

# Dermal Toxicology Specialty Section

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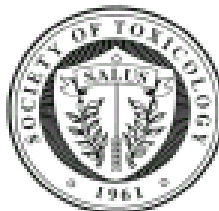
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The *Dermal Toxicology Specialty Section* newsletter is published 3 times/year (May, August, November) in printed and electronic formats. If you would like to share a book review, meeting report, web site, or any other item of general interest to the specialty section, please send it to the editors by the beginning of the month prior to the listed publication dates. We also welcome any comments or suggestions pertaining to overall content or format.

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## President's Message

The 40th annual SOT meeting will be held in San Francisco, CA from March 25th through the 29<sup>th</sup>. It is hard to believe that 2001 is here already and that the annual meeting is only a few weeks away. I hope to see all of our section members in San Francisco. It is a marvelous city and in spite of the forecast about rains in the Bay Area, hopefully we will have a plenty of shiny days to enjoy a great program and a fantastic view of Golden Gate enchanting everyone going to the SOT Meetings in March.

The Executive Committee meeting of DTSS is scheduled for Tuesday, March 27 from 5:00 PM-6:00 PM, in Yerba Buena Ballroom (B2, Lower level, Marriott). DTSS members who have items that they would like to be considered should contact me ([ats1@cdc.gov](mailto:ats1@cdc.gov)) or Jeff Laskin ([jlaskin@ehsi.rutgers.edu](mailto:jlaskin@ehsi.rutgers.edu)) up to March, 22, 2001 to have these issues put on the agenda for the meeting.

At this year's meeting the DTSS sponsored its first symposium, entitled "Phenolic Compounds: Free Radical Mechanisms of Toxicity, Catalysis, and Protection" (March 29, 8:30 AM- 11:30 AM, Moscone Convention Center, Room 134). Please mark your calendar and make it a success.

The selection of our submissions for next year's meeting is only a few months away. As you plan your meeting schedule and attend the sessions, please think about topics of interest and areas you would like to learn more about for the next year. The DTSS will be very active in suggesting topics for symposia and continuing education (CE) courses

and getting these ideas put on the slate for the next year SOT meeting, workshops, round table discussions, and satellite meetings in Nashville, TN. Frank Gerberick chair of the Program Committee, is in charge of plans for the 2002 SOT meeting agenda. Please forward your ideas to Frank via E-mail ([gerberick.gf@pg.com](mailto:gerberick.gf@pg.com)) or FAX (513-627-0400). Proposals for potential speakers, volunteers to serve on the Program Committee, to chair and organize a symposium or CE course will be appreciated. We need your input. Please take proactive interest and make our DTSS a distinguished specialty section.

All DTSS members are most welcome to attend the annual mixer which will be held on Tuesday March 27, from 6-7:30 PM at the Marriott (Yerba Buena Ballroom, B2, Lower level, Marriott) immediately after the DTSS business meeting. The winners of the Student Awards will be announced during the mixer. I want to urge all of you to attend the Dermal Toxicology Specialty Section meeting. We promise to keep the business portion of the meeting brief and hope you will all be able to attend. It will be a great opportunity to meet others in our specialty section as well as learn more about some aspects of our exciting field of research and science. See you in San Francisco.

Anna A. Shvedova  
[ats1@cdc.gov](mailto:ats1@cdc.gov)

## Committee Updates

### Membership Committee

Submitted by Guilin Qiao

**GOALS:** To recruit new members, inform and keep the DTSS membership record.

**Chair:** Qiao Guilin, DVM, PhD (National Institute for Occupational Health and Safety, CDC)

**Co-Chair:** Brian Jones, PhD (Avon Product Inc.)

**Members:** Rick P. Moody, PhD (Health Canada, Canada)

Committee activity: During last several months, the Committee Chair Dr. Qiao, together with the DTSS president Dr. Shvedova, successfully recruited one Co-Chair and one Committee Member from Industry in the US and abroad, respectively. The completion of the committee will largely speed up the membership record keeping/ updating and recruitment of new members from all over the world. Effort of recruitment of DTSS members has been made in the skin Toxicology community in Canada by the new committee member. The committee is working on the annual report to be given at the DTSS meeting during the SOT meeting in San Francisco in March 2001.

