCARBAMATE HERBICIDES. M D Faiman, L J Wong, B W Hart, and D Miller. Department of Pharmacology and Toxicology, University of Kansas, Lawrence, KS.


SUBCHRONIC TOXICITY OF METHYLENE BIS(THIOCYANATE) ORALLY ADMINISTERED TO B6C3F1 MICE. E Czeh, B Myers, B Ulland, R Irwin, L T Burke and G Wolfe*. Hazleton Laboratories, Rockville, MD and NIEHS/NTCP Research Triangle Park, NC.

SUBCHRONIC TOXICITY OF METHYLENE BIS(THIOCYANATE) ORALLY ADMINISTERED TO F 344 RATS. B Myers, R Cardy, R Irwin, L T Burke and G Wolfe*. Hazleton Laboratories, Rockville, MD and NIEHS/NTCP Research Triangle Park, NC.


SUBCHRONIC AND REPRODUCTIVE TOXICITY AND TERATOLOGY OF HALOXYPOL HERBICIDE. J F Quast, B L Yano, F K Dietz, B M Marler* and W C Hayes. Toxicology Research Laboratory, The Dow Chemical Company, Midland, MI and "Merrell Dow Research Institute, Indianapolis, IN.

WEDNESDAY, FEBRUARY 14
10:00 a.m.-11:30 a.m.

POSTER SESSION FOR MINORITY STUDENTS

The ad hoc Tox 90s Educational Issues Task Force sponsors this special poster session for minority undergraduates (juniors/seniors) to explain the field of toxicology.

WEDNESDAY, FEBRUARY 14
12:00 Noon-1:00 p.m.

FONTAINE ROOM

SOT ISSUES SESSION

Chaired by SOT President Roger C. McClellan, DVM

Bring your lunch and participate in an open forum discussion of SOT affairs. Open to all registrants. Robert C. Barnard, Esq., Cleary, Gottlieb, Steen and Hamilton, will give a presentation on government conflict of interest guidelines and their impact on toxicologists. This will be followed by a discussion.
SYMPOSIUM: MACROPHAGE-XENOBIOTIC INTERACTIONS: MODULATION OF TOXICITY AND MACROPHAGE FUNCTIONS

Chairpersons: Lawrence Schook, University of Illinois, Urbana, IL and Peter Bick, Eli Lilly & Company, Greenfield, IN.

Sponsored by the Immunotoxicology Specialty Section

This symposium was organized to present recent results on interactions between macrophages and xenobiotics; and how such interactions affect either the nature and scope of the toxic response and/or changes in macrophage differentiation and function. The macrophage represents a cell which is central to the initiation and maintenance of an immune response. The cell is characterized by its resistance to pathogens and chemicals and is noted for its vast metabolic properties. These characteristics have permitted immunotoxicologists to study how the metabolic state of the macrophage may affect xenobiotic-induced toxicity and conversely how the xenobiotic may affect the functional state of the macrophage. This area of study has proven to be extremely rewarding since much knowledge has been gained in understanding the metabolism of xenobiotics, mechanisms of toxicity, regulation of macrophage differentiation and dissection of macrophage activation states. The development and use of xenobiotics which affect the immune system (e.g., recombinant hematopoietic growth factors and cytokines) will require that we continue to develop models to understand macrophage-xenobiotic interactions.

#35 1:30  Mechanisms for Alteration of Macrophage Differentiation and Activation Following Chemically-Induced Toxicity. Lawrence B. Schook, Laboratory of Molecular Immunology, Dept. of Animal Sciences, University of Illinois, Urbana, IL.

#36 2:00  Effect of Lead on Macrophage Growth and Function. M. Kowolenko, Bristol-Myers Co., Dept. of Investigative Toxicology, Syracuse, NY and D.A. Lawrence, Albany Medical College, Dept. of Microbiology and Immunology, Albany, NY.

#37 2:30  Modulation of Chemically-Induced Hepatotoxicity by Altering Macrophage Function. Debra L. Laskin, Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

#38 3:00  Activation of Macrophages and Xenobiotics. D.O. Adams, Department of Pathology, Duke University Medical Center, Durham, NC.

#39 3:30  Organophosphate Modulation of Macrophage Function. Kathleen E. Rodgers, Livingston Research Center, University of Southern California, Los Angeles, CA.

4:00  Discussion.

SYMPOSIUM: METAL-INDUCED ALTERATIONS IN GENE EXPRESSION

Chairperson: Carol T. Walsh, Boston University School of Medicine, Boston, MA.

Sponsored by the Metals Specialty Section

The purpose of this symposium is to present new findings on metal-induced alterations in gene expression and their significance to metal toxicity. The symposium will begin with a brief review of key regulatory components of gene expression including modifiers of DNA transcription and mRNA translation. An overview of known roles of essential metals such as zinc and iron and those of toxicological significance such as cadmium and mercury will be described. The regulatory DNA-binding proteins characterized by a zinc-containing region at the binding domain ("zinc finger-loop") will be explained. Current knowledge of the physiological significance of these proteins will be described. Hypotheses will be proposed for metal toxicity through interaction at the zinc-binding site. Findings on nickel-induced transformation of Chinese hamster embryo cells which suggest deletions of a tumor suppressor gene localized on the X chromosome will be presented. Approaches for chromosomal mapping of key sites in nickel-induced carcinogenesis will be described. Transcriptional induction by metals of the synthesis of metallothioneins, metal-binding proteins, will be discussed. Research will be presented, using yeast as a model eukaryotic system, which has demonstrated a regulatory gene encoding a metal-activated DNA-binding protein with a cysteine-rich metal-binding domain. Regulation by mercury in bacteria of the mer gene which codes for enzymes that detoxify the mercuric ion will be described. It will be explained how a mercuric ion interacts with the transcriptional activator protein MerR, which together produce a distortion in the DNA promoter site for the mer gene facilitating its transcription.

#40 1:30  Introduction. Carol T. Walsh, Boston University School of Medicine, Boston, MA.

#41 1:40  Zinc Finger-Loop Domains in Gene-Regulating Proteins as Potential Targets for Metal Toxicity. F. William Sunderman, Jr., University of Connecticut Medical School, Farmington, CT.

#42 2:15  Deletion of Heterochromatin and a Senescence/Tumor Suppressor Gene as a Mechanism of Nickel Carcinogenesis. Max Costa, New York University Medical Center, New York, NY.

#43 2:50  Regulation of Metallothionein Gene Expression in Man and Yeast. Michael Karin, University of California, San Diego School of Medicine, La Jolla, CA.
WEDNESDAY AFTERNOON, FEBRUARY 14
1:30 p.m. - 3:30 p.m.
BRITTANY ROOM

PLATFORM SESSION: ENVIRONMENTAL/AQUATIC TOXICOLOGY

Chairpersons: William L. Hayton, Washington, State University, Pullman, WA and Ronald S. Tjeerdema, University of California-Santa Cruz, Santa Cruz, CA.

#699 1:30 FLORIDA-RED TIDE TOXINS INDUCE AIRWAY SMOOTH MUSCLE DEPOLARIZATION. I S Richards, A P Kulkarni, and R Pierce. Department of Environmental and Occupational Health, College of Public Health, University of South Florida, Tampa, FL, the Mote Marine Laboratory, Sarasota, FL.

#700 1:45 SUBLETHAL EFFECTS OF PENTACHLOROPHENOL IN THE RED ABALONE AS MEASURED BY IN VIVO 31P NMR SPECTROSCOPY. B S Tjeerdema*, T W M Fan*, R M Higashi*, and D G Crosby*. *Aquatic Toxicology Program, Institute of Marine Science, University of California, Santa Cruz, CA; Dept. of Environmental Toxicology, University of California, Davis, CA; and *University of California Bodega Marine Lab., Bodega Bay, CA.

#701 2:00 DISPOSITION OF ERYTHROMYCIN IN THE LOBSTER, HOMARUS AMERICANUS. M O James, Dept. Medicinal Chemistry, University of Florida, Gainesville, FL.

#702 2:15 ERYTHROMYCIN PHARMACOKINETICS IN ADULT CHINOOK SALMON AFTER INTRA-AND EXTRA-VASCULAR INJECTION. W L Hayton, I R Schultz and C M Molfitt. Coll. of Pharmacy and Grad Pgm in Pharm/Tox, Washington St. Univ., Pullman, WA and Idaho Coop Fish and Wildlife Res. Unit, Univ. of Idaho, Moscow, ID.

#703 2:30 SCALING TRIFLURALIN TOXICOKINETICS FOR BODY SIZE IN RAINBOW TROUT. I R Schultz and W L Hayton. Pharmacology/Toxicology Program and College of Pharmacy, Washington State University, Pullman, WA.

#704 2:45 PRELIMINARY REPORT OF THE FINDINGS OF THE HEALTH EFFECTS FOR DENVER'S POTABLE REUSE DEMONSTRATION PROJECT. G Wolfe, B Myers*, J Lement*, W Lauer*, F Johns*, L Condie*, and J F Borzelleca*. Hazeltine Laboratories, Rockville, MD; Denver Water Department, Denver, CO; University of Co., US Army Dugway, Stansbury Park, UT; and 3 Medical College of Virginia, Richmond, VA.

#705 3:00 EFFECT OF SUBCHRONIC DIELDRIN EXPOSURE ON THE FOOD INTAKE, GROWTH AND CONVERSION EFFICIENCY OF THE FISH CHANNA STRIATUS. W Galicka*, N Varalakshmi, S Katte, and S R Reddy, Department of Zoology, Bangalore University, Bangalore, India. *Department of Zoology, University of Lodz, Lodz, Poland. Sponsor: H M Mehendale.

#706 3:15 COMBINED EFFECTS OF SODIUM PENTACHLOROPHENATE AND QUANTITY OF FOOD ON THE FEEDING ENERGETICS OF THE CATFISH MYSTUS VITTATUS. G Belliappa and S R Reddy. Department of Zoology, Bangalore University, Bangalore, India. Sponsor: H M Mehendale.

WEDNESDAY AFTERNOON, FEBRUARY 14
1:30 p.m. - 3:45 p.m.
CHAMPAGNE ROOM

PLATFORM SESSION: RENAL TOXICOLOGY

Chairpersons: Lois D. Lehman-McKeeman, The Procter & Gamble Company, Cincinnati, OH and William O. Berndt, University of Nebraska Medical Center, Omaha NE.


#708 1:45 PARATHYROID HORMONE AND ESTRADIOL REGULATE CADMIUM UPTAKE IN KIDNEY CELLS. J J Flanagan and P A Friedman, Dept. Pharmacology & Toxicology, Dartmouth Medical School, Hanover, NH. Sponsor: R P Smith.


CAPTAFOL FUNGICIDE INDUCED HYALIN DROPLET NEPHROPATHY. WR Richter, J A MacGregor and R F Silveira, Chevron Environmental Health Center, Inc.

MALE RAT-SPECIFIC NEPHROTOXICITY RESULTING FROM EXPOSURE TO 3,5,5-TRIMETHYL-HEXANIC ACID (TMHA). L D Lehman-McKeeman, P A Rodriguez, D Gaudill, M L Foy, C L Eddy and T N Asquith, Miami Valley Laboratories, Procter and Gamble Company, Cincinnati, OH.

EFFECT OF NEPHROTOXICANTS ON RENAL MEMBRANE TRANSPORT: IN VITRO STUDIES. R A Ansari and W O Bemdt. Department of Pharmacology, College of Medicine, University of Nebraska Medical Center, Omaha, NE.

EFFECT OF NEPHROTOXICANTS ON RENAL MEMBRANE TRANSPORT: IN VIVO STUDIES. W O Bemdt, R S Thakran and R A Ansari. Department of Pharmacology, College of Medicine, University of Nebraska Medical Center, Omaha, NE.

ACUTE NEPHROTOXICITY OF ACROLEIN-GLUTATHIONE ADDUCT IN THE MALE SPRAGUE-DAWLEY RAT. J Horvath, C Winter and G Witc. Joint Graduate Program in Toxicology, Rutgers University and UMDNJ Robert Wood Johnson Medical School, Piscataway, NJ.

WEDNESDAY AFTERNOON, FEBRUARY 14
LE MANS ROOM

POSTER/DISCUSSION SESSION: CELL PROLIFERATION

Chairpersons: Matthew S. Bogdanoff, E.I. du Pont de Nemours & Co., Newark, DE and Byron E. Butterworth, CiIT, Research Triangle Park, NC.

Displayed 1:30 p.m.-4:00 p.m.


WY-14643 DOSE-RESPONSE FOR INDUCTION OF HEPATIC PEROXISOMAL B-OXIDATION AND REPlicative DNA SYNTHESIS IN MICE AND RATS. T L Lanier, D S Marsman, D M Hoover, N Wada, J A Popp and P J Feicho. Toxicology Division, Lilly Research Laboratories, Eli Lilly and Company, Greenfield, IN and CiIT, Research Triangle Park, NC.

EFFECTS OF BARBITURATE COMPOUNDS ON HEPATIC AND RENAL CELL PROLIFERATION IN THE RAT. C M Weghorst, J A Hampton, and J E Kraunig. Department of Pathology, Medical College of Ohio, Toledo, OH.

CELL PROLIFERATION IN HEPATOCELLULAR LESIONS FROM DIETHYL-NITROSAMINE (DENA) INITIATED INFANT B6C3F1 MICE FOLLOWING SHORT-TERM EXPOSURE TO ALPHA-Hexachlorocyclohexane (HCH) OR PHENOBARBITAL (PB). J C Siglin 2, C M Weghorst 2, D E Rockwell 1, and J E Kraunig 2. 1 Springborn Laboratories, Inc., Spencerville, OH and 2 Dept. of Pathology, Medical College of Ohio, Toledo, OH.

INDUCTION OF CELL PROLIFERATION IN RAT AND MOUSE HEPATIC AND RENAL TISSUE FOLLOWING TREATMENT WITH GASOLINE. L D Schafer 1, J A Hartnett 1, J A Hampton 1, C M Weghorst 1, M J Olson 2, and J E Kraunig 1. (1) Dept. of Pathology, Medical College of Ohio, Toledo, OH and (2) Biomedical Science Dept., General Motors Tech Center, Warren, MI.

SUBCHRONAL INHALATION STUDY WITH VINYL FLUORIDE: EFFECTS ON HEPATIC CELL PROLIFERATION AND URINARY FLUORIDE EXCRETION. M S Bogdanoff, C R Gee, D P Kelly, MC Carakostas, and G P Sykes. Haskell Laboratory for Toxicology and Industrial Medicine, E I du Pont de Nemours and Co, Newark, DE.

CELL PROLIFERATION STUDIES IN RODENT HEPATOCYTES DURING 1,4-DICHLOROBENZENE ADMINISTRATION. S R Eldridge, L F Tilbury, H Randall, T I Goldsworthy, and B E Butterworth. CiIT, Research Triangle Park, NC.

THE HEPATIC CARCINOGEN 2,4-DIAMINOTOLUENE BUT NOT THE NONCARCINOGEN 2,6-DIAMINOTOLUENE INCREASES CELL PROLIFERATION IN THE RAT LIVER. M L Cunningham, R Maronpot, J Foley, and H B Matthews. NIEHS, Research Triangle Park, NC.

CELL PROLIFERATION IN RAT NASAL RESPIRATORY EPITHELIUM FOLLOWING THREE MONTHS EXPOSURE TO FORMALDEHYDE GAS. T M Monticello and K T Morgan. CiIT, Research Triangle Park, NC. Sponsor: J A Popp.

INDUCTION OF RENAL PAPILLARY NECROSIS IN THE RAT BY ETHYOXYQUIN. G C Hard and G E Neal. Toxicology Unit, Medical Research Council, Carshalton, U.K. (Will not be presented in this session--will be presented in the Renal Toxicology session, Thursday morning.)
POSTER/DISCUSSION SESSION: PERIPHERAL NEUROPATHIES

Chairpersons: Doyle G. Graham, Duke University Medical Center, Durham, NC and Herbert E. Lowndes, Rutgers University, Piscataway, NJ.
Displayed 1:30 p.m.-4:00 p.m.
Discussion 2:30 p.m.-4:00 p.m.

ONE AND TWO-DIMENSIONAL ELECTROPHORESIS OF FAST AXONALLY-TRANSPORTED PROTEINS IN RAT NERVES FOLLOWING ACRYlamIDe AND 2,5-Hexanedione EXPOSURE. D W SickleS, Department of Anatomy, Medical College of Georgia, Augusta, GA.

COVALENT CROSSLINKING OF PROTEINS BY CARbon DISULFIDE. W M Valentine, V Amarnath, D C Anthony, and D G Graham. Dept. Pathology, Duke University Medical Center, Durham, NC.

ARE NUEROfilAMENTS THE CRITICAL SITE OF ACTION OF ACYRAMIDE AND GAMMA-DIKETONES IN PRODUCING A PERIPHERAL NEUROPATHy? J K Pearson, D W Sickles and A C Beall. Dept. of Anatomy, Medical College of Georgia, Augusta, GA.

PYRROLE-MEDIATED PROTEIN CROSSLINKING: TOWARD AN UNDERSTANDING OF THE MOLECULAR MECHANISM. D C Anthony, V Amarnath, and D G Graham. Dept. Pathology, Duke University Medical Center, Durham, NC.

KINETICS OF METHAMIDOPHOS INTERACTION WITH HUMAN AND HEN BRAIN ACETYLCHOLINESTERASE AND NEUROPATHY TARGET ESTERASE. M Lotti and S Caroli. Istituto di Medicina del Lavoro, Universita degli Studi di Padova, Padova, Italy.

PHENYLmETHanesULPHONYL FLUORIDE PRECIPITATES DELAYED NEUROPATHY AFTER SINGLE NON-EFFECTIVE DOSES OF DISOPROPYLFLUOROPHOSPHATE IN HENS. S Caroli, E Capodicasa, A Moreto and M Lotti. Istituto di Medicina del Lavoro, Universita degli Studi di Padova, Padova, Italy.

GLUCOSE 6-PHOSPHATE AND 6-PHOSPHOGLUCONATE DEHYDROGENASE ACTIVITIES IN DORSAL ROOT GANGLION IN ACYRAMIDE NEUROPATHY. M A Philbert, G C Kauflman, D K Waters and H E Lowndes. Neurotoxicology Labs and *Cellular and Biochemical Toxicology Lab, Rutgers College of Pharmacy, Piscataway, NJ.

SUBACUTE NEUROPATHOLOGY OF ACYRAMIDE. H E Lowndes, T L Roscoe and M A Philbert. Neurotoxicology Laboratories, Rutgers College of Pharmacy, Piscataway, NJ.

MURINE SUSCEPTIBILITY TO ORGANOPHOSPHORUS INDUCED DELAYED NEUROPATHY (OPIND). B Veronesi, S Padilla, K Blackmon, and C Pope. US Environmental Protection Agency, Research Triangle Park, NC; University of North Carolina, Chapel Hill, NC; Northeast Louisiana University, Monroe, LA. Sponsor: W Boyes.

DIFFERENTIAL SUSCEPTIBILITY OF BIVERTER CERVICS AND TIBIAL NERVES TO ORGANOPHOSPHATES INDUCING DELAYED NEUROPATHY IN HENS. H A N El-Fawal*, K Dyer, B S Jortner and M Eb- rhieb. Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA. (*NYU Medical Center, Institute of Environmental Medicine, Tuxedo, NY).

CHARACTERIZATION OF NEUROPATHY TARGET ESTERASE USING TRIFLUOROMETHYL KETONE TRANSITION STATE ANALOGS. T C Thomas, A Szekacs, S Rjas, B D Hammock, M G McNamee and B W Wilson. Deps. of Biochemistry and Biophysics, Avian Sciences, Entomology, and Environmental Toxicology, University of California, Davis, CA.

POSTER SESSION: BIOTRANSFORMATION I

Chairperson: Jay M. Ansell, GAF Chemicals Corporation, Wayne, NJ.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 1:30 p.m.-3:30 p.m.

HEP G 2: A MODEL FOR HORMONAL MODULATION OF ACTIVATION/DETOXCICATION ENZYMES. S M Moore and C A Lammartire. Dept. of Environmental Health Sciences, University of Alabama, Birmingham, AL.
HEPATIC METABOLISM AND TOXICITY OF TRANS-TRANS MUCONALDEHYDE. D. Ross, P. Holzner and D.R. Peterson. Molecular and Environmental Health Sciences Program, University of Colorado, Boulder, CO.

METABOLISM OF 14C-TRIS-(2-CHLOROETHYL) PHOSPHATE (TRCP) IN RATS AND MICE. J.M. Sanders, D.W. Herr, L.T. Burkha, and H.B. Matthews. NIEHS, Research Triangle Park, NC.

IMMUNOHISTOCHEMICAL AND ENZYMATIC STUDIES OF THE FLAVIN-CONTAINING MONO-OXYGENASE (FMO) IN MOUSE AND PIG SKIN. P.E. Leve, A. Inman, K. Verkatesh, R. Misra, E. Hodgson, and N.A. Montiero-Riviere. Dept. of Toxicology, NC State Univ., College of Veterinary Medicine, NC State Univ., Raleigh, NC.

ENZYME KINETICS OF METHYLENE CHLORIDE; MFO AND GST ACTIVITIES IN FEMALE B6C3F1 MICE LIVER AND LUNG IN RELATION TO CHRONIC DOSING. S. Kermani, R. A. Sloane, M.P. Moorman, R.S. Yang, C. Ray, and R.H. Beitz. NIEHS/NTP, Research Triangle Park, NC; NSI, Research Triangle Park, NC; Dow Chemical Company, Midland, MI.

A COMPARISON OF 7-ETHOXYCOUMARIN (7-EC), 7-METHOXYCOUMARIN (7-MC) AND 7-HYDROXYCOUMARIN (7-HC) METABOLISM BY RABBIT AND HUMAN LIVER SLICES. J. Barr, S. Thoman, and I.S. Slupca. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

CHARACTERIZATION OF THE IN VITRO MICROSOMAL METABOLISM OF METHACRYLONITRILE TO CYANIDE IN RAT LIVER. M.Y.H. Farcoue, R.G. Diaz, R. Cavazos, and A.J. Castillo. Dept. of Biology, The University of Texas Pan American, Edinburg, TX.

STRUCTURE-ACTIVITY RELATIONSHIPS IN THE HYDROLYSIS OF ACRYLATE AND METHACRYLATE ESTERS BY CARBOXYLASE. T.J. McCarthy and G. Witz. Joint Graduate Program in Toxicology, Rutgers University/UMCNJ-R W Johnson Medical School, Piscataway, NJ.

RATE AND ROUTE OF OXIDATION OF ACETYLIC ACID TO CARBON DIOXIDE. L. Finch, C.B. Frederick. Rohm and Haas Co., Spring House, PA.

ABSORPTION, METABOLISM AND EXCRETION OF DIETHYLENE GLYCOL (DEG) IN RAT AND DOG. J.M. Mathews, M.K. Parker, H.B. Matthews, and A.R. Jettcoat. Research Triangle Institute and the National Institute of Environmental Health Sciences, Research Triangle Park, NC.

QUINIDINE INHIBITS IN VIVO METABOLISM OF AMPHETAMINE IN RATS. D.E. Moody and W. Huangyuttikhorn. Ctr. for Human Toxicol., Univ. of Utah, SLC.

INHIBITION OF RAT AND MOUSE HEPATIC ALDEHYDE DEHYDROGENASE BY CITRAL. D.R. Petersen, C.E. Boyer, and D.Y. Mitchell. Molecular Toxicity and Environmental Health Sciences Program and Hepatobiliary Research Center, University of Colorado Health Sciences Center, Denver, CO.

GC/MS ASSAYS FOR THE DETERMINATION OF DEBRISOQUINE AND SPARTEINE METABOLITES IN MICROSOMAL FRACTIONS OF RAT LIVER. J. Ho and D.E. Moody. Center for Human Toxicology, Univ. of Utah, Salt Lake City, UT.

THE METABOLISM OF ETHYLCYCLOHEXANE IN FISCHER 344 RATS. M.P. Sene, J. Roberts, G.A. McDonald, M.J. Parnell, R. Rattke, C.J. Hixon, and K.O. Yu. Wright State University, Dayton OH and "H. G. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson AFB, Dayton, OH.


EFFECT OF TRYPTOPHAN ISOMERS ON HEMATOCRIT AND FORMATE PRODUCTION IN MICE. A.B. Combis, M. Shafiee and T. Brian College of Pharmacy, University of Texas, Austin, TX.

ALTERATION OF CARBON TETRACHLORIDE (CCl4) HEPATOTOXICITY BY DIETARY FAT. C. W. Choi, 2HJ. Kim, 2HJ. Wun, 2K. A. Voss, 2J. V. Bruckner, and 2A. E. Wade. 2College of Pharmacy, Kyungpook Univ., Pusan, Korea; 2Depos. of Pharmacol. & Toxicol. and 2Pharmaceuticals, College of Pharmacy, 2Russell Research Center, Univ. of Georgia, Athens, GA.

INHIBITION AND INDUCTION OF METABOLISM OF ETHYLCARBAMATE (EC) BY ACETONE. N. Kurata, P.W. Benz, H.E. Hurst, R.A. Kemper, and W.J. Waddell. Dept. of Pharmacology and Toxicology, University of Louisville, KY.


POTENTIATION OF BROMOBENZENE-INDUCED PNEUMOTOXICITY BY PHENOBARBITAL AS DETERMINED BY BRONCHOALVEOLAR LAVAGE FLUID ANALYSIS. B.J. Day, D.A. Page, and G.P. Carlson. Dept. of Pharmacol. & Toxicol., Sch. of Pharmacy, Purdue Univ., W. Lafayette, IN.

