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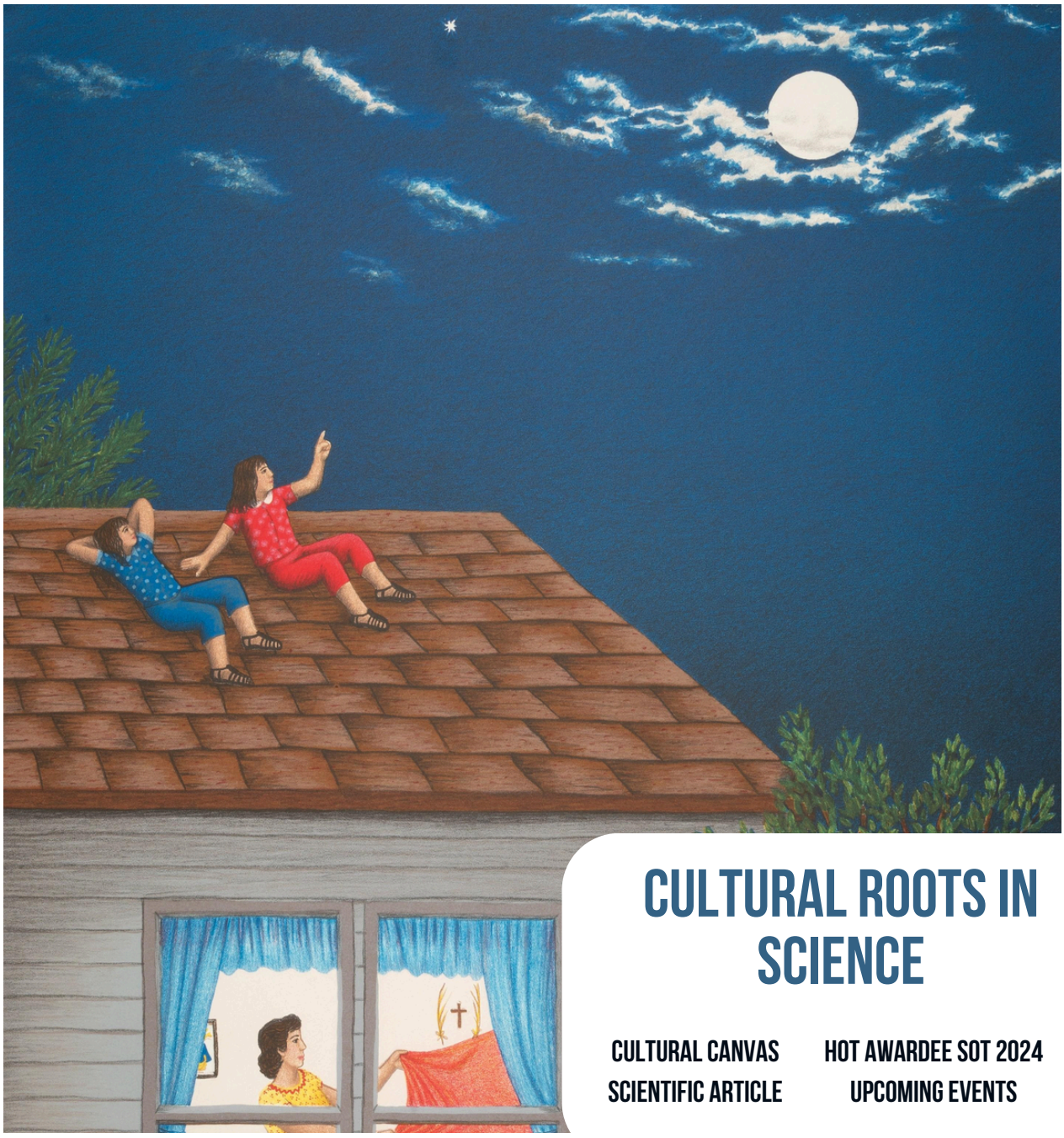
TOXENLACES

BUILDING BRIDGES THROUGH TOXICOLOGY

ISSUE 79



Carmen Lomas Garza, **Camas para Sueños**, 1985, gouache on paper, Smithsonian American Art Museum.

CULTURAL ROOTS IN SCIENCE

CULTURAL CANVAS
SCIENTIFIC ARTICLE
HOT AWARDEE SOT 2024
UPCOMING EVENTS

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MESSAGE FROM THE PRESIDENT

Dear *Toxenlaces* Readers,

As the President of the Hispanic Organization of Toxicologists (HOT), it is my privilege to address you through this esteemed platform and share insights into our organization's ongoing efforts and achievements in advancing the field of toxicology, particularly within Hispanic communities.

I would like to take this opportunity to recognize and thank Dr. Veronica Ramirez Alcantara, former HOT President, from the University of South Alabama, Mitchell Cancer Institute. Her outstanding leadership last year was instrumental in advancing our mission and strengthening our community. Dr. Ramirez Alcantara's dedication, vision, and commitment to excellence have left a lasting impact on HOT, paving the way for continued success and growth.