Guilin Qiao, DVM, Ph.D.,  
Chairman, DTSS membership  
committee, [GAQ1@CDC.gov](mailto:GAQ1@CDC.gov)

### **Continuing Education Committee**

Submitted by Nancy Monteiro-Riviere

In the past, April 15th has been the deadline for sponsoring programs for the following year 's meeting. Sponsoring symposia, continuing education, and workshops is one of the most important functions of the Dermal Toxicology Specialty Section. Therefore, I would like to request that each Dermal Toxicology Specialty Section member think about how to organize a program for submission for the April 2002 submission deadline.

Last year the Dermal Toxicology Specialty Section sponsored one symposia entitled "Phenolic Compounds: Free Radical Mechanisms of Toxicity, Catalysis, and Protection" for consideration of the upcoming 2001 SOT meeting. This proposal was approved and will be presented on Thursday, March 29<sup>th</sup> at the 2001 Meeting in San Francisco. The Dermal Section did not sponsor any workshops or continuing education symposia. The Executive Committee would like members to identify a few topics that the Dermal Toxicology Section can support in the form of symposia, workshops or continuing education for the 2002 meeting. The Executive Committee is actively working with members to develop these programs but we need help from everyone. We need some ideas!!!!!!!

I would like each of you to come up with a Continuing Education Course, Symposia, or Workshop. The forms are available on the SOT web site. Your proposal should be e-mailed to me at [Nancy\\_Monteiro@ncsu.edu](mailto:Nancy_Monteiro@ncsu.edu) and should include the following:

A proposed title and forum (continuing education course, symposium, or workshop?)

A brief description of the proposed content (a short paragraph will do).  
Proposed speakers (3 - 5).  
Proposed chairperson, if you can think of one (you can also volunteer yourself).

You are welcome to be creative and think of topics that our specialty section could jointly sponsor with another SOT specialty section. Also, think of a past Continuing Education Course, Symposia, or Workshops that has been conducted and that you would like to see updated and repeated.

Please send your suggestions back to Chairpersons:  
Nancy Monteiro-Riviere  
([Nancy\\_Monteiro@ncsu.edu](mailto:Nancy_Monteiro@ncsu.edu))  
Or Diane Heck  
([dheck@ehsi.rutgers.edu](mailto:dheck@ehsi.rutgers.edu)).

### **Communications Committee**

Submitted by Michael K. Robinson

The goal of the Communications Committee of the DTSS is to coordinate the collection and dissemination of information relevant to the needs of dermal toxicologists within the specialty section, as well as assisting the Council in outreach to the general toxicology community. We will do so through the use of this newsletter and the creation and maintenance of an SOT linked web site.

Again, we welcome your ideas for both the content and format of our print and electronic communications. These will be continually updated and improved based on feedback received. Please send your comments and ideas to:

We are also looking for specialty section scientists that would be interested in becoming members of the Communications Committee. Please send us your name, address, phone number, fax number and email address or sign up at the specialty section meeting held at the annual SOT meeting each March.

Michael K. Robinson  
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Lisa K. Ryan  
[ryanlk@umdj.edu](mailto:ryanlk@umdj.edu)

### **Regulatory/Policy Committee**

Submitted by James N. McDougal and Robert W. Lange

Our committee is currently assembling a database of web sites and/or reference citations that address issues pertaining to the Toxicologic or

Pharmacologic evaluation of Dermal agents. We hope to make this available to our members at SOT-01 or soon after.

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### **Methods Committee**

Submitted by Robert L. Bronaugh

The Methods Committee conducted a survey of DTSS members to determine their interests and experience in the development and validation of methods for dermal toxicity assessment. Nine members responded to the survey with their areas of interest. Skin irritation/mediators of irritation was the most cited area, with mention by five members. Percutaneous absorption and skin sensitization were tied for second place with four votes each. Our committee plans to develop a workshop (speakers - titles of presentations) to aid in the development, standardization and validation of one of the above methods. We would then propose this workshop to the DTSS program committee. We are also exploring the idea of utilizing the SOT webpage to promote the sharing of technical expertise of DTSS members.