AN EVALUATION OF THE METABOLISM OF 1-NITRO[14C]PYRENE BY RABBIT TRACHEAL EPITHELIAL CELLS: KINETIC ANALYSIS. L.C. King, Jr., E. Hodgson, and J. Lewtas. U.S. Environmental Protection Agency, Research Triangle Park, NC; "Department of Toxicology, North Carolina State University, Raleigh, NC.
POSTER SESSION: CARCINOGENESIS II

Chairperson: Sandra M. Bakshi, U.S. EPA, Narragansett, Ri.

Displayed: 1:30 p.m.-4:30 p.m.
Attended: 1:30 p.m.-3:00 p.m.

#759

INDUCTION OF NEUROENDOCRINE LUNG TUMORS IN HAMSTERS. H P. Witschi and H M. Schuller. University of California, Davis, CA and University of Tennessee, Knoxville, TN.

#760

INDUCTION OF ORNITHINE DECARBOXYLASE ACTIVITY BY 4,4'-METHYLENE-BIS(2-CHLOROANILINE) (MCA) IN THE RAT. W W. Weigel and R E. Savage, Jr. NIOSH, DBBS, ETB, BTS, Cincinnati, OH.

#761

DEVELOPMENT OF NEUROENDOCRINE LUNG TUMORS IN HAMSTERS EXPOSED TO DIETHYL-NITOSAMINE AND OZONE. H M. Schuller and H P. Witschi. University of Tennessee, Knoxville, TN and University of California, Davis, CA.

#762

ACUTE EFFECTS OF THE BOWMAN-BIRK PROTEASE INHIBITORS IN MICE. V. Oreflo and H P. Witschi. Toxics Program, University of California, Davis, CA.

#763

EFFECT OF B-NAPHTHOFLAVONE ON N-NITROSO-ETHYLUREA-INITIATED LUNG TUMORS IN MICE. L M. Anderson and A B. Jones, Laboratory of Comparative Carcinogenesis, National Cancer Institute, Frederick, MD.

#764

PULMONARY NEOPLASIA AND NASAL IRRITATION FROM INHALATION OF TETRANITROMETHANE. J B. Bucher, M. Jokinen, J. Cholakis*. National Toxicology Program, Research Triangle Park, NC and MRI, Kansas City, MO.

#765


#766

INVESTIGATION OF A HORMONALLY-MEDIATED MECANISM FOR IN L5300-INDUCED MAMMARY TUMORS IN FEMALE RATS. J C. Cook, L. Murray, and R C. Rhea. I du Pont de Nemours Co., Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#767

INVESTIGATION OF A HORMONALLY-MEDIATED MECHANISM FOR AMMONIUM PERFLUORO-OCTANOATE (C8)-INDUCED LEYDIG CELL ADENOMAS. M E. Hurt, S M. Murray, S R. Frame and J C. Cook. I du Pont de Nemours and Co., Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#768


#769

4,4'-METHYLENE-BIS(2-CHLOROANILINE) BINDING TO CYTOSOLIC PROTEINS IN RAT TARGET AND NON-TARGET TISSUES. D A. Dankovic, R E. Savage, K. Cheever, and T. Swarengin. NIOSH, DBBS, ETB, BTS, Cincinnati, OH.

#770


#771


#772

POLYCYCLIC AROMATIC HYDROCARBONS MAY INITIATE CARCINOGENESIS PRIOR TO A GENETIC EVENT. J. Alan Beech. Private Consultant, Hialeah, FL.

#773


#774


#775


#776

TUMOR INITIATION AND PROMOTION ACTIVITY OF STRAIGHT RUN AND FRACTIONATED KEROSENE. D J. Marino, H N. Finkbone, D E. Strother, R W. Mast and E M. Furedi-Machacek, BP America Inc., Cleveland, OH and IIT Research Institute, Chicago, IL.
DERMAL TOXICITY AND CARCINOGENICITY OF 4-VINYL-1-CYCLOHEXENE DIOXIDE IN RATS AND MICE. R S Chhabra, J E Huff, J Haseman, M P Jokinen, and M Hetlmancik. NIEHS, Research Triangle Park, NC, and Battelle Memorial Institute, Columbus, OH.


RELATIONSHIP BETWEEN IN VIVO RELAXATION OF THE COSTO-UTERINE SMOOTH MUSCLE (COSM) AND MEOVARIAL LEIOMYOMA FORMATION IN VIVO. W E Colbert, B F Wilson, G D Williams, and P D Williams. Tox. Div., LRL, Eli Lilly and Company, Greenfield, IN.

PEROXIDASE-MEDIATED METABOLISM OF 4-AMINOBIPHENYL (4-ABP). M F Hughes and T E Eling. Laboratory of Molecular Biophysics, NIEHS, Research Triangle Park, NC 27709.

WEDNESDAY AFTERNOON, FEBRUARY 14
GRAND BALLROOM

POSTER SESSION: GLUTATHIONE

Chairperson: Nabil M. Elsayed, Letterman Army Institute of Research, Presidio of San Francisco, CA.

Displayed: 1:30 p.m.-4:00 p.m.

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

ROLE OF GLUTATHIONE IN ORGANOPHOSPHORUS INSECTICIDE TOXICITY. J S Boone, H W Chambers and J E Chambers. Dept. Biol. Sciences, Miss. State University, Mississippi State, MS.

EFFECTS OF AT-125 ON THE HEPATOTOXICITY AND BIOLOGIC FATE OF 1,1-DICHLOROETHYLENE (DCE). M T Moseley, A K Haque, and M F Kan. Department of Pathology, University of Texas Medical Branch, Galveston, TX.

GLUTATHIONE, y-GLUTAMYL TRANSPEPTIDASE AND THE MERCAPTURIC ACID PATHWAY AS MODULATORS OF QUINOL OXIDATION. T J Monks and S S Lau. Div. of Pharmacology and Toxicology, College of Pharmacy, University of Texas at Austin, TX.

KINETICS OF THE y-GLUTAMYL TRANSPEPTIDASE CATALYZED HYDROLYSIS AND TRANSPEPTIDATION OF ISOMERIC 2-BROMO-(GLUTATHION-S-YL)-HYDROQUINONES. H H Lo, T J Monks, and S S Lau. Division of Pharmacology and Toxicology, College of Pharmacy, The University of Texas at Austin, TX.

DIFFERENCES IN THE RENAL PROXIMAL TUBULAR NECROSIS CAUSED BY GLUTATHIONE AND N-ACETYLCYSTEINE CONJUGATES OF 1,4-NAPHTHOQUINONE AND MENADIONE. S S Lau, T W Jones, B A Hill, R J Hight and T J Monks. Division of Pharmacol. and Toxicol., College of Pharmacy, The Univ. of Texas at Austin, TX., Univ. of MD School of Medicine, Baltimore, MD, and NHLBI, NIH, Bethesda, MD.


IN VITRO METABOLISM OF 1,2-DIHALOETHANES TO GLUTATHIONE-CONTAINING METABOLITES. P A Jean and D J Reed. Dept. Biochem. & Biophysics., Oregon State Univ., Corvallis, OR.

THE MOMENT OF GLUTATHIONE (GSH) REPLETION MODULATES 1,2-DIBROMOETHANE (DBE) TOXICITY. J R Wouters and J Brodeur. Dep. Med. du Travail et Hyg. du Milieu, Fac. Medecine, Univ. de Montreal, Montreal, Canada.

ANETHOL DITHIOLTHIONE (ADT) PROTECTS AGAINST HEXACHLORO-1,3-BUTADIENE (HDBD) NEPHROTOXICITY. L Bouthillier and J Brodeur. Dep. Med. du Travail et Hyg. du Milieu, Fac. Medecine, Univ. de Montreal, Montreal, Canada.
FORMATION AND EXCRETION OF THE GLUTATHIONE S-CONJUGATE OF HEXACHLOROBUTADIENE IN THE PERFUSED RAT LIVER. Y S Giel and M W Anders, Dept Pharmacology, University of Rochester, Rochester NY.


SUBSTRATE-SPECIFIC INHIBITION OF RAT LIVER CYTOSOLIC GLUTATHIONE S-TRANSFERASE ISOENZYMES (GST) BY CHALCONE. K D Michelson and D L Eaton. Department of Environmental Health, University of Washington, Seattle, WA.

METHYL ISOCYANATE BIOTRANSFORMATION IN RATS: IDENTIFICATION OF REACTIVE GLUTATHIONE- DERIVED METABALITES IN BILE AND URINE. J G Slatter, M S Rashied, P G Pearson, D H Han, and T A Baille, Dept. of Medicinal Chemistry, School of Pharmacy, University of Washington, Seattle, WA. Sponsor: S D Nelson.

POTENTIATION OF ACETAMINOPHEN HEPATOTOXICITY BY PHENYLPROPANOLAMINE. S M Roberts, R C James, and R D Harrison. Center for Environmental Toxicology, University of Florida, Gainesville, FL.

WEDNESDAY AFTERNOON, FEBRUARY 14
FONTAINEBLEAU BALLROOM D

POSTER SESSION: INHALATION TOXICOLOGY

Chairperson: Kevin E. Driscoll, Procter & Gamble Company, Cincinnati, OH.
Displayed: 1:30 p.m.-4:00 p.m.
Attended: 1:30 p.m.-3:00 p.m.

A 13-WEEK INHALATION STUDY OF TWO LINEAR POLYCARBOXYLATES IN RATS. P J Hakkinen. The Procter & Gamble Company, Cincinnati, OH.

INHALATION COMPARISON IN RATS OF MENTHOL CIGARETTES WHICH BURN OR WHICH ONLY HEAT TOBACCO. C R E Coggins, A T Mosberg, P H Ayres, J W Sagant*, G T Burger, and A W Hayes, R J. Reynolds Tobacco Co., Winston-Salem, NC and Veritas, Burlington, NC.

SUBCHRONIC ORAL TOXICITY STUDY OF DM-2, 6-NAPHTHALENEDICARBOXYLATE (DM-2, 6-NDC) IN RATS. W D Johnson, N S Hamto, J P Ehrlich and J D Jernigan. ITT Research Institute and Amoco Corporation, Chicago, IL.

LONG-TERM INHALATION STUDY OF TEST TONER IN HAMSTERS. R Mermelstein, C Dassenbrock*, R Kipper, P Morrow, and H Muhe, Corporate Environmental Health & Safety, Xerox Corporation, Rochester, NY; 1Fraunhofer Institute for Toxicology, Hannover, FRG; 2University of Rochester, Rochester, NY.

LACK OF INJURY TO RAT LUNG FOLLOWING REPEATED EXPOSURE TO AN AEROSOL OF 970 MOLECULAR WEIGHT (MW) ETHYLENE OXIDE/PROPYLENE OXIDE (EO/PO) RANDOM COPOLYMER. R T Tyler, A R Konne, D E Dodd and P E Losco. 1Union Carbide Corp., Danbury, CT and Bushy Run Research Center, Export, PA.

PULMONARY CLEARANCE AND RETENTION OF TEST TONER, TIO2 AND QUARTZ DURING A LONG-TERM INHALATION STUDY IN HAMSTERS. H Muhe, B Bollmann, O Creutzenberg, R Kipper, P Morrow and R Mermelstein. 1Corporate Environmental Health & Safety, Xerox Corporation, Rochester, NY; 2Fraunhofer Institute for Toxicology, Hannover FRG; 3University of Rochester, Rochester, NY.

ACUTE TOXICITY AND PULMONARY PATHOLOGY FROM SELECTED POLYALKYLENE GLYCOLS FOLLOWING ENDOTRACHEAL ADMINISTRATION TO RATS. R C Myers, S M Christopher, P E Losco, and T R Tyler. Bushy Run Research Center/Union Carbide Chemicals and Plastics Company, Inc., Export, PA; 1Union Carbide Corp., Danbury, CT.

PULMONARY RESPONSE TO LUDOX® COLLOIDAL SILICA INHALATION EXPOSURE IN RATS. D P Kelly and K P Lee. E l du Pont de Nemours and Co., Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.


PULMONARY AUTORADIOGRAPHIC AND BIOCHEMICAL RESPONSES IN RATS FOLLOWING SUBCHRONIC INHALATION EXPOSURES TO LUDOX® COLLOIDAL SILICA. R D Warnel, L Achinko, M A Hartsky, and M C Carakostas. Du Pont Haskell Lab., Newark, DE.

ACUTE INHALATION OF PERFLUOROBUTYLENE: CONCENTRATION-RESPONSE KINETICS. D M Stavert, D Archuleta, G Wood, M J Behr, R E Lehnhart. Los Alamos National Laboratory, Los Alamos, NM.
A RISK ASSESSMENT FOR CRUDE OIL IN RESIDENTIAL SURFACE SOILS. C J Miller, M J Sullivan, S R Custance. Enviologic Data, Inc., Ventura, CA. (Will also be displayed and attended at the Dermal/Ocular Toxicology poster session, Wednesday morning.)

FREE CELL RESPONSE AND LAVAGE FLUID BIOCHEMICAL CHANGES FOLLOWING ACUTE EXPOSURES TO PERFLUOROISOBYTYLENE. L R Gurley, J E London, Y E Valdez, N M Lehner, D M Stavert, B E Lehner. Los Alamos National Laboratory, Los Alamos, NM.

TOXICITY ASSOCIATED WITH CHEMICAL COMPONENT CLASSES OF REFINERY STREAMS. M H Feuston, C R Mackler, and M A Mahfuzian. Mobil Oil Corporation, Princeton, NJ. (Will also be displayed and attended at the Risk Assessment poster session, Friday morning.)

ELECTRON MICROSCOPIC STUDY OF PERFLUOROISOBYTYLENE-INDUCED ACUTE LUNG INJURY. R Sebring, D M Stavert, B E Lehner. Los Alamos National Laboratory, Los Alamos, NM.


THE EFFECTS OF META-TETRAMETHYLXYLENE DIISOCYANATE (m-TMXDI) VAPOR ON RESPIRATORY RATE AND TIDAL VOLUME OF SWISS-WEBSTER MICE AND SPRAGUE-DAWLEY RATS. H D Burleigh-Flower, D E Dodd, and M A Friedman*. R A Davis*. Bushey Run Research Center, Export, PA and American Cyanamid Co., Wayne, NJ.

PATHOLOGIC RESPONSES TO HF, HBL, AND CH INHALED BY PSEUDO-MOUTH BREATHING AND NOSE BREATHING RATS. D Archuleta, D M Stavert, M J Behr, B E Lehner. Los Alamos National Laboratory, Los Alamos, NM.

SUBCHRONIC TOXICITY OF FREON HCFC-123 IN RATS. L Angevine Malley, H J Trochimowicz, G M Rusch, M C Carakostas and J F Hansen. E I du Pont de Nemours and Co, Inc. Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE and Allied-Signal Co, Morristown, NJ.


WEDNESDAY AFTERNOON, FEBRUARY 14
FONTAINEBLEAU BALLROOM D

POSTER SESSION: RESPIRATORY PHYSIOLOGY

Chairperson: Bruce J. Keiman, Battelle Pacific Northwest Laboratories, Richland, WA.

Displayed: 1:30 p.m.-4:00 p.m.
Attended: 1:30 p.m.-3:00 p.m.

DOES PREVIOUS EXPOSURE TO SULFURIC ACID SENSITIZE GUINEA PIGS TO THE PULMONARY EFFECTS OF OZONE? L C Chen, H E Lann, P D Miller, W Y Su, T Gordon, and M O Amador. Institute of Environ. Medicine, NYU Medical Center, Tuxedo, NY.

RESPIRATORY PHYSIOLOGY ALTERATIONS ASSOCIATED WITH THE INHALATION OF TRIMETHYLAMMONIUM. C L Leach, N S Hatoum, and P J Garvin. IIT Research Institute and Amoco Corporation, Chicago, IL.

PERFORMANCE OF GUINEA PIGS AT EXERCISE FOLLOWING EXPOSURE TO PARAQUAT AEROSOLS. M Iwaseki and Y Alaba. University of Pittsburgh, Pittsburgh, PA.

VENTILATORY RESPONSES OF SPRAGUE-DAWLEY RATS TO INHALATION OF THE NONIONIC DETERGENT TRITON-X 100. M E Walker, C Kotsler, and D J Murphy. SKF Labs., Dept. of Investigative Toxicology, King of Prussia, PA.
SAO₂ INDICATES RESPONSE TO METHACHOLINE AEROSOL IN AWAKE GUINEA PIGS. M J Wiester, J S Tepper, D L Doerfler and D L Costa, U.S.E.P.A., RTP, NC; *NSI-ES, RTP, NC.

LUNG STRUCTURE AND FUNCTION IN THE RAT 6-MONTHS AFTER IDPN-INDUCED HYPERKINESIS. J R Lehmann, D L Costa*; D W Winsett, M A Stevens, NSI-ES, RTP, NC; *USEPA, RTP, NC. Sponsor: J S Tepper.

EFFECTS OF HIGH EXPOSURE CONCENTRATIONS OF INHALED LOW TOXICITY DUSTS ON PULMONARY FUNCTION IN GUINEA PIGS. R Wolf, M Collins, K Carlson, R Tamura, and M Dorato. Toxicology Division, Lilly Research Laboratories, Eli Lilly and Co., Greenfield, IN.


ACUTE RESPIRATORY EFFECTS OF AEROSOLIZED MACHINING FLUIDS IN MICE. M Schaper and K Detwiler, University of Pittsburgh, Pittsburgh, PA.


WEDNESDAY AFTERNOON, FEBRUARY 14
FONTEAINEBLEAU BALLROOM D

POSTER SESSION: REPRODUCTIVE TOXICOLOGY


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

A TWO-GENERATION REPRODUCTION STUDY IN RATS WITH ALKYLATE 215. R F Schroeder, Bio/Dynamics, Inc., East Millstone, NJ; E C Robinson, Monsanto Company, St. Louis, MO.


REPRODUCTIVE TOXICITY OF TRICHLOROETHYLENE (TCE) IN MOUSE AND RAT BREEDING PAIRS. J D George, J R Reel, C B Myers, J C Lamb, IV, *and J J Heindel*, Research Triangle Institute and National Toxicology Program/NIEMS, RTP, NC.

REPRODUCTIVE TOXICITY OF NITROBENZOIC ACIDS IN SWISS CD-1 MICE. E Hope, D K Gulati, and R E Chapin*. Environmental Health Research and Testing, Inc., Lexington, KY and National Toxicology Programs, NIEMS, RTP, NC.

DISPOSITION OF LITHIUM IN PREGNANT AND NON PREGNANT RATS. H S Butter and S A Qureshi. Bureau of Drug Research, Health Protection Branch, Ottawa, Canada.


SENSITIVITY OF THE PERI-FERTILIZATION PERIOD: EFFECTS OF A SINGLE DOSE OF METHYL BENZIMIDAZOLE CARBAMATE (MBC) ON PREGNANCY OUTCOME IN HAMSTERS. S D Perreault, S Jeffay and P Poss. USEPA, HERL, RTB and NSI, RTP, NC. Sponsor: L E Gray.

WHOLE OVARY CULTURE AS AN IN VITRO ASSESSMENT OF IN VIVO TOXICANT EXPOSURE AFFECTING OVARIAN STEROIDGENESIS. E Berman, J W Laskey, H Carter and J Ferrell. Reproductive Toxicology Branch, USEPA, RTP, NC. Sponsor: L E Gray, Jr.

PROTECTION AGAINST 2-METHOXYETHANOL (ME) INDUCED TESTICULAR TOXICITY BY CALCIUM CHANNEL BLOCKERS. B J Ghayaren and R E Chapin, NIH/National Institute of Environmental Health Sciences/National Toxicology Program, Research Triangle Park, NC.


ETHYLENE DIBROMIDE (EDB): COMPARISON OF RABBIT AND HUMAN SEMINAL CHARACTERISTICS. J Williams, B C Gladen, R E Chapin and S M Schrader*. National Toxicology Program, NIEHS, Research Triangle Park, NC; and "NIOSH, Cincinnati, OH.

SPECIES DIFFERENCES IN SUSCEPTIBILITY TO 1,3-DINITROBENZENE-INDUCED TESTICULAR TOXICITY AND IMMUNOGLOBULIN. M F Obasaju, D F Katz, and M G Miller. Deps. of Environmental Toxicology and Ob/Gyn., UC- Davis, CA. Sponsor: R W Wilson.

ESTROGEN-LIKE EFFECTS OF METHOXYCHLOR (M) IN THE MALE RAT: DELAYED PUBERTY, SUBFERTILITY, INHIBITED TESTICULAR, EPIDIDYMAL AND ACCESSORY GLAND FUNCTION, AND ENHANCED MATING BEHAVIOR. L E Gray, Jr., J W Laskay, J Cstby, R Sigmon, J Ferrell and R Cooper. HERL, USEPA, Research Triangle Park, NC.

THE EFFECTS OF THEOBROMINE(TB) AND COCOA EXTRACTS(CE) ON REPRODUCTIVE TISSUES OF MALE RATS. Y Wang, A P Sinha Hakim, L D Russell and D P Walker. Department of Pharmacodynamics and PCRPS, Univ. of IL at Chicago, Chicago, IL, and Dept. of Physiology, Southern IL Univ., Carbondale, IL.


ADVERSE MALE REPRODUCTIVE EFFECTS FOLLOWING SUBCHRONIC EXPOSURE OF RATS TO DICHLOROACETATE. G P Toth, K C Kelly, E J Read*, and M K Smith. Developmental Toxicology Division, HERL, USEPA, "Computer Sciences Corp., Cincinnati, OH.


SERTOLI CELL MEDIATED FE-TRANSFERRIN ENDOCYTOSIS IS NOT MICROTUBULE DEPENDENT AND DOES NOT DECREASE DURING 2,5-HEXANEDIONE EXPOSURE. K Boekelheide and S Hall. Dept. Pathol. & Lab. Medicine, Brown University, Providence, RI.

AGE-DEPENDENT ACTIVITY OF TESTOSTERONE 7a-HYDROXYLATION IN ISOLATED LEYDIG CELLS OF TESTES FROM SPRAGUE-DAWLEY RATS. J E Song, J E A Leakey, M P Arlotto, and J Gandy. Div. of Toxicology, Univ. of Ark. for Med. Sciences, Little Rock, AR and NCTR, Jefferson, AR.

WEDNESDAY AFTERNOON, FEBRUARY 14
FONTAINBLEAU BALLROOM D

POSTER SESSION: TOXICOKINETICS

Chairperson: Gulam Ahmad Shakeel Ansari, University of Texas Medical Branch, Galveston, TX

Displayed: 1:30 p.m.-4:00 p.m.

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


METABOLISM OF TRICHLOROETHYLENE IN MALE AND FEMALE B6C3F1 MICE. J W Fisher, M L Gargas* and M E Andersen*. Toxic Hazards Division, Hazard Assessment Branch, WPAFB, OH, *Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

PHARMACOKINETIC MODELING OF METABOLISM OF TRICHLOROETHYLENE. J L Larson, W L Hayton, and R J Bull. Pharmacology/Toxicology Graduate Program, College of Pharmacy, Washington State University, Pullman, WA.

DEVELOPMENT OF A PHYSIOLOGICALLY-BASED MODEL FOR INCORPORATION OF LEAD INTO THE RAT FETUS DURING GESTATION. E J O’Shea, Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

PHYSIOLOGICALLY BASED PHARMACOKINETIC MODEL (PB-PK) FOR NAPHTHALENE (NA), A PULMONARY CYTOTOXICANT. E Butler*, M Chw*, P Brennan*, A Buckpitt* and R Becker*. Toxic Substances Control Program, California Department of Health Services, Sacramento, CA, and Veterinary Pharmacology and Toxicology, UC Davis, Davis, CA.


A PHYSIOLOGICALLY BASED PHARMACOKINETIC (PB-PK) MODEL FOR NICOTINE IN THE RAT. J D de Bethizy and M E Andersen. RJ Reynolds Tobacco Co., Winston-Salem, NC; Chemical Industry Institute of Toxicology, Research Triangle Park, NC.

A PHYSIOLOGICALLY BASED PHARMACOKINETIC (PBPK) MODEL FOR ACRYLONITRILE (ACN) IN THE RAT. M L Gargas, G L Redden*, T R Fennell, and M E Andersen. CIDI, Research Triangle Park, NC.


TOXICOKINETICS OF 14C-SALICIN IN CYCLIC-α-TOLYL PHOSPHATE (SCTP) IN MALE F-344 RATS. R E Chapin and T L Burke. Systemic Toxicology Branch, NIEHS, Research Triangle Park, NC.

KINETICS OF WR 249,655 (H-6) IN BEAGLE DOGS AFTER IV, PO AND IM ADMINISTRATION. H Chung*, A Buckpitt*, J D Baggs*, D Johnson*, P Brennan* and M Goldman*. Walter Reed Army Institute of Research, Washington, DC and School of Veterinary Medicine, UC Davis, Davis, CA.


PHYSIOLOGICAL MODELS OF GASTROINTESTINAL ABSORPTION AND EXCRETION OF CHEMICALS CARRIED BY LIPIDS. W L Roth, R A Freeman, A G E Wilson, Monsanto Company, Environmental Health Laboratory, St. Louis, MO.

TOXICOKINETICS AND METABOLISM OF PALMITOLYPENTACHLOROHENOFIN IN RATS. B S Kaphalia and G A Ansari. Dept. of Pathology, The University of Texas Medical Branch, Galveston, TX.


