

**August 27 - September 1, 2022**  
**Ottawa, Ontario, Canada**

**13th International Conference on  
Environmental Mutagens**

*Maintaining Genomic Health in a Changing World*

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**53rd Annual Meeting of the Environmental  
Mutagenesis and Genomics Society**

**[www.ICEM2022.org](http://www.ICEM2022.org)**

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## 13th International Conference on Environmental Mutagens

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August 27 – September 1, 2022

### Organizing Committee

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Program Co-Chair, EMGS Vice President  
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**Robert Bevans-Kerr**



EMGS & IAEMGS Headquarters

12627 San Jose Blvd.  
Suite 202  
Jacksonville, FL  
32223, USA

## 13th International Conference on Environmental Mutagens

### Maintaining Genomic Health in a Changing World

Dear Colleagues,

On behalf of the Organizing Committee, we wish to extend a warm welcome and invitation to you to participate in the 13th International Conference on Environmental Mutagens (ICEM). We are excited to see you in person after nearly two years of virtual meetings. This conference is sponsored jointly by the Environmental Mutagenesis and Genomics Society (EMGS) and the International Association of Environmental Mutagenesis and Genomics Societies (IAEMGS). The ICEM will be held at the Westin Hotel and Conference Centre in the heart of Ottawa, Canada's multicultural capital city. The venue is just steps away from the Rideau Canal (a World Heritage Site), Ottawa's historic Byward Market, several of Canada's national museums, and the Ottawa River that divides the provinces of Ontario and Quebec.

The theme of the ICEM is "Maintaining Genomic Health in a Changing World", encompassing both our changing exposures and ground-breaking tools available to assess adverse genomic effects. We are experiencing unprecedented changes to our environments that shape our genome, spanning the impacts of pandemics and global warming, to the realization of space tourism and methodologies that allow us to modify the genomes of species at will. Harnessing our evolving technologies to understand how the genome and our health may be impacted in these new situations is increasingly critical. Data-rich and quantitative sources of mechanistic information, innovative in vitro models and tools, artificial intelligence and novel bioinformatics platforms, and in the clinic, opportunities to tailor disease treatments and custom-design drugs, will play central roles to the future of public health. Today more than ever, understanding how our changing environment shapes our genomes and the resulting health effects requires global effort.

To explore these issues and solutions to key global threats to our collective health, the 13th ICEM will offer 30 symposia and 5 workshops, as well as 13 plenary lectures from world leaders in environmental mutagenesis, genomics, and related fields. Speakers will present the latest findings on how chemical, physical and biological agents damage our genomes, the cellular processes that deal with induced DNA damage, the health consequences of unrepaired damage, and regulatory advances in these areas. Provocative keynotes will challenge our community to consider different perspectives, opportunities, and threats. The program will offer a balance of basic and applied research symposia on using cutting-edge approaches to answer fundamental questions on the ability of our species to respond and adapt to environmental insults and maintain genomic health in the face of a world that is continuously changing around us. Researchers from around the world will present the latest work in poster and platform sessions and interact with other attendees to develop future collaborations. Specific activities for students and new investigators will foster interest in environmental mutagenesis and mentor the next generation of scientific leaders. The conference will also feature social events to provide many opportunities for informal interactions, such as group tours, a free afternoon, a wine and cheese reception at the National Art Gallery, a banquet, and an opportunity to privately view artifacts in Canada's Museum of History. A program of tours and special events for accompanying family members will also operate throughout the week.

You won't want to miss the many important opportunities for international communication and education offered by the 13th ICEM. We enthusiastically look forward to welcoming you to Ottawa in August, 2022.

