

ANNUAL REPORT: 2009-2010

May 1, 2009 to April 30, 2010

I. Officers/Committees:

Officers:	<u>2008-2009</u>	<u>2009-2010</u>
President:	Dr. Carol S. Auletta	Dr. George L. DeGeorge
President-elect:	Dr. George L. DeGeorge	Dr. William G. Reifenrath
Vice President:	Dr. William G. Reifenrath	Dr. Jeffrey Yourick
Secretary:	Dr. Carol L. Sabourin	Dr. Carol L. Sabourin
Treasurer:	Dr. Carol L. Sabourin	Dr. Carol L. Sabourin
Councilors:	Dr. Robert E. Osterberg Dr. Jens T. Mortensen	Dr. Jens T. Mortensen Cynthia Ryan
<i>Past-President</i>	Dr. David W. Hobson	Dr. Carol S. Auletta
SAC Representative:	Michael Borland	Lauren Markell
PDA Representative:	Dr. Dae J. Kim	Dr. Dae J. Kim

Committees: NA

II. Activities

The DTSS 2010 SOT Annual Meeting Reception was held Salt Lake City, Utah on March 8, 2010. Approximately 40 people were in attendance. Dr. George DeGeorge called the meeting to order at 6:00 PM on March 8, 2010. Carol Sabourin presented a financial update. The meeting minutes are attached (see Attachment I).

The Awards were presented by Dr. Jens Mortensen.

- Informa Paper of the Year Awards – Wally Hayes
 - Transcriptional changes in porcine skin at 7 days following sulfur mustard and thermal burn injury. JA Price, JV Rogers, JN McDougal, MQ Shaw, FM Reid and JS Graham. *Cutaneous and Ocular Toxicology*, 2009. 28(3) 129-140.
 - Photoprotective effect of Pothomorphe umbellata on UVB radiation-induced biomarkers involved in carcinogenesis of hairless mouse epidermis. VV da Silva, CD Ropke, DV Miranda, RL de Almeida, TCH Sawada, DP Rivelli and SB de Moraes Barros. *Cutaneous and Ocular Toxicology*, 2009. 28(2) 54-60.
- DTSS Sinclair Student award: Xiaochu Zhang: Danger signals in nevarapine-induced skin rash. (Faculty of Pharmacy, University of Toronto, Canada).
- DTSS Stratacor – Port Royal Postdoc award: Dae Joon Kim and John DiGiovanni, Protein tyrosin phosphatases, TC-PTP, SHP1, and SHP2 cooperate in rapid dephosphorylation of Stat3 in skin following UVB irradiation. (Dept. of Carcinogenesis, The University of Texas M.D. Anderson Cancer Center, Science Park-Research Division, Smithville, Texas).

- DTSS Best paper: Michael G Borland et al., Ligand activation of peroxisome proliferator-activated receptor-beta/delta inhibits cell proliferation in human HaCaT keratinocytes. Mol. Pharmacol. 74, 1429-1442, 2008. (Dept. of Veterinary and Biomedical Sciences and the Center of Molecular Toxicology, Pennsylvania State University, Pennsylvania).
- DTSS Battelle awards:
 - Lauren Mordasky Markell: Identification and analysis of ALK5 pharmacological inhibition in premalignant human keratinocytes as a potential target for tumor suppression. (Center for Molecular Toxicology and Carcinogenesis, Pennsylvania State University, Pennsylvania).
 - Gayatri Sankaran: Dermal absorption of pesticides from strawberry foliage: Dislodgable foliar residues and pesticide glove residues as a human exposure dosimeter. (Environmental Toxicology, University of California, Riverside, California).

DTSS 2010 SOT Annual Meeting Courses/Sessions:

- Systems Biology Approaches to Understanding Cell Signaling in Dermal and Ocular Toxicology - Co-Chairs Carol L. Sabourin and Jeff Yourick
- The Process of Defining Risk for Environmental Chemicals Having Significant Skin Exposure and Absorption Potential - CoChairs: William G. Reifenrath and John H. Ross

Endowment Fund Details: NA

Newsletters: May 2009 and January 2010

Teleseminars: NA

White Papers: NA

Contributions to SOT Web site: NA

Other Specialty Section 2009-2010 Activities:

ATTACHMENT I

Dermal Toxicology Specialty Section Meeting Reception/Mixer: 6:00 March 8, 2010 SOT 49th Annual Meeting

Welcome and Introduction of Current Officers – George DeGeorge

George DeGeorge (President), Carol Auletta (Past-President), William Reifenrath (President-Elect), Jeffrey Yourick (Vice-President), Carol Sabourin (Secretary-Treasurer, Vice-President elect), Jens Mortensen (Senior Councillor), Cynthia A. Ryan (Junior Councillor), Dae Joon Kim (Postdoctoral Representative), Lauren Mordasky Markell (Student Representative), Linda Mutter (Councillor elect), Adrienne Black (Secretary-Treasurer elect)

Thanks to Retiring Officers – George DeGeorge

George thanked Carol Auletta for her past service as President (2008-2009) and her contributions as Past-President. Carol was presented with a plaque and commemorative coin. Bill Reifenrath thanked George DeGeorge for his service as President (2009-2010). George was presented with a plaque and commemorative coin.