PHARMACOKINETICS AND ORAL BIOAVAILABILITY OF SOIL-ADSORBED BENZO[A]PYRENE (BaP) IN RATS. D Goon, N S Hatoum, J D Jernigan, S L Schmitt and P J Garvin. IIT Research Institute and Amoco Corporation, Chicago, IL.

PHARMACOKINETICS, METABOLISM AND DISTRIBUTION OF MICOCYST (L"H"MICYST-LR) IN THE RAT. J G Pace, N A Robinson, G A Mura, T G Lynchard and C T Tewson. US Army Medical Research Institute of Infectious Diseases, Fredericid, MD. Sponsor: B W Wannemacher, Jr.

DE NOVO SYNTHESIS AND PHARMACOKINETIC (PK) STUDIES OF URETHANE (U) IN EXPERIMENTAL RATS. L P Lee, DHMS, FDA, CFSA, General and Molecular Toxicology, Washington, DC.

THEOPHYLLINE PHARMACOKINETICS IN THE F-344 RAT: COMPARISON OF SINGLE AND MULTIPLE ORAL DOSES. K D Mackenzie, D E Carter and L G Sipes. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

WEDNESDAY, FEBRUARY 14
4:00 p.m.-5:30 p.m.
FONTAINE ROOM

SOT ANNUAL BUSINESS MEETING

Chaired by SOT President Roger O. McClellan, DVM
Open to SOT members only.

WEDNESDAY, FEBRUARY 14
4:30 p.m.-6:30 p.m.

FORUM FOR NEW INVESTIGATORS

Chairperson: Marion Ehrich, Chairperson, SOT Education Committee.

The SOT Education Committee sponsors this forum for new investigators seeking funds for research and training. The panel will include representatives from SOT, NIH, USAF, and private agencies. Each will briefly describe areas of emphasis and respond to questions from the audience.

Presenters and Panel Members: Stephen Safe, SOT Education Committee; Chris Shonewaltner, NIEHS; Fred Marozzi, Toxicology Study Section, NIH; Lt Col. Janette Ceverny, USAF; Jim Wilson, AIHC; John Frazier, GAAT; Monica Velencovici, Marshall University School of Medicine; Charles Ruegg, Duke University.

WEDNESDAY, FEBRUARY 14
5:30 p.m.-7:00 p.m.

REGIONAL CHAPTER MEETINGS

Many SOT Regional Chapters will be sponsoring meetings and/or receptions at this time. Please check the hotel lobby board for room assignments.

WEDNESDAY, FEBRUARY 14
7:00 p.m.-10:00 p.m.
FONTAINE ROOM

SOT ANNUAL BANQUET AND AWARDS PRESENTATION

Tickets are $32.00 per person. Meeting registrants may sponsor and prepay for tables of 10. Registrants who purchase a table are able to choose their seating arrangement prior to the Banquet by stopping by the SOT headquarters office at the Fontainebleau. Requests will be honored on a first-come, first-served basis. Sorry, no refunds or exchanges.

THURSDAY MORNING, FEBRUARY 15
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM A

SYMPOSIUM: MECHANISMS OF HYPOXIC CELL INJURY

Chairperson: James P. Kehrer, University of Texas College of Pharmacy, Austin, TX.

Hypoxic or ischemic tissue injury plays a major role in human pathology. This symposium will focus on some of the changes that occur in hypoxic cells and intact tissues which are currently believed to play a role in the mechanism of cellular injury and death. The most obvious and rapid change in hypoxia is the loss of ATP. Mitochondrial dysfunction appears to be a critical factor leading to hypoxic injury. This dysfunction is heterogeneous, depending on regional oxygen availability, cell type, degree of differentiation and demand. In general, cells which have a relatively low density of mitochondria (such as fetal and transformed cells) can respire effectively at O2 concentrations lower than those required for normal adult cells. However, all cells after various functions during anoxia in order to preserve mitochondrial protonotive force. These changes involve a loss of ionic homeostasis which may mimic damage as well as increase the cell's susceptibility to xenobiotic-induced injury. ATP depletion is a necessary but insufficient event preceding cell death. Other changes which have been observed during hypoxia include activation of plasma membrane bound phospholipase, increased membrane fluidity, increased permeability of the plasma membrane, rupture of surface blebs, increased cytosolic calcium, decreased mitochondrial potentials and decreased cytosolic pH. The relative importance of these changes in cell death has not been established. Recent evidence has suggested that intracellular acidosis suppresses the degradative processes activated by hypoxic and toxic injury. Restoration of normal pH accelerates cell killing by removing this inhibition suggesting cellular pH changes may be involved in reperfusion injury. The extensive regulatory role of calcium has focused a great deal of attention on this cation as a mediator of hypoxic injury. However, increases in intracellular calcium during hypoxia do not correlate with the activation of phospholipase A and may more important in mediating the cell injury evident at reperfusion. The generation of reactive oxygen species has been demonstrated in reperfused tissues and also postulated to be involved in some of the changes observed during hypoxia. Studies using isolated-perfused liver do not support this postulate. However, work in isolated-perfused heart tissue has revealed changed during hypoxia con-
sistent with oxidative stress. Model and/or tissue related differences clearly are important considerations in studies on hypoxic injury. Decreased mitochondrial function appears to be central to the development of hypoxia-induced damage since there is no evidence that cells whose ATP content is not seriously depleted undergo hypoxic injury. The loss of ATP leads to ionic imbalances and the activation of various degradative processes which ultimately kill the cell. However, the specific degradative pathway which is the critical determinant of cell death remains unknown.

#45 8:30 Introduction. James P. Kehrer, University of Texas, Austin, TX.
#46 8:40 Mitochondrial Function During Hypoxia. Dean P. Jones, Emory University School of Medicine, Atlanta, GA.
#47 9:15 Digitized Videomicroscopy of Hypoxic Cell Injury: The Role of Intracellular pH. John J. Lemasters, University of North Carolina School of Medicine, Chapel Hill, NC.
#49 10:25 Oxidative Stress During Hypoxia in Isolated-Perfused Liver Tissue. Hartmut Jaeschke, Baylor College of Medicine, Houston, TX and Jerry R. Mitchell, The Upjohn Company, Kalamazoo, MI.
11:00 Discussion.

THURSDAY MORNING, FEBRUARY 15
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM B

SYMPOSIUM: TRANSPLENAL TRANSPORT OF TOXIC METALS AND FETAL EFFECTS

Chairperson: Robert A. Goyer, University of Western Ontario, London, ONT.

Sponsored by the Metals Specialty Section

With increasing knowledge of potential health effects of metals during fetal life there is a need for better understanding of the role of the placenta in the transfer of toxic metals from mother to fetus. There is also a need to identify factors which influence or modify fetal toxicity.

The papers in this symposium concern placental transport and fetal effects of three toxic metals, lead, cadmium and mercury. When the three metals are compared it becomes evident that the mechanisms for placental transport for each of the metals is different. For lead and cadmium there is a close association with the transfer of an essential metal, lead with calcium and cadmium with zinc. The pathogenesis of the fetal effects differ. Whereas fetal exposure to lead and mercury is responsible for the observed fetal toxicities, lead and mercury are CNS toxins but the mechanisms responsible for toxicity and, perhaps, potential for reversibility, differ. Cadmium may reduce birth weight by indirectly depriving the fetus of the essential trace metal zinc. And finally, metal toxicity may be modified by binding with specific proteins. Most is known about metallothionein but the mechanism for selective retention of cadmium and enhancement of zinc and copper transport is not known. Less is known about the lead inclusion body protein but there is some indication it may not be available in utero to sequester lead. Whether mercury forms protein complexes is not known.

#51 8:40 Biokinetics of Lead During Pregnancy. Kathryn R. Mahaffey, National Institute of Environmental Health Sciences, Research Triangle Park, NC.
#52 9:15 Human Fetal Lead Exposure: Intrauterine Growth, Maturation and Postnatal Neurobehavioral Development. Kim N. Dietrich, University of Cincinnati, Cincinnati, OH.
11:00 Discussion.

THURSDAY MORNING, FEBRUARY 15
8:30 a.m.-11:15 a.m.
BRITTANY ROOM

PLATFORM SESSION: IMMUNOTOXICOLOGY

Chairpersons: Donald E. Gardner, Northrop Services, Inc., Research Triangle Park, NC and Joel B. Cornacoff, Sterling Winthrop Research Institute, Rensselaer, NY.

#877 8:30 LACK OF IgE ANTIBODY TO CHLORHEXIDINE IN EXPOSED POPULATIONS. D.A. McMillan, J B Lucas and J Stotts. The Procter & Gamble Company, Cincinnati, OH.
#878 8:45 SUPPRESSION OF INTERLEUKIN 2 (IL-2) ENHANCEMENT OF HUMAN NATURAL KILLER (NK) CELL ACTIVITY BY CARBARYL (CA). G P Casale, S Bavari, R E Gold and E F Vitzhum. Univ. of Nebraska Medical Center, College of Pharmacy, Omaha, NE and The Institute of Agriculture and Natural Resources, Univ. of Nebraska, Lincoln, NE.

#879 9:00 LOCAL GUT-ASSOCIATED IMMUNITY IS MORE SENSITIVE TO SUPPRESSION BY 7, 12-DIMETHYLBENZ(A)ANTHRACENE (DMBA) GIVEN ORALLY THAN IS SPLENIC IMMUNITY IN MICE. S W Burchiel and M P Gomez. The University of New Mexico, College of Pharmacy, Toxicology Program, Albuquerque, NM.

#880 9:15 ALTERED LYMPHOCYTE PHENOTYPE AND FUNCTIONAL PATTERNS IN HUMANS EXPOSED TO CHLORDANE. P H McConnell and A C Zahalsky, Memorial Medical Center, Springfield, IL, and Immunex Research, Edwardsville, IL. Sponsor: S M Soman.

#881 9:30 EFFECTS OF POLYCHLORINATED DIPHENYL ETHERS ON THE ANTIGEN-STIMULATED PLATELET-FORMING CELL (PFC) RESPONSE IN C57BL/6 MICE. L Howe, R Dickerson, D Davis and S Sale, Departments of Veterinary Physiology and Pharmacology & Biochemistry & Biophysics, Texas A&M University, College Station, TX.


#884 10:15 FALSE POSITIVE INDICATION BY ELISA OF ANTIBODIES TO SERUM ALBUMIN FOLLOWING EXPOSURE TO GUINEA PIGS TO TOLUENE DISOCCYANATE (TDI). M H Karl and R Jin. Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.

#885 10:30 LATE-ONSET PULMONARY RESPONSES IN GUINEA PIGS SENSITIZED BY INHALATION OF DIPHENYL METHANE 4,4'-DISOCYANATE (MDI). D. Griffiths-Johnson, K Spear, R Jin and M H Karl. Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.

#886 10:45 LYMPHOCYTE CELL SURFACE MARKERS AS INDICATORS OF AN ALLERGIC CONTACT HYPERSENSITIVITY RESPONSE. M L Stern, T A Brown and A E Munson. Pharmacology and Toxicology, Medical College of Virginia/VCU. Richmond, VA.

#887 11:00 A TIER APPROACH FOR EVALUATING LOW MOLECULAR WEIGHT CHEMICALS (LMWC) AS RESPIRATORY ALLERGENS. K Saro and E Clark, The Procter & Gamble Company, Cincinnati, OH. Sponsor: M J Murray.

THURSDAY MORNING, FEBRUARY 15
8:30 a.m.-11:30 a.m.
CHAMPAGNE ROOM

PLATFORM SESSION: REPRODUCTIVE TOXICOLOGY


#889 8:45 THREE GENERATION REPRODUCTIVE STUDY OF COCOA POWDER IN RATS. K A Hostetler, J L Appar, R B Morrissey, S M Tarha, Jr, and C A Shively. Hershey Foods Corp., Hershey, PA.

#890 9:00 PRELIMINARY INVESTIGATIONS OF THE REPRODUCTIVE CONSEQUENCES OF TOREMIFENE CITRATE TREATMENT. Y Hirajmaki, D Beltrame, P McNally, J Tesh, and L Wang. Farmos Group, Turku, Finland; Life Sciences Research, Suffolk, England; Farmitalia Carlo Erba, Milan, Italy; and Adria Laboratories, Columbus, OH.


#892 9:30 METALLOTHIONEIN MESSENGER RNA CHANGES IN MICE DURING PREGNANCY AND LACTATION. D Solaiman, M H Bhattacharya, G Ho, and F Collart. "US Department of Agriculture, Philadelphia, PA and Argonne National Laboratory, Argonne, IL.

#893 9:45 CHARACTERIZATION OF MONO(2-ETHYLHEXYL)PHthalate (MEHP)-INDUCED GRANULOSA CELL TOXICITY. K A Treinen and J J Heinold. Developmental and Reproductive Toxicology Group, NTP/NIEHS, Research Triangle Park, NC. Sponsor: R E Chapin.
THURSDAY MORNING, FEBRUARY 15
LE MANS ROOM

POSTER/DISCUSSTION SESSION: METHODOLOGIES AND APPROACHES TO RISK ASSESSMENT

Chairpersons: Torbjorn Malmfors, Malmfors Consulting AB, Stockholm, Sweden and Thomas Osimitz, S.C. Johnson & Son, Inc., Racine, WI.

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.


#903 10:45  DEVELOPMENT OF SHORT TERM ACTION LEVELS (STALs) FOR DRINKING WATER CONTAMINANTS IN NEW JERSEY. L Iowa, G Post, T-J Sun, T A Ledoux, and L McGeorge. NJ Dept. of Environmental Protection, Trenton, NJ.

#904 10:55  RISK ASSESSMENT OF CHEMICAL CONTAMINANTS FOR SETTING CALIFORNIA DRINKING WATER STANDARDS. J P Brown, A M Pan, M J DiBartolomees, and D P Spath. California Department of Health Services (DHS), Berkeley, CA.

#905 11:00  INTUITIVE TOXICOLOGY: HOW TOXICOLOGISTS JUDGE TOXICOLOGICAL DATA. T Malmfors, N Kraus and P Slociv, Malmfors Consulting AB, Stockholm, Sweden.


#907 11:30  ASSESSING RISKS FOR LESS THAN LIFETIME EXPOSURES. J Orme and E V Ohanian, U S Environmental Protection Agency Washington, D.C.

#908 11:45  ON REFERENCE DOSE (Rd) AND ITS UNDERLYING TOXICITY DATA BASE. M L Pousson, L A Kauff and J C Swartout. U.S. Environmental Protection Agency, Washington, DC.

POSTER/DISCUSSION SESSION: REACTIVE INTERMEDIATES

Chairpersons: Jack Hinson, National Center for Toxicological Research, Jefferson, AR and Serrine Lau, University of Texas School of Pharmacy, Austin, TX.

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.

SELECTIVE BINDING OF ACETAMINOPHEN (APAP) TO HUMAN AND MOUSE LIVER PROTEINS.

SELECTIVE PROTEIN ARYLATION BY ACETAMINOPHEN (APAP): IMMUNOHISTOCHEMICAL LOCALIZATION IN MOUSE LIVER, LUNG AND KIDNEY.

THE EFFECT OF PIPERONYL BUTOXIDE (PBP) POST-TREATMENT ON THE SELECTIVE ARYLATION OF HEPATIC PROTEINS BY ACETAMINOPHEN (APAP) IN MALE, CD-1MICE. J T Brady, R B Birge, E A Khairallah, and S D Cohen. University of Connecticut, Toxicology Program, Storrs, CT.


WESTERN BLOT ANALYSIS OF 3-(CYSTEIN-3-YL)-ACETAMINOPHEN PROTEIN ADDUCTS IN SUBCELLULAR LIVER FRACTIONS AND SERUM FOLLOWING A HEPATOTOXIC DOSE OF ACETAMINOPHEN.

DIFFERENTIAL NEPHROTOXICITY OF CYSTEINE AND N-ACETYLCYSTEINE CONJUGATES OF 2-BROMOHYDROQUINONE.
B A Hill, R Sioco, R J Hight, S S Lau, and T J Monks, Div. of Pharmacol./Toxicol., College of Pharmacy, The Univ of Texas at Austin, TX, and NHLBI, NIH, Bethesda, MD.

6-Glutamyl Transpeptidase CATALYZED CYCLIZATION OF 2-BROMO-3-(GLUTATHIONE-3-YL)HYDROQUINONE.
M I Rivera, R J Hight, T J Monks, and S S Lau. Div. of Pharmacol./Toxicol., The University of Texas at Austin, TX, and NHLBI, NIH, Bethesda, MD.

2-BROMOHYDROQUINONE (BHQ)-INDUCED TOXICITY TO RABBIT RENAL PROXIMAL TUBULES.
R J Eyre, D K Stevens and R J Bull.

DIMETHYLSULFOXIDE PROTECTS AGAINST TOXICITY AND INHIBITS FORMATION OF 3-(CYSTEIN-3-YL) ACETAMINOPHEN PROTEIN ADDUCTS IN LIVER BUT NOT IN RESPIRATORY TISSUE.
W M Hasheesh, E H Jeffrey, A R Warbritton, T J Bucci, and D W Roberts, Unv. of Illinois, Urbana, IL and National Center for Toxicologic Research, Jefferson, AR.

IN VIVO BINDING OF TRICHLOROETHYLENE (TCE) TO HEMOGLOBIN (HB), SERUM ALBUMIN (SA) AND HEPATIC PROTEINS (HP).
R J Eyre, D K Stevens and R J Bull. Pharmacology/Toxicology Program, College of Pharmacy, Washington State University, Pullman, WA.

PREPARATION AND PARTIAL CHARACTERIZATION OF HEMOGLOBIN ADDUCTS FROM TRICHLOROETHYLENE (TCE).
D L Springer, J E Hull, M G Horstman, B L Thomas and S C Coheen. Battelle, Pacific Northwest Laboratory, Richland, WA.

PROPANIL-INDUCED METHEMOGLOBINEMIA AND HEMOGLOBIN BINDING IN THE RAT.
THURSDAY MORNING, FEBRUARY 15
BURGUNDY ROOM

POSTER/DISCUSSION SESSION: TUMOR PROMOTION AND PROGRESSION

Chairpersons: James Alan Popp, CIIT, Research Triangle Park, NC and R. Michael McClain, Hoffmann-La Roche, Inc., Nutley, NJ.

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.

#925

INITIATION AND PROMOTION ACTIVITIES OF AFLATOXIN B1 IN EXPERIMENTAL HEPATOCARCINOGENESIS.
H E Olsen, L S Hsieh, B H Ruebner, and D P H Hsieh. Dept. of Environ. Toxicol. and Dept. of Medical Pathol., Univ. of California, Davis, CA.

#926

EVIDENCE FOR IN VIVO PROMOTIONAL ACTIVITY OF CHENOEOXYCHOLIC ACID IN THE LIVER OF RATS. P C Blair, R E Wilson, and M B Thompson. NIEHS, Research Triangle Park, NC. Sponsor: L S Birmbaum.

#927

PROMOTION OF DIETHYLNITROSAMINE-INDUCED HEPATIC CARCINOGENESIS IN MICE BY ALL-TRANS-RETINOIC ACID AND TWO SYNTHETIC RETINAMIDES. D L McCormick and *R E Long. IIT Research Institute, Chicago, IL, and *Pathology Associates, Inc., Chicago, IL.

#928

LIVER TUMOR PROMOTING AND/OR HEPATOCARCINOGENIC EFFECTS OF 1,4-BIS-(3,5-DICHLOROPYRIDIN-3-OL)-BENZENE IN C57BL/6NCr AND DBA/2NCr MICE AND F344 RATS. B A Diwan, R A Lubet, J M Ward, and J M Rice. BDCP, Program Resources, Inc., and National Cancer Institute-FCRF, Frederick, MD. Sponsor: R W Nims.

#929

EFFECTS OF 2,3,7,8-TCDD ON INITIATED WEANLING SPRAGUE DAWLEY RATS TREATED WITH PHENOBARBITAL. S D Sleight and RC Sills. Michigan State University, Dept. of Pathology, East Lansing, MI.

#930

HEPATIC PEROXISOME INDUCTION AND LIPOFUSCIN ACCUMULATION IN F344 RATS INITIATED WITH DIETHYLNITROSAMINE (DEN) AND PROMOTED WITH CLOFIBRIC ACID OR WY-14,643. D S Marsman, T L Goldsworthy and J A Popp. CIIT, Research Triangle Park, NC.

#931

PROGRESSION AS A DISTINCT STAGE IN CHEMICAL CARCINOGENESIS IN THE RAT LIVER. Y P Dragan, Y H Xu, L Sargent, and H C Petit. McArdle Laboratory for Cancer Research. Univ. of Wisconsin, Madison, WI.

#932

DIFFERENTIAL DOWN-REGUALTION OF EPIDERMAL PROTEIN KINASE C (PKC) BY TPA AND DIACYLGLYCEROL; ASSOCIATION WITH EPIDERMAL HYPERPLASIA. L A Hansen, N A Monteiro-Riviere and B C Smart. Dept. of Toxicology, North Carolina State Univ., Raleigh, NC.

#933


#934

INHIBITION OF BENZOYL PEROXIDE MEDIATED SKIN TUMOR PROMOTION BY ANTIOXIDANTS DIALLYL SULFIDE AND NORDIHYDROQUINARETIC ACID. H Mukhtar, M Athar, and H Raza, Dept. Derm., Case West. Res. Univ. and VAMC, Cleveland, OH.

#935

EFFECTS OF ANTHRONE TUMOR PROMOTERS ON THE EGF RECEPTOR OF CULTURED MOUSE KERATINOCYTES. A Imamoto and J DiGiovanni. University of Texas M.D. Anderson Cancer Center, Science Park-Research Division, Smithville, TX.

THURSDAY MORNING, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: DISPOSITION

Chairperson: Ho Chung, Walter Reed Army Medical Center, Washington, DC.

Displayed: 8:30 a.m.-11:30 a.m.
Attended: 9:30 a.m.-10:30 a.m.

#936

COMPARATIVE TISSUE DISTRIBUTION AND HEMOGLOBIN BINDING OF POLYCYCICAL AROMATICS FOLLOWING APPLICATION TO MOUSE SKIN. D Warehowsky, R Reisman, K LaDow, J Schneider, J Meier, M Radike and B Daniel. University of Cincinnati Medical Center, and USEPA, Cincinnati, OH.

#937

EFFECT OF REPEATED DOSING AND AGE ON THE DISPOsITION AND METABOLISM OF 4-CHLORO NITROBENZENE (4-CN) IN MALE FISCHER-344 RATS FOLLOWING ORAL ADMINISTRATION. D M Silva, M F McComish, N F Ferrala, P M Markham and M Chadwick, Arthur B. Little, Inc., Cambridge, MA. Sponsor: A A Nombel.

TISSUE DISPOSITION OF INGESTED PERCHLOROETHYLENE (PER) IN RATS. X M Chen, C E Dallas, S Muralidhara, J M Gallo, and J V Brockner. Departments of Pharmacology & Toxicology and *Pharmaceuticals, College of Pharmacy at Georgia, Athens, GA.

PHARMACOKINETICS OF TRANS-1,2-DICHLOROETHYLENE (DCE) AND 1,1-DICHLOROETHANE (DCA) IN RATS. RO Manning, KH Brown, V Srivatsan, J M Gallo and J V Brockner. Department of Pharmacology & Toxicology and *Department of Pharmaceutics, College of Pharmacy, University of Georgia, Athens, GA.

1.2-DICHLOROPROPANE (DCP): KINETICS AND METABOLISM IN FISCHER 344 RAT FOLLOWING ORAL AND INHALATION EXPOSURE. C Timchalk, M D Dryzga, F A Smith, J J Bartels. H &ES, the Dow Chemical Co., Midland, Mi.

DERMAL ABSORPTION AND DISPOSITION OF METHOXY (ME), ETHOXY-(EE), AND BUTOXY [U-14C]ETHANOL. P J Sabourin, M A Medinsky, L S Birnbaum, F Thurmond and R F Henderson. Inhalation Toxicology Research Institute, Albuquerque, NM. *NEHS, Research Triangle Park, NC.


EFFECT OF DOSE AND REPEATED DOSING ON THE DISPOSITION AND METABOLISM OF SODIUM OMADINE @ (Na PYRITHIONE; NaOM). M Chadwick, D M Silveira, M F McComish, A A Nemer and S J Barber. Arthur D. Little, Inc., Cambridge, MA and Glin Corp., New Haven, CT.

TISSUE DISTRIBUTION AND EXCRETION OF 14C-LABELED CINNAMIC ALDEHYDE FOLLOWING ACUTE SUBACUTE ORAL ADMINISTRATION IN MALE FISCHER-344 RATS. P P Sapienza, G J Ikeda, P L Warr and R E Dailey. FDA, CSFAN, Div. of Toxicological Studies, Washington, DC.

FERROGENE: DISPOSITION FOLLOWING NOSE-ONLY INHALATION BY THE RAT. R W Slaeter, T K Tippin, H B Matthews* and A R Jeffcoat; Research Triangle Park Institute and *The National Institute of Environmental Health Sciences, Research Triangle Park, NC.

DOSE-DEPENDENT PHARMACOKINETICS AND TERATOGENIC ACTIVITY OF TOPICAL RETINOIDS. R P Sharma, C G Willhite, D L Berry and P V Allen. Toxicology Program, Utah State University, Logan, UT; California Dept. Health Service, Emeryville, CA and WRC, USDA, Albany, CA.


EFFECT OF RESERINE ON THE DISTRIBUTION AND METABOLISM OF N-METHYLTHIOBENZAMIDE (NMTH) IN THE RAT. L Gibbs and G Traiger. Dept. Pharmacol. and Toxicol., Univ. of Kansas, Lawrence, KS.

