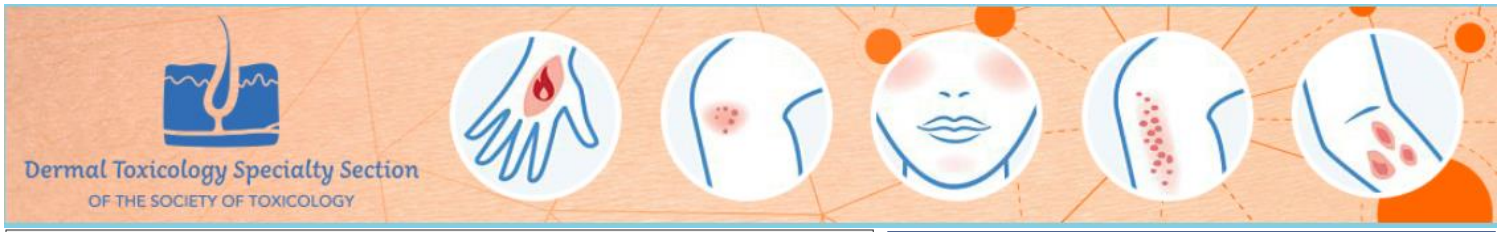


President's Message

Dear DTSS Colleagues,

When I started my tenure as DTSS President last May, I shared the DTSS Executive Committee's aims to increase the section's technical content sharing and have more frequent and valuable communications to our members. This past year we increased our output by introducing a Fall and Winter edition of our newsletters and hosted a webinar titled "A Comparative Study of the *In Vitro* Dermal Absorption of Radiolabeled Benzophenone Through Human Skin."

As we look forward to the coming 2025 Annual Meeting in Orlando, we wanted to use this second newsletter to highlight relevant member content; DTSS endorsed sessions so members can be sure to attend in Orlando and join us at the **DTSS Business & Reception Meeting on Tuesday March 18th 6-7:30p** in the Celebration Room 8, Hyatt Regency. This event provides a networking opportunity with those passionate about dermal science. As my call to action from the first newsletter noted, we want to hear what kinds of programming you would like to see. Additionally, we are looking to build the leadership chain, and we want to encourage a robust pool of candidates who are interested in building the future state of DTSS.

If you are in Orlando, please stop by and say hello, and if you aren't attending the Annual Meeting this year, drop me or any of the Executive Committee members a note to share an idea for a webinar, offer up an interesting publication you authored or read, find out about roles and responsibilities to serve the DTSS community on the executive board, or just to say hello.

I will close by thanking the DTSS leadership team, our sponsors, and you, our engaged members, for your enthusiasm and dedication to this Specialty Section. Please check out the DTSS Website and join us!

With kindest regards,

Sarah Gilpin, PhD, DABT
DTSS President

In This Issue

2026 SESSION PROPOSAL DEADLINE MAY 15TH

SOT SAN DIEGO 65th Annual Meeting & ToxExpo MARCH 22-25, 2026

Do you have an idea for a **scientific session, symposium, workshop, or CE course** focused on **dermal toxicology** for the **2026 SOT Annual Meeting**??

This is your opportunity to contribute to critical discussions on skin exposure, safety assessment, and emerging research in the field. Share your expertise, engage with industry and academic leaders, and help shape the future of toxicology.

If you're interested in **collaborating** or already have an idea in progress, let us know—we'd love to explore potential partnerships! email AJ Cuevas

WEBINAR COMING SOON!

DTSS is partnering with Sustainable Chemicals Through Contemporary Toxicology (SCCT) Specialty Section on a 90-minute webinar on the impact of recycled materials on product safety

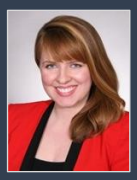
RECYCLED, BUT SAFE? TACKLING CONTAMINANTS IN SUSTAINABLE PACKAGING FOR COSMETICS & PERSONAL CARE

As the industry continues to embrace sustainability, concerns about contaminants in recycled packaging and their potential exposure risks are gaining attention. This webinar will feature three expert speakers from Cosmetics Europe, the non-profit Cradle to Cradle, and the consulting firm Venebio Group, each offering valuable insights into this critical issue. Their presentations will be followed by a moderated panel discussion, providing an opportunity for deeper exploration and live audience Q&A. In collaboration with SCCT, this session aims to engage toxicologists, regulatory experts, and industry professionals in meaningful discussions. Join us for an insightful conversation at the intersection of sustainability and product safety. **Registration details will be distributed shortly!!**

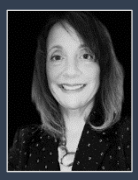
2024-2025 DTSS Executive Committee Officers

We value the membership's ideas and needs so we're all ears for your feedback, comments, and brilliant suggestions, so don't hold back! If you're ready to make an impact, why not consider running for office next year?

