The President’s Message

The 50th anniversary SOT meeting in Washington DC drew well over 8,000 attendees, the largest gathering in its history. While we did not keep an exact count, I believe our specialty section reception also set an attendance record for its relatively brief 11 year history. Two DTSS sponsored symposia, one on stem cells in wound treatment, chaired by John Graham and Jeff Yourick, and one on the role of inflammation in skin cancer, chaired by Lauren Markell and Michael Borland, were also well attended.

I am delighted to have had the opportunity to serve as President of our Specialty Section this past year and very much appreciative of the support given to me by my fellow officers and members. As with the skin itself, the DTSS office positions undergo a renewal. We had an excellent slate of candidates this year and I would like to thank all of you who agreed to run for office for volunteering your time and energy. I am happy to report the election of John Graham as our new Vice President and John Harbell as our new Councilor. Congratulations and welcome to both of you. Many thanks to Councilor Cindy Ryan for her service over the past two years; during her service, participation in the DTSS awards dramatically increased. Linda Mutter will continue as Senior Councilor and will coordinate awards. Jeff Yourick will shortly take over the reign as your new President and currently is busy organizing program proposals for the 2012 annual meeting. Carol Sabourin will become the new President-Elect and has been instrumental in keeping our section up to date within SOT. I am sure that both Jeff and Carol will be very successful in their new roles and will ably represent DTSS. We are fortunate to have Adrienne Black continue in her service as Secretary-Treasurer; it’s not an easy job to create the minutes from our sometimes rambling teleconferences. Likewise, I am happy to report that Lauren Markell will remain in her role as Postdoctoral representative and Gayatri Sankaran as Graduate student representative. (continued page 2)
The Mission of DTSS

The objectives of the Dermal Toxicology Specialty Section (DTSS) are to provide a forum for the interaction of individuals involved in risk assessment, pharmacokinetics, dermal penetration/absorption, hypersensitivity and dermal toxicity, regulatory issues, basic skin biology and other professionals working in the field of dermal research. Members who wish to receive more information on the specialty section should contact William Reifenrath or any of the other Officers by e-mail.

Upcoming Conferences & Events

April 6-9, 2011: US Technical Symposium of the International Society for Biophysics & Imaging of the Skin (Tampa, FL)
April 14-17, 2011: The Symposium on Advanced Wound Care And the Wound Healing Society (Dallas, TX)
April 30, 2011: Deadline for 2012 Annual Meeting Session Proposals
May 4-11, 2011: 71st Annual Society for Investigative Dermatology Meeting (Phoenix, AZ)
June 5-8, 2011: Occupational and Environmental Exposures of Skin to Chemicals (OEESC) Conference (Toronto, Canada)
August 15-October 3, 2011: 51st Society of Toxicology Annual Meeting Abstract Submission
September 9-12, 2011: 26th Annual Clinical Symposium on Advances in Skin & Wound Care: The Conference for Prevention and Healing (National Harbor, MD)
March 11-15, 2012: 51st Society of Toxicology Annual Meeting (San Francisco, CA)
Hello DTSS Members,

Thank you for all your program proposal submissions for our recent SOT meeting in DC. Our chapter had two symposium sessions accepted and included in the SOT 2011 program: 1) Mechanisms of Inflammation in Skin Carcinogenesis (Co-chaired by Lauren Mordasky Markell and Michael Borland) and 2) Stem Cell Biology and Cell Therapy Approaches to Understanding Cellular Injury and Wound Healing in Dermal, Ocular, and Pulmonary Injury (Co-chaired by Jeff Yourick and John Graham). Thank you to all the individuals responsible for our successful 2011 DTSS programs. A brief synopsis of the two sessions can be found on pages 5-6 of this newsletter.

Now the task at hand is to prepare and submit proposals for the 2012 SOT meeting in San Francisco. This is one of the most important efforts for DTSS.

The list below describes the 2012 SOT meeting themes. The highest priority for accepting sessions will be given to proposals that align to these themes. However, other relevant toxicology-related topics will be considered by the scientific program committee.