As we look forward, I am thrilled to announce that 2025 will mark **HOT's 20th anniversary**. This milestone is a testament to the commitment and hard work of our members, past and present, who have continuously supported our mission. We are excited to celebrate this achievement together at the **SOT Annual Meeting** in Orlando in March 2025, which will be a special occasion for our Hispanic toxicology community to come together, reflect on our journey, and set our vision for the future.

I am also honored to lead HOT alongside an **exceptional Executive Team** whose dedication, expertise, and vision are essential to advancing our organization's mission. Each member of our team brings invaluable skills and a deep commitment to serving our community of toxicologists, and together we are creating impactful initiatives that support our members' professional growth, scientific achievements, and collective success. Their hard work and collaboration are what enable us to continue making meaningful strides in our field.

The Hispanic Organization of Toxicologists serves as a dedicated network for toxicologists from diverse backgrounds who are **passionate about making impactful contributions to science and public health**. Our mission is to foster scientific exchange, mentorship, and professional development among our members while promoting diversity and inclusion within the field.

A crucial part of sustaining and expanding our programs is the generosity of our members through donations to the **HOT Endowment Fund**. These contributions are essential in providing travel awards, funding outreach initiatives, and supporting the professional growth of emerging toxicologists. We are deeply grateful to all who have donated, as your support is vital in enabling us to empower the next generation and advance our mission.

I invite each of you to stay engaged with HOT and consider participating in our upcoming events, webinars, and outreach initiatives. Your involvement is crucial in creating a strong, supportive community where we can all grow together, celebrate our successes, and address the challenges that face our profession. Together, we can continue to push the boundaries of toxicology and foster a more inclusive and impactful scientific community.

Thank you for your dedication to the field and for your support of the Hispanic Organization of Toxicologists. We look forward to continuing this journey with you and to celebrating our 20th anniversary milestone together.

Warm regards,

Carmen Rubio Armendáriz, PhD
2024-2025 HOT President
Hispanic Organization of Toxicologists

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HOT EXECUTIVE COMMITTEE

2024 - 2025

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Carmen Lomas Garza, **Tamalada** - 1988, oil on linen mounted on wood, 24 x 32 inches. Private collection.

CULTURAL HOT CANVAS

In order to celebrate the rich Latin American culture, in this 79th issue of *Toxenlaces*, we shine a spotlight on Carmen Lomas Garza.

Carmen Lomas Garza, one of the most influential Mexican-American artists of our time, uses her art to capture the traditions and everyday life of the Latino community in the United States. Born in Kingsville, Texas, in 1948, Lomas Garza grew up immersed in the rich Mexican culture of her family, which later became the central theme of her artwork. Through her work, she invites audiences to explore the beauty and depth of Mexican traditions while addressing themes of identity, belonging, and resilience.

Carmen Lomas Garza

Since the age of thirteen, Carmen Lomas Garza had a clear vision of dedicating her life to art. In her own words, taken from her personal statement on her official website:

> *"At the age of thirteen, I decided to become a visual artist and pursue every opportunity to advance my knowledge of art in institutions of higher education. The Chicano Movement of the late 1960s inspired the dedication of my creativity to the depiction of special and everyday events in the lives of Mexican Americans, based on my memories and experiences in South Texas."*

Her commitment to portraying her culture is aimed not only at evoking recognition and pride among Mexican Americans but also at educating others about the depth and richness of these traditions.

Exploring Traditional Healing Practices

One of the most striking themes in Lomas Garza's work is her representation of traditional healing practices. In her paintings, she depicts scenes such as **Curandera** (Faith Healer), where female figures perform healing rituals that evoke the use of medicinal plants, prayers, and other folk practices common in Mexico and Mexican communities in the United States. Traditional medicine, or curanderismo, is a fundamental part of Latino culture, serving as a bridge across generations and transmitting knowledge about plants and natural therapies used to treat physical and emotional ailments.

Carmen Lomas Garza, **Curandera** (faith healer), 1989, oil on linen mounted on wood, 24 x 32 inches. Collection of The Mexican Museum, San Francisco, California.

Carmen Lomas Garza, **Earache Treatment**, 1989, oil on canvas, 17 x 15 inches. Collection of the Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, Washington, DC.

These cultural practices offer valuable insights for toxicology, as many of the plants used contain bioactive compounds that have sparked scientific interest. The dialogue between toxicology and traditional knowledge can be enriched by Lomas Garza's representations, which celebrate these healing practices and their deep roots in Hispanic culture.

A Tribute to Mexican-American Identity

Through her work, Carmen Lomas Garza honors the Mexican-American identity, inviting viewers to connect with and celebrate these rich cultural traditions. Her style—vibrant, accessible, and layered with meaning—communicates the beauty of Latino culture, creating an immediate bond with the audience. Her paintings and installations go beyond simply depicting traditions; they evoke the pride and resilience of a community, offering viewers an intimate glimpse into moments of family, healing, and celebration.