**Paul White**  
Program Co-Chair, IAEMGS  
President

**Francesco Marchetti**  
Program Co-Chair, EMGS Vice  
President

**Carole Yauk**  
Program Co-Chair, EMGS Past  
President



**Saturday, August 27**

**7:00AM-3:30PM**

Workshop 4: Advancing the Next Generation of Genetic Toxicology and Cancer Risk Assessment  
Samuel H. Wilson Memorial Meeting: DNA Damage & Repair

**8:00AM-12:00PM**

Workshop 1: Mini versus Standard Ames Assays: What Have We Learned from the OECD's Comparative Evaluation  
Workshop 2: Time to Solve a Crisis? Can the Risk from Exposure to the DNA Reactive Botanical Contaminant Family Pyrrolizidine Alkaloids be Managed Through Relative Potency Factors (RPF's)?  
Workshop 3: Methods and Applications of the CometChip and Additional Cell Microarray Technologies  
Workshop 5: In silico Approaches in Genetic Toxicology: Application Ames QSAR to ICH-M7

**1:00-3:00PM**

Student Welcome Session & Poster Viewing

**4:00-5:00PM**

Opening Session Welcome

**5:00-6:00PM**

Plenary Speaker 1: Rick Woychik

**6:00-7:30PM**

Reception with Food & Beverages

**7:00-10:00PM**

ICEM Welcome Pub Crawl

**Sunday, August 28**

**7:00-8:00AM**

DNA Repair SIG Meeting  
Germ Cell and Heritable Effects SIG Meeting  
Finance Committee

**8:15-9:05AM**

Plenary Speaker 2: Evan Eichler

**9:10-10:00AM**

Plenary Speaker 3: Graham Walker

**10:30AM-12:30PM**

Symposium 1: Advancing Mechanistic Analyses in Genetic Toxicology using High-content and High Throughput Methodologies  
Symposium 2: The Graham Walker Symposium: Complexity of Cellular Responses to DNA Damage  
Symposium 3: Application of Computational Modeling and Bioinformatics in Toxicological Hazard and Risk Assessment  
Symposium 4: Analyses of DNA Modifications and Their Roles in Human Carcinogenesis  
Platform 1: In vitro Testing Strategies

**12:30-1:30PM**

Lunch Tour at Sparks Street, Ottawa Pedestrian Promenade  
EMM Editorial Board Meeting

**1:30-2:30PM**

Plenary Speaker 4: Ajay Pillarisetti

**3:00-5:00PM**

Symposium 5: Genotoxic Hazards of Air Pollution - A Global Perspective

Symposium 6: In Vitro Screening Approaches for Risk Assessment

Symposium 7: Impact of Obesity on DNA Stability and its Health Consequences

Symposium 8: DNA Cross-link Repair and Health  
Platform 2: Public Health Issues

**5:00-6:30PM**

Poster Session I – Applied Gen Toxicology, Computational Toxicology and Bioinformatics, In Vivo Mutagenicity Assessment, and Radiation Biology

**6:30-8:00PM**

EMGS President's Reception

**8:00-10:00PM**

ICEM Game Night

**Monday, August 29**

**7:00-8:00AM**

Genomics and Data Sciences SIG Meeting  
Applied Genetic Toxicology SIG Meeting  
Awards and Honors Committee Meeting  
ESNIA Committee Meeting  
YSA Committee Meeting

**8:15-9:05AM**

Plenary Speaker 5: Cynthia Burrows

**9:10-10:00AM**

Plenary Lecture 6: Mayana Zats

**10:30AM-12:30PM**

Symposium 9: Cancer Genomics Provides Insight into Cancer Etiology, Progression and Therapeutic Response  
Symposium 10: Consequences of Pharmaceuticals and Chemicals for Male and Female Germ Cell Heritability  
Symposium 11: Developing Integrated Approaches to Testing and Assessment (IATA) Using an Adverse Outcome Pathway (AOP) Framework  
Symposium 12: How Cells Tolerate and Replicate DNA Damage?