AGE-RELATED CHANGES IN METABOLISM AND DISPOSITION OF SALICYLIC ACID (SAL) IN MALE FISCHER 344 RATS. L S Birnbaum, T F McMahon, and J J Diliberto. *NEHS, Research Triangle Park, NC.

TISSUE DISTRIBUTION (TD) OF 14C IN RATS AFTER ADMINISTRATION OF SULOTROBAN (S) OR DALTROBAN (D); A STUDY BY WHOLE-BODY AUTORADIOGRAPHY (WBA). M Carbonaro and J Kao. Dept. of Drug Metabolism, King of Prussia, PA.

COMPARATIVE STUDIES ON THE DISPOSITION OF PICENADOL (LY-150720) ENANTIOMERS IN PLASMA AND BRAIN OF Monkeys, DOGS, AND RODENTS. D J Sweeney, C A Schmalz, and G K Hansen. Toxicology Division, Lilly Research Laboratories, El Lilly and Co., Greenfield, IN.

METABOLISM AND DISPOSITION OF POLYMERIC SODIUM GLYOXYLATE IN THE RAT. W Ridley, J Warren, W Hopkins and R Nair. Environ. Health Lab. and Dept. of Med. and Health Sciences, Monsanto, Company, St. Louis, MO.


CHARACTERIZATION OF THERAPEUTIC PROTEINS IN DISPOSITION STUDIES. B L Ferraiolo, M A Mohier, P A Cossum, J A Moore, B Reed and D Vandel, Genetech, Inc., South San Francisco, CA.

DISTRIBUTION AND EXCRETION OF ANTHRAQUINOINE IN THE MALE F-344 RAT. M B Steup, S M Winter and L G Sipes. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.
THURSDAY MORNING, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: ENDOCRINE TOXICOLOGY

Chairperson: Walter Piper, University of Michigan, Ann Arbor, MI.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 10:00 a.m.-11:30 a.m.

#964
MICROSOMAL ENZYME INDUCERS REDUCE THYROID HORMONE LEVELS BY AN EXTRA-

#965
THYROTROPIC ACTION OF CGS 12970 (A THROMBOXANE SYNTHASE INHIBITOR) AND INDUCTION
OF HEPATIC UDP-GLUCURONYL TRANSFERASE IN RATS. J C Kapeghian, C H Borman, E R Lasinski, M A
Mehey, D N McMartin, A F Plocinski, P S Sahota, M J Schlosser, T E Yau, and V M Traina. Res. Dept., Pharm-
aceut. Div., CIBA-GEIGY Corp., Summit, NJ.

#966
CGS 12970 (A THROMBOXANE SYNTHASE INHIBITOR): CHRONIC ORAL TOXICITY STUDIES IN
RATS AND DOGS. A R Singh, J C Kapeghian, W O Iverson, G C McCormick, A T Arthur, and V M Traina. Re-
search Dept., Pharmaceuticals Division, CIBA-GEIGY Corp., Summit, NJ.

#967
of Hawaii, Honolulu, HI.

#968
PROLIFERATIVE LESIONS OF THE THYROID GLAND: A REVIEW OF THE NATIONAL TOXICOLOGY
PROGRAM DATA BASE. E E McConnell, Risk Sciences Institute, Washington, DC., J A Haseman and G A Boor-
man, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#969
GOITROGENS STRUCTURE-ACTIVITY CORRELATES. V L Zaritzian, US Department of Agriculture,
Food Safety and Inspection Service, Science, Food Ingredient Assessment Division, Washington, DC.

#970
PLASMA MELATONIN (MEL) SUPPRESSION IN STEERS ON ENDOPHYTE INFECTED FESCUE
(EIF). J K Porter, J A Stuedemann, F N Thompson Jr, B A Buchanan, H A Tucker, L B Lipham. 1) USDA-ARS-
RRC, Athens, GA; 2) USDA-ARS-SPC, Watkinsville, GA; 3) Univ. GA., Veterinary Med., Athens GA; 4) Dept.

#971
THE EFFECT OF DEXAMETHASONE PRETREATMENT AND SELENIUM ON PLASMA GLUCOSE OF
ADRENALECTOMIZED RATS. R A Potmns, H Raszk, R Seraus, and J L Early. College of Pharmacy, Florida
A&M University, Tallahassee, FL. Sponsor: R C Schnell.

#972
TIME COURSE FOR ALTERATIONS IN SERUM TESTOSTERONE (T) AND LH LEVELS FOLLOWING
hCG, GnRH, AND NALOXONE CHALLENGES. S M Murray, M E Hut and C Cook, E I du Pont de Nemours and
Co., Haskell Laboratory for Toxicology and Industrial Medicine, Newark, DE.

#973
SPECIES DIFFERENCES IN RESPONSE TO EPOPANE, AN INHIBITOR OF STEROIDGENESIS.
P J Fabian and T A Barfoot. Toxicology Dept., Sterling Research Group, Rensselaer, NY.

#974
ENDOCRINE REGULATION OF THE OVULATORY PROCESS: EFFECT OF CHLORDIMEFORM.
LONG-TERM EFFECTS ON ESTROGEN RECEPTOR AND UTERINE GROWTH FOLLOWING POSTNATAL EXPOSURE TO DIETHYLSTILBESTROL (DES). K L Medlock, W S Branham and D M Sheehan. Division of Reproductive and Developmental Toxicology, National Center for Toxicological Research, Jefferson, AR.


ALTERED PLASMA AND PITUITARY ADRENOCORTICOTROPIN (ACTH) CONCENTRATIONS IN MALE RATS EXPOSED TO 2,3,7,8-TETRACHLORIDIBENZO-P-DIOXIN (TCDD). L L Bestervelt, M R Buroker, Y Cai, and W H Piper, Dept. Environ. & Industr. Hlth. Toxicol. Train. Prog. and Dept. Pharmacology, Univ. of Michigan, Ann Arbor, MI.

A SERUM COMPONENT CONTROLS TCDD-INDUCED SUPPRESSION OF STEROIDOGENSES IN CULTURED BAC CELLS. C Williams and C Jefcoat. Environmental Toxicology Center, University of Wisconsin, Madison, WI.


2,3,7,8-TETRACHLORIDIBENZO-P-DIOXIN AS AN ANTIESTROGEN: EFFECTS ON NUCLEAR ESTROGEN RECEPTOR LEVELS IN MCF-7 CELLS. M Harris, T Zacharewski and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

EFFECTS OF 2,3,7,8-TETRACHLORIDIBENZO-P-DIOXIN (TCDD) ON ESTROGEN-INDUCED C-FOS ONCOGENE mRNA EXPRESSION IN THE FEMALE RAT UTERUS. B Eldridge, B Arost and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

EFFECTS OF 2,3,7,8-TETRACHLORIDIBENZO-P-DIOXIN (TCDD) ON 17β-ESTRADIOL-INDUCED c-myc ONCOGENE mRNA LEVELS IN MCF-7 HUMAN BREAST CANCER CELLS. C Flowand and S Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

EFFECTS OF PERINATAL 2,3,7,8-TETRACHLORIDIBENZO-P-DIOXIN (TCDD) EXPOSURE ON THE DEVELOPMENT OF MALE RATS AND THEIR ANDROGENIC STATUS. R W Moore, T A Mably, and R E Pet- son. School of Pharmacy and Environ. Toxicol. Ctr., Univ. of Wisconsin, Madison, WI.

ALTERED SEXUAL BEHAVIOR IN MALE RATS EXPOSED PERINATALLY TO 2,3,7,8-TETRACHLORIDIBENZO-P-DIOXIN (TCDD). T A Mably, R W Moore, R W Goy, and R E Peterson. School of Environ. Toxicol. Center, University of Wisconsin, Madison, WI.

THURSDAY MORNING, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: ENVIRONMENTAL/AQUATIC TOXICOLOGY

Chairperson: Kenneth L. Pavkov, CIBA/GEIGY Corp., Farmington, CT.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10:00 a.m.

SPIDERS AS ENVIRONMENTAL MONITORS OF HEAVY METALS. T E Christenson, Dept Psychology, Tulane University, New Orleans, LA; J Cohn and M J Pokora, Environmental Health Sciences Center, University of Rochester School of Medicine and Dentistry, Rochester, NY. Sponsor: D A Cory-Slechta.

ALUMINUM ACCUMULATION IN THE BRAIN OF FISH FROM AN ACIDIFIED LAKE. R Stripp and L Trombeta. U.S. Dept. of Energy, New York, NY, Toxicology Program, St. John's University, Queens, NY.

CHANGES IN HEPATIC, RENAL AND PULMONARY POLYSUBSTRATE MONOOXYGENASE ACTIVITIES IN CATTLE EXPOSED TO AN ALBERTA CRUDE OIL. A A Khan, R W Copock, L E Little and M M Schuler. Animal Sciences Division, Alberta Environmental Centre, Vegreville, AB, Canada.

RADIOESCIUM (137Cs) UPTAKE IN MALLARDS AT THE SAVANNAH RIVER SITE (SRS) AND EFFECTS ON DNA CELL CYCLE IN RED BLOOD CELLS. L S George, C E Dallas, "L Baisin and "D E Evans. Col-

ENVIRONMENTAL IMPACT OF METHOPRENE, A MOSQUITO LARVICIDE ON TARGET AND NON-TARGET ORGANISMS. S Sriraman, T P Sriraman, and I Seymour, Division of Natural Sciences, Selma University, Selma, AL. Sponsor: G Reddy.

UPTAKE, BIOACCUMULATION AND ELIMINATION OF MELAMINE IN RAINBOW TROUT. J J Lech, D C Szmania, L H Dulak, and M A Friedman. Department Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee, WI, and Toxicology and Product Safety Department, American Cyanimid Co., Wayne, N.J.

DETECTION OF CYTOCHROME P-450 INDUCTION IN FERAL AND CAGED FISH. K R Cooper, V Prince, M L Haasch, P J Weikersma, and J J Lech. JCPT, Rutgers University/UMDNJ, Piscataway, NJ, Med. Coll. of WI, Center for Great Lakes Studies, U-W-Milwaukee, WI.

CONCENTRATION AND MUTAGENIC ACTIVITY OF DISINFECTANT TREATED EFFLUENTS FROM A WASTEWATER REUSE PLANT. M D Khoury, G N Jones, W M Tabor, D Braciano, B Casto, D Holmes, D Pickard and M A Perelma. Environmental Health Research and Testing, Inc. and Univ. of Cinc., Cincinnati, OH; City of Tampa, OH2M Hill and WCFWSA, TAMPA, FL.

13-WEEK TOXICITY STUDY WITH (2-NAPHTHOXY) ACETIC ACID (BNA) IN DOGS. J Kleeman, R Busch, R Hall, B Lester, and T Osimitz. Hazleton Laboratoryes America, Inc., Madison, WI and S. C. Johnson & Son, Inc., Racine, WI.

THURSDAY MORNING, FEBRUARY 15
FONATEINEBLEAU BALLROOM D

POSTER SESSION: HALOGENATED HYDROCARBONS

Chairperson: Charles Timchalk, Dow Chemical Company, Midland, MI.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 10:00 a.m.-11:30 a.m.

HEPATOXICITY OF HALOCARBON 3.1 OIL AND CHLOROTRIFLUOROETHYLENE (CTFE) OLIGOMERS IN MALE FISCHER 344 RATS. N J DelRaso, C S Godin, C E Jones and C Flemming*. Armstrong Aerospace Medical Research Laboratory, WPAFB, OH. "NSI Technology Services Corp., Dayton, OH. Sponsor: E Kinkead.


TWO-DIMENSIONAL ELECTROPHORETIC ANALYSIS OF PFDA HEPATOXICITY. F Witzmann, Indiana University-Purdue University at Indianapolis, N DelRaso and M George, Armstrong Aerospace Medical Research Laboratory, Toxic Hazard Division, WPAFB, OH. Sponsor: E R Kinkead.

MECHANISM OF LIVER WEIGHT INCREASE FOLLOWING EXPOSURE TO HALOCARBON 3.1 OIL. C S Godin, H G Wall, N J DelRaso and E R Kinkead. NSI Technology Services Corp., Dayton, OH. "Armstrong Aerospace Medical Research Laboratory, WPAFB, OH.

COMPUTER SIMULATION OF CHLOROTRIFLUOROETHYLENE OLIGOMER (CTFE) PHARMACOKINETICS IN MALE RHESUS MONKEYS. A Vinegar, C S Seckel, C E Jones, and M B Ballinger. NSI Technology Services Corp., Dayton, OH and AAMRL/THT, Wright-Patterson Air Force Base, OH. Sponsor: B E Connelly.

SUBACUTE AND SUBCHRONIC TOXICITY STUDIES OF 1,3-DICHLOROBENZENE IN RATS. M Robinson, P T McCauley and G Henningsen. Environmental Toxicology Division, US EPA, Cincinnati, OH and Air Force Biomedical Research Laboratory, WPAFB, OH.


MACROMOLECULAR BINDING OF TRICHLOROACETONITRILE IN RATS. E C Lin, T V Reddy, C W Guion, B H McFarland, A C Roth, and F B Daniel. USEPA, Health Effect Research Laboratory, Cincinnati, OH.
LACK OF GLUTATHIONE OXIDATION BY DICHLOROACETATE AND TRICHLOROACETATE IN RAT
HEPATOCYTE SUSPENSIONS. S Bruschi and R J Bull. Pharmacology/Toxicology Graduate Program, College of
Pharmacy, Washington, State University, Pullman, WA.

3,3',4,4'-TETRABROMOBIPHENYL (TBB): EFFECTS ON ACUTE PHASE PROTEINS IN RATS.
Ctr. for Toxicology, Univ.of Kentucky, Lexington, KY.

PCB NEUROTOXICITY IS ASSOCIATED WITH NON-PLANAR ORTHO-SUBSTITUTED CONGENERS.
Health and Toxicol., SUNY, Albany, NY.

SHORT TERM TOXICITY OF THREE CHLORINATED DIPHENYL ETHER ISOMERS IN THE RAT.
D C Villeneuve, L Chu, V E Secours, and V E Vail. Environmental Health Directorate, Ottawa and Biopath Analysts
Ltd., Guelph, ON, Canada.

90-DAY SUBCHRONIC TOXICITY STUDIES OF TETRACHLOROPHTHALIC ANHYDRIDE (TCPA) IN
FX444/N RATS AND B6C3F1 MICE. A Braun, F Kari, A S K Murthy, F Voelker, and L E Sendelbach. NIEHS/NTP,
Research Triangle Park, NC and EG&G Mason Research Institute, Worcester, MA.

ACUTE, SUBCHRONIC AND CHRONIC INHALATION STUDIES OF 1,1,2,3-TETRACHLOROPROPENE
Louis, MO and "Amway Corporation, Ada, MI.

SUBCHRONIC INHALATION TOXICITY OF RATS AND MICE EXPOSED TO HEXAFLUOROPROPANE
(HFFP). J C Studier, D P Kelly, M C Carakostas, and G T Makovec. E I du Pont de Nemours and Co, Haskell
Laboratory for Toxicology and Industrial Medicine, Newark, DE. Sponsor: H J Trochimowicz.

RELATIONSHIP PORPHYRIA-CANCER. INFLUENCE OF HEPATIC TUMORS ON THE HEXA-
CHLOROBENZENE (HCB) INDUCED PORPHYRIA IN RATS. R Wainstein de Calmanovici, A Cochon, J C
Zenklusen, C Aldonatti, J R P Cabrall and L C San Martinio Viale. Cac.Cas. Exactas y Nat. Univ. de Bs. As. Argentin-
a and IARC, Lyon, France.

SUBCHRONIC TOXICITY OF PARACHLOROBENZOTRICHLORIDE (PCBCT) AFTER ORAL EXPO-
Spencerville, OH, and Occidental Chemical Corporation, Niagara Falls, NY.

DNA DAMAGE AS A MECHANISM OF 1,2-DIBROMO-3-CHLOROPROPANE-INDUCED CELL DEATH.

LOW-DENSITY LIPOPROTEIN (LDL) AS A TRANSPORTER FOR HEXABROMOBIPHENYL (HBB)
INTO THE CELL. S I Jang and I A Bernstein. Department of Environmental and Industrial Health-Toxicology, Univer-
sity of Michigan, Ann Arbor, MI.

DOSE FORMULATION STUDIES OF MICROENCAPSULATED 1,1,2,2-TETRACHLOROETHANE.
Department, Midwest Research Institute, Kansas City, MO and C W Jameson, Division of Toxicology Research and
Testing, National Institute of Environmental Health Sciences, Research Triangle Park, NC. Sponsor: N Indacochia;
Redmond.

THURSDAY MORNING, FEBRUARY 15
FONTAINEBLEAU BALLROOM D

POSTER SESSION: IN VITRO DERMAL/OCULAR TOXICOLOGY

Chairperson: Timothy J. Raczniaik, Upjohn Company, Kalamazoo, MI.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10:00 a.m.

THE ABSORPTION AND METABOLISM OF AZOIC COLORS IN INTACT AND FRACTIONATED SKIN.
S W Collier, J E Storm, and R L Bronaugh. Division of Toxicological Studies, FDA, Washington, DC.

EFFECT OF VEHICLE ON PENETRATION AND DISTRIBUTION OF MICROCYSTIN IN HUMAN SKIN
IN VITRO. M Mehta, B W Kemppainen, C R Clark* and RG Stafford, College of Veterinary Medicine and 1 School of
Pharmacy, Auburn University, AL.

METHODS FOR IN VITRO SKIN ABSORPTION STUDIES OF A LIPOPHILIC TOXIN PRODUCED BY
RED TIDE. B W Kemppainen, W G Reifenth*, R G Stafford and M Mehta. College of Veterinary Medicine, Auburn
University, AL, and *Letterman Army Institute of Research, Presidio of San Francisco, CA.

THE IN VITRO PENETRATION AND DISPOSITION OF LYNGBYATOXIN A (TELOCICIN A) IN GUINEA
PIG SKIN. R G Stafford, B W Kemppainen, M Mehta, R C Clark* and H Fujiki*. College of Veterinary Medicine and
1 School of Pharmacy, Auburn University, AL and 2National Cancer Center Research Institute, Tokyo, Japan.

ROLE OF ABSORPTION RATE AND CUTANEOUS ENZYME ACTIVITY IN METABOLISM OF PERCUTANEOUSLY PENETRATING COMPOUNDS. J E Storm, S W Collier, R F Stewart and R L Bronaugh. Division of Toxicological Studies, FDA, Washington, DC.

REPRODUCIBILITY OF IN VITRO DERMAL ABSORPTION OF SUBSTITUTED PHENOLS THROUGH RAT SKIN. S P Shrivastava, M R Sumerler, H L Fisher, B C Edwards, P V Shah, and L L Hall. NSI, Research Triangle Park, NC; US EPA, Research Triangle Park, NC; Hoffmann-La Roche, Nutley, NJ.


PERCUTANEOUS ABSORPTION OF RADIO-Labeled PARATHION, MALATHION, CARBARYL AND LINDANE IN THE ISOLATED PERFUSED PROCINE SKIN FLAP (IPPSF). S K Chang, P L Williams and J E Hines. Cutaneous Pharmacology and Toxicology Center, North Carolina State University, Raleigh, NC.

A QUANTITATIVE IN VITRO SCREEN FOR THE EVALUATION OF CANDIDATE TOPICAL PROTECTANTS AGAINST SOMAN. T H Snider, D W Hobson, C T Olsen, G S Dill, and R L Joiner. Battelle Memorial Institute, Columbus, OH. Sponsor: C T Olson.


EVALUATION OF TWO IN VITRO OCULAR IRRITATION ASSAYS. J J Long and R M Bednarz. Anam Company, Ada, MI.


DERMAL ABSORPTION OF THE HERBICIDE FLUAZIFOP-BUTYL (FB) IN MAN. B H Woollen, J D Ramsey, T R Auton, P L Batten, and J E Leeser. IC Central Toxicology Laboratory, Alderley Park, Macclesfield, Cheshire, UK. Sponsor: E A Lock.

THURSDAY MORNING, FEBRUARY 15
FONTAINEBLEAU BALLROOM D

POSTER SESSION: NASAL TOXICOLOGY

Chairperson: Christopher Coggins, RJR Tobacco Company, Winston-Salem, NC.

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

DETERMINATION OF NASAL AIRFLOW CHARACTERISTICS IN F-344 RATS AND RHESUS MONKEYS AND APPLICATION TO INHALATION TOXICOLOGY. J S Kimbell, A Fleishman, M E Andersen and K T Morgan. CIIT, Research Triangle Park, NC.

METABOLIC CAPABILITIES AND AFLATOXIN B1 METABOLISM IN MAMMALIAN TRACHEAL MICROsomAL PREPARATIONS. G W Ball, J M Hue and R A Cullomba. Jr. Graduate Program in Toxicology, Utah State University, Logan, UT.

DEPOSITION OF ACETONE IN THE UPPER RESPIRATORY TRACT (URT) OF THE B6C3F1 MOUSE. J B Morris. Toxicology Program, Univ. of Connecticut, Storrs, CT.
SECRETION OF HYALURONIC ACID BY MUCOSAL AND SUBMUCOSAL GLAND EPITHELIAL CELL CULTURES DERIVED FROM HUMAN TRACHEA. G W Taylor, P A Mathieu, and D P Chopra. Institute of Chemical Toxicology, Wayne State Univ., Detroit, Mi. Sponsor: R F Novak.

BLOOD LEVELS OF PROPYLENE OXIDE IN RATS DURING INHALATION OF PROPYLENE. K R Maples and A R Dahl. Inhalation Toxicology Research Institute, Albuquerque, NM.

LECTIN BINDING IN SQUAMOUS METAPLASIA INDUCED BY BENZO(A)PYRENE AND VITAMIN A DEFICIENCY IN HAMSTER TRACHEA. D P Chopra and A P Joakim, Institute of Chemical Toxicology, Wayne State University, Detroit, Mi. Sponsor: R F Novak.


MORPHOMETRIC ANALYSIS OF FORMALDEHYDE-INDUCED LESIONS IN RAT NASAL EPITHELIUM. E A Q Bemudez, M B St. Clair, J A Swenberg and K T Morgan, Cllf Research Triangle Park, NC and Dept. of Pathology, UNC, Chapel Hill, NC.

CARBOXYLESTERASE-DEPENDENT CYTOTOXICITY OF DIBASIC ESTERS (DBE) IN RAT NASAL EXPLANTS. B A Treia and M S Bogganly. Haskell Laboratory for Toxicology and Industrial Medicine, E I du Pont de Nemours & Co, Newark, DE.

SEQUENTIAL STUDY OF NASAL AND HEPATIC LESIONS IN RATS CAUSED BY SINGLE DOSES OF N-NITROSAMINES. C Rangga-Tabbu and D Stilbre. Department of Pathology, Michigan State Univ., E. Lansing, Mi.

THURSDAY MORNING, FEBRUARY 15
FONTAINEBLEAU BALLROOM D

POSTER SESSION: PATHOLOGY

Chairperson: Francis J. Koschier, CIBA-GEIGY Corp., Ardsley, NY.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10:00 a.m.

A COMPARISON OF CLINICAL CHEMISTRY RESULT AND LIVER HISTOPATHOLOGY FOLLOWING ORAL DOSES OF CYCLODISONE (NSC-348948) TO BEAGLE DOGS. J G Page*, L M Thrippen*, J E Tomaszewski**, and C K Gnesseb**. Southern Research Institute, Birmingham, AL and National Cancer Institute, Bethesda, MD.

DOSE RESPONSE TO BROMODEOXYURIDINE (BRDU) SLOW-RELEASE PELLETS FOR IMMUNO HISTOCHEMICAL DETECTION OF LEVELS OF DNA SYNTHESIS IN TISSUES OF RATS AND MICE. J M Ward, R A Lubet, J Hehneman, D Devor, and D Logsdon, Tumor Pathology and Pathogenesis Section, National Cancer Institute, and PRI-FCRF, Frederick, MD. Sponsor: M P Wankle.


A STUDY OF THE LYSOSOMAL AND MITOCHONDRIAL RELATIONSHIP AS A RESULT OF CHLOROQUINE CYTOTOXICITY ON MOUSE NEUROBLASTOMAL C1300 CELLS IN CULTURE. S A Kucharewicz and L D Trombetta. St. John’s University Dept. of Pharmacy, Queens, NY.


DIFFERENTIAL EFFECTS OF TRANSFORMING GROWTH FACTOR b (TGFb) AND EPIDERMAL GROWTH FACTOR (EGF) ON THE CYTOCIDAL EFFECTS OF AFLATOXIN B1 (AFB) IN PRIMARY CULTURES OF RAT HEPATOCYTES. M S Pollanen, G K Wolenberg, J LaMarre, M A Hayes. Department of Pathology, University of Guelph, Guelph, Ontario, Canada.


THURSDAY MORNING, FEBRUARY 15
FONTAINEBLEAU BALLROOM D

POSTER SESSION: RENAL TOXICOLOGY
PREPARATION OF VIABLE RENAL PROXIMAL TUBULAR SYSTEMS FROM RODENTS AND
PRIMATES FOR CYTOTOXICITY STUDIES. J E Dabbs, C A Tyson, and R E Melnick. SRI International, Menlo
Park, CA and NTP/NCEHS, Research Triangle Park, NC.

LIPID PEROXIDATION-DEPENDENT AND INDEPENDENT MECHANISMS OF CEPHALORIDINE CYTOTOXICITY
IN ISOLATED RABBIT TUBULES. G F Raines. Toxicology Division, Lilly Research Laboratories, Eli Lilly and Co.,
Greenfield, IN.