[rbronaug@bangate.fda.gov](mailto:rbronaug@bangate.fda.gov)

## **DTSS Meeting Information**

The annual Dermal Toxicology Specialty Section meeting will be held in conjunction with the annual SOT meeting (March 25-29, 2001; San Francisco, CA). The DTSS officers meeting will be held on Tuesday, March 27, 2001 from 5:00 – 6:00 P.M. followed by the DTSS reception from 6:00 P.M. – 7:30 P.M. Both events will be held at the San Francisco Marriott Hotel in Nob Hill B.

## **Member Comments/Views**

We encourage your enthusiastic involvement and suggestions! Take a moment and send us your comments. – eds.

## **Member News**

The DTSS is proud to recognize three of its members who were awarded Europe's premier laboratory animal welfare prize for 2000. They jointly developed a test (the local lymph node assay or LLNA) for the potential of chemicals to cause allergic skin

reactions, or skin sensitisation. This test uses fewer animals and causes less suffering than previous tests.

The SmithKline Beecham Laboratory Animal Welfare Prize is awarded annually by the Research Defense Society (RDS) for significant contributions to improving the welfare of animals in laboratories or techniques that reduce the number of animals required. The prize rewards achievements in the three Rs - reduction, refinement or replacement - which are the guiding principles of modern laboratory animal science and welfare.

Dr. Ian Kimber of Zeneca (now Syngenta) CTL, Dr. Frank Gerberick of Procter & Gamble and Dr. David Basketter of Unilever Research worked together to develop and validate the LLNA. The prize - consisting of £2000 and an inscribed plaque was presented to Dr Kimber at the annual meeting of RDS in London this past November. Congratulations Ian, Frank, and David.

The DTSS also congratulates our founding president, Dr. Anna Shvedova as the recipient of the SOT's Public Communications Award for 2001. Dr. Shvedova was recognized for her leadership in the development of two educational programs through the Allegheny-Erie Chapter of the SOT. One was a teacher education program in toxicology (*Paracelsus Goes to School*) and the other was a summer student program in toxicology at NIOSH. Dr. Shvedova will be recognized at the annual SOT meeting in San Francisco. Congratulations, Anna. - eds.

## Position Announcement

POST-DOCTORAL FELLOW IN  
DERMATOPHARMACOKINETICS &  
DERMATOTOXICOLOGY

The Center for Cutaneous Toxicology and Residue Pharmacology (CCTRP) at North Carolina State University (<http://cctrp.ncsu.edu>) is primarily involved in assessing percutaneous absorption and cutaneous toxicology of chemical mixtures of topically applied drugs and chemical mixtures. Novel statistical approaches have been developed to assess these multi-component interactions and to develop a simple but robust modeling approach that could be used to extrapolate these findings to *in vivo* human exposure.

Individuals with a Ph.D. or D.V.M. and expertise & experience in one or several of the following areas are encouraged to apply: drug metabolism; HPLC; statistics; dermal absorption and

cutaneous toxicity, pharmacokinetic modeling, skin cell biology, cell culture, and risk assessment. Candidates will be required to work independently on projects pertinent to the mission of the Center for Cutaneous Toxicology and Residue Pharmacology (CCTRP). Individuals whose postdoctoral work in dermatopharmacokinetics of chemical mixtures will be required to conduct research in drug or chemical metabolism and develop novel techniques in separation chemistry (e.g., HPLC, GC). Individuals whose postdoctoral work in dermatotoxicology will be required to utilize molecular biology techniques pertinent to skin cell biology and evaluate the effects of chemical mixtures.

The position offers competitive salary and benefits. NCSU is located just minutes from Research Triangle Park, an internationally recognized center for biomedical research. Substantial collaborations between the CCTRP, neighboring Universities, national research laboratories, and major pharmaceutical companies are on going.