In essence, Lomas Garza's work not only introduces us to familiar scenes from a vibrant and resilient culture but also encourages reflection on how these traditions influence modern perspectives on health, medicine, and even toxicology. Her art reminds us that cultural heritage profoundly shapes our approach to public health, underscoring the importance of understanding the interplay between tradition and science.

Daily Nebraskan. (2014, March 13). Artist Carmen Lomas Garza to speak at Sheldon for new exhibit. [Photograph]. Daily Nebraskan.

Carmen Lomas Garza, **Cumpleaños de Lala y Tudi** (Lala and Tudi's birthday party), 1989, oil on canvas, 36 x 48 inches. Private collection.

TINY PLASTICS, GIANT PROBLEMS!

BY LARISSA MÜLLER, PhD

Plastics are easily molded into complex shapes and forms, exhibiting exceptional durability, lightweight properties, corrosion resistance, thermal and electrical insulation, and a broad range of mechanical performance and multifunctionality. The increasing demand and production of plastic products have accelerated the generation of plastic waste, leading to the contamination of ecosystems and raising concerns about the environmental and health risks associated with exposure to this material. If current trends in the production and management of plastic waste persist, it is projected that by 2050 approximately 1,200 million tons of plastic waste will be deposited in landfills or dispersed in the natural environment (Geyer et al., 2017).

Microplastics (MP) can be categorized into primary and secondary microplastics. Primary microplastics are plastic fragments or particles that are less than 5 mm in size when manufactured, commonly found in textiles, pharmaceuticals, and personal care products. Secondary microplastics, on the other hand, refer to plastic fragments that have degraded to less than 5 mm due to a series of physicochemical and biological processes affecting larger original plastics (Cole et al., 2011; Jiang et al., 2019).

Microplastics can enter the food web through accidental consumption by organisms that misidentify them as food, due to their small size, leading to cumulative impacts on higher trophic level predators via the process of biomagnification (Kim et al., 2021). Microplastics released into water undergo alterations that render them highly bioavailable to sediment-dwelling fauna. Among these sediments, nematodes can constitute up to 90% of meio-benthic organisms and play a crucial role in the food webs they inhabit, linking lower trophic levels (such as bacteria) with higher ones, including fish and crustaceans (Fueser et al., 2021; Mueller et al., 2020). Polystyrene particles of sizes compatible with bacteria (0.5 - 1 µm in diameter) can be ingested by the nematode Caenorhabditis elegans through its oral cavity without limitation, with their spatial distribution within the organism mirroring that of E. coli, its preferred food source (Fueser et al., 2022). Overall, these organisms are employed as bioindicators in assessments of anthropogenic pollution due to their ecological relevance, ubiquitous occurrence, and high densities. C. elegans is a free-living soil nematode that has been utilized as a model organism for toxicity investigations, including multi/transgenerational studies, owing to its short life cycle (Chen et al., 2021; Mueller et al., 2020).

Many basic physiological processes, stress responses, and signaling pathways in higher organisms (e.g., humans) are conserved in C. elegans. Furthermore, there is substantial overlap between C. elegans and humans regarding genes and biochemical pathways. Bioinformatics analyses suggest that 60 to 80% of the genes in this organism are homologous to those in humans (Hulme and Whitesides, 2011), underscoring the necessity of employing multigenerational approaches in C. elegans to comprehend the risks associated with exposure to various contaminants.

The adoption of such approaches is increasingly important, particularly considering recent findings indicating that microplastics can traverse critical barriers such as the placenta and the blood-brain barrier. Recent studies have demonstrated the accumulation of microplastics in the placenta and amniotic fluid, although further research is needed to elucidate the pathways through which this occurs (Halfar et al., 2023). The placenta meticulously regulates the maternal-fetal environment and indirectly influences the external environment, acting as a critical interface through various complex systems. This evidence-based inquiry suggests that humans are inevitably exposed to environmental microplastics, which may accumulate in the human body. The World Health Organization (WHO) has emphasized the urgent need for a more precise assessment of microplastic exposure and its potential adverse health impacts. Consequently, there is considerable concern regarding the health risks associated with microplastic exposure globally. Our efforts must focus not only on understanding the mechanisms of toxicity but also on the effective management of generated plastic waste, as the plastics we consume will not only impact the planet we leave for future generations, but they will also be a constituent part of the generations themselves.

Larissa Müller, PhD
Postdoc researcher
University of Rio Grande - FURG, Brazil

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2024 HOT AWARD WINNERS

This space celebrates their achievements and highlights the impact of their research in advancing the field of toxicology. Through this, we aim to reinforce the importance of diversity and scientific excellence within the Hispanic toxicology community.