MINIMAL ROLE OF XANTHINE OXIDASE IN INJURY OF ISOLATED RAT PROXIMAL TUBULES
DURING HYPOXIA, ANOXIA AND REOXYGENATION. R B Doctor and L J Mandel. Duke Univ. Med. Ctr., Dept. of
Cell Biology, Durham, NC. Sponsor: D G Graham.

RENAL PROXIMAL TUBULAR AND MITOCHONDRIAL TOXICITY OF N-(3,5-DICHLOROPHENYL)

ISOLATION AND CRYOPRESERVATION OF DOG AND HUMAN KIDNEY CELLS FOR TOXICITY
STUDIES. M Berggren, K Ramaswamy, and G Pawa. Department of Pharmacology, Mayo Clinic & Foundation,
Rochester, MN.

EFFECTS OF CEPHALORIDINE ON PRIMARY CULTURES OF RAT RENAL CORTICAL EPITHELIAL
CELLS: INTRACELLULAR REACTIVE OXYGEN SPECIES AND CALCIUM. J R Lee and D Acosta. The University
of Texas, Austin, TX.

NEPHROGENIC REPAIR IN VITRO: THE ROLE OF PEPTIDE GROWTH FACTORS IN PROXIMAL
TUBULE EPITHELIAL CELL (PTEC) GROWTH. G H Zhang, A Wallin, M Kan and J L Stevens. W Aiton Jones Cell
Science Center, Lake Placid, NY.

THE ROLE OF PHOSPHOLIPASES, PROTEASES, AND ENDONUCLEASES IN THE ISOLATED
RAT RENAL EPITHELIAL CELL (IREC) CYTOTOXICITY OF S-(1,2,3,4,4-PENTACHLOROBUTADIENYL)-
GLUTATHIONE (PCBG). P C Brown, J C Chen, and T W Jones. Toxicol. Prog. and Depl. of Pathol., Univ. of
Maryland Sch. of Med., Baltimore, MD.

EFFECT OF S-2 (2CHLOROETHYL) DL-CYSTEINE (CEC) ON ORGANIC ANION TRANSPORT IN
ISOLATED RENAL MEMBRANE VESICLES. W Guo, 1 S Chakrabarti, 1 A Malick and M G Cote. 2 Med. Trav. Hyg.
Mil. 1 et Pharmacologie, 2 Fac. Medecine, Univ. Montreal, Montreal, Quebec, Canada.

EFFECT OF N-ACETYL-CYSTEINE CONJUGATE OF STYRENE ON THE TRANSPORT OF ORGANIC
ION IN ISOLATED PLASMA MEMBRANES. D D Vu, 1 S Chakrabarti, 1 and M G Cote. 2 Med. Trav. Hyg. Mil. 1 et
Pharmacologie, 2 Univ. Montreal, Montreal, Quebec, Canada.

a2u-GLLOBULIN NEPHROPATHY (a2u-N) AND RENAL CELL PROLIFERATION IN MALE RATS
EXPOSED TO EUROPEAN HIGH TEST AND PS-6 UNLEADED GASOLINE. S J Borghoff, N L Youtsey, J A Swen-
berg. CIT, Research Triangle Park, NCand Depart. of Pathology, UN, Chapel Hill, NC.

NBR MALE RATS FAIL TO DEVELOP RENAL DISEASE FOLLOWING EXPOSURE TO AGENTS THAT
INDUCE ALPHA-2G-GLLOBULIN (A2U) NEPHROPATHY. D R Dietrich and J A Swenberg. Dept. of Pathology,
University of North Carolina, Chapel Hill.

EFFECT OF D-LIMONENE-INDUCED HYALINE DROPLET EXACERBATION ON LYMPHOMAL
PROTEOLYTIC FUNCTION AND URINARY PROTEIN EXCRETION. D Caudill and L D Lehman-McKeeman. Miami
Valley Laboratories, Procter and Gamble Company, Cincinnati, OH.

EVALUATION OF GENOTOXICITY AND SUBCHRONIC ORAL TOXICITY STUDIES OF AN ADIPATE
ESTER IN RATS. R T Tumney, A Tumney, R T Przygoda Exxon Biomedical Sci., Inc., E Millstone, NJ. Sponsor: Q F
Egan.

S-(1,2-DICHLOROVINYL)-L-CYSTEINE SULFOXIDE, A PUTATIVE METABOLITE OF S-(1,2-DICHLOROVINYL)-L-CYSTEINE (DCVC), IS A POTENT NEPHROTOXIN. P J Sausen and A A Elfarra. Dept Comp.
Biosci. and Environ. Tox. Center, Univ of Wisconsin, Madison, WI.

PROTECTION OF RATS FROM S-(1,2-DICHLOROVINYL)-L-CYSTEINE (DCVC) AND CEPHAL-
ORIDINE-INDUCED NEPHROTOXICITY BY METHIMAZOLE. A A Elfarra, P J Sausen and C M Ruiz Quinones.
Dept. Comp. Biosci. and Environ. Tox. Center, Univ. of Wisconsin, Madison, WI.

NEPHROTOXICITY OF N-(3,5-DICHLOROPHENYL)-SUCINIMIDE (NDPS) IN NORMOGLYCEMIC AND DIABETIC
RATS. M A Valenti, M D Nicoll, V J T essays and G O Rankin. Dept. Pharmacology, Marshall Univ. School of
Medicine, Huntington, WV.

SUSCEPTIBILITY OF KIDNEYS OF AGING RATS TO MITOCHONDRIAL TOXICANTS. A K Agarwal
Smith Kline & French Labs, King of Prussia, PA.
ENZYMURIA AS AN INDICATOR OF TOXICITY AFTER ADMINISTRATION OF SALICYLIC ACID (SAL), 2,3-DIHYDROXYBENZOIC ACID (2,3-DIOH), AND 2,5-DIHYDROXYBENZOIC ACID. S A Stefaniski, T F McMahon, R E Wilson, P C Blair, A M Clark, and L S Birnbaum. NIEHS, Research Triangle Park, NC.

RENAI FUNCTION AND STRUCTURE IN DOGS FOLLOWING TREATMENT WITH THE ACE INHIBITOR QUINAPRIL. R L Sulick, M A Dominick and D G Pegg. Parke Davis Pharmaceutical Research Division, Warner-Lambert Company, Ann Arbor, MI.

VINYLTRI METHOXY SİLANE (VTMS) 14 WEEK INHALATION STUDY IN RATS. D E Dodd, B Ballantyne 1, and P E Losco. Bushy Run Research Center/Union Carbide Chemical and Plastics Company, Inc., Export PA; 1 Union Carbide Corp., Danbury, CT.


ASSESSMENT OF THE ACUTE ORAL TOXICITY OF WIN 48,098-6 (WIN) IN BEAGLE DOGS. Y Greener, D A Mayes, R M Everett, and J H Dean. Sterling Research Group, Rensselaer, NY.

PROGRESSION ON REIN AND FORESTOMACH EFFECTS FOLLOWING ADMINISTRATION OF CHLOROTHALONIL TO RATS. J C Killeen Jr., N H Wilson, W H Ford, G Siou*, W M Busey**, G L Eilrich***. Ricerca, Inc., Toxicology and Animal Metabolism, Painesville, OH. *CERTI Laboratoire d'histopathologie, Versailles, France; **Experimental Pathology Laboratories, Inc., Hemdon VA; ***Fermenta ASC Corporation, Mentor, OH.


INDUCTION OF RENAL PAPILARY NECROSIS IN THE RAT BY ETHOXYQUIN. G C Hard and G E Neal. Toxicology Unit, Medical Research Council, Carshalton, U.K.

THURSDAY, FEBRUARY 15
12:00 Noon-1:00 p.m.

1990 BURROUGHS WELLCOME TOXICOLOGY SCHOLAR LECTURE
MECHANISMS OF INTERACTIVE HEPATOTOXICITY

by I. Glenn Sipes, Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ.

Chaired by Tom S. Miyaw

Although the vast majority of toxicity studies involves administration of single chemicals to animals, humans are seldom exposed to single chemicals. Therefore, it is important to gather more knowledge on how one chemical influences the toxicity of another. The term "interactive toxicity" is often used to describe those studies that search for potentiation, antagonism or synergism of toxic responses. Descriptions of interactive phenomena are important. However, it is understanding the mechanisms of interactive events that will have the greatest impact on toxicology. In fact, most toxicologists have worked in the area of interactive toxicology, since they often use one chemical to help explore the mechanism by which another chemical produces toxicity. We can borrow from these mechanistic studies to propose mechanisms of interactive events. Just how widespread this borrowing will be will become apparent during this overview of mechanisms on interactive hepatotoxicity.

Since many chemicals require bioactivation to become hepatotoxic an obvious mechanism for interactive events is modulation of biotransformation. The hepatotoxicity of many chemicals (chloroform, halothane, dichlorobenzene, etc.) is dramatically potentiated in phenobarbital pretreated rats because of induction of selected cytochrome P-450 isoforms involved in the bioactivation of these chemicals. Similarly, their hepatotoxicity can be antagonized by inhibitors of cytochrome P-450. An interesting example of antagonism is the co-administration of CCl4 and 1,2-dichlorobenzene. Co-administration of a minimally hepatotoxic dose of CCl4 inhibits the metabolism and ultimately reduces the hepatotoxicity of 1,2-dichlorobenzene.

The liver possesses a number of chemicals that can protect it from insult by chemicals, or their toxic metabolites. Depletion of such hepatoprotective agents as glutathione, vitamin E, selenium and zinc can result in the potentiation of liver injury induced by a variety of different chemicals. For example, 1,2-dichlorobenzene is not hepatotoxic, even in phenobarbital pretreated rats. It becomes hepatotoxic in animals treated with phenol to deplete glutathione.

The mechanisms just discussed involve events occurring within the hepatocyte. Since the liver contains cells other than hepatocytes, effects of chemicals on these cells may be a cause of interactive hepatotoxicity. Recently, it was shown that large doses of vitamin A activate Kupffer cells, the resident macrophage of the liver. Exposure of vitamin A pretreated rats to minimally hepatotoxic doses of different toxicants (CCl4, acetaminophen, allyl alcohol) results in a dramatic potentiation of liver injury. The mechanism of potentiation involves release of oxygen radicals from the Kupffer cells, apparently in response to toxicant-initiated events occurring in the hepatocyte. The end result is enhanced peroxidation of lipids present in the hepatocyte membrane and potentiation of hepatotoxicity.

The above present just a few of the potential mechanisms by which interactive hepatotoxicity may be produced. As we search for other mechanisms it is important that we focus not only on events within the target cell, but consider interaction among different cell types within a tissue. Equally important may be chemical induced changes in other organs and tissues that influence the response of a target tissue.
THURSDAY AFTERNOON, FEBRUARY 15
1:30 p.m.-4:30 p.m.
FONTAINEBLEAU BALLROOM A

SYMPOSIUM: NEW DIRECTIONS IN CANCER RISK ASSESSMENT: MODIFYING THE EPA GUIDELINES


Sponsored by the Carcinogenesis Specialty Section

The EPA's current cancer risk assessment guidelines have been actively employed by the agency for approximately five years. In that time the EPA and the scientific community have realized that certain aspects of these guidelines should be examined in light of new information and approaches regarding cancer risk assessment which have been developed within the discipline during this time-frame. The EPA in the last year has been very active in its reexamination of these guidelines utilizing the opinions of experts within and outside of the agency in its consideration of the modification of these guidelines. This symposium will deal with several aspects that have been discussed in this process. It is hoped that this symposium will allow the membership of the Society to suggest necessary and valid scientific changes that will assist the EPA in its deliberations.

#57 2:15 The Search for Adequate Bioassay Data: Crude Biology Versus Statistics. Ernest Eugene McConnell, Raleigh, NC.
4:00 Discussion.

THURSDAY AFTERNOON, FEBRUARY 15
FONTAINEBLEAU BALLROOM B

SYMPOSIUM: NEW ADVANCES IN CHEMICALLY-INDUCED MITOCHONDRIAL DYSFUNCTION: RELATIONSHIPS TO TOXICITY

Chairperson: Glenn F. Rush, Eli Lilly and Company, Greenfield, IN

Sponsored by the Mechanisms Specialty Section

The purpose of this symposium is to provide a state-of-the-art review of our current knowledge of toxicant-induced mitochondrial injury. Within the last decade, there has been an increased awareness of the critical role that mitochondria play in homeostatic cell functions. Thus, toxicant-induced disturbances in functions such as mitochondrial calcium uptake, ATP synthesis, etc., may initiate a sequence of biochemical changes that may ultimately lead to cell death and there are many new reports in the literature describing these changes. There have also been recent reports in the literature describing new methods for evaluating mitochondrial function both in the intact cell and in isolated mitochondria. This symposium is designed to bring these new concepts in chemically-induced mitochondrial injury together in a single session. The symposium will be divided into two basic sections. The first three speakers will focus on the biochemical techniques and mechanisms involved in chemically-induced mitochondrial injury. The last two speakers will focus their presentations on specific toxicants that appear to target the mitochondria.

#60 1:30 Introduction. Glenn F. Rush, Eli Lilly and Company, Greenfield, IN.
#61 1:40 Direct Probing of Mitochondrial Function in Intact Cells. Rick G. Schnellman, University of Georgia, Athens, GA.
#62 2:10 Overview of Mitochondrial Glutathione. Donald J. Reed, Oregon State University, Corvallis, OR.
#63 2:40 Biochemical Alterations in Mitochondrial Function Leading to Lethal Cell Injury. Glenn F. Rush, Eli Lilly and Company, Greenfield, IN.
#64 3:10 Biochemical Reactions Leading to Parkinsonian Symptoms Elicted by MPTP. T. Singer, University of California, San Francisco, CA.
4:10 Discussion.
THURSDAY AFTERNOON, FEBRUARY 15
LeMANS ROOM

POSTER/DISCUSSION SESSION: CHELATION OF METALS

Chairpersons: Mark M. Jones, Vanderbilt University, Nashville, TN and H. Vasken Aposhian, University of Arizona, Tuscon, AZ.

Displayed 1:30 p.m.-4:30 p.m.
Discussion 2:30 p.m.-4:30 p.m.

#1078 CHELATION, BILIARY EXCRETION AND RENAL DEPOSITION OF CADMIUM IN RATS. M A Basinger, M G Cheronian; P K Singh; and M M Jones, Dept. of Chem., Vanderbilt Univ., Nashville, TN.


#1080 PARTIAL CHARACTERIZATION OF BILIARY CADMIUM AFTER INJECTION OF A DERIVATIVE OF DITHIOPHOSPHATE (DTC) IN CADMIUM PRE-TREATED RATS. P K Singh, M A Basinger, M G Cheronian; S G Jones and M M Jones, Dept. of Chem., Vanderbilt Univ., Nashville, TN.


#1082 2,3-DIMERCAPTOSSUCINIC ACID (DMSA) ALTERS INTRACELLULAR LEAD METABOLISM IN CLONAL RAT OSTEOSTATIC (ROS 17/2.8) CELLS. G J Long, J F Rosen. Albert Einstein College of Medicine, Bronx, NY. J G Pounds. Institute of Chemical Toxicology, Wayne State University, Detroit, MI.

#1083 2, 3-DIMERCAPTO-1-PROPANESULFONIC ACID (DMPS) AS A RESCUE AGENT FOR THE NEPHROPATHY INDUCED BY MERCURIC CHLORIDE. R K Zalups, R M Gelein and E Cernichiarri. Markey Univ. School of Med., Div. of Basic Medical Sciences, Macon, GA; and Univ. of Rochester Med. Ctr., Dept. of Biophysics, Rochester, NY.


#1085 EFFECTS OF DISULFIRAM ON THE ACCUMULATION OF METALS IN THE RAT BRAIN. E Delmaestro, L D Trombetta and R A Stripp. Toxicology Program, St. John's University, Queens, NY.

#1086 DDTC CHELATION, BUT NOT MESNA, LOWERS CISPLATIN NEPHROTOXICITY, KIDNEY PLATINUM LEVELS AND REDUCTION IN KIDNEY COPPER. R S DeWoskin and J E Riviere. Toxicology Program, North Carolina State University, Raleigh, NC.

THURSDAY AFTERNOON, FEBRUARY 15
BORDEAUX ROOM

POSTER/DISCUSSION SESSION: IN VITRO SYSTEMS FOR EVALUATION OF DEVELOPMENTAL TOXICITY

Chairpersons: Elaine Faustman, University of Washington, Seattle, WA and Frank Welsch, CIIT, Research Triangle Park, NC.

Displayed 1:30 p.m.-4:30 p.m.
Discussion 2:30 p.m.-4:30 p.m.


#1088 STUDIES ON RETINOID BINDING TO NUCLEAR RECEPTORS FOR RETINOIC ACID. A. A. Levin, J F Grippo, C Nerv* and A M Jetton*, Dept. of Toxicology and Pathology Hoffmann-La Roche, Nutley, NJ and * Cell Biology Group, NIEHS. Research Triangle Park, NC Sponsor: E A Pfizer.

#1089 DEVELOPMENTAL NEUROTOXICITY OF ETHANOL (EtOH): INTERACTION WITH MUSCARNIC RECEPTOR (Mr) STIMULATED PHOSPHOINOSITIDE METABOLISM. S. M Candura, W Baldini, L Manzo* and L G Costa. Dept. of Environmental Health, Univ. of Washington, Seattle, WA and "Dept. of Pharmacology, Univ. of Pavia Medical School, Pavia, Italy.

DETECTION AND RANKING OF DEVELOPMENTAL HAZARDS ASSOCIATED WITH CHLORINATED PHENOLS. K Mayura, E E Smith, B A Clement, and T D Phillips. Department of Veterinary Public Health, Texas A&M University, College Station, TX and Prairie View A&M University, Prairie View, TX.

EVALUATION OF THE DEVELOPMENTAL TOXICITY OF CITRININ USING HYDRA ATTENUATA AND POSTIMPLANTATION RAT WHOLE EMBRYO CULTURE. Y G Yang, K Mayura and T D Phillips. Department of Veterinary Public Health, Texas A&M University, College Station, TX.


PERTURBATION OF GROWTH AND DEVELOPMENT AFTER IMPLANTATION RODENT EMBRYOS IN CULTURE BY PARATHION. E K Stevens, J E Martin and T R Irvin. Vet. Anatomy Dept. and TEES Engineering Toxicology Division, Texas A&M University, College Station, TX. Sponsor: A C Ray.

EFFECTS OF ALBENDAZOLE AND ALBENDAZOLE SULFOXIDE ON CULTURES OF DIFFERENTIATING RODENT EMBRYONIC CELLS. S G Whittaker and E M Faustman, Depts. of Path. and Env. Hlth., Univ. of Washington, Seattle, WA.

ROLE OF TRANSFORMING GROWTH FACTOR-b IN ORGANOGESIS: IN VITRO INVESTIGATION USING LIMB AND MIDBRAIN CELLS. D Lafoumme and E Faustman, Department of Environmental Health, University of Washington, Seattle, WA.

TAURINE DOES NOT ATTENUATE ISORETINOIC TOXICITY IN CULTURED ORGANOGESIS-STAGED RAT EMBRYOS. T J Flynn and R R Gibson. Division of Toxicological Studies, FDA, Washington, DC.

THURSDAY AFTERNOON, FEBRUARY 15
BURGUNDY ROOM

POSTER/DISCUSSION SESSION: PHAGOCYTIC CELLS AND TISSUE INJURY

Chairpersons: Rogene F. Henderson, Inhalation Toxicology Research Institute, Albuquerque, NM and Michael A. Trush, Johns Hopkins University, Baltimore, MD.

Displayed 1:30 p.m.-4:30 p.m.
Discussion 2:30 p.m.-4:30 p.m.

ACTIVATION OF BP-7,8-DIOL TO DIOLEPOXIDES BY HUMAN POLYMORPHONUCLEAR LEUKOCYTES (PMNs) AND MYELOPEROXIDASE (MPO). M A Trush, D R Mosebrook and W G Mallet. Johns Hopkins University, Baltimore, MD.

DEPLETION OF CIRCULATING NEUTROPHILS ATTENUATES a-NAPHTHYLTHIOCYANATE (ANT)-INDUCED LIVER INJURY. L J Dahn and R A Both, Dept. Pharmacology and Toxicology, Michigan State University, East Lansing, MI.


TUMOR NECROSIS FACTOR (TNF) PRODUCTION FOLLOWING INHALATION OF COTTON DUST. L K Ryan and M H Kerol. Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.

GLUTATHIONE RELEASE BY PULMONARY ALVEOLAR MACROPHAGES IN VITRO: A POSSIBLE INDEX OF PARTICLE CYTOTOXICITY. D S Boehme and R F Henderson. Inhalation Toxicology Research Institute, Albuquerque, NM.

PULMONARY RESPONSES TO A 5 DAY INHALATION EXPOSURE TO SILICA (Si02) OR TITANIUM DIOXIDE (Ti02). J Higgins, K E Desool, R C Lindenschmidt, J K Maurer and M Perkins. Miami Valley Laboratories, Procter & Gamble Co, Cincinnati, OH.
THURSDAY AFTERNOON, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: BIOMARKERS

Chairperson: Leonard Friedman, U.S. FDA, Laurel, MD.
Displayed: 1:30 p.m. - 4:30 p.m.
Attended: 1:30 p.m. - 5:00 p.m.

#1110 MEASUREMENT OF DNA DAMAGE IN HUMAN LYMPHOCYTES EXPOSED IN VITRO TO BENZO(A) PYRENE (BP) AND ETHYLENE DIBROMIDE (EDB). J M Goldenring, C R Miller, G. Lucier and C L Thompson, NIEHS, RTP, NC and Curr. In Toxicology, UNC, Chapel Hill, NC.

#1111 EVALUATION OF 7-SUBSTITUTED ACTINOMYCIN D ANALOGS: COMPARISON OF CYTOTOXICITY ASSAYS TO DNA STRAND-BREAKAGE ANALYSIS. D P Rosenbaum, A Agarwal and S K Sengupta, Dept. of Pharmacology, Boston Univ. School of Medicine. Boston, MA. Sponsor: C Y Walsh.

#1112 DETECTION OF METALLOTHIONEIN (MT) GENE EXPRESSION IN LYMPHOCYTES OF CADMIUM (Cd) EXPOSED RATS. G N Cosma, D Druris, K S Squibb, C A Snyder and S J Garte. Inst. of Environ. Med., NYU Medical Center, New York, NY.

#1113 IN VITRO HEMOGLOBIN ADDUCT FORMATION IN BLOOD FROM RATS, MICE AND HUMANS USING 14C-PHENOL. J D Sun and K D Muscato. Inhalation Toxicology Research Institute, Albuquerque, NM.


#1115 IN VIVO AND IN VITRO ADDUCTION OF DICHLOROACETIC ACID WITH BLOOD PROTEINS. T V Reddy, J Mattox, E L C Lin and F B Daniel. USEPA, Health Effects Research Laboratory, Cincinnati, OH.

#1116 14,4'-METHYLENE-BIS(2-CHLORANILINE) [MOCA]: THE EFFECT OF MULTIPLE ORAL ADMINISTRATION, ROUTE AND PHENOBARBITAL INDUCTION ON MACROMOLECULAR ADDUCTION FORMATION IN RATS. K Cheever, G DeBord, and T Swearengen. NIOSH, DBBS, ETD, BSH, Cincinnati, OH.


#1118 STRESS PROTEIN SYNTHESIS INDUCED IN RAT KIDNEY BY MERCURICCHLORIDE. P L Goering, B R Fisher and C A Dick. Food and Drug Administration, Rockville, MD.

#1119 DETERMINATION OF MUCONIC ACID IN THE URINE OF WORKERS OCCUPATIONALLY EXPOSED TO BENZENE AS A BIOLOGICAL EXPOSURE INDEX. W E Bechtold, G. Lucier, L S Birnbaum, S-N Yin, G-L Li, and R P Henderson. Inhalation Toxicology Research Institute, Albuquerque, NM, "National Institute of Environmental Health Sciences, Research TrianglePark, NC" Institute of Occupational Medicine, Chinese Academy of Preventive Medicine, Beijing, Peoples Republic of China.

#1120 URINARY METABOLITES OF S-(2-BENZOTHIAZOLYL)-L-CYSTEINE (BTC) AS MARKERS OF IN VIVO CYSTEINE CONJUGATE B-LYASE (LYASE) AND S-GLUCURONOSYLTRANSFERASE (SGT) ACTIVITIES. Y Hwang and A A Eifano. Dept. Comp. Biosci. Environ. Tox. Center, Univ. of Wisconsin, Madison, WI.

#1121 ASSESSMENT OF EXPOSURE TO A TOXIC INDUSTRIAL ORGANIC SOLVENT. M J Chang and R S Lin. Chang Gung Med. Coll. and Nat'l Taiwan Univ. Taiwan, ROC. Sponsor: M Heifmanick.
THURSDAY AFTERNOON, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: GASTROINTESTINAL TOXICOLOGY

Chairperson: Logan C. Stone, Procter & Gamble Company, Cincinnati, OH.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 3:00 p.m.-4:30 p.m.

#1122 B-PHENYLETHYLAMINE (PEA) PROTECTS RAT GASTRIC MUCOSA AGAINST ABSOLUTE ETHANOL. M J Dorelanko. Dept. of Toxicology, Allied-Signal Inc., Morristown, NJ.