Technical questions may be directed to Dr. Jim Riviere ([Jim\\_Riviere@ncsu.edu](mailto:Jim_Riviere@ncsu.edu)). Applicants should provide the following: curriculum vitae, list of publications, along with three references and a concise statement of research accomplishments and future plans. Application review will begin on 04/30/2001. Position open until filled. Please send the above information to:

Ms. Vickie Vick  
Administrative Assistant to the Director  
Center for Cutaneous Toxicology and  
Residue Pharmacology  
North Carolina State University,  
Raleigh, NC 27606.

## Member Publications

Each newsletter will feature a listing of specialty section member publications (journal articles, book chapters, books) that have appeared in print since the last edition. While the editors will do their best to survey the indexing services relative to the current membership roster, it is likely that some mistakes and omissions will occur. If we have inadvertently omitted a recent publication or listed something incorrectly, please advise us by email and we will see that this is corrected in the following newsletter. Also, we welcome your help in this endeavor. Please send us your citations for any recently published articles and books. That will aid us in our literature searching. Thank you - eds.

## Recent Publications (DTSS authors in bold):

Huang C, Zhang Z, Ding M, Li J, Ye J, Leonard SS, Shen HM, Butterworth L, Lu Y, Costa M, Rojanasakul Y, **Castranova V**, Vallyathan V, Shi X. Vanadate induces p53 transactivation through hydrogen peroxide and causes apoptosis. *J Biol Chem.* 275:32516-32522, 2000.

Dokka S, Malanga CJ, Shi X, Chen F, **Castranova V**, Rojanasakul Y. Inhibition of endotoxin-induced lung inflammation by interleukin-10 gene transfer in mice. *Am J Physiol Lung Cell Mol Physiol.* 279:L872-L877, 2000.

Kang JL, Pack IS, Lee HS, **Castranova V**. Enhancement of nuclear factor-kappaB activation and protein tyrosine phosphorylation by a tyrosine phosphatase inhibitor, pervanadate, involves reactive oxygen species in silica-stimulated macrophages. *Toxicology* 151:81-89, 2000.

Kang JL, Pack IS, Hong SM, Lee HS, **Castranova V**. Silica induces nuclear factor-kappa B activation through tyrosine phosphorylation of I kappa B-alpha in RAW264.7 macrophages. *Toxicol Appl Pharmacol.* 169:59-65, 2000.

Ye J, Zeidler P, Young Sh S, Martinez A, Robinson VA, Jones W, Baron P, Shi X, **Castranova V**. Activation of Mitogen-activated Protein Kinase p38 and Extracellular Signal-regulated Kinase Is Involved in Glass Fiber-induced Tumor Necrosis Factor-alpha Production in Macrophages. *J Biol Chem.* 276:5360-5367, 2001.

Ma JY, Barger MW, Kriech AJ, **Castranova V**. Effects of asphalt fume condensate exposure on acute pulmonary responses. *Arch Toxicol.* 74:452-945, 2000.

Al-Humadi NH, Shvedova AA, Batteli L, Diotte N, **Castranova V**, **Kommineni C**. Dermal and systemic toxicity after application of semisynthetic metal-working fluids in B6C3F1 mice. *J Toxicol Environ Health A.* 61:579-589, 2000.

Kang JL, Lee K, **Castranova V**. Nitric oxide up-regulates DNA-binding activity of nuclear factor-kappaB in macrophages stimulated with silica and inflammatory stimulants. *Mol Cell Biochem.* 215:1-9, 2000.

Glover RE, **Germolec DR**, Patterson R, Walker NJ, Lucier GW, Mason RP. Endotoxin (lipopolysaccharide)-induced nitric oxide production in 2,3,7,8-tetrachlorodibenzo-p-dioxin-treated Fischer rats: detection of nitrosyl