Perhaps an Officer role is not quite right for you? We are always in search of members to share ideas for webinars; newsletter/social media content; help with award judging. For more details on volunteer opportunities connect with the Past President, Kimberly Norman.



Kimberly Norman
Past President & Councilor



Sarah Gilpin
President

Azita (AJ) Cuevas
Vice President

Jamie Coleman
Vice President-Elect

Mayukh Banerjee
Secretary/ Treasurer

Ying Huang
Sr. Councilor

NAME
Jr. Councilor

Alexandra Nail
Postdoctoral Representative

Andrew Roney
Graduate Student Representative

2025 DTSS Trainee Award Recipients

DTSS recognizes exceptional publications and outstanding contributions to skin-related research by full members, Graduate Students, Postdoctorates

Join us in congratulating this year's award winners!

Edgewell Personal Care Awards

Lindsey Shim, PhD Student, University of Texas Rio Grande Valley

Title: *TC-PTP overexpression in mouse epidermis promotes UVB-induced apoptosis by regulating p38 MAPK signaling pathway*
Abstract #3120 - Mon. March 17th 1:45-4:15p

Background and Purpose: T-cell protein tyrosine phosphatase (TC-PTP) is a non-receptor PTP that has been shown to have various roles in signaling pathways. Our previous studies have demonstrated that the TC-PTP deficiency in the epidermis can exacerbate hyperplastic response by inducing epidermal cell proliferation in response to tumor promoter TPA or UVB exposure. This implies that TC-PTP plays a tumor-suppressive role in the epidermis and provides protection against UVB radiation, which is well known to contribute to skin cancer development. The p38 mitogen-activated protein kinase (MAPK) is one of serine/threonine kinases that are activated through environmental stress including UVB. It has been demonstrated to play a crucial role in mediating inflammatory responses and apoptosis following UVB exposure. In the present study, we aim to elucidate the molecular mechanisms by which TC-PTP influences the p38 MAPK pathway and its subsequent effects on cellular responses to UVB exposure.
Conclusions: Our findings reveal insights into the protective role of TC-PTP against UVB-induced skin damage via the regulation of p38 MAPK signaling pathway. Understanding the interaction between TC-PTP and the p38 MAPK signaling pathway is essential, as these underlying molecular mechanisms could be a potential therapeutic target for skin cancer prevention and treatment.

Andrew Roney, PhD Student, Michigan State University

Title: *Investigation of Inflammatory Cytokines in the Long-term Toxicity Induced by Acute Cutaneous Nitrogen Mustard Exposure*
Abstract #3708 - Tues. March 18th 1:45-4:15p

Background: Sulfur Mustard (SM) and its analog nitrogen mustard (NM) are both potent mustard vesicating agents that cause acute and long-term toxicity to the skin. Blistering and inflammation are among the acute effects of dermal exposure, with cherry angiomas, fibrosis, psoriasis, and recurrence of blistering with chronic inflammation developing later. SM is a chemical warfare agent (CWA), and NM is a chemotherapeutic agent and a potential CWA. Due to the recent reports of the use of SM in Syria, both mustard agents could be used in warfare and as weapons of terror. An increase in the pro-inflammatory cytokine levels has been found in the skin of war veterans exposed to SM. However, animal studies to elucidate the inflammatory mechanism in long-term skin effects from mustard cutaneous exposure are scarce. Studies in our lab show that acute dermal NM exposure results in long-lasting inflammation and psoriatic lesions as well as mast cell activation. Cytokines play an important role in the regulation of the immune system and mast cells. This study was carried out to further investigate the effect of NM on cytokines such as the C-C chemokine receptor type 2 (CCR2)/C-C chemokine ligand type 2 (CCL2) that can be released from mast cells or activate mast cells leading to long-term inflammatory and immune dysregulation, which is a key area of interest in therapeutic research for mustard skin and systemic toxicity.
Conclusions: These results show that NM-induced increased expression levels of CCL2/CCR2 at later time points coincide with the increase in the mast cell degranulation, but not the initial burst of NM caused mast cell activation. Further investigation into the inflammatory and immune pathways, especially the CCL2/CCR2 and mast cells, will aid in understanding the mechanisms of action of mustard agents.

2024 *Paper of the Year* Awards - Congratulations Authors!!