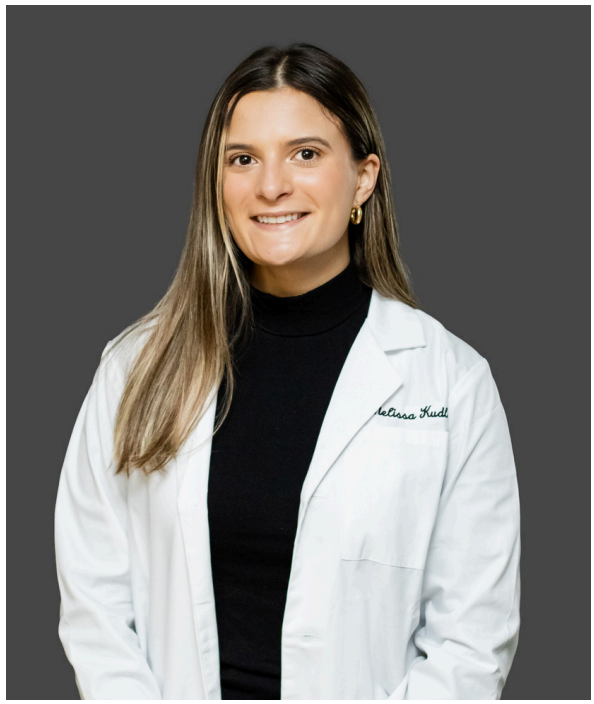
Melissa Kudlak
Rutgers University
Undergraduate Student Travel Award

Diego Paine
University of Kansas
Graduate Student Travel Award

Nadia Herold
University of Leipzig, Germany
International Graduate Student Travel Award

José Ricardo Palacios Valladares
CINVESTAV, Mexico
International Graduate Student Travel Award

Melissa Kudlak
Rutgers University
Undergraduate Student Travel Award



Our previous studies using the *ex vivo* precision cut lung slice (PCLS) model have shown that menthol-flavored e-cigarette (e-cig) condensate exposure increases mitochondrial dysfunction and oxidative stress while decreasing lung function [1]. My current project expands on established laboratory protocols by employing this model, which will be used to study the toxicity of e-cig flavors in the lung. PCLS are three-dimensional excerpts of lung tissue that retain the relevant resident cell populations and the structural integrity of the lung [2, 3]. Because of this, PCLS are an excellent *ex vivo* model to study resident cell toxicity responses without infiltrating immune cells as there would be *in vivo* studies [3, 4]. The PCLS model satisfies the three "R's" (Replace, Reduce, Refine) – experimentation is refined because only the slices are exposed to toxicants, not animals; fewer animals are needed for experimentation; if human lung tissue is available to prepare PCLS, the method even replaces *in vivo* methods [5-7]. This model produces over 80 biological replicates per mouse and can be developed to rapidly produce in-depth functional screenings of e-cig flavors to assess the toxicity of various flavoring compounds. Designing an e-cig screening method in a murine model, allows for the establishment of a method to screen e-cig flavor toxicity in PCLS prepared from human lung tissue therefore increasing translatability.

Overall, characterization of e-cig toxicity is essential for clinical risk assessment and the establishment of safe levels of exposure to format regulations. Elucidating the mechanism of e-cig toxicity may extend to providing a more definitive safety evaluation for e-cig users. From this, we aim to inform regulatory actions, enhance public awareness, and educate clinicians to offer evidence-based advice to patients.

Our laboratory investigates the respiratory toxicity caused by e-liquids that are popular with adolescents. Sweet flavors described as "fruity" and "dessert-like" are the most popular youth vapers [8]. Previous studies have shown that cinnamaldehyde (CA) induces mitochondrial respiration dysregulation and ciliostasis [9, 10]. For this project, e-cig condensates are collected by aerosolizing e-liquids containing vehicle, cinnamon roll (CR), cinnamon roll + nicotine (CRN), and PG/VG base (50:50 propylene glycol/vegetable glycerin). Condensate exposure doses are normalized to the glycerin content. For PCLS preparation, wild type mice are euthanized, tracheotomized, and the lungs filled with agarose. Lung lobes are isolated and PCLS of 300 µm thickness prepared using a Krumdieck Tissue Slicer. 24 hours after slicing, PCLS are exposed to e-cig condensates at concentrations of 500 mM glycerin for 4 hours. After exposure, PCLS are assessed for cytotoxicity, airway epithelial damage, and metabolism. The goal of this study is to develop the PCLS model into an in-depth functional screening model for e-cig flavor-induced toxicity.

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E-CIG EXPOSURE

Diego Paine-Cabrera
University of Kansas
Graduate Student Travel Award

My name is Diego Paine-Cabrera, and I am a graduate student in the Department of Pharmacology, Toxicology, and Therapeutics at the University of Kansas Medical Center (KUMC). I earned my Bachelor of Science in Biochemistry from the University of Santiago, Chile. In 2022, I joined the Interdisciplinary Bioscience PhD Program at KUMC, and in 2023, I began working in Dr. Udayan Apte's laboratory.