#1124 TRIMETREXATE TOXICITY IN RATS: PROTECTION BY LEUCOVORIN. J R MacDonald, C C Morse, and D G Pegg. Parke-Davis Pharmaceutical Research Division, Warner-Lambert Co. Ann Arbor, MI.

#1125 EFFECTS OF 3-HYDROXY-3-METHYLGLOUTARYL COENZYME A (HMG COA) REDUCTASE INHIBITORS ON THE RODENT FORESTOMACH. M W Kloss, D H Patrick, and J S MacDonald. Department of Safety Assessment, Merck, Sharp and Dohme Research Laboratories, West Point, PA.

#1126 SUBCHRONIC TOXICITY STUDY OF SC-39026, AN ELASTASE INHIBITOR, IN RATS. C P Chergells, S Levin, and C Cook. Searle R & D, Skokie, IL.

#1127 CORRELATION BETWEEN BETWEEN THE DISPOSITION OF 3-HYDROXY-3-METHYLGLOUTARYL COENZYME A (HMG COA) REDUCTASE INHIBITORS AND HYPERPLASTIC CHANGES IN RODENT FORESTOMACH. A G Zacchei, M W Kloss, L L Lee, and J S MacDonald. Merck Sharp, & Dohme Research Labs., West Point, PA.

#1128 A DIETARY FLAVONOL, QUERCETIN PRODUCES DNA DAMAGE IN CULTURED COLONIC CELLS. A T Canada, L M Kaiser, T D Nguyen. Depts. of Anesthesiology and Medicine, Duke University Med. Center and Durham VA Hospital, Durham, NC.

#1129 INDUCTION OF PATHOLOGICAL CHANGES IN RAT PANCREATIC ACINAR CELLS BY CHRONIC EXPOSURES TO NICOTINE AEROSOL. L W Chang, P Chowdhury, P L Rayford. Depts. of Pathology, Pharmacology & Toxicology, and Physiology, University of AR for Medical Sciences, Little Rock, AR.

#1130 BIOCHEMICAL CHARACTERIZATION OF MICROSOMAL HEME OXYGENASE IN THE SMALL INTESTINAL EPITHELIUM. D Rosenberg and A Kappas. Dept. Metab./Pharm., The Rockefeller University, New York, NY.

THURSDAY AFTERNOON, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: HUMAN TISSUES/SUBJECTS; BIOMEDICAL DEVICES

Chairperson: Theodore J. Benya, Ethyl Corporation, Baton Rouge, LA
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 3:30 p.m.-4:30 p.m.

#1131 CRYOPRESERVED HUMAN TISSUES IN RESEARCH. *D C Cook, R Fisher and K Brendel. *International Institute for The Advancement of Medicine, Essington, PA and Dept. of Pharmacology and Toxicology, College of Pharmacy, Univ. of Arizona, Tucson, AZ.

#1132 TOXICITY ASSESSMENT IN CYROPROSERVED HUMAN KIDNEY AND LIVER SLICES. R Fisher, I G Sipas, A J Gandolfi and K Brendel. Departments of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#1133 BIOTRANSFORMATION ACTIVITY AND CHEMICAL INDUCED TOXICITY IN VITRIFIED HUMAN KIDNEY CORTICAL SLICES. S M Wishnies, A J Gandolfi, I G Sipas and K Brendel. Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#1134 IN VITRO METABOLISM OF [14C]-TOLUENE BY HUMAN AND RAT LIVER MICROSOMES AND LIVER SLICES. D E Chapman, T J Moore, S R Michener and G Powis. Department of Pharmacology, Mayo Clinic and Foundation, Rochester, MN.

#1135 METABOLISM OF 3-METHYLINDOLE BY HUMAN PULMONARY AND HEPATIC MICROSOMES. W Ruangyuttikarn, M L Appleton and G S Yost. Dept. Pharmacology and Toxicology, Univ. of Utah, Salt Lake City, UT.
HUMAN OSTEOBLASTS AS A MODEL FOR OSTEOTOXINS. S A Swanson, C R Angle, and D J Thomas. Department of Pediatrics, University of Nebraska Medical Center, Omaha, NE.

INHIBITION OF HUMAN LIVER CYTOSOLIC GLUTATHIONE S-TRANSFERASE ISOENZYMES (GST) BY TRI-BUTYLACETATE (TBT), 2,4-DICHLOROPHENYACETIC ACID (2,4-D) AND ETHYLENE DICHLORIDE (EDC). L G Berlad and D L Eaton. Department of Environmental Health, University of Washington, Seattle, WA.

GOOD EPIDEMIOLOGY PRACTICES (GEP'S): STANDARD SETTING FOR THE DISCIPLINE. C L Berner, J K Baldwin, B K Hoover, A R Schnatter. Exxon Biomedical Sciences, Inc., East Millstone, NJ.

HUMAN HALON 1301 (BROMOTRIFLUOROMETHANE) INHALATION STUDY. C W Lam 6-1, D Calkins 1, J Deglomani 2, M Tan 3, F Wer 4, T Galen 5, and D Pierson. Biomedical Laboratory Branch and 6Space Biomedical Research Institute, NASA Johnson Space Center, 7KRU International, 8University of Texas School Public Health, and 9University of Texas Health Sciences Center, Houston, TX.

SUBACUTE INTRAVENOUS (IV) TOXICITY OF A HYPERTONIC SALINE/DEXTRAN 70% (HSD) RESUSCITATION FLUID. S T Omaye, G M Zaucha, D F Frost, C B Clifford, L A McKinney, and D W Korte, Jr. Letterman Army Institute of Research, San Francisco, CA.

COLLAGENASE PRODUCTION BY SYNOVIAL CELLS INCUBATED WITH SIMULATED ARTIFICIAL WEAR PARTICLES. C W Stott, S J Moroney and D Abreyton. Johnson & Johnson Health Care Research, New Brunswick, NJ.

THURSDAY AFTERNOON, FEBRUARY 15
GRAND BALLROOM

POSTER SESSION: IMMUNOTOXICOLOGY

Chairperson: Jerry H. Exon, University of Idaho, Moscow, ID.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 3:00 p.m.-4:30 p.m.

ISOMER SPECIFICITY OF ANTIBODIES TO TOLUENE DISOCYANTE (TDI). R Jin and M H Karol. Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.

LYMPHOCYTE SUBSET TYPING IN CYNOMOLGUS MONKEYS. M R Blevins, J D Aley, and D A Brott. Pathology and Experimental Toxicology, Parke-Davis Pharmaceutical Research, Ann Arbor, MI.

USE OF IMMUNOHISTOCHEMISTRY TO DETECT DIPHENYLHEMETHANE 4,4'-DISOCYANTE (MDI) IN EXPOSED GUINEA PIGS. S A. Aizicovi, R Jm, D LaPietra, K F Gottlieb and M H Karol. Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA.

IMMUNOTOXICITY OF 2-METHOXY AND 2-BUTOXY ETHANOL IN RATS. J H Exon, J L Bussiere, and G M Mather. Department of Veterinary Science, University of Idaho, Moscow, ID.

HOST RESISTANCE TO TRICHNELLA SPIRALIS INFECTION IN RATS EXPOSED TO DIALOKYLTINS. R W Lutke, C B Copeland, D L Andrews, M M Riddle and B J Smialowicz. US EPA, Research Triangle Park, NC.

 METHOXYETHANOL IS IMMUNOTOXIC IN THE RAT. R J Smialowicz, M M Riddle, R R Rogers, R W Lutke, C B Copeland, D Miller, J W Laskey and L E Gray. U.S. EPA, Research Triangle Park, NC.

RAT-ADAPTED INFLUENZA VIRUS AS A HOST RESISTANCE MODEL FOR PULMONARY IMMUNOTOXICITY STUDIES. G R Burleson 1, J D Stutzman 2, J P Ehrich 3, S D Brown 4, and T M Chambers 5. Environmental Toxicology Division, Health Effects Research Laboratory, USEPA, RTP, NC, 6NSI-ES, RTP, NC, and 7St. Jude Children's Research Hospital, Memphis, TN.


THE EFFECT OF FBS AND DMSO ON THE TCDD-INDUCED SUPPRESSION OF THE IN VITRO T-DEPENDENT HUM. IM MIUNE RESPONSE. D L Morris, N K Snyder, S D Jordan, and M P Holstoph. Department of Pharmacology and Toxicology, Medical College of Virginia, Richmond, VA.

PROTEIN PHOSPHORYLATION AND TYROSINE KINASE ACTIVITY IN TCDD EXPOSED B LYMPHO- CYTES. D R Gervorek, G C Clark, J A Blank and M J Luster. Immunotoxicology Group, Systemic Toxicology Branch and Laboratory of Biochemical Risk Analysis, NIEHS, Research Triangle Park, NC.
GAMMA INTERFERON ANTAGONISM OF 2,3,7,8-TCDD-INDUCED ANTIBODY RESPONSE SUPPRESSION: ARE IL-4-MEDIATED PROCESSES INVOLVED? N K Snyder, R K Dooley, C M Kramer, D L Morris and M P Holzapple. Department of Pharmacology and Toxicology, The Medical College of Virginia of Virginia Commonwealth University, Richmond VA.

IMMUNE CELL ALTERATIONS FOLLOWING GESTATIONAL EXPOSURE TO 2,3,7,8-TCDD: CHLOROBENZOP(p)DIOXIN. C Comment, P Lindstrom, D Germolec, R Morrissey and M Luster. Systematic Toxicology Branch, National Institute of Environmental Health Sciences/NIH, Research Triangle Park, NC.

FUNCTIONAL ANALYSIS OF ANTIGEN-PRESENTING CELLS FOLLOWING ANTIGEN CHALLENGE: INFLUENCE OF 2,3,7,8-TCDD:CHLOROBENZOP(p)DIOXIN (TCDD). N J Kerkvliet and J A Brauner. College of Veterinary Medicine, Oregon State University, Corvallis, OR.

IMMUNOTOXICITY OF THE PYRROLIZIDINE ALKALOID MONOCRATALINE FOLLOWING SUB-CRITICAL ADMINISTRATION IN C57BL/6 MICE. J A Deyo and N J Kerkvliet. College of Veterinary Medicine, Oregon State University, Corvallis, OR.

ADRENALECTOMY (ADX) AND 3,4,5,3',4',5' HEXACHLOROBIPHENYL (HCB) SUPPRESSION OF CYTOTOXIC T LYMPHOCYTE (CTL) RESPONSE TO P815 ALLOGENEIC TUMOR IN C57BL/6 MICE. G K DeKrey, L B Steppan, J A Deyo and N J Kerkvliet. College of Veterinary Medicine, Oregon State University, Corvallis, OR.

IMMUNOTOXICOLOGICAL PROPERTIES OF N-NITROHYDROXYETHYL-NITROSAMINE (NHEMA). S C Wood and M P Holzapple. Department of Pharmacology and Toxicology, Medical College of Virginia, Richmond, VA.

ROLE OF 7,12-DIMETHYL-BENZ(a)ANTHRACENE (DMBA) METABOLITES IN MEDIATING ITS IMMUNOTOXICITY. G S Ladic, F T Kawabata, and K L White, Jr. Departments of Pharmacology and Toxicology and Biostatistics, Medical College of Virginia/VCU, Richmond, VA.

THE EFFECT OF PRENATAL EXPOSURE TO CHLORDANE ON THE INFLUENZA IMMUNE RESPONSE IN BALB/c MICE. B L Blaylock, J B Barnett, L S Soderberg, J H Menna and J Gandy. Dept. of Microbiology and Immunology, Univ. of Arkansas for Medical Sciences, Little Rock, AR.

INTERLEUKIN 2 (IL-2) DRIVEN PROLIFERATION OF HUMAN LARGE GRANULAR LYMPHOCYTE IS SUPPRESSED BY CARBARYL. S Baviar and G P Casale. University of Nebraska Medical Center, College of Pharmacy, Omaha, NE.


IMMUNOTOXICITY OF DIACETOXYSERPENOL (DAS) IN MICE. R S Tomar, B R Bkieley and S S Gill. Department of Entomology and Environmental Toxicology Graduate Program, University of California, Riverside, CA, and Veterinary Physiological Sciences, University of Saskatchewan, Saskatoon, Canada.


EFFECT OF S-ETHYLTHIOTRIFLUOROACETATE PRETREATMENT ON THE IMMUNE RESPONSE TO HALOTHANE IN THE GUINEA PIG. K L Hastings, S Schuman, A P Brown, C Thomas, A J Gandolfi. Department of Anesthesiology, University of Arizona, Tucson, AZ.

TOXICOLOGY AND IMMUNOTOXICITY FOLLOWING MURINE EXPOSURE TOQUATERARY AMMNONIUM COMPOUNDS (QAC). M J Murray, P A Horn, P T Thomas, R V House, J H Dean. Proctor & Gamble Co., Cincinnati, OH; ITTRI, Chicago, IL; Sterling-Winthrop, Rensselaer, NY.

EVALUATION OF CEPHALOSPORIN IMMUNOTOXICITY IN MICE. K Furuhashi, R W Benson, B J Knowles, D W Roberts. National Center for Toxicological Research, Jefferson, AR.

RAINBOW TROUT PERITONEAL MACROPHAGE: DEVELOPMENT OF A MODEL FOR IMMUNOTOXICITY TESTING. N A Enane, J T Zolkiewski, J M O'Connor and K S Squibb. NYU Medical Center, NY, NY.

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HEPATOTOXICITY OF ETHANOL ADMINISTERED SIMULTANEOUSLY WITH EITHER CARBON TETRACHLORIDE OR ALLYL ALCOHOL IN RATS. J W Alvis, J E Simmons, D E House, B L Robinson, A McDonald*, and E Berman. Health Effects Research Laboratory, U.S. and "NSI, RTP, NC.

NUCLEAR CA²⁺ ACCUMULATION AND DNA FRAGMENTATION IN VIVO DURING ACETAMINOPHEN -INDUCED LIVER INJURY IN MICE. G B Corcoran, S D Ray, C Sorge, E Braun, A Tavocci, J I Raucy. Toxicology Program, Univ. of New Mexico College of Pharmacy, Albuquerque, NM.


ALTERATION OF HEPATIC LIPID COMPOSITION BY MIREX. J Elgin, L Jovanovich and M A Q Khan. Dept. Biological Sciences, University of Illinois, Chicago, IL.

EFFECT OF DIETARY PROTEIN CONTENT ON THE ACTIVITY OF RAT LIVER S9 IN THE AMES SALMONELLA/MAMMALIAN MICROSOE MUTAGENICITY ASSAY. G M Woodall, D M DeMann, and W C Dauterman*. Dept. of Toxicology, North Carolina State University, Raleigh, NC; US Environmental Protection Agency, Research Triangle Park, NC.

ROLE OF GLUTATHIONE IN ACETAMINOPHEN INDUCED POTENTIATION OF 1,1-DICHLOROETHYLENE TOXICITY. P B Wright and L Moore. Dept. of Pharmacol. USUHE, Bethesda, MD.

PARACELLULAR/TRANSCELLULAR PERTURBATIONS AND BILE FLOW IN RATS. D J Gilroy, R E Larson, O R Hedstrom, and J R Duijmstra. Oregon State University, Corvallis, OR.


HEPATOTOXICITY OF VALPORIC ACID AND METABOLITES IN PERINATAL RAT AND HUMAN LIVER SLICES. K Brendel, R Fisher, H Nau and R H Hauck. Department of Pharmacology, Univ. of Arizona, Tucson, AZ and Institute for Toxicology Free University, Berlin, FRG.

EFFECT OF FLAVONOID DERIVATIVES ON MICROCYSTIN-LR HEPATOTOXICITY. A B Fajer* and K A Meresh. USAMRIID, Fort Detrick, Frederick, MD and University of Maryland School of Medicine, Baltimore, MD. Sponsor: R Wannemacher, Jr.

INNBDUCTION OF POREPHYRIA IN PRIMARY MOUSE AND RAT HEPATOCELY CULTURES. A M Brady and E A Lock. ICI Central Toxicology Laboratory, Macclesfield, UK.


SUBCHRONIC ORAL TOXICITY OF 1,3-DICHLOROPROPAINE IN THE RAT. L H Billups, J B Terrill, G W Wolfe, M Robinson. Hazleton Laboratories America, Inc., Rockville, MD and Environmental Toxicology Division, Health Effects Research Laboratory, US EPA, Cincinnati, OH.

DEVELOPMENT OF A DATABASE OF XENOBIOTIC EFFECTS AT THE PROTEIN LEVEL FOR USE IN EXPERIMENTAL TOXICOLOGY. N L Anderson, J P Hofmann and N G Anderson. Large Scale Biology Corporation, Rockville, MD.


EFFECTS OF BUTYLATED HYDROXYTOLUENE ADMINISTERED PRIOR TO AND DURING PREGNANCY AND LACTATION IN ADULT AND NEONATAL RATS. R H Hinton, S C Price, M MacFarlane, S Cottrell, J N Bremmer, Bomhard E M and P Grasso. Robens Institute, University of Surrey, Guildford, Surrey, UK. Sponsor: J W Bridges.
THE MICROSONAL MONOOXYGENASE SYSTEM OF REGENERATING LIVER. C K Lumpkin, M J J Ronis and T M Badger, Department of Pediatrics, University of Arkansas for Medical Sciences, Little Rock, AR. Sponsor: J Gandy.


TAUROURSODEOXYCHOLATE (TUDC), BUT NOT TAUROCHOLATE (TC), CAN REVERSE CHLORPROMAZINE (CPZ)-INDUCED CHOLESTATIS IN THE ISOLATED PERFUSED RAT LIVER. R Ullii, C C Abenathy, H J Zimmerman and M F Tripodi, Institute for Medical Therapy, University of Naples, Italy, Office of Drinking Water, U.S. EPA and Armed Forces Institute of Pathology, Washington, DC.

DIFFERENTIAL HEPATOTOXICITY OF DICHLOROBENZENE (DCB) ISOMERS IN FISCHER-344 (F-344) AND SPRAGUE-DAWLEY (SD) RATS. L Gunawardhana, E R Stine and L G Sipes, Dept. of Pharmacology & Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ.


INHALATION STUDIES OF 3.1 OIL FOR DETERMINATION OF A NO-Effect LEVEL. E R Kinkaid, H G Wall, C S Godin, R E Whitmire*, and D R Mattie*. NSI Technology Services Corporation, Dayton, OH; *AAMRL/THT Wright-Patterson Air Force Base, OH.

EFFORTS TO REVERSE DOXURIBIN-INDUCED HEPATOTOXICITY IN MICE. R Raie, S Deodhar and Y Beelenky. A&MS College of Pharmacy & Health Sci., Long Island University, Brooklyn, NY.


HYPOTENSION-INDUCED INCREASE IN HEPATIC MITOTIC ACTIVITY IN RATS. H A Suttleved and R A Macla, Depts. of Experimental Pathology and Investigative Toxicology, SmithKline and French Labs., King of Prussia, PA. Sponsor: R S Goldstein.

PERSISTENCE OF ALTERED BILIARY TREE PERMEABILITY AFTER RECOVERY FROM MIREX-INDUCED HEPATOBILIARY DYSFUNCTION. L E Curtiss, Oak Creek Laboratory of Biology, Dept. Fisheries and Wildlife, Oregon State University, Corvallis, OR.

13-WEEK TOXICITY STUDY OF PHENYL AND PHENYLISOTHIOCYANATES IN FISCHER 344 RATS FED AIN-76A PURIFIED DIET. G Adam-Rodwell, P Conran, S Mandal, and G S Stone. Medical College of Ohio, Department of Pathology, Toledo, OH.

HEPATIC ULTRASTRUCTURAL CHANGES INDUCED BY PHENYL AND PHENYLISOTHIOCYANATES IN RATS FED AIN-76A PURIFIED DIET. R H Gray, S D Crofoot, J Randall, J Haskins, G Adam-Rodwell, and G S Stone. Department of Environmental and Industrial Health, The University of Michigan, Ann Arbor, MI and Department of Pathology, Medical College of Ohio, Toledo, OH.

EFFECTS OF CHRONIC SWIM-TRAINING AND BOUTS OF ACUTE EXHAUSTIVE EXERCISE ON HEPATIC AND RENAL FUNCTION FOLLOWING ALLYL ALCOHOL ADMINISTRATION. D L Kaplan, M A Smith and R Hildebrandt. The University of New Mexico, Toxicology Program, College of Pharmacy, Albuquerque, NM. Sponsor: S W Burchiel.

IN VIVO HEPATIC BIOCHEMICAL CHANGES AS A RESULT OF ACUTE COCAINE ADMINISTRATION IN THE MOUSE. C S Boyer and D R Petersen, Molecular Toxicology and Environmental Health Sciences Program, University of Colorado, Boulder, CO.

LAMELLAR BODY (LB) FORMATION BY AN AMINOCYCLOTL Antibiotic in Rats with Altered Hepatic Metabolic Capacity. K Tomaszewski, P Jeffrey, G Horr and R Ulrich. Upjohn Ltd., Crawley, UK and The Upjohn Company, Kalamazoo, MI.

THURSDAY AFTERNOON, FEBRUARY 15
FONTAINEBLEAU BALLROOM D

POSTER SESSION: NEUROTOXICOLOGY II

Chairperson: Stephen Michael Lasley, University of Illinois, Peoria, IL.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 3:00 p.m.-4:30 p.m.
EFFECTS OF LEAD EXPOSURE DURING DIFFERENT PERIODS OF DEVELOPMENT ON SPATIAL DELAYED ALTERNATION IN MONKEYS. D C Rice and S G Gilbert. Toxicology Research Division, Health Protection Branch, Ottawa, Ontario, Canada.


INFLUENCE OF AGING ON THE IMPAIRMENT OF MEMORY PRODUCED BY DIAZEPAM. H L Komisky, M A Buck, K L Mundinger, P K McSweeney, V A Farmer and M D Douglas. The Xavier Institute of Bioenvironmental Toxicology, Xavier University of Louisiana, College of Pharmacy, New Orleans, LA and Department of Psychology, Washington State University, Pullman, WA.

INCREASED SENSITIVITY TO AN ANTICHLINERGIC-INDUCED COGNITIVE DEFICIT AFTER CHRONIC NICOTINE ADMINISTRATION. E D Levin and J E Rose. Nicotine Research Laboratory, VA Medical Center and Dept of Psychiatry, Duke University, Durham, NC.

INTRAPERITONEAL CARBON MONOXIDE AND DEVELOPMENTAL NEUROTOXICITY TESTS. J L Orr, S S Singh, and J A Dellinger. Toxicology and Applied Pharmacology, Southwest Research Institute, San Antonio, TX.


EFFECT OF IN UTERO CAFFEINE EXPOSURE ON SPATIAL AND NON-SPATIAL MATCHING TO SAMPLE PERFORMANCE IN INFANT MONKEYS. S G Gilbert and D C Rice. Toxicology Evaluation Division and Toxicology Research Division, Bureau of Chemical Safety, Food Directorate, Health Protection Branch, Health and Welfare Canada, Ottawa, Canada.

NEUROBEHAVIORAL EVALUATION OF EXPOSURE TO 4,4’-THIOBIS-(6-I-Butyl-m-CRESOL) IN FISCHER 344 RATS. G B Freeman, R Trejo, M Heitmanok, A Peters, P Kurtz and L S Birnbaum*. Battelle, Columbus, OH and “National Toxicology Program, RTP, NC.

ACUTE CARBON MONOXIDE EFFECTS ON BRAIN-STIMULATION REWARD IN RATS. J D Rowan and S B Fountain. Dept. of Psychology, Kent State University, Kent, OH. Sponsor: Z Annau.


RAT STRAIN AND STOCK COMPARISONS USING A FUNCTIONAL OBSERVATIONAL BATTERY: BASELINE VALUES AND EFFECTS OF AMITRAZ. V C Moser, K L McDaniell and P M Philips. NSI Technology Services, Research Triangle Park, NC.

VALIDATION OF A NEUROTOXICITY TEST BATTERY: EFFECTS OF ACRYLAMIDE (ACR) AND 33’-IMINODIPROPIONITRILE (IDPN). G E Schulze and B Boysen. Hazleton Laboratories America Inc., Vienna, VA.

FUNCTIONAL OBSERVATIONAL BATTERY AND MOTOR ACTIVITY ASSESSMENT IN RATS. S Singh and J Dellinger. Toxicology and Applied Pharmacology, Southwest Research Institute, San Antonio, TX.


DEVELOPMENTAL NEUROTOXICITY FOLLOWING NEONATAL EXPOSURE TO IMINODIPROPIONITRILE (IDPN) IN THE RAT. K M Crofton, M E Stanton and D B Peela. Neurotoxicology Division, US EOA, RTP, NC and NSI Technology Services, RTP, NC.
EVIDENCE OF LEARNING AND MEMORY DEFICITS FOLLOWING ADULT EXPOSURE TO INMIDOPROPIONITRILE (IPN) IN THE RAT. D B Peele and K M Crofton. NSI-Environmental Sciences, and Neurotoxicology Div., U.S. Environmental Protection Agency, RTP, NC.

EFFECTS OF CARFENTANIL ON AUDITORY BRAINSTEM EVOKED RESPONSES (ABRs) IN FERRETS. S A Ruetter and R J Moduszewski, Toxicology Div., Chemical Research Development and Engineering Center, APG, MD. Sponsor: H. Salm.


1,2-DICHLOROPROPANE (DCP): TSCA NEUROTOXICOLOGY GUIDELINE EVALUATION OF RATS EXPOSED TO VIA Gavage FOR 13 WEEKS. J K Mattson, K A Johnson, S J Gorzinski and R R Abebe. Health and Environmental Sciences, The Dow Chemical Co., Midland, MI.