- Aberrant Gene Expression in Toxicity and Disease - Epigenetics and MicroRNAs
- Characterizing Toxic Modes of Action and Pathways to Toxicity
- Influence of Global Climate Change on Environmental Health Issues
- Clinical Toxicology from Bedside to the Bench and Back
- Regulatory Science: Bridging the Gap between Discovery and Product Availability

Even though SOT is accepting proposals for the themes, please note that all proposal submissions will be reviewed by the same criteria and will be given equal consideration. The SOT proposal submission web site is now open. If you are considering a program session and need any help or assistance, please contact Jeff Yourick at Jeffrey.yourick@fda.hhs.gov. Also let me know if you are submitting a proposal so that DTSS is sure to sponsor and endorse it for the review process. Following is a summary of the various session types that are included in the program to help spark your thinking pertaining to proposals.

**Session Types**

**Continuing Education**
These proposals should emphasize quality presentations of generally accepted, state-of-the-art knowledge in toxicology. Courses are scheduled into a one-hour sunrise slot or a four-hour slot, either morning or afternoon. The four-hour courses have a chairperson and 3–4 speakers. Course levels are either basic, for a broad overview, or advanced, for individuals with previous knowledge of the subject.

**Scientific Sessions**

**Symposia**—Proposals for symposia should feature “cutting-edge” science: new areas, concepts, or data in the forefront of toxicology. A symposia session is 165-minutes or less, with two chairpersons and 4–5 speakers.

**Workshops**—Proposals for workshops will be informal, interactive presentations that highlight state-of-the-art knowledge in toxicology with an emphasis on discussion. A workshop session is 165-minutes, with two chairpersons and 4–5 speakers.

**Innovations in Applied Toxicology and Toxicological Sciences**—A limited number of symposia and/or workshops are designated Innovations in Toxicological Sciences (ITS) or Innovations in Applied Toxicology (IAT). ITS will introduce new technologies or scientific disciplines to the membership, and IAT will introduce innovative approaches in applied research.

**Roundtables**—Controversial topics are the basis of roundtable proposals. Each roundtable lasts about 80-minutes. These are moderated discussions, with 2–4 speakers providing a 3–5 minute statement and the balance of the time for questions and answers.

**Informational Sessions**—Sessions are not based on the outcome of scientific research, should present the latest science in toxicology, or other learning opportunities that address the professional interests and needs of toxicologists, and can include the areas of general information or planned scientific activities.

DTSS is looking forward to any and all potential program proposals that you may be working on for the 2012 SOT meeting. Please let us know if you need help in developing a program concept.

Thanks,
Jeff Yourick
President-Elect
Program Coordinator
2011 DTSS Awards:
The 2011 Awards were presented by Cindy Ryan.

DTSS paper of the year:

Battelle Student Awards:
Anand Ravindran and Adam Glick (Center for Molecular Toxicology and Carcinogenesis, Pennsylvania State University)”A Small Molecule Inhibitor of the TGF-B Type 1 Receptor Sup-presses UVB-Induced Mouse Skin Inflammation”.

Thomas Hill and Robert H. Rice (Dept. of Environmental Toxicology, University of California at Davis)“DOUX Influence on epidermal barrier function: Arsenic response and possible novel biomarker of Exposure?”

Stratacor Postdoc toral Award:
Neera Tewari-Singh (Pharmaceutical Sciences, University Of Colorado Denver, Aurora, Colorado) “Therapeutic efficacy of catalytic antioxidant AEOL 10150 in attenuating sulfur mustard analog 2-chloroethyl ethyl sulfide induced skin injury”.

Stratacor Student Award:
Lauren Mordasky Markell (Center for Molecular Toxicology and Carcinogenesis. Penn State University) “Pharmacological inhibition of the TGFβ type I receptor induces premalignant keratinocyte terminal differentiation”.