My research focuses on the role of HNF4α and its primary targets in the mechanisms of liver disease and regeneration. Liver regeneration is essential for maintaining liver function, especially in response to chemical injuries and dietary stress. To investigate these processes various models are employed, including drug-induced liver injury (DILI) and dietary models that mimic different features of liver metabolic diseases and cancer.

The DILI model involves acute exposure to hepatotoxicants, such as overdoses of commonly used drugs like acetaminophen (APAP), a widely used analgesic. While APAP is safe at therapeutic doses, overdose is the leading cause of acute liver failure in the Western world, where liver regeneration becomes critical for survival. To study chronic liver injury, we use dietary models like the choline-deficient, ethionine-supplemented (CDE) diet, which induces sub-chronic liver injury characterized by steatosis, inflammatory response, and fibrosis—closely mimicking human liver diseases.

LIVER DISEASE

HNF4α is an essential transcription factor involved in hepatic development, differentiation, and the maintenance of hepatocyte function. It regulates genes involved in glucose and lipid metabolism, bile acid synthesis, and drug metabolism, and is considered the master regulator of hepatocyte differentiation. Its deletion in adult liver tissue leads to hepatomegaly, steatosis, and a significant reduction in the expression of key hepatic genes, impairing liver function. It has been demonstrated that metabolic dysfunction-associated steatotic liver disease (MASLD), cirrhosis, and liver cancer show a progressive loss of HNF4α. Furthermore, previous studies have shown that re-establishing HNF4α activity is critical in suppressing hepatocyte proliferation and restoring normal liver function. These important roles make HNF4α an excellent target for future therapies.

Additionally, I am collaborating on a project investigating the adverse effects of environmental contaminants on liver health. We are also working in partnership with Dr. Voytek Slowik from Children's Mercy Hospital to identify potential diagnostic serological biomarkers and therapeutic targets from pediatric patients with MASLD.

Finally, I'd like to express my sincere thanks to the Hispanic Organization of Toxicologists for recognizing my research with this award. This recognition offers a wonderful opportunity not only to share my work but also to network with fellow scientists in a supportive environment.

Nadia Herold

University of Leipzig, Germany

International Graduate Student Travel Award

MODES OF ACTION IN NEUROACTIVE ENVIRONMENTAL CHEMICALS

Chemical pollution represents a significant threat to neurodevelopment, with traditional neurotoxicity testing methods often being resource-heavy and inefficient for the large number of chemicals in use today. This challenge underscores the urgent need for alternative testing strategies that capture complex behavioral endpoints—such as learning, memory, and seizure-like activity—while adhering to ethical frameworks like the 3Rs (Replacement, Reduction, and Refinement of animal use).

To address this, we developed a visual and acoustic motor response (VAMR) new approach method (NAM) using 5-day post-fertilization (dpf) zebrafish. The VAMR NAM incorporates 26 automated behavior-based endpoints to measure visual motor responses, startle responses, habituation learning, and memory retention. These endpoints include visual-motor and acoustic startle responses, as well as habituation learning, creating a robust system to identify neuroactive environmental chemicals. To build confidence in the VAMR NAM, we established neuroactivity fingerprints using concentration-response profiles from 63 reference chemicals and five predicted negatives. Reference compounds targeted neurotransmission, neurodevelopmental signaling, protein synthesis, and toxicologically relevant pathways. Larvae were exposed to six concentrations of each reference compound, and significance was determined against vehicle control (0.4% DMSO). Hierarchical clustering of profiles based on effect sizes (strictly standardized median difference) revealed diverse toxicity fingerprints. This strategy identified GABA receptor (GABAR) modulators (e.g., picrotoxin, bicuculline) affected motor activity, startle responses, and induced seizure-like behavior, suggesting a mechanism-behavior relationship. As a proof of concept, a set of environmental chemicals—previously shown to interact with GABA receptors in cellular assays or rodent studies—was selected for testing. These chemicals, including Dieldrin, Lindane and, Tetrabromobisphenol A (TBBPA), were shown to phenocopy the GABA receptor modulation signature observed with reference chemicals. This finding confirmed the ability of the VAMR NAM to detect neuroactive chemicals and identify their putative modes of action.

This study underscores the potential of zebrafish-based assays to efficiently identify neurotoxicants and provide mechanistic insights into their effects. The VAMR NAM offers a powerful tool for chemical risk assessment, bridging the gap between existing in vitro models and traditional mammalian testing. By doing so, it contributes to more informed chemical management strategies and supports the evolution of neurotoxicity testing toward safer and more ethical practices.