ALTERATIONS IN RAT VISUAL-EVOKED POTENTIALS (VEPS) AFTER ACUTE OR REPEATED CARBON DISULFIDE (CS2) EXPOSURE. D W Herrl, M S Bergey, W K Boyes, and R S Dyer. Neurotoxicology Division, US EPA, RTP, NC.

REDUCED VISUAL CONTRAST SENSITIVITY IN RATS AFTER REPEATED EXPOSURE TO CARBON DISULFIDE (CS2). W K Boyes, M S Bergey, D W Herrl, and R S Dyer. Neurotoxicology Division, US EPA, RTP, NC.

LOSS OF CHOLINERGIC THETA IN CA1 OF HIPPOCAMPUS FOLLOWING COLCHICINE. M E Gilbert and G Peterson. NSI Technology Services Corp., RTP, NC and East Carolina University, Greenville, NC. Sponsor: K M Crofton.

NEUROBEHAVIORAL EFFECTS OF WHITE SPIRITS DURING ACUTE AND CHRONIC EXPOSURE. B M Kulig. Medical Biological Laboratory TNO. Rijswijk, Netherlands.

THURSDAY AFTERNOON, FEBRUARY 15
FONTAINEBLEAU BALLROOM D

POSTER SESSION: DIOXINS

Chairperson: James R. Olson, SUNY-Buffalo, Buffalo, NY.
Displayed: 1:30 p.m.-4:30 p.m.
Attended: 1:30 p.m.-3:00 p.m.


MAXIMUM DERMAL ABSORPTION OF TCDD OCCURS IN WEANLING RATS. J A Jackson, Y B Banks, and L S Birmbaum. NIEHS, Research Triangle Park, NC.

FINITE DERMAL ABSORPTION AFTER LOW DOSE TCDD EXPOSURE. Y B Banks and L S Birmbaum. NIEHS, Research Triangle Park, NC.


A PHYSIOLOGICAL MODELING ANALYSIS OF THE DOSE-DEPENDENCE OF 2,3,7,8-TETRA-CHLORODIBENZO-P-DIOXIN (TCDD) PHARMACOKINETICS IN WISTAR RATS. M E Anderson. CIIT, Research Triangle Park, NC.

DISPOSITION OF INTRAVENOUS 2,3,7,8-TETRABROMODIBENZO-DIOXIN(TBDD) IN RATS. L Buckley Kedders, J Diliberto, and L S Birmbaum. NIEHS, Research Triangle Park, NC and Curriculum in Toxicology, UNC, Chapel Hill, NC.

SHORT-TERM DISPOSITION OF TCDD IN RATS AFTER IV INJECTION. S W Ernst, L W D Weber, B L Stahl and K Ryman. University of Kansas Medical Center, Kansas City, KS (USA): Institute fur Tokiologie, GSF Munchen, Neuherberg (FRG); Medizinische Fakultat, Universitat Erlangen-Nurnberg (FRG).

EFFECTS OF 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD) AS AN ANTIESTROGEN IN MCF-7 HUMAN BREAST CANCER CELLS. L Biegel and S Sato. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.
8-iodo-6-methyl-1,3-dichloro-dibenzofuran (I-MCDF) and 125I-MCDF as 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) antagonists. T. Zacharewski, J. Piskorska-Pliszczynska, R. Rosenberg, B. Astrott, M. Harris, S. Safe and L. Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

Partial antagonism of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)-induced cyp1A gene expression by α-naphthoflavone. M. Merchant, L. Arellano and S. Safe. Departments of Veterinary Physiology and Pharmacology and Biochemistry and Biophysics, Texas A&M University, College Station, TX.

Halogenated aryl hydrocarbon-induced suppression of the in vitro plaque-forming cell (PFC) response to sheep red blood cell (SRBC) is not dependent on the Ah receptor. D. Davis and S. Safe. Departments of Veterinary Physiology and Pharmacology and Biochemistry and Biophysics, Texas A&M University, College Station, TX.

Comparative toxicities of heptachlorodibenzofuran isomers in C57BL/6 mice. R. Dickerson, L. Howie, D. Davis and S. Safe. Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.


Role of transforming growth factor-β in TCDD-induced changes in growth of epithelial cells. C. D. Hebert and L. S. Birnbaum. NIEHS, Research Triangle Park, NC and University of North Carolina, Chapel Hill, NC.

Reversal of the toxicity of TCDD by putrescine. T. Thomas, S. A. MacKenzie, and M. A. Gaile. Department of Environmental and Community Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.

2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) alters 32p-labeling of guinea pig (GP) pancreatic membranes (PMs). K. Ebner and F. Matsumura. Pesticide Research Center, Michigan State University, East Lansing, MI.


Effects of perinatal exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on reproductive function in male rats. D. L. Bjerke, T. A. Mabry, R. W. Moore, and R. E. Peterson. School of Pharmacy and Environ. Toxicol. Ctr., Univ. of Wisconsin, Madison, WI.

Persistence of hydrophosphoros in mice following in utero and/or lactatione Xposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). L. A. Couture, M. W. Harris, A. M. Clark, and L. S. Birnbaum. NIEHS, Research Triangle Park, NC and UNC, Chapel Hill, NC.


Interspecies sensitivity to TCDD examined using embryonic algal organ culture. B. D. Abbott and L. S. Birnbaum. NIEHS, Research Triangle Park, NC.


Biological effects in and deposition to eggs produced by female Japanese medaka (Oryzias latipes) exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). R. Prince and K. R. Cooper. Joint Graduate Program in Toxicology, Rutgers University/UMDNJ, Piscataway, NJ.

Differential induction of cytochrome P-450 isozymes by a single dose of 2,3,7,8-tetrachlorodibenzo-p-dioxin in mouse liver and lung. L. E. Beebe and L. M. Anderson. Lab. of Comparative Carcinogenesis, NCI-PCRF, Frederick, MD.


Hepatic ACC activity but not protein is decreased by TCDD. K. Marien, J. M. Mckim, H. W. Schauf and D. P. Seilovitch. 1Dept. of Food Science, and 2Dept. of Biochem. & Biophys., Oregon State Univ., Corvallis, OR.
BIOCHEMICAL RESPONSES OF HUMANS AND OTHER SPECIES TO 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) AND ITS STRUCTURAL ANALOGS. G Clark, B Robinson, G Sunahara, and G Lucier. NIEHS, RTP, NC.

ASSESSMENT OF THE POTENTIAL HUMAN HEALTH CONSEQUENCES RELATED TO INCINERATION OF ALASKAN OIL SPILL WASTES. R W Bires, D A Edward, R H McKee, and G F Egan. Exxon Biomedical, Inc., East Millstone, NJ.

THURSDAY, FEBRUARY 15
5:00 p.m.-6:30 p.m.

SPECIALTY SECTION MEETINGS (EXCEPT MECHANISMS AND RISK ASSESSMENT)

Please check the hotel lobby board for room assignments.

FRIDAY MORNING, FEBRUARY 16
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM A

SYMPOSIUM: HEALTH EFFECTS OF INHALED FIBROUS MATERIALS

Chairpersons: Neil F. Johnson, Inhalation Toxicology Research Institute, and David B. Warheit, Du Pont Haskell Laboratory, Newark, DE.
Sponsored by the Inhalation Specialty Section

Chronic inhalation of asbestos fibers has been associated with the development of fibrotic lung disease (i.e., asbestosis), bronchogenic carcinoma, and pleural mesothelioma. Inasmuch as the correlation between occupational exposure to asbestos and lung disease has been confirmed, it seems likely that the commercial use of asbestos fibers will be banned in the near future. To fill the void, a variety of non-asbestos form synthetic and mineral fiber substitutes are currently being promoted for commercial use in the insulating and composite industries. The potential pulmonary toxicity of many of these materials has not been fully determined, although the pathogenic effects of asbestos and other fibers have been attributed to their fibrous nature. It is widely accepted that fiber dimension is one of the most important factors in the pathogenesis of asbestos-induced lung disease.

8:30 Introduction. Neil F. Johnson, Inhalation Toxicology Research Institute, and David B. Warheit, Du Pont Haskell Laboratory, Newark, DE.

8:40 Introduction to Fiber Toxicology. Gerald L. Kennedy, Jr., Du Pont Haskell Laboratory, Newark, DE.

9:10 Use of Mammalian Cells in Culture to Assess the Genotoxic and Carcinogenic Potential of Asbestos and Man-Made Vitreous Fibers (MMVF). Tom W. Hesterberg, Manville Technical Center, Littleton, CO.

9:40 In Vivo Assessments of Pulmonary Toxicity Following Exposure to Inhaled Fibers: Utilization of Bronchoalveolar Lavage (BAL) and Fixed Lung Tissue to Assess Fiber Deposition Patterns and Early Cellular Responses. David B. Warheit, Du Pont Haskell Laboratory, Newark, DE.

10:10 Assessment of the Biological Effects of Inorganic Fibrous Materials in Animal Experiments. Neil F. Johnson, Inhalation Toxicology Research Institute, Albuquerque, NM.

10:40 Human Exposure and Disease Associated with Inorganic Fibrous Materials. Jon L. Konzen, Owens-Corning Fiberglas Corporation, Toledo, OH.

11:10 Discussion.

FRIDAY MORNING, FEBRUARY 16
8:30 a.m.-11:30 a.m.
FONTAINEBLEAU BALLROOM B

SYMPOSIUM: PEROXISOME PROLIFERATION AND NONGENOTOXIC CARCINOGENESIS

Chairperson: David E. Moody, University of Utah, Salt Lake City, UT

Sponsored by the Mechanisms Specialty Section

First observed in 1965 as a causal factor in clofibrate-induced hepatomegaly, a number of diverse compounds have now been found to induce hepatic peroxisome proliferation. The identification of peroxisome proliferators is based upon predictable cellular changes which include: 1) hepatomegaly accompanied by increases in peroxisomes and smooth endoplasmic reticulum; 2) increases in peroxisomal and non-peroxisomal enzymes involved in lipid and hydrogen peroxide metabolism; 3) induction of drug-metabolizing enzymes; and 4) hypolipidemia.
The limited number which have undergone chronic bioassays, 5) have also been found to cause hepatocarcinogenesis after long-term, relatively high dose, continuous treatment. This latter finding brings this class of compounds into the forefront of toxicological interest. Based on these criteria, greater than 50 chemicals have now been found to effect peroxisome proliferation. These compounds, of diverse commercial and environmental concern, include fibrate and non-fibrate hypolipidemic agents, other drugs, plasticizers with analogs of 2-ethylhexanol as the esters, selected pesticides, and certain halogenated hydrocarbons. First, an updated overview on the phenomenon of peroxisome proliferation, and their potential mechanism of carcinogenesis will be presented. Secondly, correlative in vivo and in vitro studies will be presented which address structure-activity relationships, species specificity, and mechanisms of proliferation. Thirdly, some alternative avenues of carcinogenesis by these chemicals will be addressed. The formal presentations will close with comments on the regulatory perspective in regard to peroxisome proliferation and human cancer risk assessment, followed by a panel discussion on issues of special interest.

#72 8:30 Introduction. David E. Moody, University of Utah, Salt Lake City, UT.
#73 8:40 Peroxisome Proliferation: An Overview. Janardan K. Reddy, Northwestern University, Chicago, IL.
#75 9:50 Liver Tumor Promoting Effect of Chemicals that Cause Peroxisome Proliferation. James A. Popp, CIIT, Research Triangle Park, NC.
10:50 Roundtable Discussion.

FRIDAY MORNING, FEBRUARY 16
LeMans Room

POSTER/DISCUSION SESSION: ASSESSMENT OF CHEMICAL INTERACTIONS WITH DNA

Chairpersons: James Bond, CIIT, Research Triangle Park, NC, and Hazel B. Matthews, NIEHS, Research Triangle Park, NC.
Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.

#1261 DIFFERENTIAL DNA-PROTEIN CROSSLINKING IN RAT LYMPHOCYTES, LIVER AND KIDNEY FOLLOWING EXPOSURE TO CHROMIUM (VI) IN DRINKING WATER. T. Coogan, J. Motz, C. Snyder, K. Squibb, and M. Costa. NYU Medical Ctr., Inst. Environ. Med., Tuxedo, NY.


#1263 A BLOTTING METHOD TO MONITOR THE FORMATION OF CHEMICALLY-INDUCED DNA-PROTEIN COMPLEXES. M. D. Cohen, C. A. Miller, L. S. Xu, E. T. Snow, and M. Costa. Institute of Environmental Medicine, New York University Medical Center, New York, NY.

#1264 COMPARISON OF DNA-PROTEIN CROSSLINKS (PDCs) FORMED BY CHROMIUM COMPOUNDS WITH THOSE INDUCED BY cis-DIAMINEDI ChloroplATINUM(II) (cis-PT) AND FORMALDEHYDE (CH2O). C. A. Miller, M. D. Cohen, and M. Costa. New York University, Department of Environmental Medicine, Tuxedo, NY.

#1265 DNA ADDUCTS WITH ISOPROPYL METHANESULFONATE. F. Li, J. J. Solomon, F. Mukai, and A. Segal. Dept. Environmental Medicine, New York University Medical Center, New York, NY. Sponsor: M. Costa.

#1266 DNA ADDUCT FORMATION IN CD-1 MICE AND FISCHER 344 RATS TREATED WITH 2,6-DINITROTOLUENE AND PENTACHLOROPHENOL. M. J. Kehan, S. E. George, M. H. George, J. E. Gallagher, and B. W. Chadwick. HERL, USEPA, and EHRT, Inc., Research Triangle Park, NC.


#1268 AFLATOXIN DNA ADDUCT FORMATION IN CHRONICALLY DOSED RATS FED A CHOLESTEATIN DEFICIENT DIET T. F. Schrager, P. M. Newberne, A. H. Pilkul and J. D. Groopman Boston Univ. School of Medicine Boston, MA.

#1269 MECHANISM OF CHEMOPROTECTION AGAINST AFLATOXIN (AFB1)-INDUCED HEPATOCARCINOGENESIS IN RATS BY OLITIPRAZ. T. W. Kendler, N. E. Davidson, P. A. Egner, K. Z. Guyton, J. D. Groopman, Y. L. Lu, and B. D. Resnick. Johns Hopkins Medical Institutions, Baltimore, MD and Dartmouth Medical School, Hanover, NH.

#1270 DNA SEQUENCE ANALYSIS OF HERT MUTATIONS OCCURRING IN VIVO IN HUMAN T-LYMPHOCYTES. L. Recio, J. Cochrane, D. Simpson, T. R. Skopek, J. P. O'Neill, J. A. Nicklas, and R. J. Albertini. CIIT, RTP, NC. Univ. of
IN VITRO ASSESSMENT OF RAT LYMPHOCYTE DNA REPAIR FUNCTION FOLLOWING CHRONIC DRINKING WATER EXPOSURE TO CHROMIUM (VI). N Christie, T Coogan, J Motz, C Snyder, and K Squibb; NYU Medical Ctr., Inst. Environ. Med., Tuxedo, NY.

FRIDAY MORNING, FEBRUARY 16
BURGUNDY ROOM

POSTER/DISCUSSION SESSION: GLUTATHIONE

Chairpersons: Clay Frederick, Rohm & Haas Company, Spring House, PA and Nazzareno Ballatori, University of Rochester, Rochester, NY

Displayed 8:30 a.m.-11:30 a.m.
Discussion 9:30 a.m.-11:30 a.m.


#1273 IS THE LIVER AN IMPORTANT SITE OF GLUTATHIONE DEGRADATION? C A Patterson and N Ballatori. Environmental Health Sciences Center, Univ. of Rochester School of Medicine, Rochester, NY.

#1274 RATIO OF GLUTATHIONE (GSH) HYDROLYSIS PRODUCTS: TOTAL SULFUR (THIOLS PLUS DISULFIDES) IN BILE REFLECTS HEPATIC GAMMA-GLUTAMYLTRANSEPTIDASE (GGT) ACTIVITY IN RATS. D Satsangi, C Madhu, D Y Mitchell, and C D Klages. University of Kansas Med. Ctr., Kansas City, KS.

#1275 GLUTATHIONE TURNOVER IN 14 RAT TISSUES. D W Potter and T Tran. Rohm and Haas Co., Spring House, PA. Sponsor: C B Frederick.

#1276 EFFECTS OF o-XYLENE ON GLUTATHIONE SYNTHESIS AND UTILIZATION. T G Aucoin and R A Schatz. Toxicology Program, Northeastern University, Boston, MA.

#1277 BUTHIONINE SULFOXIMINE DEPLETES BOTH GLUTATHIONE AND CYSTEINE IN RAT KIDNEY. A M Standevenr and K E Wetterhahn. Department of Pharmacology & Toxicology, Dartmouth Medical School, and Department of Chemistry, Dartmouth College, Hanover, NH. Sponsor: B D Roebuck.

#1278 1-CYANO-2-HYDROXY-3-BUTENE (CHB) INCREASES SYNTHESIS OF GLUTATHIONE (GSH) IN RAT LIVER AND PANCREAS. F H Jeffrey, A Kore, T March, M Broom, R Formea, and M Wallig, University of Illinois, Urbana, IL.

#1279 RELATIONSHIP BETWEEN METALLOTHIONEIN AND GLUTATHIONE IN ADULT RATS. C B Houghton and M Q Chen. Dept. of Pharmacol. & Toxicol., Univ. of Western Ontario, London, ON, Canada.

#1280 GLUTATHIONE ESTER CORRECTS THE KIDNEY GLUTATHIONE AND CYSTEINE DEFICIENCIES IN THE AGING MOUSE. T S Chen, J P Richie and C A Lang. Depts. of Pharmacology & Toxicology and Biochemistry, University of Louisville, KY.

#1281 REGIONAL DISTRIBUTION OF GLUTATHIONE IN RAT BRAIN: EFFECT OF STYRENE OXIDE. C A Trenga, L G Costa AND D L Eaton. Dept. of Environmental Health, Univ. of Washington, Seattle, WA.

#1282 GLUTATHIONE TURNOVER IN HEPATOCYTES OF A PRIMITIVE MARINE VERTEBRATE. T W Simmons and N Ballatori. Environmental Health Sciences Center, Univ. of Rochester School of Medicine, Rochester, NY.

#1283 HISTOCHEMICAL DISTRIBUTION AND LOCALIZATION OF GLUTATHIONE IN NERVOUS SYSTEM. Z Zhang, M A Philbert, D K Waters, H E Lowdies. Joint Graduate Program in Toxicology, Neurotoxicology Laboratories, Rutgers College of Pharmacy, Piscataway, NJ.

FRIDAY MORNING, FEBRUARY 16
FONTAINEBLEAU BALLROOM D

POSTER SESSION: BIOTRANSFORMATION II

Chairperson: Gary P. Bond, Air & Stream Improvements, Inc., New York, NY

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

#1284 CONTINUOUS EXPRESSION OF HUMAN GROWTH HORMONE (hGH) DIFFERENTIALLY AFFECTS HEPATIC CYTOSOLIC CONJUGATION ENZYMES IN MALE AND FEMALE hGH TRANSGENIC MICE. P A Cos.
sum and M.R. Franklin, Dept. Safety Evaluation, Genetech, Inc., South San Francisco, CA, and Dept. Pharmacol. & Toxicol., Univ. of Utah, Salt Lake City, UT.

PYRIDINE INDUCTION OF CYTOCHROME P450IIIE 1: EVIDENCE FOR ENHANCED PROTEIN SYNTHESIS. S.G. Kim and R.F. Novak. The Institute of Chemical Toxicology, Wayne State University, Detroit, MI.

INCREASE OF CYTOCHROME P450IA1 mRNA IN RATS BY PYRIDINE. R.F. Novak, S.G. Kim, S.L. Reddy and A.M. Mortensen, The Institute of Chemical Toxicology, Wayne State University, Detroit, MI.

PULMONARY CYTOCHROME P-450 FROM SPRAGUE-DAWLEY RATS. K.-M. Chang and J.D. deBethizy. R.J. Reynolds Tobacco Company, Toxicology Research, Winston-Salem, NC.

MOLECULAR ASPECTS OF CYTOCHROME P450 INDUCTION IN RAINBOW TROUT. M.L. Haasch, P. J. Weiksnar, and J. Lech. Medical College of Wisconsin, Center for Great Lakes Studies, University of Wisconsin-Milwaukee, WI.

BIOACTIVATION OF AFLATOXIN B1 BY HUMAN LIVER MICROSONES: ROLE OF CYTOCHROME P450III A ISOENZYMES. H.S. Ransodell and D.L. Eaton. Department of Environmental Health, University of Washington, Seattle, WA.

RECONSTITUTION OF TESTOSTERONE OXIDATION BY PURIFIED RAT CYTOCHROME P450-p (III A1). A. Parkinson, M.R. Halvorson and D.C. Eberhart. University of Kansas Medical Center, Kansas City, KS.

DIFFERENTIAL EFFECTS OF IONIC STRENGTH AND pH ON TESTOSTERONE OXIDATION BY MICROSONAL AND PURIFIED FORMS OF RAT LIVER CYTOCHROME P450. B. Gemzis, M.R. Halvorson and A. Parkinson. University of Kansas Medical Center, Kansas City, KS.

IMMUNOHISTOCHEMICAL LOCALIZATION OF TWO CARBOXYESTERASES (HYDROLASES A AND B) IN RAT LIVER, TESTIS AND KIDNEY. B. Yan, E.W. Morgan, and A. Parkinson. University of Kansas Medical Center, Kansas City, KS.

A SINGLE DOSE OF 3-METHYLCHOLANTHRENE (MC) INDUCES CYTOCHROME P-450 Is IN FETAL RAT TISSUES. M.S. Miller, A.B. Jones, D.P. Chauhan, S.S. Park, and L.M. Anderson. NCI-FCRF, Frederick, MD.


IN VITRO METABOLISM AND MUTAGENICITY OF 1,2,3-TRICHLOROPROPANE (TCP). N.A. Mahmood, I.T. Burk, M.L. Cunningham, L. Springborn Labs., Inc., Spencerville, OH. NIEHS, RTP, NC.

BIOACTIVATION OF 1,3-BUTADIENE TO BUTADIENE MONOXIDE (BM) AND CROTONALDEHYDE (CA) BY MOUSE LIVER MICROSONES. R.J. Duescher, C.M. Pasch, and A.A. Elfarra. Dept. Comp. Biosci. and Environ. Tox. Center, Univ. of Wisconsin, Madison, WI.

METABOLIC TRANSFORMATION OF SUBSTITUTED ALKENES-A THEORETICAL CHEMICAL APPROACH. B.L. Laib and G. Csanady, Dept. of Toxicology, Institute of Occupational Health, Dortmund, FRG. Sponsor: H. Kappus.

BIOTRANSFORMATION OF HYDRAZINE (HDZ) IN MONOLAYER CULTURES OF RABBIT HEPATOCYTES. C.A. McQueen and R.R. Rosado. American Health Foundation, Valhalla, NY.

ETHANOL EFFECTS ON ACETYLATION POLYMORPHISM. R.G. Elves and A.P. Alvaro. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson AFB, OH and Uniformed Services University, Bethesda, MD.

AGE-RELATED CHANGES IN BIOTRANSFORMATION AND TOXICITY OF POTASSIUM CYANIDE (KCN) IN MALE C57BL/6N MICE. T.F. McMahon and L.S. Birnbaum. NIEHS, Research Triangle Park, NC.

THE EFFECT OF SODIUM TETRATHIONATE ON CYANIDE CONVERSION TO THIOCYANATE BY ENZYMATIC AND NON-ENZYMATIC MECHANISMS. S.I. Baskin and S.D. Kirby. Pharmacology Division, United States Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.

FRIDAY MORNING, FEBRUARY 16
FONTAINEBLEAU BALLROOM D

POSTER SESSION: IN VITRO TOXICOLOGY

Chairperson: David W. Brewer, Monsanto Company, St. Louis, MO.

EVALUATION OF THE YEAST PHOTOTOXICITY ASSAY AS AN IN VITRO ALTERNATIVE TO IN VIVO PHOTOTOXICITY TESTING. D Long, T Stephens, B Reese, B Bryan, P Silber, Mary Kay Cosmetics, Dallas, TX.

EVALUATION OF THE BACTERIAL BIOLUMINESCENCE TEST AS AN IN VITRO ALTERNATIVE TO IN VIVO TOXICITY TESTS OF COSMETIC PRODUCTS. B Bryan, P Silber, T Stephens, D Long, B Reese, Mary Kay Cosmetics, Inc., Dallas, TX.

THE USE OF BALB/C 3T3 FIBROBLASTS AND THE PROTOZOA TETRAHYMENA THERMOPHILA AS IN VITRO ALTERNATIVES TO IN VIVO SAFETY TESTING. P Silber, T J Stephens, B Reese, D Long, and B Bryan, Mary Kay Cosmetics, Inc., Dallas, TX.

IN VITRO ASSESSMENT OF TROSPECTOMYCIN AND GENTAMICIN SULFATE IN THE LLC-PK1 CELL LINE. J A Bacon, R J Weaver, and T J Raczckiak. Investigative Toxicology and Research Support Biostatistics, The Upjohn Company, Kalamazoo, MI.

CULTURED EUKARYOTIC FUNGAL CELLS AS AN ALTERNATIVE TEST SYSTEM FOR ASSESSING THE CYTOTOXICITY OF DRUGS AND CHEMICALS. P. J Acosta, G C Hsieh, and P J Davis. College of Pharmacy, University of Texas, Austin, TX.