By: A.J. Cuevas, PhD, DABT, MS, MPH

DTSS Annual Paper of the Year

Nancy Hopf, PhD, *et. al.*

Human Skin Absorption of Three Phthalates

Unisanté, Center for Primary Care and Public Health & University of Lausanne, Switzerland


Toxicology Letters

Human skin absorption of three phthalates

Phthalates are everywhere—cosmetics, plastics, even the air we breathe. But how much actually gets through our skin? A standout study by **Hopf *et. al***. delivers a game-changing analysis of this question, integrating *in vitro* diffusion studies with human biomonitoring to quantify dermal absorption, metabolism, and elimination of three phthalates: diethyl phthalate (DEP), dibutyl phthalate (DBP), and di(2-ethylhexyl) phthalate (DEHP).

The study's dual approach—combining *in vitro* skin permeation using flow-through diffusion cells and controlled human forearm exposures—provides a robust evaluation of dermal uptake kinetics. DEP exhibited the highest permeability, with a steady-state flux of approximately 2.0 µg/cm²/h, leading to peak urinary excretion of its primary metabolite, monoethyl phthalate (MEP), within 6 hours, accounting for ~3% of the applied dose. DBP followed with a lower permeation rate (~0.1 µg/cm²/h) and extended urinary elimination kinetics, with monobutyl phthalate (MBP) peaking between 15–17 hours and comprising ~1% of the applied dose. DEHP, characterized by its high molecular weight and strong lipophilicity, demonstrated minimal skin penetration (J: ~0.0002 µg/cm²/h), with only 0.01% of the applied dose recovered as metabolites, reinforcing its poor dermal bioavailability.

A striking finding was the role of formulation in modulating absorption. When phthalates were applied as an emulsion rather than neat, dermal permeation increased significantly—particularly for DEP and DBP—suggesting that water-mediated disruption of the stratum corneum enhances uptake. Additionally, polyethylene glycol (PEG) in the receptor fluid selectively increased permeability of the emulsion, but not the neat substances, reinforcing the importance of vehicle effects in exposure assessments. The inability of DEHP to permeate skin *in vitro* when applied in an emulsion, despite its previously reported limited absorption in fresh skin, suggests that metabolic activity in frozen ex vivo skin models may be insufficient to reflect *in vivo* conditions accurately.

The comparison of *in vitro* and *in vivo* results underscores the necessity of incorporating dermal metabolism in exposure models. Only primary monoester metabolites (MEP, MBP, MEHP) were detected in receptor fluids, indicating first-pass metabolism in the skin, while secondary oxidation products (e.g., 5OH-MEHP) appeared in urine, suggesting systemic metabolism post-absorption. These findings highlight the need to refine dermal exposure models for risk assessment, particularly for lower molecular weight phthalates that demonstrate significant skin penetration. By bridging *in vitro* and *in vivo* toxicokinetics, this study provides robust data to improve regulatory decision-making and refine systemic exposure modeling.

Informa Healthcare Paper of the Year in Dermal Toxicology

Hans Rabe, MS, et. al.

Human Relevance of *In Vivo* and *In Vitro* Skin Irritation tests for Hazard Classification of Pesticides

Institute for In Vitro Sciences, Gaithersburg, MD, USA


Human relevance of in vivo and in vitro skin irritation tests for hazard classification of pesticides

The study by Raabe et al., published in *Cutaneous and Ocular Toxicology*, critically evaluates the reliability of traditional in vivo skin irritation tests, particularly the Draize rabbit test, compared to *in vitro* methods for pesticide classification. The study highlights concern regarding the predictivity of animal models, especially for chemicals within the mild to moderate irritation spectrum. These findings have significant regulatory implications, as they question the accuracy of hazard classifications based on outdated animal models. A key finding is the Draize test's variability, with reproducibility rates below 50% for mild and moderate irritants.

The study reports that concordance between repeated Draize tests is only 40–60%, with substances frequently reclassified across irritation categories. The authors attribute this inconsistency to structural and physiological differences between rabbit and human skin, such as thinner epidermal layers, higher follicular density, and variations in barrier function. These disparities may lead to over- or under-classification of irritation potential.

In contrast, the study presents New Approach Methodologies (NAMs), including reconstructed human epidermis (RHE) models, as more biologically relevant alternatives. These models replicate key irritation mechanisms, such as cytokine release and barrier integrity disruption. The study provides performance metrics demonstrating that *in vitro* models achieve sensitivity and specificity rates between 70–90% when compared to human data, with overall accuracy ranging from 75–85%. This contrasts with the subjective scoring system of the Draize test, which lacks mechanistic precision and reproducibility.