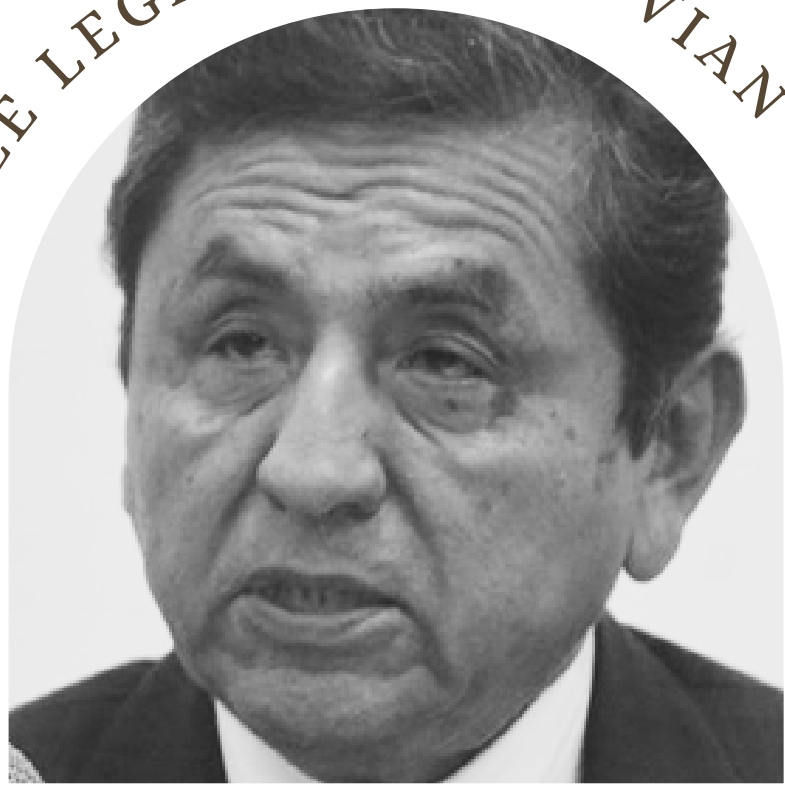
José Ricardo Palacios Valladares
CINVESTAV, Mexico
International Graduate Student Travel Award

In my research, I conducted biological monitoring to determine if organochlorine pesticides were still present in a population residing in Mexico City that was never occupationally exposed to these pesticides. This monitoring was carried out to determine if p,p'-DDE was still present in human biological samples, which is a metabolite of p,p'-DDDT. Both compounds have been associated with damage to different organs and systems, including the immune system. Although the use of DDT was restricted between 2001-2003, when the Stockholm Convention was signed, due to its high persistence and lipophilicity, traces of this compound are still found in human biological matrices, but with a higher frequency of its main metabolite DDE.

In addition to biological monitoring, we decided to evaluate the *ex vivo* effect of p,p'-DDE on monocyte differentiation and the inflammatory function of human macrophages from peripheral blood mononuclear cells (PBMCs). Pesticide quantification was performed using a gas chromatograph with a micro-electron capture detector to establish basal exposure. To assess the effects on differentiation, monocytes were obtained from PBMCs of 30 individuals and treated for seven days with GMC-SF and exposed to p,p'-DDE at the environmentally relevant concentrations of 25, 250, 1,250 and 2,500 ng/mL. To assess the effect on differentiation, CD14, CD16, CD68 and HLA-DR markers were determined by flow cytometry. Cultures of monocytes differentiated to macrophages with GM-CSF were exposed for 48 h to p,p'-DDE (at the concentration indicated above), subsequently, macrophages were activated to the inflammatory phenotype with LPS/IFN-γ for 24 h.

HAt the end of treatment, cell viability (WST-8), ROS production (DFCDA and MitoSox), nitric oxide (NO·-) (Griess reagent), as well as IL-12 (p70), and TNF-α (ELISA) were determined. Results: We were able to ascertain that 24 organochlorine pesticides were present but in low frequency, however, p,p'-DDE was present in 100 % (n=30) of the sampled participants. The p,p'-DDE levels found in the participants were 0.54 ± 0.35 ng/ml. In the *ex vivo* study, none of the p,p'-DDE concentrations caused cytotoxic effects. The p,p'-DDE did not affect the expression of differentiation markers CD14 and CD16, but did decrease CD68, and HLA-DR inversely proportional to the concentration compared to the control. In contrast, reactive oxygen species increased in a concentration-dependent manner with p,p'-DDE compared to the positive control (LPS/IFN-γ). The p,p'-DDE decreased, inversely to its concentration, NO·- and TNF-α production compared to the positive control (LPS/IFN-γ), however, it did not affect IL-12 levels. In conclusion, p,p'-DDE is still present in humans; our results suggest that p,p'-DDE exposure decreases macrophage differentiation and negatively modulates inflammatory function and induces markers of oxidative stress.

AN INDELIBLE LEGACY IN PERUVIAN TOXICOLOGY



Jesús Víctor Lizano

Jesús Víctor Lizano was an exceptional professional and a passionate educator. As a founding member and former director of the Professional School of Toxicology at the Universidad Nacional Mayor de San Marcos, his dedication and vision were instrumental in advancing toxicology in Peru.

Throughout his career, Dr. Lizano made a lasting impression on students and colleagues alike, who recall his unwavering commitment, expertise, and relentless efforts to propel the field forward. In 2015, his guidance was pivotal in establishing the school's affiliation with HOT as a Sister Organization.