Welcome to New Officers for 2010-201 – George DeGeorge

- Vice-President elect – Carol Sabourin
- Secretary Treasurer elect (2010-2012) – Adrienne Black
- Junior Councillor elect– Linda Mutter

Tribute to Dr. Albert Kligman-Bill Reifenrath

Dr. Kligman, 93, a former Professor of Dermatology at the University of Pennsylvania School of Medicine and world renowned researcher in dermal toxicology, died Feb. 9, 2010. Dr. Kligman is best known for the invention of topical tretinoin (Retin-A) for acne and photodamaged skin.

Awards – Jens Mortensen

- Informa Paper of the Year Awards – Wally Hayes
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Reports from 2009 "Battelle Award" Winners

- Leshuai Zhang, North Carolina State University – Leshuai gave a brief summary of the work that was published in *Toxicol In Vitro*. 2010 Mar;24(2):546-51. Lectins modulate multi-walled carbon nanotubes cellular uptake in human epidermal keratinocytes. Abstract - The development of nanomaterials for biomedical applications has attracted a great deal of attention. Carbon nanotubes may interact and cross cell membranes and serve as potential carriers for drug delivery studies. The reflection mode in the confocal laser scanning microscope was used to image multi-walled carbon nanotubes (MWCNT) in human neonatal epidermal keratinocytes (HEK) stained with the cytoskeleton protein F-actin. Scanning electron microscopy depicted tight binding of MWCNT on the plasma membrane of HEK, while some MWCNT were located in the cell. Since keratinocytes normally engulf melanosomes, we hypothesized that the melanocyte transfer pathway could be a potential route of entry into keratinocytes. Lectins are inhibitors of the melanosome transfer pathway was used to study the uptake of MWCNT in keratinocytes, to see if they played a role in reducing the cellular uptake of MWCNT in HEK. Three different lectins, *Pisum sativum* (PS), *Lycopersicon esculentum* (LE), and *Tetragonolobus purpureas* (TP) were used as a cocktail. The maximal concentrations of lectins that would be non-toxic to the HEK was determined by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) cell viability assay. These studies confirmed that lectin cocktails (PS 5µg/ml, LE 25µg/ml and TP 25µg/ml) decreased MWCNT interaction at the cell surface and uptake. F-actin, a cytoskeleton protein, was used to visualize how the MWCNT interacted with the cytoskeleton in the cells. MWCNT traversed through the cells' cytoskeleton and the plasma membrane into adjacent keratinocytes.
- Michael Borland Pennsylvania State University – Michael's work has focused on understanding the molecular mechanism of PPAR β/δ modulation of aryl hydrocarbon receptor (AhR) signaling in primary mouse keratinocytes. He hypothesized that PPAR β/δ alters the occupancy of coactivators and corepressors at AhR target genes. In addition to concurrently designing a human PPAR β/δ shRNA surrogate model system, he is validating this model system and getting the primary keratinocyte model system working. The Battelle Award will purchase the proposed antibodies to examine promoter occupancy in the model system.

Financial Update – Carol Sabourin

Current assets are \$14,049.10. Estimated 2010 annual meeting expenditures for the meeting are \$5941.01 for awards and \$2715 for meetings:

- \$5500 for monetary awards (Battelle awards and DTSS Best Paper)
- \$266.83 for plaques
- \$101.95 for 2009 and 2010 Presidents' awards
- \$72.23 for printing of the student/post-doc reception poster
- \$2600 for the reception
- \$115 for the officers' meeting

DTSS President/Officers Meeting Report-Jeff Yourick and Bill Reifenrath

The officers discussed potential program submissions for the 50th Annual SOT meeting. These include:

- Stem cells – Bill/Jeff
- Would healing – Carol S (possibly combine with stem cells)
- REACH – Jens and Dave Hobson
- Green products for skin – Dave Hobson/Bill R
- CE Cutaneous Toxicology Basic and Advanced Courses – Carol A/Cindy R
- Bioengineered skin equivalents – Bill/Jeff (barrier and metabolic properties)
- Biodefense Medical Countermeasure Development: A New Science of Toxicology and Safety Assessment – Carol S indicated that she submitted this session to the American College of Toxicology. If the session is not selected for ACT, it will be submitted to SOT (The session was selected for the November 2010 ACT meeting after the meeting.)
- Skin carcinogenesis (inflammatory responses) – Lauren M with assistance from Michael Borland)
- Alternative in vitro toxicology for skin irritation and sensitization – Cindy Ryan and David Basketter (symposium/workshop)

Student / Mixer Raffle: 'MB Research Prize' (iPod)–Lauren Markell and George De George

The iPod was awarded to Yoke-Chen Chang from Rutgers University. The winner was required to be present at the DTSS meeting.

Closing and Thank you –George DeGeorge