Platform 3: Advances in DNA Repair I

**1:30-2:30PM**

Plenary Speaker 7: Maurice Whelan

**3:00-4:00PM**

Plenary Speaker 8: Kym Boycott

**4:00-6:00PM**

Poster Session II – DNA Repair, Epigenetics, and Germ Cell and heritable Effects

**6:30-8:00PM**

Wine and Cheese Reception

**Tuesday, August 30**

**7:00-8:00AM**

Genotoxicity Risk Assessment and Public Health SIG Meeting  
In Vivo Mutagenesis SIG Meeting  
Membership Committee Meeting  
Publication Policy Committee Meeting

**8:15-9:05AM**

Plenary Speaker 9: Yukari Totsuka

**9:10-10:00AM**

Plenary Speaker 10: Ulla Vogel

## 10:30AM-12:30PM

Symposium 13: De novo Germline Mutations and Environmental Mutagenesis

Symposium 14: Polynucleotide Signatures and Regulation of Genotoxin Stress Response

Symposium 15: New Approaches for Informing Population Variability in Chemical Risk Assessment

Symposium 16: From Genomes to Ecosystems: What are the Ecological Consequences of Genotoxicity?

Symposium 17: New Tools in Carcinogenicity Testing

## 12:30-1:30PM

EMGS Business Meeting

## 1:30-2:30PM

Plenary Speaker 11: Sir Michael Stratton

## 3:00-5:00PM

Symposium 18: Personalized Cancer Risk and Prevention: Models Integrating Genetics, Environmental Exposures, Infections, Diet, and Other Factors for Specific Cancers

Symposium 19: Novel Experimental Strategies for Investigating the Incidence and Mechanisms of Mutations

Symposium 20: Risk Assessment of Low-dose Rate Radiations, Lessons from the Fukushima Nuclear Accident

Symposium 21: Role of RNA in DNA Repair

Platform 4: Environmental Mutagens I

## 5:00-7:00PM

Poster Session III – Eco-genotoxicology, Genomics, Novel In Vitro and In Silico Approaches, Public Health and Molecular Epidemiology, and Risk Assessment

## 6:30-9:00PM

Japanese Dining

## 6:30-9:30PM

Editorial Board Dinner

## 7:00-8:00PM

IAEMGS Business/Council Meeting

## Wednesday, August 31

## 7:00-8:00AM

Epigenomics SIG Meeting

Hollaender International Outreach Committee Meeting

Public Relations Committee Meeting

Diversity Committee Meeting

## 7:00-8:00AM

Fun Run with the President

## 8:15-9:05AM

EMGS Award Winner, Karen Vasquez

## 9:10-10:00AM

Hollaender Award Winner, Michael Plewa

## 10:30-11:15AM

Young Scientist Award Winners, Juan Xia and Raguvaran Shanmugan

Platform 5: Environmental Mutagens II

Platform 6: Epigenomics and Heritable Effects

Platform 7: Risk Assessment

Platform 8: DNA Repair II

Platform 9: In vivo Testing Strategies

## 12:30-2:00PM

First Inaugural Women in IAEMGS Luncheon

## 12:30-5:00PM

Lunch and Walk in the Glebe

## 6:00-10:00PM

Conference Banquet

## Thursday, September 1

## 7:00-8:00AM

EMGS Endowment Board

Program Committee Meeting

## 8:15-9:05AM

Plenary Speaker 12: Amander Clark

## 9:10-10:00AM

Plenary Speaker 13: Cyril Pettit

## 10:30AM-12:30PM

Symposium 22: Dynamics of Mutation Acquisition in Somatic Cells: SNVs and SVs in the Brain, Blood and Beyond

Symposium 23: Managing Genes in Space

Symposium 24: Using Quantitative Genetic Toxicology to Advance the Assessment of Genotoxic Impurities in Pharmaceuticals

Symposium 25: R-loop Roadblocks to Transcription and Replication

Platform 10: Bioinformatics and Data Sciences

## 1:30-3:30PM

Symposium 26: Genome Editing: Intentional Mutagenesis of the Genome and Implications for Human Health

Symposium 27: International Workshop on Genotoxicity Testing: Summary of Consensus Statements

Symposium 28: Carcinogens, Carcinogenesis and Cancer: Application of Artificial Intelligence & Machine Learning

Symposium 29: Approaches for Studies of DNA Damage and Repair with Applications in Human Biomonitoring and Disease Risk Prediction