Jesús Víctor Lizano will forever be remembered with deep gratitude and admiration for the legacy of knowledge and humanity he imparted to those fortunate enough to learn from him.

HISPANIC HERITAGE MONTH

The Hispanic Organization of Toxicologists would like to congratulate and recognize the achievements and contributions of our Hispanic members! We are proud of our cultural roots and we embrace and celebrate them with lots of joy!

Thanks to all of you for having inspiring others to achieve success!

SEPTEMBER 15– OCTOBER 15, 2024

ONLINE FREE WEBINAR

The Successful Journey to Canada of Two Hispanic Toxicologists: Environmental and Occupational Perspectives

DATE
JAN 09, 2025

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Speakers

Andres Henriquez, PhD
Researcher, Health Canada

Jairo Buitrago, Graduate Student
University of Montreal

CONTACT

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HOT AT SOT

CE COURSE

Complexity of Food Packaging: Formulation, Safety, Regulation, Innovation and Recycling

March 16
1:15 PM–5:00 PM

Tiny Tox Talk

March 19
10:00 AM

How Can We Use Alternative Approaches to Move Safety Evaluation of Medical Devices Forward?

March 19
1:30 PM–4:15 PM

HOT AWARDS

APPLY NOW!

HOT Travel Award

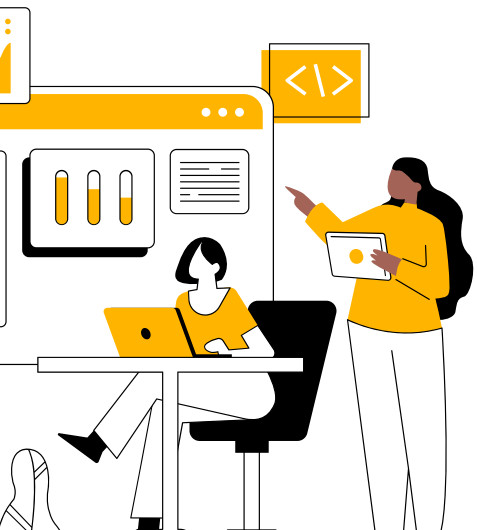
The HOT has provided Travel Awards since 2005 to outstanding students and postdoctoral trainees of Hispanic/Latino origin working in the area of toxicology research. The HOT Travel Award consists of monetary funds to help with the costs associated with presenting their research and attending the SOT Annual Meeting. The HOT Travel Awards are provided by funds from the HOT Endowment and HOT sponsors. HOT will give preference to first-time applicants with a high-quality research project. Previous winners may apply with the understanding that the likelihood of winning a second award may be linked to funding availability after all first-time applicant winners have been selected.

SEE MORE AND APPLY

HOT Distinguished Toxicologist Award

The Distinguished Toxicologist Award is given each year to a toxicologist of Hispanic/Latino origin whose work exemplifies the mission of the HOT-SIG by contributing to the advancement of the field of toxicology. Scientific and/or regulatory accomplishments and/or community services will be considered during the review.

SEE MORE AND APPLY



Deadline: January 11, 2025

More Informations :

HOT Awards Committee

Veronica Ramirez-Alcantara

Carmen Rubio Armendáriz.

GET TO KNOW
OUR MEMBERS

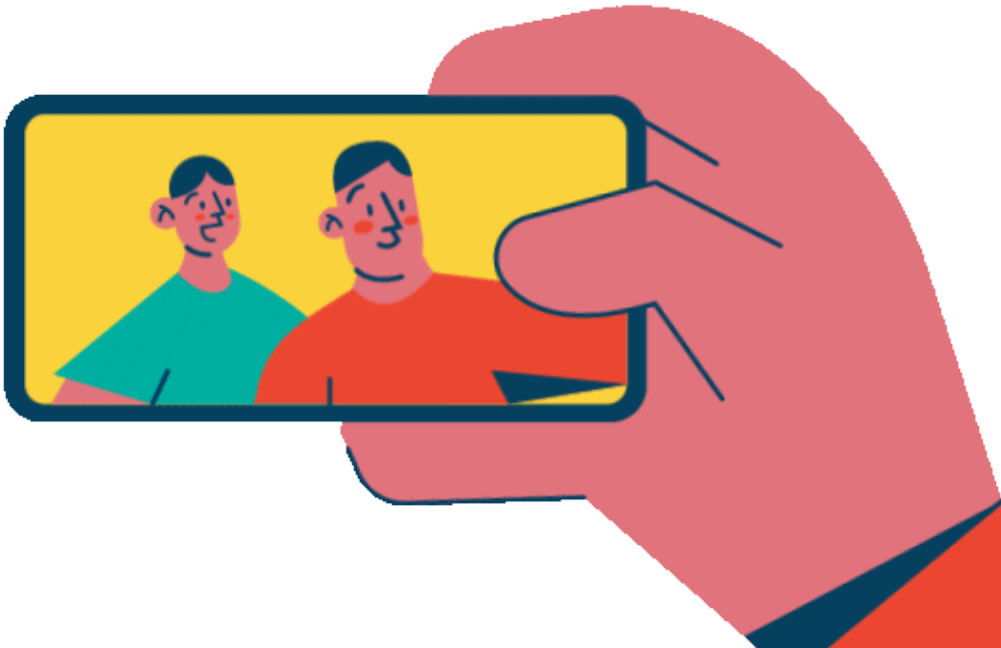
MAKE A **SHORT VIDEO** (1MIN) EXPLAINING:

WHAT DO YOU DO?