- hemoproteins by EPR spectroscopy. *Chem Res Toxicol.* 13:1051-1055, 2000.
- Guo TL, McCay JA, Brown RD, Musgrove DL, **Germolec DR**, Butterworth L, **Munson AE**, White KL. Carbon tetrachloride is immunosuppressive and decreases host resistance to *Listeria monocytogenes* and *Streptococcus pneumoniae* in female B6C3F1 mice. *Toxicology* 154:85-101, 2000.
- Rose ML, Bradford BU, **Germolec DR**, Lin M, Tsukamoto H, Thurman RG. Gadolinium chloride-induced hepatocyte proliferation is prevented by antibodies to tumor necrosis factor alpha. *Toxicol Appl Pharmacol.* 170:39-45, 2001.
- Karrow NA, Leffel EK, Guo TL, Zhang LX, McCay JA, **Germolec DR**, White KL. Dermal exposure to cinnamaldehyde alters lymphocyte subpopulations, number of interferon-gamma-producing cells, and expression of B7 costimulatory molecules and cytokine messenger RNAs in auricular lymph nodes of B6C3F1 mice. *Am J Contact Dermat.* 12:6-17, 2001.
- Heck DE**, Louis L, Gallo MA, **Laskin JD**. Modulation of the development of plutei by nitric oxide in the sea urchin *Arbacia punctulata*. *Biol Bull.* 199:195-197, 2000.
- Laskin DL**, **Heck DE**, Punjabi CJ, **Laskin JD**. Nitric oxide as a mediator of benzene-induced hematosuppression and toxicity. *J Toxicol Environ Health A.* 61:413-417, 2000.
- Weinberger B, **Laskin DL**, **Heck DE**, **Laskin JD**. The toxicology of inhaled nitric oxide. *Toxicol Sci.* 59:5-16, 2001.
- Kawai K, Liu SX, Tyurin VA, Tyurina YY, Borisenko GG, Jiang JF, St Croix CM, Fabisiak JP, Pitt BR, **Kagan VE**. Antioxidant and antiapoptotic function of metallothioneins in HL-60 cells challenged with copper nitrilotriacetate. *Chem Res Toxicol.* 13: 1275-1286, 2000.
- Vladimirov YA, Arroyo A, Taylor JM, Tyurina YY, Matsura T, Tyurin VA, **Kagan VE**. Quinolizin-coumarins as physical enhancers of chemiluminescence during lipid peroxidation in live HL-60 cells. *Arch Biochem Biophys.* 384:154-162, 2000.
- Liu SX, Kawai K, Tyurin VA, Tyurina YY, Borisenko GG, Fabisiak JP, Quinn PJ, Pitt BR, **Kagan VE**. Nitric oxide-dependent pro-oxidant and pro-apoptotic effect of metallothioneins in HL-60 cells challenged with cupric nitrilotriacetate. *Biochem J.* 354:397-406, 2001.
- Arroyo A, **Kagan VE**, Tyurin VA, Burgess JR, de Cabo R, Navas P, Villalba JM. NADH and NADPH-dependent reduction of coenzyme Q at the plasma membrane. *Antioxid Redox Signal.* 2:251-262, 2000.
- Wisniewski AV, Srivastava R, Herick C, Xu L, Lemus R, Cain H, Magoski NM, **Karol MH**, Bottomly K, Redlich CA. Identification of human lung and skin proteins conjugated with hexamethylene diisocyanate in vitro and in vivo. *Am J Respir Crit Care Med.* 162:2330-2336, 2000.
- Kimber I**, **Basketter DA**, Berthold K, Butler M, Garrigue JL, Lea L, Newsome C, Roggeband R, Steiling W, Stropp G, Waterman S, Wiemann C. Skin Sensitization Testing in Potency and Risk Assessment. *Toxicol Sci* 59:198-208, 2001.
- Duthie MS, **Kimber I**, Dearman RJ, Norval M. Differential effects of UVA1 and UVB radiation on Langerhans cell migration in mice. *J Photochem Photobiol B.* 57:123-131, 2000.
- Kimber I**. The local lymph node assay and potential application to the identification of drug allergens. *Toxicology* 158:59-64, 2001.