Informa Paper of the Year Award:

Please check out the following link to find information and deadlines related to submission of abstracts and papers for the upcoming 2012 awards. http://www.toxicology.org/ISOT/SS/dtss/awards.asp

DTSS Members – Would you like to become more active in DTSS?
If you have any suggestions or recommendation on how to make our specialty section better or better able to serve your needs, please email your suggestions to:
Bill Reifenrath
President, DTSS
wgr@stratacor-inc.com

Thank you to our sponsors:
The communications committee puts together this newsletter and keeps the DTSS website up to date. Check it out at:  [http://www.toxicology.org/ISOT/SS/dtss/index.html](http://www.toxicology.org/ISOT/SS/dtss/index.html)

We are always looking for information to share with members, such as meetings, announcements, job openings, postdoctoral positions, etc. that can be posted on the website or included in the newsletter. We are hoping to include updates on hot topics in dermal toxicology and other updates and information of interest to our members. If you have information or new ideas/suggestions for inclusion in the newsletter contact: Carol Sabourin (sabourinc@battelle.org) or Jeff Yourick (jeffrey.yourick@dtra.mil).

**Communications Committee:**

**Treasurer’s Report:**

The net assets at the end of the calendar year are $13,478. This amount includes $8,478 carried over from the previous year and $5,000 received from Battelle for the Battelle Research Award. The meeting expenses are estimated at $8,000 with $2,372.98 for the reception costs, $5,000.00 for the Battelle and $500.00 for the DTSS awards, and approximately $200.00 for ancillary costs including poster printing, purchase of plaques, etc. Dues have not yet been posted for 2011.

**Graduate Student/Postdoctoral Report:**

Thank you to everyone who stopped by the DTSS Historical Highlights poster during the Student/Postdoctoral Mixer at the Annual Meeting. We enjoyed getting to discuss the benefits of DTSS membership and encourage you to apply at this website: [http://www.toxicology.org/ISOT/SS/dtss/membership.html](http://www.toxicology.org/ISOT/SS/dtss/membership.html). Again, MB Research Laboratories sponsored an Amazon Kindle giveaway to encourage interest in DTSS membership and attendance at our poster.

We would also like to thank all graduate students and postdoctoral fellows that submitted their abstracts and proposals for the DTSS awards. We had great participation this year, with 7 Battelle Student Award proposals, 9 graduate student abstract award submissions and 2 postdoctoral abstract award submissions. Please continue to apply and encourage your peers to submit their best work for 2012 award season!

**SOT 50th Annual Meeting Symposia Report:**

The Dermal Toxicology Specialty Section sponsored a symposium session at the SOT meeting on March 8, entitled “Stem Cell Biology and Cell Therapy Approaches to Understanding Cellular Injury and Wound Healing in Dermal, Ocular, and Pulmonary Injury.” The session was endorsed by the Ocular Toxicology Specialty Session. Thermal and chemical burns as well as chemical injury to the skin, eye, and lung invoke a vast tissue and cellular response followed by the initiation of wound healing mechanisms. Stem cells may be defined as undifferentiated cells that have the capacity for self-renewal and may differentiate into many different cell types when stimulated by specific cellular signals. Injury to stem cell tissue populations has immense implications for normal repair and restoration of tissue function after chemical injury. Research on stem cells, such as epidermal stem cells, dermal stem cells, mesenchymal stem cells and embryonic stem cells all have potential to repair and restore structure and function to the skin and eye after extensive injury. This symposium provided attendees with overviews of (a) recent advances in dermal, ocular, and pulmonary induced injury related to stem cells; and (b) potential stem cell and other cell-based therapies as they relate to tissue repair and wound healing. Researchers from the Israel Institute for Biological Research (Ness Ziona, Israel), the U.S. Army Medical Research Institute of Chemical Defense (Aberdeen Proving Ground, MD), Stony Brook University (Stony Brook, NY), the Walter Reed Army Institute of Research (Silver Spring, MD), and Rutgers University (Piscataway, NJ) provided the lectures.
DTSS also sponsored a symposium session at the SOT Meeting on March 9 entitled “Mechanisms of Inflammation in Skin Carcinogenesis.” This session was endorsed by the Carcinogenesis and Molecular Biology Specialty Sections. The World Health Organization finds that 30% of all human cancers are cancer of the skin, and one in five Americans will develop skin cancer in their lifetime. Furthermore, increased cancer mortality has been linked to a history of non-melanoma skin cancer. The majority of skin cancers arise from chemical contact or exposure to ultraviolet (UV) radiation, but a complete understanding the mechanisms involved in cancer development remain elusive. This symposium was organized to gather scientists from academia, government and contract research agencies who are leaders in skin carcinogenesis to discuss the mechanisms by which the inflammatory microenvironment alters skin tumor formation and progression, the importance of epidermal homeostasis, the differential roles of key inflammatory cells that contribute to the tumor phenotype, how mouse models can be applied to human relevance, and how this research impacts risk assessment and regulation. Researchers from the National Cancer Institute (Bethesda and Frederick, MD), Ohio State University (Colombus, OH), Penn State University (University Park, PA) and Charles River Preclinical Services (Horsham, PA) provided the lectures.