HOW DID YOU LEARN ABOUT HOT?

HOW HAS BEING A HOT MEMBER IMPACTED YOU?

*VIDEOS WILL BE POSTED ON THE HOT FACEBOOK PAGE



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- Ofelia A Oliveira
- Patricia Ruiz
- Teresa Palacios-Hernández & Jose Francisco Delgado
- Bob Roth & Patty Ganey
- Kelly Salinas
- Mari S Stavanja
- TD Ameritrade

SISTER ORGANIZATIONS

Asociación Española de Toxicología	http://www.aetox.es/
Asociación Latinoamericana de Toxicología	http://www.alatox.org
Associação Latino Americana de Patologia Toxicológica e Experimental	http://www.alapte.com/
Asociación Toxicológica Argentina	https://toxicologia.org.ar/
Asociación Venezolana de Toxicología Médica	https://www.facebook.com/groups/1767405857 57320/?ref=br
Center of Environmental and Toxicological Research – University of Puerto Rico	https://rcm1.rcm.upr.edu/centerenvironmental/
Escuela Académico-Profesional de Toxicología de la Universidad Nacional Mayor de San Marcos, Lima	https://farmacia.unmsm.edu.pe/
PLAGBOL – Salud, Agricultura y Medio Ambiente	http://plagbol.org.bo/
Red Iberoamericana de Toxicología y Seguridad Química	http://www.ritsq.org/
Sociedade Brasileira de Toxicologia	http://www.sbtox.org
Sociedade Brasileira de Ecotoxicologia	https://ecotoxbrasil.org.br/
Sociedad Cubana de Toxicología	http://www.sld.cu/sitios/toxicologia/
Sociedad Mexicana de Toxicología	http://www.somtox.com.mx/
Sociedad de Toxicología de Chile	http://sotox.cl/
Society for Risk Analysis Latin America	http://www.srala.org/
Toxicología Acuática Ambiental, Medicina Veterinaria-Universidad Nacional de Colombia	https://unal.edu.co/
Universidad de Cartagena	https://www.unicartagena.edu.co/

If your Hispanic Organization is planning a Toxicology meeting or if you are organizing a Toxicology event intended for a primarily Hispanic audience and want to promote it in the upcoming *Toxenlaces* issues, send an email to Julieta Martino, PhD (Councilor for Sister Organizations) at julieta.martino.pitt@gmail.com.

ANNOUNCEMENT

HOT wants you to be part of the organization! To make it available to everyone, HOT accepts applications from **non-SOT members** to **become HOT members**. Yes, that is right! You only have to have the desire to collaborate with and be part of our great organization.

Your HOT membership provides you with valuable resources throughout your scientific career, as for networking through the largest Hispanic toxicologist community, giving you the opportunity for Travel Awards or serving as a mentor to the young Hispanic toxicologists; besides you receive the *Toxenlaces* newsletter!

Download the application by clicking on the following link: Non-SOT Member Application.

So, what are you waiting for? **We are looking forward to receiving your application today!**

Follow us on Facebook at: http://www.facebook.com/hispanicorganizationoftoxicologists

Don't forget to visit also the **SOT** Facebook page:

http://www.facebook.com/pages/Society-of-Toxicology-SOT/163627880427831?fref=ts

Toxenlaces is the newsletter that informs Hispanic toxicologists in the United States and the international Spanish and Portuguese-speaking scientific communities about important toxicological events and issues occurring in our countries. It is electronically published and distributed to our membership and Sister Organizations in Ibero-America. *Toxenlaces* disseminates critical dates for events, health perspectives and funding and training opportunities. It serves as a toxicology forum for our members and other partner organizations, engages in educational outreach to the Hispanic communities and provides the essential elements to support networking among Hispanic toxicologists. *Toxenlaces* is open to receive collaborations from HOT and SOT members and Sister Organizations. You can collaborate with short scientific articles, news or notes related with toxicology. Other ways to collaborate is by nominating your peers or yourself for the HOT Trainee Wall. For more information about collaborating with *Toxenlaces* send an email to Rodrigo Gonçalves Queijo (*Toxenlaces* Editor) at rodrigogoncalvesqueijo@usp.br or Andy Joel Taipe Huisa (*Toxenlaces* Editor Assistant) at andyjth1792@gmail.com