Symposium 30: Mutagenic Hazards of PAHs and PAH Mixtures

## 4:00-5:00PM

Closing & Awards Ceremony

## 5:00-7:00PM

EMGS Council Meeting

## **Organizing Committee**

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Francesco Marchetti, <i>Co-Chair</i>	Chris Faulk	Sarah Kimmins
Carole Yauk, <i>Co-Chair</i>	Gisela Umbuzeiro	Scott Auerbach
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David DeMarini	Juliana da Silva	Stefan Pfuhrer
William Kaufmann	Stephen Dertinger	Julia Rager
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Catherine Klein	Jill Escher	Radha Sarawarthy
Carlos Menck	Christopher Faulk	Yong-Rok Seo
Wilner Martinez-Lopez	Stephen Ferguson	Robert Sobol
Young Joon Surh	Deidamia Mercedes	Leon Stankowski
George Douglas	Franco de Diana	Olivier Taboureau
Iain Lambert	Sara Frias	Yukari Totsuka
Bruce McKay	Roland Froetschl	Gisela de Aragão Umbuzeiro
Kin Chan	Carolina Garcia-Canton	Karen Vasquez
Jason O'Brien	Catherine Gibbons	Wim Vermeulen
Alexandra Long	Ashok Giri	Mathieu Vinken
Jennifer Keir	Awadhesh Jha	Ulla Vogel
Sepideh Arbabi	George Johnson	Caren Weinhouse
Volker Art	Vivian Kahl	Thomas Wilson
Scott Auerbach	Hiroyuki Kamiya	
Jun Yang	Tanchun Wu	
Janet Baulch	Takafumi Kimoto	



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Christi Walter  
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Lauren Gallant  
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## ***International Association of Environmental Mutagenesis and Genomics Societies (IAEMGS)***

- Asociación Latinoamericana de Mutagénesis, Carcinogénesis y Teratogénesis Ambiental (ALAMCTA)
- Brazilian Association of Mutagenesis and Environmental Genomics (MutaGen-Brasil)
- Chinese Environmental Mutagen Society (CEMS)
- European Environmental Mutagenesis and Genomics Society (EEMGS)
- Environmental Mutagenesis and Genomics Society (EMGS)
- Environmental Mutagen Society of India (EMS India)
- Iranian Environmental Mutagen Society (IrEMS)
- Japanese Environmental Mutagen and Genome Society (JEMS)
- Korean Environmental Mutagen Society (KEMS)
- Molecular and Experimental Pathology Society of Australasia (MEPSA)
- Pan-African Environmental Mutagen Society (PAEMS)

# The Conference and the Venue

## 13<sup>th</sup> ICEM

The theme of the 13th ICEM, Maintaining Genomic Health in a Changing World, transcends national boundaries; indeed, it encompasses timely issues for all people of the world. This meeting attracts approximately 1,000 scientists from industry, academia and government. The program includes an array of plenary and other special lectures, workshops, symposia on emerging issues and new discoveries, platform sessions with speakers chosen from the submitted abstracts, and poster sessions.

## Special Interest Groups

EMGS is home to eight Special Interest Groups, which meet each year during the annual meeting. The Special Interest Group meetings are scheduled from 7:00AM until 8:00 AM prior to the Plenary Lectures. The meetings are open to all ICEM attendees at no additional charge.

The Special Interest Group meetings promote information and discussion on topics relevant to their group. The meetings serve as an opportunity to share new research data and to network with other individuals who share a similar focus in that particular area. The eight Special Interest Groups are:

- Applied Genetic Toxicology
- DNA Repair & Mutagenic Mechanisms
- Epigenomics
- Genomics and Data Sciences
- Genotoxicity Risk Assessment and Public Health
- Germ Cell and Heritable Effects
- In Vivo Mutagenesis
- Women in EMGS

## Ottawa

Canada's capital city of Ottawa is a dynamic showcase location of more than one million people. Located in Ontario at the Quebec border, it's a place where you'll hear English and French spoken in the streets; where you can discover Canada's proud heritage at impressive national sites and famous landmarks, including the Rideau Canal (a UNESCO World Heritage Site). It's a city steeped in culture, with world-class museums and galleries displaying stunning national collections and special exhibitions from Canada and around the world.