The authors propose an integrated testing strategy that prioritizes human-relevant data by combining top-down and bottom-up approaches. They advocate for RHE models as a primary screening tool, supplemented by cytokine release protocols and reference formulation analyses to enhance predictive accuracy. By aligning hazard classification with mechanistic insights, this approach improves regulatory confidence while reducing reliance on animal testing.

Ultimately, the study reinforces the need for modernization in skin irritation testing. Adopting NAMs ensures regulatory assessments reflect real-world human exposures, providing a more reliable and reproducible alternative to in vivo methods. The inclusion of sensitivity, specificity, and concordance metrics strengthens the case for transitioning to NAMs, supporting both scientific rigor and ethical advancements in toxicology.

TRAINEE CORNER -NEWS!

Please take advantage of the following opportunities:

ATTENDING SOT? JOIN THE STUDENT/POSTDOCTORAL SCHOLAR MIXER ON SUNDAY MARCH 16TH 7:30-9P
Come meet other students and trainees and learn more about DTSS! **Enter the Annual DTSS Raffle** for your chance to win an Android Tablet, courtesy of MB Laboratories. Winner will be announced at the DTSS Reception on Tuesday March 18th. Don't miss out on your chance to win a new tablet and network with other students and fellows.

2026 DTSS Awards: If you are a professional, graduate student or postdoc in the DTSS, please consider applying for a DTSS award. The deadline for submission is January 8, 2026.
Visit the DTSS Awards page for more information.

DTSS Thanks our Sponsors
We Appreciate your Generosity

Thank you for inspiring Skin-Related Research via Awards and through other giving opportunities.

If you or your company are interested in sponsoring an award, donating to the DTSS, please email Mayukh Banerjee.

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Call for Research Papers & Peer Reviewers
Journal of Cutaneous and Ocular Toxicology

Are you passionate about advancing the field of skin toxicology? The **Journal of Cutaneous and Ocular Toxicology** is inviting submissions for an upcoming issue. We welcome original research on topics such as:

- Advances in novel skin sensitizers and irritation models
- Cutting-edge new approach methodologies (NAMs)
- Application of emerging technologies and strategy for regulatory acceptance

Join our Peer-Review Team! We are **seeking dedicated peer reviewers** with expertise in skin toxicology. As a peer reviewer, you will: Contribute to scientific accuracy and excellence; Gain early access to cutting-edge research; Earn recognition as a valuable contributor to the field

If you're interested in either submitting a paper or serving as a peer reviewer, contact Drs. Wally Hayes or A.J. Cuevas for more information.

SHOUT OUTS!!!

Kevin Ozkuyumcu, PharmD
Kevin is a 3rd yr. grad. student in the Rutgers University Joint Graduate Program in Toxicology and has had an impressive year filled with notable achievements.

Let's recognize & **celebrate his hard work**!

- New Jersey Governor's STEM Scholars Civic Award May 2024
- Completed qualifying exams for PhD candidacy May 2024
- Partners in Science Liberty Science Center Graduate Student Mentor Jul 2024
- Current President of Rutgers Association of Toxicology Students Sept 2024 - present
- Rutgers University Joint Graduate Program in Toxicology Admission & Recruitment Committee Sept 2024 - present
- MASOT Trainee Award Poster Finalist Nov 2024
- Sci-PhD Business of Science Certificate Jan 2025

Check out his abstract #3689 on Tues. March 18th 1:45-4:15pm
Dysregulation of epithelial cell adhesion and cell-cell communication in Göttingen minipig skin following exposure to sulfur mustard

Tell us! Don't be modest, tell us your achievements/good news so we can celebrate you! Please email Jamie Coleman to be featured in the newsletter.

SOT MARCH 16-20 ORLANDO

Attending SOT 2025? Join us at the DTSS Events!

Scan to join DTSS LinkedIn Page

DTSS Specialty Section Meeting/Reception
Tuesday, March 18th 6:00-7:30p EDT
Hyatt Regency - Celebration Rm. 8

This is a great networking event for new and existing members, to share of announcements, and learn about cutting edge skin-related research.

Meeting details, the program, and the online planner can be found here: 2025 SOT Annual Meeting Schedule

Continuing Education Course
Roadmap for Safety Evaluation of Emerging Consumer Products: Application & Adaptation of Existing Practices
March 16th 8:15a-12:00p EDT; Rm. W204A, Convention Ctr

Poster Sessions
Skin – Mon., March 17th 1:45-4:15p EDT
Skin Sensitization – Tues., March 18th 1:45-4:15p EDT

Informational Session
Skin Deep: Navigating the Evolution & Application of Dermal Absorption Modeling in Modern Risk Assessment of Cosmetics and Personal Care Products
March 19th 11a-12:20p EDT; Rm. W203A, Convention Ctr