SOT Dermal Toxicology Specialty Section Membership
Submitted by: George DeGeorge

By Membership Category

Mar 2011

- Full
- Assoc
- Student

Total = 169

By Organization Category

Mar 2011

- Industry
- Academia
- Government
- Consulting
- Research (CRO)
- Research (NP)
- Other

- 38%
- 26%
- 12%
- 11%
- 5%
- 6%
- 2%
SOT Dermal Toxicology Specialty Section Membership

The "dip" occurs when SOT when members who have not yet renewed their dues are excluded from the active member count.

"Estimated" indicates an arbitrary 5% increase over December of last year.
Old Lab Rat Tales by William Reifenrath

My first job, as a newly commissioned Captain in the Army, was at the Letterman Army Institute of Research on the Presidio of San Francisco. I was asked to work on re-formulating DEET (N,N-diethyl-m-toluamide), the military topical insect repellent. At that time (1976), the formulation was 75% DEET and 25% alcohol, one of the few instances when the active ingredient was essentially the vehicle. Despite being an effective mosquito repellent, almost no one would admit to using it, perhaps because it was viewed as an Army product and therefore suspect. It came in a dark green squeeze bottle and soldiers found it handy for starting campfires, sort of like the barbeque charcoal starter fluid. Some soldiers refused to use it, saying the smell would give their position away. They would smoke cigarettes instead, claiming the smoke warded off the mosquitoes. This prompted a study to show that DEET could be detected only within about 8 feet of the user, while cigarette smoke could be detected a mile away.

One of the tools we used in the laboratory to test new formulations of DEET was an evaporation apparatus, developed by my predecessors, as they knew that efficacy was related to evaporation rates. Test formulations were placed on metal planchets (H) and DEET vapor was collected in a toluene scrubber (J). From a purely engineering standpoint, this apparatus was quite impressive, and was made further complicated by replacing the planchet with cadaver skin and adding a pump and fraction collector to collect skin penetration receptor fluid. Over the years that followed, we made improvements to simplify the equipment and during the 1980’s we used the apparatus to test the skin disposition of other chemicals of military interest. I did not realize it at the time, but this was the start of my research in dermal toxicology.

![Fig. 1. Schematic diagram of repellent evaporation apparatus.](image-url)
The 2011 DTSS Reception

President Bill Reifenrath and President-Elect Jeff Yourick

Secretary-Treasurer Adrienne Black

Past-President George DeGeorge and President Bill Reifenrath

Councilor Cindy Ryan and DTSS Stratacor Student Award winner, Lauren Mordasky Markell

President Bill Reifenrath and DTSS Stratacor Post doctoral Award winner, Neera Tewari-Singh

Councilor Cindy Ryan and DTSS paper of the year winner, Dae Joon Kim

Vice-President Carol Sabourin, President Bill Reifenrath, and DTSS Battelle Student Award winner, Anand Ravindran
The 2011 DTSS Reception

April 2011
The following is a listing of publications by DTSS members that were published in 2010. Once a year we feature a listing of peer-reviewed publications by specialty section members (with skin as a keyword) that are available on PubMed. While the editors do their very best to find relevant publications based on the current membership list, it is likely that mistakes will occur and we apologize if we have left any publications out.