## Climate

Ottawa is the seventh coldest capital in the world, but its summers are warm enough to attract visitors from around the globe. The average daily high temperature in late August is 78°F (26°C) and the average lows for this time of the year is around 58°F (14°C) with an average monthly rainfall of 3.66 inches (9.3 cm).

## The Westin Ottawa

Located in the heart of Canada's Capital, The Westin Ottawa is within five minutes of the National Gallery of Canada, the Canadian War Museum and Parliament Hill. The hotel is attached to the Rideau Center, a shopping mall filled with restaurants and boutique shops, and only one block from the historic Byward Market. In this outdoor market, one can find fresh flowers, fruits and vegetables and local artisans. The Westin Ottawa offers breathtaking views of the Rideau Canal, allowing access to all our city has to offer. See more of the city through BikeWESTIN. This service allows you to rent a BMW bike to see the beautiful city of Ottawa your way.







# Transportation

## Air Transportation

### Airports

Ottawa is served by one major airport: **Ottawa MacDonald- Cartier International Airport (YOW)** which is approximately 20 minutes from the hotel. More information on getting to Ottawa can be found at [ottawatourism.ca/en/plan-your-visit/getting-here](http://ottawatourism.ca/en/plan-your-visit/getting-here). For airline booking assistance information, visit [yow.ca/en/flights/airlines](http://yow.ca/en/flights/airlines).

## Transportation from the Airport

Access to downtown from the airport is a quick 20 minute transfer via public bus or in a taxi (approximately \$40 CDN). Anyone looking to explore beyond Ottawa's vibrant downtown can utilize Ottawa's exceptional public transportation system offering easily accessible bus and light rail options ([www.octranspo.com](http://www.octranspo.com)). Standard taxi and Uber services are also available throughout the city.

The Société de Transport de l'Outaouais, also known as STO, offers tickets and day passes at service points and recharge stations at select pharmacies, convenient stores and malls.

Ottawa's taxi companies can be booked ahead of time through their convenient apps, text messages or online options for seamless pick ups and drop offs, including to and from the airport.

**Blue Line** is the largest taxi company in the City of Ottawa. To order a taxi, please call (613) 238-1111 or book your next taxi through the app at [bluelineapp.com](http://bluelineapp.com).

**Capital Taxi**, a family owned and operated company since 1937, serving Ottawa & surrounding areas, is available 24/7. Download the app at [capitaltaxiapp.ca](http://capitaltaxiapp.ca) or text your address to (613) 744-3333.

## Car Rental

### Alamo

PARKADE (P1), Level 1  
Hours: 6:30 a.m.-1:00 a.m.  
(613) 737-7023  
[www.Alamoca](http://www.Alamoca)

### Avis

PARKADE (P1), Level 1  
Hours: 6:30 a.m.-1:00 a.m.  
(613) 739-3334  
[www.Avis.ca/en/locations/ca/on/ottawa/yow](http://www.Avis.ca/en/locations/ca/on/ottawa/yow)

### Budget

PARKADE (P1), Level 1  
Hours: 6:30 a.m.-1:00 a.m.  
(613) 521-4844  
[www.Budget.ca/en/locations/ca/on/ottawa/yow](http://www.Budget.ca/en/locations/ca/on/ottawa/yow)

### Discount

1749 Bank Street (Shuttle available)  
Hours: 7:30 a.m.-10:00 p.m.  
(613) 667-9393, (613) 667-9394  
[www.DiscountCar.com](http://www.DiscountCar.com)

### Enterprise

PARKADE (P1), Level 1  
Hours: 6:30 a.m.-1:00 a.m.  
(613) 248-0005  
[www.Enterprise.com](http://www.Enterprise.com)