- Antonopoulos C, Cumberbatch M, Dearman RJ, Daniel RJ, **Kimber I**, Groves RW. Functional Caspase-1 Is Required for Langerhans Cell Migration and Optimal Contact Sensitization in Mice. *J Immunol.* 166:3672-3677, 2001.
- Takeyoshi M, Yamasaki K, Yakabe Y, Takatsuki M, **Kimber I**. Development of non-radio isotopic endpoint of murine local lymph node assay based on 5-bromo-2'-deoxyuridine (BrdU) incorporation. *Toxicol Lett.* 119:203-208, 2001.
- Morio LA, Chiu H, Sprowles KA, **Laskin DL**. Functional heterogeneity of rat hepatic and alveolar macrophages: effects of chronic ethanol administration. *J Leukoc Biol.* 68:614-620, 2000.
- Laskin DL**, **Laskin JD**. Role of macrophages and inflammatory mediators in chemically induced toxicity. *Toxicology.* 160:111-118, 2001.
- Chen H, **Liu J**, Merrick BA, Waalkes MP. Genetic events associated with arsenic-induced malignant transformation: applications of cDNA microarray technology. *Mol Carcinog.* 30:79-87, 2001.
- Gallucci RM, Simeonova PP, Matheson JM, Kommineni C, Gurjel JL, Sugawara T, **Luster MI**. Impaired cutaneous wound healing in interleukin-6-deficient and immunosuppressed mice. *FASEB J.* 14:2525-2531, 2000.
- Luster MI**, Simeonova PP, Gallucci RM, Matheson JM, Yucesoy B. Immunotoxicology: role of inflammation in chemical-induced hepatotoxicity. *Int J Immunopharmacol.* 22:1143-1147, 2000.
- Burchiel SW, **Luster MI**. Signaling by environmental polycyclic aromatic hydrocarbons in human lymphocytes. *Clin Immunol.* 98:2-10, 2001.
- Yucesoy B, Vallyathan V, Landsittel DP, Sharp DS, Matheson J, Burleson F, **Luster MI**. Polymorphisms of the IL-1 gene complex in coal miners with silicosis. *Am J Ind Med.* 2001 39:286-291, 2001.
- Mio K, Carrette O, **Maibach HI**, Stern R. Evidence that the serum inhibitor of hyaluronidase may be a member of the inter-alpha-inhibitor family. *J Biol Chem.*;275:32413-32421, 2000.
- Zhai H, Frisch S, Pelosi A, Neibart S, **Maibach HI**. Antipruritic and thermal sensation effects of hydrocortisone creams in human skin. *Skin Pharmacol Appl Skin Physiol.* 13:352-357, 2000.
- Levin C, **Maibach HI**. An overview of the efficacy of topical corticosteroids in experimental human nickel contact dermatitis. *Contact Dermatitis* 43:317-321, 2000.
- Zhai H, **Maibach HI**. Effects of Skin Occlusion on Percutaneous Absorption: An Overview. *Skin Pharmacol Appl Skin Physiol.* 2001 14:1-10, 2001.
- Anigbogu AN, **Maibach HI**. Chemical load as a factor in skin sensitization risk assessment: rodent versus man. *Contact Dermatitis.* 44:125-126, 2001.
- Lee EE, **Maibach HI**. Is contact allergy in man lifelong? An overview of patch test follow-ups. *Contact Dermatitis.* 44:137-139, 2001.
- Loffler H, Freyschmidt-Paul P, Effendy I, **Maibach HI**. Pitfalls of irritant patch testing using different test chamber sizes. *Am J Contact Dermat.* 12:28-32, 2001.
- Manetz TS, Pettit DA, **Meade BJ**. The Determination of Draining Lymph Node Cell Cytokine mRNA Levels in BALB/c Mice Following Dermal Sodium Lauryl Sulfate, Dinitrofluorobenzene, and Toluene Diisocyanate Exposure. *Toxicol Appl Pharmacol.* 2001 171:174-183, 2001.
- Flint MS, **Miller DB**, **Tinkle SS**. Restraint-induced modulation of allergic and irritant contact dermatitis in male