Physiologically based pharmacokinetic rat model for methyl tertiary-butyl ether; comparison of selected dose metrics following various MTBE exposure scenarios used for toxicity and carcinogenicity evaluation. Toxicology. 2010 Sep 10;275(1-3):79-91.


Food allergy--science and policy needs--The UK Food Standards Agency Research Programme. Toxicology. 2010 Dec 30;278(3):319-25.

Experimental 70% hydrofluoric acid burns: histological observations in an established human skin explants ex vivo model. Cutan Ocul Toxicol. 2010 Nov 15. [Epub ahead of print]

Comparison of emergency washing solutions in 70% hydrofluoric acid-burned human skin in an established ex vivo explants model. Cutan Ocul Toxicol. 2010 Nov 18. [Epub ahead of print]


Pharmacokinetics of tulathromycin after single and multiple subcutaneous injections in domestic goats (Capra aegagrus hircus). J Vet Pharmacol Ther. 2011 Mar 3. PMID: 21366621


Eisele KH, Fink K, Vey M, Taylor HV. Studies on the dissociation of botulinum neurotoxin type A complexes. Toxicon. 2011 Mar;57(4):555-65. PMID: 21195107


Ernstgård L, Lind B, Andersen ME, Johanson G. Liquid-air partition coefficients of 1,1-difluoroethane (HFC152a), 1,1,1-trifluoroethane (HFC143a), 1,1,1,2-tetrafluoroethane (HFC134a), 1,1,1,2,2-pentafluoroethane (HFC125) and 1,1,1,3,3-pentafluoropropane (HFC245fa). J Appl Toxicol. 2010 Jan;30(1):59-62.


Gray JP, Mishin V, Heck DE, Laskin DL, Laskin JD. Inhibition of NADPH cytochrome P450 reductase by the model sulfur mustard vesicant 2-chloroethyl ethyl sulfide is associated with increased production of reactive oxygen species. Toxicol Appl Pharmacol. 2010 Sep 1;247(2):76-82.


Kimber I, Basketter DA, Dearman RJ. Chemical allergens--what are the issues? Toxicology. 2010 Feb 9;268(3):139-42.


Lalko JF, Kimber I, Dearman RJ, Gerberick GF, Sarlo K, Api AM. Chemical reactivity measurements: Potential for characterization of respiratory chemical allergens. Toxicol In Vitro. 2010 Nov 17. PMID: 21092755


Piomelli S, Lamola AA, Poh-Fitzpatrick MF, Seaman C, Harber LC. Erythropoietic protoporphyria and lead intoxication: the molecular basis for difference in cutaneous photosensitivity. I. Different rates of disappearance of protoporphyrin from the erythrocytes, both in vivo and in vitro. PMID: 1202082


Xia XR, Monteiro-Riviere NA, Riviere JE. An index for characterization of nanomaterials in biological systems. Nat Nanotechnol. 2010 Sep;5(9):671-5. PMID: 20711178

Xia XR, Monteiro-Riviere NA, Riviere JE. Intrinsic biological property of colloidal fullerene nanoparticles (nC60): lack of lethality after high dose exposure to human epidermal and bacterial cells. Toxicol Lett. 2010 Aug 16;197(2):128-34. PMID: 20493935

Xia XR, Monteiro-Riviere NA, Riviere JE. Skin penetration and kinetics of pristine fullerenes (C60) topically exposed in industrial organic solvents. Toxicol Appl Pharmacol. 2010 Jan 1;242(1):29-37. PMID: 19796651