PLASMA MEMBRANE CHARACTERISTICS AS INDICES OF IN VITRO TOXICITY. D W Bombick and D J Doolittle, R J Reynolds Tobacco Company, Winston-Salem, NC.

MITOCHONDRIAL MEMBRANE POTENTIAL AS AN INDICATOR OF IN VITRO CYTOTOXICITY. C A Rahn, D W Bombick, and D J Doolittle. R J Reynolds Tobacco Co., Winston-Salem, NC.

A RAPID INEXPENSIVE INCUBATOR CONVERSION FOR SUBMERGED ORGAN CULTURE. C G Rousseaux and D Venables. Department of Veterinary Pathology, W.C.V.M., University of Saskatchewan, Saskatoon, SASK, Canada. Sponsor: W M Hirsch. Hock.

DEVELOPMENT OF AN AUTOMATED IN VITRO ASSAY FOR THE SCREENING OF NEW CANDIDATE PRETREATMENT AND TREATMENT (P & T) COMPOUNDS FOR THEIR ABILITY TO INHIBIT THE AGING RATE OF GD-INHIBITED ACETYLCHOLINESTERASE. D W Hobson, J A Blank, G S Dill, and R L Joiner. Battelle Memorial Institute, Columbus, OH. Sponsor: T C Olson.


THE BIOTRANSFORMATION OF TETRA HYDROAMINOACRIDINE (THA) INCULTURED HEPATO CYTES AS THE CAUSE FOR RELATIVE CYTOTOXICITY IN 3 SPECIES. T A Smolarek, C V Higgins, and D E Amacher. Drug Safety Evaluation. Pfizer Central Research, Groton, CT.


CYTOTOXICITY OF 3-METHYLENEOXINDOLE (3MeeO1) IN ISOLATED LUNG CELLS. W K Nichols, D L Larson and G S Yost. Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.

b LACTAM ANTIBIOTIC TOXICITY TO RK1 RABBIT KIDNEY EPITHELIAL CELLS. P A Duffy and F R McNa. Safety of Medicines Dept. ICI Pharmaceuticals, Macclesfield, UK. Sponsor: T C Oron.

ETHANE DIMETHANESULPHONATE (EDS) PERTURBS EPIDIDYMAL EPITHELIAL CELL FUNCTION IN VITRO. G Klinefelter, NISI, HERT, RTB, NC. Sponsor: L E Gray.

EFFECTS OF EDS ON RABBIT LEYDIG CELL TESTOSTERONE PRODUCTION IN VITRO. J W Laskey and G F Klinefelter. Reproductive Toxicology Branch, USEPA & NISI, RTP, NC. Sponsor: L E Gray, Jr.

EFFECT OF NITROGEN DIOXIDE EXPOSURE ON PHOSPHOLIPASES IN PULMONARY ARTERY ENDOTHELIAL CELLS. G B Bhat, J M Patel and E R Block. Department of Medicine, University of Florida and Veterans Administration Medical Center, Gainesville, FL.

COMPARATIVE EFFECTS OF SULFUR MUSTARD ON NAD LEVELS AND VIABILITY OF PERIPHERAL BLOOD LYMPHOCYTES, HUMAN KERATINOCYTES, AND HUMAN LYMPHOCYTIC CELL LINES. J A Blank, D W Hobson, G S Dill, and R L Joiner. Battelle Memorial Institute, Columbus, OH. Sponsor: C T Olson.

COVALENT BINDING OF A HALOTHANE METABOLITE AND NEOANTIGEN PRODUCTION IN GUINEA PIG LIVER SLICES IN VITRO. A P Brown, K L Hastings, A J Gandolfi, K Brendel. Department of Anesthesiology, University of Arizona, Tucson, AZ.

LIVER SLICES FROM CHRONIC ETHANOL TREATED RATS ARE SENSITIZED TO COCAINE HEPATOTOXICITY. S Connors, D R Rankin, A J Gandolfi, C L Krumdieck, C Ekelson and K Brendel. Dept. Pharmacology and Surgery, Univ. of AZ, Tucson, AZ; Dept. Nutritional Sciences, Univ. AL, Birmingham, AL.

EFFECT OF VOLATILE ANESTHETICS ON PROTEIN SYNTHESIS AND SECRETION IN GUINEA PIG LIVER SLICES. H N Ghantous, J Fernando, A J Gandolfi, K Brendel, Department of Anesthesiology, University of Arizona, Tucson, AZ.

FRIDAY MORNING, FEBRUARY 16
FONTAINBLEAU BALLROOM D

POSTER SESSION: METABOLITE IDENTIFICATION

Chairperson: Patrick J. Sabourin, Battelle Columbus Laboratories, Columbus, OH.
Displayed: 8:30 a.m.-11:30 a.m.
Attended: 8:30 a.m.-10 a.m.

URINARY METABOLITES OF [1,2,3-13C]ACRYLAMIDE DETERMINED BY 13C NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. S C J Sumner, J P MacNeela and T R Fennell. CIIT, Research Triangle Park, NC.


DETECTION OF URINARY METABOLITES OF [1,2,3-13C]ACRYLONITRILE IN THE RAT AND MOUSE USING 13C NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. T R Fennell, S C J Sumner, S D Held and G L Kedders. CIIT, Research Triangle Park, NC.

METABOLISM OF TRANS,TRANS-MUCONALDEHYDE, A HEMATOLOGIC MICROENZYME-METABOLITE OF BENZENE, BY PURIFIED XANTHINE OXIDASE. T A Kirley, B D Goldstein, and G Witz. Joint Graduate Program in Toxicology, UMINS-Robert Wood Johnson Medical School/Rutgers University, and EOHSI, Piscataway, NJ.


IDENTIFICATION OF AROMATIC HYDROXYLATED METABOLITES OF 3,4-(METHYLENEDIOXY) METHAMPHETAMINE (MDMA) BY ION TRAP TANDEM MASS SPECTROMETRY. H K Lim and R L Foltz, Center for Human Toxicology, Univ. of Utah, SLC, UT. Sponsor: M R Franklin.

COMPARATIVE METABOLISM OF 2,4- AND 2,6-ISOMERS OF TOLUENE DIISOCYANATE IN F344 RATS. M P Dieter, H B Matthews, C W Jameson, NIH, National Institute of Environmental Health Sciences, and A R Jeffcoat, RTI, Research Triangle Park, NC.

ANALYSIS OF CARBARYL METABOLITES USING HPLC AND SUPERCRITICAL FLUID CHROMATOGRAPH (SFC). R C Zanger, D W Later* and D L Springer. Battelle Pacific Northwest Laboratory, Richland, WA and Mountain States Analytical, Salt Lake City, UT*.

QUINOLINE METABOLISM AND TOXICITY IN THE ISOLATED PERFUSED RAT LIVER. E J La Voie, E H Weyand, R L Schenkman, A W Bartczak, and S Jj. College of Pharmacy, Rutgers University, Piscataway, NJ.

CHOLESTEROL ESTER HYDROLASE MEDIATED CONJUGATION OF HALOETHANOLS WITH FATTY ACIDS. H K Bhut and G A Arsan. Divisions of Biochemistry and Chemical Pathology, University of Texas Medical Branch, Galveston, TX.

FRIDAY MORNING, FEBRUARY 16
FONTAINBLEAU BALLROOM D

POSTER SESSION: METHODS IN TOXICOLOGY
MORPHINE AND OXYMORPHONE: DETECTION BY IMMUNOASSAY IN EQUINE BLOOD AND URINE.
S Stanley, T Wood, J Blake, H-H Tai, D Watt and T Tobin. Graduate Center for Toxicology, University of Kentucky, Lexington, KY.


IMMUNOASSAY DETECTION OF DRUGS IN RACING HORSES. DETECTION OF THE DIURETICS ETHACRYNIC ACID AND BUMETANIDE IN EQUINE BLOOD AND URINE BY ELISA. T Wood, S Stanley, J Blake, H-H Tai, D Watt and T Tobin. Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

NONINVASIVE MEASUREMENT OF BLOOD PRESSURE IN CONSCIOUS CYMONOLGUS MONKEYS. A Chester, K Lund, A Dorr and J DePass. Institute of Toxicologic Sciences, Syntex, Palo Alto, CA.

IMMUNOASSAY DETECTION OF DRUGS IN RACING HORSES. DETECTION OF RESERPINE IN EQUINE BLOOD AND URINE, BY A ONE STEP ELISA ASSAY. J M Yang, T Wood, S Stanley, J Blake, D Watt and T Tobin. The Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

THE USE OF MAGNETIC RESONANCE IMAGING TO DETECT HEXACHLOROBENZENE INDUCED CHANGES IN ORGAN VOLUME. A P Yagminas, R Towner, V E Vaill and D C Villeneuve. Environmental and Occupational Toxicology Division, Environmental Health Centre, Ottawa and Biopath Analysts Ltd., Guelph, ON, Canada. Sponsor: L Lopu.


ASSAYS FOR NEUROTOXIC ESTERASE (NTE) AND CHOLINESTERASE (CHE) ACTIVITIES USING A MICROTITER PLATE READER. L Corrall and M Ehric, Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA.


NOVEL SPECTROPHOTOMETRIC SUBSTANCES FOR EPOXIDE HYDROLASE. E C Dietze, E Kuwano, and B D Hammock. Departments of Entomology and Environmental Toxicology University of California, Davis, CA.

AN IMPROVED METHOD FOR MEASURING FEED CONSUMPTION IN MICE. R Hiles, K Williams, K Myers, S Eth, D Conant, and J Kleeman. Hazleton Laboratories America, Inc., Madison, WI.

THE EFFECTS OF ANESTHESIA AND TISSUE STORAGE ON NEUROPATHY TARGET ESTERASE ACTIVITY IN CHICKEN BRAIN. D M Voss, I Bekersky, B G Boysen and K D Williams. Hazleton Laboratories America, Inc., Madison, WI.

USE OF HYDRA AS AN ALTERNATIVE TO ANIMAL MODELS. N Timis, R Gundersen and E M Goodman, Biomedical Research Institute, University of Wisconsin-Parkside and C E Dick. S C Johnson, Racine, WI.

A SIMPLE ASSAY METHOD FOR OMEGA-OXIDATION OF LAURIC ACID BY HEPATIC ENZYMES. D D Giera and R B L van Lier. Toxicology Division, Lilly Research Laboratories, Eli Lilly & Company, Greenfield, IN.

AGAR-FILLED RAT LUNG SLICES FOR USE IN TOXICOLOGIC EVALUATIONS. M S Stefaniak, F B Pretlow, C L Krulicki, A J Gandolfi, and K Brendel, Deps. of Pharm.Tox., Univ. of Arizona, Tucson, AZ. 1Inst. of Pathology, Case Western Reserve Univ., Cleveland, OH. 1Dept. of Nutritional Sci., Univ. of Alabama, Birmingham, AL.


COMPARATIVE TOXICITIES OF PULMONARY TOXINS IN AGAR-FILLED RAT LUNG SLICES. A J Gandolfi, M S Stefaniak, C C Eskelson, K Brendel. Deps. of Pharmcol. and 1 Surgery, Univ. of Arizona, Tucson, AZ.
USE OF A SALINE FLUSH TO FACILITATE THE INTRAVENOUS ADMINISTRATION OF IRRITATING TEST COMPOUNDS TO RATS. N Donohue, S Ballenger, N Greenberg, E Keens, B Myers, and Y Markiewicz. Hazelton Laboratories, Vienna, VA.

A METHOD TO EVALUATE POTENTIAL TOXICITY OF SMOKE FROM BURNING POLYMERS. D J Caldwell and Y Alarie. University of Pittsburgh, Pittsburgh, PA.

SELECTIVE ADSORPTION OF MYCOXOGEN (SAM): FIELD-PRACTICAL METHOD OF MULTI-MYCOXOGEN DETECTION. B A Clement, A B San, K Mayura and T D Phillips. Department of Veterinary Public Health, Texas A&M University, College Station, TX.

APPLYING IDEAS FROM CHAOS TO TOXICOLOGY. J L Murphy. Office of Drinking Water, U.S. Environmental Protection Agency, Washington, DC.

FRIDAY MORNING, FEBRUARY 16
FONTAINEBLEAU BALLROOM D

POSTER SESSION: ORGANOPHOSPHATES

Chairperson: Janice E. Chambers, Mississippi State University, Mississippi State, MS.

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

COMPARATIVE STUDIES OF ORGANOPHOSPHORUS ESTER-INDUCED DELAYED NEUROPATHY (OPIDN) IN RATS AND HENS DOSED WITH MIPAFOX. B S Jortner, K R Dyer, L G Shell, and M F Ehrich. Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech, Blacksburg, VA.


AXONAL AND TERMINAL DEGENERATION PATTERNS IN THE FERRET BRAIN AFTER EXPOSURE TO TRIPHENYLPHOSPHITE (TPP). D Tanaka, Jr; S J Bursian, F Lehning, and R J Aulerich. Depts. of Anatomy and Animal Science, Michigan State University, E. Lansing, MI.


HIGH AFFINITY AGONIST ACTION OF PARMOXON ON THE M2 MUSCARINIC RECEPTOR IN RAT BRAIN. D Jett, E Abdallah, E El-Fakohany and A Fideglou. Dept. of Pharmacology and Experimental Therapeutics, School of Medicine and Dept. of Pharmacology and Toxicology, School of Pharmacy, Univ. of Maryland at Baltimore, Baltimore, MD.

CORRELATION OF BLOOD AND TISSUE CHOLINESTERASE (ChE) INHIBITION AFTER PARATHION EXPOSURE. C N Pope, M L Chapman, T K Chakraborti, and P W Ferguson. School of Pharmacy, Northeast Louisiana University, Monroe, LA.

TOXICITY OF CARBARYL AND ALDICARB ON BRAIN AND LIMB CULTURES OF CHICK EMBRYOS. M Farage-Elian and T K Rowles. VA/MD Regional College of Veterinary Medicine, Blacksburg, VA.

MOLECULAR DESCRIPTORS OF SPECIES-SELECTIVE CHOLINESTERASE INHIBITION. K B Wallace and J R Kemp. University of Minnesota, School of Medicine, Department of Pharmacology, Duluth, MN.

EFFECTS OF SOMAN ON THE INCORPORATION OF DEUTERATED CHOLINE INTO BRAIN CHOLINE AND ACETYLCOLINE. V R Jimmerson, T M Shih and R B Mallman. WRAIR, Washington, DC USAMRICD, APG, MD and Toxicol. Curriculum, UNC, Chapel Hill, NC.


CLINICAL CASE STUDY OF FIFTY PATIENTS DIAGNOSED WITH PERIPHERAL NEUROPATHY AND/OR M.S. SECONDARY TO CHEMICAL EXPOSURE. Z R Gard, BioTox, Inc., San Diego, CA. Sponsor: S B Harris.

NINETY-DAY TOXICITY STUDY OF GLYPHOSATE IN FISCHER RATS AND B6C3F1 MICE. P C Chan and J D Frejean. National Inst. of Environmental Health Sciences, Research Triangle Park, NC and Southern Research Institute, Birmingham, AL. Sponsor: D Dietz.

EFFECTS OF CIOVAP® APPLICATIONS ON BLOOD CHOLINESTERASE ACTIVITIES IN STEERS. R W Cappell, A A Khan, H Philip, M M Schulier and L E Lillie. Animal Sciences Division, Alberta Environmental Centre, Vegreville, AB, Canada.


CARBOFURAN-INDUCED ALTERATIONS IN HIGH-ENERGY PHOSPHATES, TOTAL CREATINE KINASE (CK), AND CK ISOENZYMES. P C Gupta, J T Goad, and W L Kadal. Breathe Well Veterinary Center, Murray State Univ., Hopkinsville, KY.

EFFECT OF PARATHION AND 2,4-D ON GROWTH AND OXIDATIVE METABOLISM OF RHIZOBIUM SESBANIA. M Ashraf and M I H Aleem. Dept. of Toxicology. University of Kentucky, Lexington, KY. Sponsor: L Robertson.


PHARMACOKINETIC ANALYSIS OF TOLERANCE TO AN ORGANOPHOSPHORUS INSECTICIDE, CHLORFENVINPHOS, IN RATS. S Tsuda, T Ikeda, and Y Shiraga. Institute of Environmental Toxicology, Mitsuakido, Ibaraki, Japan.

FRIDAY MORNING, FEBRUARY 16
FONTAINEBLEAU BALLROOM D

POSTER SESSION: RISK ASSESSMENT

Chairperson: Craig H. Farr, Monsanto Company, St. Louis, MO.

Displayed: 9:30 a.m.-11:30 a.m.

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


COMPARISON OF A WATER QUALITY CRITERION AND THE LIFETIME HEALTH ADVISORY FOR 2,4,5-TRINITROTOLUENE. R H Ross, P Y Lu. Biomedical and Environmental Information Analysis, Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee; U.S Environmental Protection Agency, Washington, DC.

THE DEVELOPMENT OF CRUDE OIL CARCINOGENIC POTENCIES FOR ORAL AND DERMAL EXPOSURES TO CRUDE OIL. M J Sullivan, S R Cusance. Envirologic Data, Inc., Ventura, CA.

A REALISTIC APPROACH TO MEASURING THE DERMAL TRANSFER OF POLYCHLORINATED BIPHENYLS (PCBs) FROM CONTAMINATED SURFACES FOR USE IN PUBLIC HEALTH RISK ASSESSMENT. D J Rosenbaum, G Caron, and P Brussock. Envirologic Data, Chadds Ford, PA. Sponsor: J H Dean.


SUBCHRONIC TOXICITY STUDIES OF PAHs IN MICE. S Griffin, S Irene, and H Choudhury. US EPA, Washington, DC.


CARCINOGENICITY ASSESSMENT FOR PENTACHLOROPHENOL. S Irene, R Rubenstein, S Segal, V J Cogliano and B Allen, U.S. Environmental Protection Agency and Clement Assoc., Inc., Washington, DC. Sponsor: J Murphy.


SOIL INCREASES NAPHTHALENE BIOAVAILABILITY IN ORALLY EXPOSED FEMALE RATS. R Turkall, G Skowronska, A Kadry, M Botrous, and M Abdel-Rahman. Dept. Pharmacology & Toxicology, N.J. Medical School, UMDNJ, Newark, NJ.

PESTICIDES IN SOIL: DOES CANCER RISK, COMPARED TO THAT FROM DIETARY EXPOSURE, WARRANT REMEDIATION? F Martz. California Department of Health Services, Toxic Substances Control Program, Sacramento, CA.

RISK ESTIMATION FOR SOLVENTS IN SOIL. R A Howard, GM Schum, T E McKone, and J J Wong. "California DHS, Toxic Substances Control Program, Sacramento, CA and "Lawrence Livermore National Laboratory, Livermore, CA.


CONSIDERATION OF SPECIES CONCORDANCE AND PHARMACOKINETICS IN A RISK ASSESSMENT OF METHYLENE CHLORIDE. G V Alexejeff and I Hertz-Picciotto. Department of Health Services and *University of California, Berkeley, CA.

ON THE RISK/BENEFIT BALANCE OF PROPHYLACTIC DOSES OF ASPIRIN. S Feinman and C Gable; FDA and Systemetrics/McGraw Hill, Washington, DC; Sponsor: M Blecker.

DEVELOPING EXPOSURE SCENARIOS FOR ASSESSING HUMAN HEALTH EFFECTS OF COMBUSTION EMISSIONS. J Dallamade, P McGinnis, M Kujawa, and *R Bruns. Syracuse Research Corporation, Cincinnati, OH and *ECAO, U.S. Environmental Protection Agency, Cincinnati, OH.

RISK ASSESSMENT OF METALS IN AIR EMITTED FROM A MUNICIPAL WASTE INCINERATOR. M Eichelberger, P McGinnis, *D Gray, **C Sonich-Mullin, R Nichols. Syracuse Research Corporation, Cincinnati, OH; *Syracuse, NY, and **US Environmental Protection Agency, ECAO, Cincinnati, OH.

TOXICOLOGY AND QUANTITATIVE RISK ASSESSMENT FOR MERCURY. R A Young. Biomedical and Environmental Information Analysis, Health and Safety Research Division, Oak Ridge National Laboratory, Oak Ridge, TN; D Weil, Environmental Criteria and Assessment Office, US Environmental Protection Agency, Research Triangle Park, NC.


A RISK ASSESSMENT FOR CRUDE OIL IN RESIDENTIAL SURFACE SOILS. C J Miller, M J Sullivan, S R Custance. Environologic Data, Inc., Ventura, CA.
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Randall C. Baselt

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American Board of Toxicology
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Federation of European Societies of Toxicology
Tor Malmfors

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Frederick Coulston

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Randall C. Baselt

Society for Quality Assurance

Society for Risk Analysis
Thomas B. Starr

Society for Toxicologic Pathologists
Felix A. de la Iglesia

Society of Toxicology of Canada
Jules Brodeur

Swedish Society of Toxicology
Tor Malmfors

Teratology Society
Jeanne M. Manson

Tissue Culture Association
Daniel Acosta

The Toxicology Forum
Ian C. Munro

World Federation of Association of Clinical Toxicology Centers and Poison Control Centers
Frederick W. Oehme
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(James S. Bus, Liaison)

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Los Angeles, California

ARCO Chemical Company
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North Carolina

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Rochester, New York

Eli Lilly & Company
Greentield, Indiana

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East Millstone, New Jersey

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Somerville, New Jersey

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Nutley, New Jersey

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Pfizer, Inc.
Groton, Connecticut

PPG Industries
Pittsburgh, PA

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Cincinnati, Ohio

Rhone-Poulenc Inc.
Research Triangle Park,
North Carolina

RJR Nabisco, Inc.
Winston-Salem, North Carolina

Rohm & Haas Company
Spring House, Pennsylvania

Sandoz Research Institute
East Hanover, New Jersey

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Bloomfield, New Jersey

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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

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Palo Alto, California

Union Carbide Corporation
Danbury, Connecticut

The Upjohn Company
Kalamazoo, Michigan

Warner-Lambert Company
(Parke-Davis Pharmaceutical Research)
Ann Arbor, Michigan

Wyeth-Ayerst Research
Philadelphia, Pennsylvania
# AWARDS

## Achievement

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<td>Allan H. Conney</td>
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<td>Samuel S. Epstein</td>
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<td>Morris F. Cranmer</td>
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<td>Ian C. Munro</td>
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<td>Curtis D. Kaasssen</td>
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## Frank R. Blood

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<td>Meryl Karol</td>
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## Arnold J. Lehman

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<td>Kundan S. Khera</td>
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## Merit

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<td>Henry F. Smyth, Jr.</td>
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<td>Tom S. Miya</td>
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<td>Carrol S. Weil</td>
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<td>1986</td>
<td>Ted A. Loomis</td>
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<td>Bo Holmstedt</td>
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<td>1988</td>
<td>Seymour L. Fries</td>
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<td>Wayland J. Hayes, Jr.</td>
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## Education

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<tr>
<td>1975</td>
<td>Harold C. Hodge</td>
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<tr>
<td>1976</td>
<td>Ted A. Loomis</td>
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<tr>
<td>1977</td>
<td>Robert B. Forney</td>
</tr>
</tbody>
</table>
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 Guzeian
1985–90 .................................................... I. Glenn Sipes
1986–91 .................................................... Daniel Acosta
1987–92 .................................................... Richard P. Maitman
1987–92 .................................................... Bruce D. Hammock
1988–93 .................................................... Harikara M. Mehdendale
1989–94 .................................................... Stephen H. Safe

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

1989 SOCIETY OF TOXICOLOGY GRADUATE FELLOWSHIP AWARD RECIPIENTS’ PRESENTATIONS

HAZLETON LABORATORIES CORPORATION FELLOWSHIP

Recipient: Lorraine E. Twerdok, Johns Hopkins University, Baltimore, MD.
#234—"Studies With 1,2-Dithiole-3-Thione As A Chemoprotector In Mouse Bone Marrow Stromal Cells"

HOFFMANN-LA ROCHE, INC. FELLOWSHIP

Recipient: Timothy J. Shafer, Michigan State University, Dept. of Pharmacology & Toxicology, East Lansing, MI.
#547—"Evidence From Radiotracer Flux And Binding Studies Suggests That Methylmercury Blocks Ca Channels In A Voltage-Dependent Manner And May Interact With More Than One Type Of Ca Channel"

THE PROCTER & GAMBLE COMPANY FELLOWSHIP

Recipient: Christopher M. Weghorst, Medical College of Ohio, Toledo, OH.
#718—"Effects Of Barbiturate Compounds On Hepatic And Renal Cell Proliferation In The Rat"

CIBA-GEIGY CORPORATION FELLOWSHIP

Recipient: Timothy Zacharewski, Texas A&M University, Dept. of Veterinary Physiology & Pharmacology.
#1243—"8-Iodo-6-Methyl-1,3-Dichloro-Dibenzoferan (I-MCDF) and 125I-MCDF As 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) Antagonists"

Hazleton Laboratories Corporation Fellowship

1984 .................................................... Patricia Ganey
1985 .................................................... Kevin Gaido
1986 .................................................... Lisa Naser
1987 .................................................... Marjorie Romkes
1988 .................................................... Caroline J. Decker
1989 .................................................... Lorraine E. Twerdok

Hoffmann-La Roche, Inc. Fellowship

1987 .................................................... Andrew G. King
1988 .................................................... Dori J. Thomas
1989 .................................................... Timothy J. Shafer

Colgate-Palmolive

1988 .................................................... Ernest Bloom
1989 .................................................... Gin C. Hsieh

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
1989 .................................................... Christopher M. Weghorst

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1989 .................................................... Timothy Zacharewski
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