and female B6.129 mice. *Brain Behav Immun.* 14:256-269, 2000.

Flint MS, Valosen JM, Johnson EA, **Miller DB**, **Tinkle SS**. Restraint stress applied prior to chemical sensitization modulates the development of allergic contact dermatitis differently than restraint prior to challenge. *J Neuroimmunol.* 113:72-80, 2001.

Allen DG, **Riviere JE**, **Monteiro-Riviere NA**. Cytokine induction as a measure of cutaneous toxicity in primary and immortalized porcine keratinocytes exposed to jet fuels, and their relationship to normal human epidermal keratinocytes. *Toxicol Lett.* 119:209-217, 2001.

Katiyar SK, Perez A, **Mukhtar H**. Green tea polyphenol treatment to human skin prevents formation of ultraviolet light B-induced pyrimidine dimers in DNA. *Clin Cancer Res.* 2000 6:3864-3869, 2000.

Kalka K, Ahmad N, Criswell T, Boothman D, **Mukhtar H**. Up-regulation of clusterin during phthalocyanine 4 photodynamic therapy-mediated apoptosis of tumor cells and ablation of mouse skin tumors. *Cancer Res.* 60:5984-5987, 2000.

Ahmad N, Gupta S, Feyes DK, **Mukhtar H**. Involvement of Fas (APO-1/CD-95) during photodynamic-therapy-mediated apoptosis in human epidermoid carcinoma A431 cells. *J Invest Dermatol.* 115:1041-1046, 2000.

Katiyar SK, Matsui MS, **Mukhtar H**. Kinetics of UV light-induced cyclobutane pyrimidine dimers in human skin in vivo: an immunohistochemical analysis of both epidermis and dermis. *Photochem Photobiol.* 72:788-793, 2000.

Azizuddin K, Kalka K, Chiu SM, Ahmad N, **Mukhtar H**, Separovic D. Recombinant human tumor necrosis factor alpha does not potentiate cell killing after photodynamic therapy with a silicon phthalocyanine in A431 human epidermoid carcinoma cells. *Int J Oncol.* 18411-415, 2001.

Katiyar SK, Afaq F, Perez A, **Mukhtar H**. Green tea polyphenol (-)-epigallocatechin-3-gallate treatment of human skin inhibits ultraviolet radiation-induced oxidative stress. *Carcinogenesis.* 22:287-294, 2001.

Elmets CA, Singh D, Tubesing K, Matsui M, Katiyar S, **Mukhtar H**. Cutaneous photoprotection from ultraviolet injury by green tea polyphenols. *J Am Acad Dermatol.* 44:425-432, 2001.

Ahmad N, Katiyar SK, **Mukhtar H**. Antioxidants in chemoprevention of skin cancer. *Curr Probl Dermatol.* 29:128-139, 2001.

Gupta S, Srivastava M, Ahmad N, Sakamoto K, Bostwick DG, **Mukhtar H**. Lipoxygenase-5 is overexpressed in prostate adenocarcinoma. *Cancer.* 91:737-743, 2001.

Karrow NA, McCay JA, Brown R, Musgrove D, **Munson AE**, White KL. Oxymetholone modulates cell-mediated immunity in male B6C3F1 mice. *Drug Chem Toxicol.* 23:621-644, 2000.

Sarlo K, Parris JS, Clark ED, Horn PA, **Robinson MK**, McCay JA, Peachee VL, Veloso YL, White KL. Influence of MHC background on the antibody response to detergent enzymes in the mouse intranasal test. *Toxicol Sci.* 58:299-305, 2000.

**Robinson MK**, Osborne R, Perkins MA. In vitro and human testing strategies for skin irritation. *Proc. NY Acad Sci.* 919:192-204, 2000.

Suliman HB, **Ryan LK**, Bishop L, Folz RJ. Prevention of influenza-induced lung injury in mice overexpressing extracellular superoxide dismutase. *Am J Physiol Lung Cell Mol Physiol.* 280:L69-78, 2001.

**Sailstad DM**, Boykin EH, Slade R, Doerfler DL, **Selgrade MK**. The effect of a vitamin A acetate diet on ultraviolet radiation-induced immune suppression as measured by contact hypersensitivity in mice. *Photochem Photobiol.* 72:766-771, 2000.

Bazil CW, Short D, Crispin D, **Zheng W**. Patients with intractable epilepsy have low melatonin, which increases following seizures. *Neurology.* 55:1746-748, 2000.

**Zheng W**. Toxicology of choroid plexus: special reference to metal-induced neurotoxicities. *Microsc Res Tech.* 52:89-103, 2001.