### Hertz

PARKADE, Level 1  
Hours: 6:30 a.m.-1:00 a.m.  
(613) 521-3332  
[www.Hertz.ca](http://www.Hertz.ca)

### Thrifty

PARKADE (P1), Level 1  
Hours: 6:30 a.m.-1:00 a.m.  
(613) 521-3332  
[www.ThriftyCanada.ca](http://www.ThriftyCanada.ca)

## Additional Transportation to the Banquet

### Au feel de l'eau – Aqua Taxi

Hop on the 100% electric and universally accessible Aqua-Taxi on your way to the ICEM 2022 banquet. Stops on the continuous short trip circuit include the Ottawa Locks near the Bytown Museum, the Canadian Museum of History, and Richmond Landing near the Canadian Museum. Depending on the route you will enjoy view of Parliament Hill, Supreme Court of Canada, the National Gallery of Canada and Rideau Falls. Make your reservation at: [www.aquataxi.ca](http://www.aquataxi.ca).

# General Information

## Registration Information

Badges and registration materials will be available to registrants on-site at the registration desk located in the Nunavut Room on Level 4 of the Westin Ottawa. Your ICEM registration badge must be worn to obtain access to the ICEM functions. If you are attending the banquet or a Workshop, you will need to present your ticket to be allowed access. If you register for these events in advance, the tickets will be a part of your registration materials.

If you are a speaker at the meeting, there will be a speaker ready room onsite in the Alberta room. You will be required to upload your presentation at least 4 hours in advance of your presentation.

## Online Program

View the 2022 Online ICEM Program through the QR Code below. Just point your camera towards the QR Code and open the link. Once logged in to Oxford Abstracts, you will have access to all ICEM Session Materials including authors, abstracts, and sponsors.



There is free wifi provided by Encore in the conference rooms. The login information can be found below.

- Wireless Network: **Westin\_CONFERENCE**
- Password: **ICEM2022**

## COVID-19 Travel Restrictions

Covid-19 restrictions are still in place for all travelers to Canada. If you qualify as a fully vaccinated traveler, you are required to show a pre-entry molecular test, required to use ArriveCAN, required to take an arrival test if selected, exempt from quarantine, exempt from Day-8 testing. These requirements and exemptions are likely to change before the 13<sup>th</sup> ICEM, but are updated frequently on this website: [ottawatourism.ca/en/current-situation-ottawa](https://ottawatourism.ca/en/current-situation-ottawa). Please stay informed about Covid-19 restrictions in Canada here: [travel.gc.ca/travel-covid/travel-restrictions/covid-vaccinated-travellers-entering-canada](https://travel.gc.ca/travel-covid/travel-restrictions/covid-vaccinated-travellers-entering-canada)

Although masking is no longer mandatory in the province of Ontario, we recommend that individuals wear masks in indoor settings, particularly in situations where physical distancing may be difficult or impossible. Should your travel be cancelled, there will be content available online after the meeting, i.e., all keynotes plus select symposia/ platforms.

## Photography Policy During Sessions

Photography of scientific presentations is prohibited without advance specific consent of the presenter(s)/ author(s). Session Chairs are asked to strictly enforce this policy and individuals who do not comply will be asked to leave the session. Media Support Services: ICEM 2022 welcomes accredited representatives of media organizations. Please contact Bob Bevans-Kerr at EMGS & IAEMGS Headquarters at [bobbk@emgs-us.org](mailto:bobbk@emgs-us.org) for more information.

## Emergency Services

- Emergency: 911
- Poison Information Centre: 613-737-100
- Ottawa Fire Services: 613-580-2860
- Ontario Provincial Police: 888-310-1122
- Ottawa Police: 613-236-1222

## Currency Exchange

The Canadian Dollar is the only acceptable form of payment in Canada.

The hotel reception offers currency exchange facilities. Additional currency exchange can be found just steps away from the hotel in the Rideau Centre at the Calforex Currency Exchange located at 350B-50 Rideau Street.

## Banking

Banking hours differ by bank and branch but are generally the same as common working hours (9 a.m. to 5 p.m.). Some banks are open later or on weekends or Thursday evenings. Most businesses accept debit cards as a form of payment. Most major credit cards are accepted in Ottawa. WeChat Pay and Alipay is accepted at select businesses.

Automated Teller Machines (ATMs) are located in banks and in various other locations throughout the city. They are usually available during and outside of regular banking hours, although often with an additional service fee.

## ATM

There is an ATM in the hotel lobby near the reception, and for your convenience there are also other banks and ATMs within four blocks of the hotel.

**CIBC, Canadian Imperial Bank of Commerce 50**  
Rideau St. Suite 2 Ottawa, ON K1N9J7

41 Rideau St. Ottawa, ON K1N5W8 98 George Street  
Ottawa, ON K1N5W2

**BMO, Bank of Montreal**  
101 Colonel By Dr. Ottawa, ON K1A0K2

200 Rideau St. Ottawa, ON K1N5X8

**National Bank**  
232 Rideau St. Ottawa, ON K1N5Y3

303 Rideau St. Ottawa, ON K1N5Y4

**RBC Royal**  
96 George St. Ottawa, ON 1N5W1

## Insurance

Participants are advised to provide their own personal insurance as the 13th ICEM cannot assume responsibility on behalf of participants for personal accidents, sickness, theft, or property damage.

## Stay Connected While You Travel

As technology advances, and with guests traveling from all over the world, the ICEM Organizing Committee appreciates how important it is for attendees to stay connected to daily responsibilities in their home locations while attending the meeting. WiF<sup>i</sup>5 is available in all guest rooms at the Westin.

## Area Code/Phone Dialing in Ottawa, Ontario

The area codes for Ottawa are 343 and 613. Callers must dial 1 plus the appropriate area code and seven-digit number.

## Electrical Appliances

North American Outlets require appliances with 110V compatibility.

## Tipping

### Restaurants

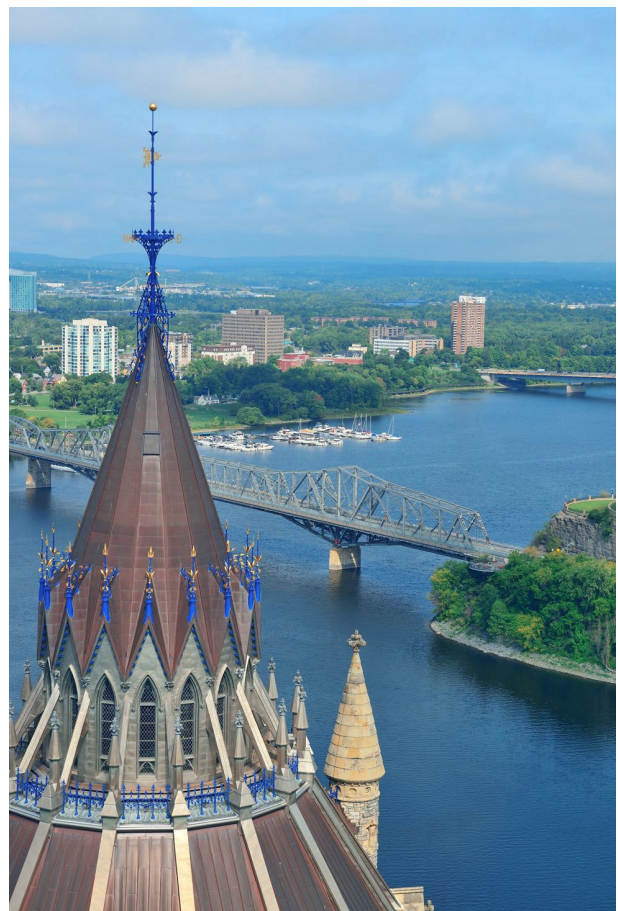
Restaurant service is not usually included in the restaurant checks. The average tip is 15-20% of the total check.

### Taxis

Average tip for driver is 10-15% of the fare.

## Tax

A non-refundable 13% sales tax (HST) must be paid on most goods and services, unless you have the merchant ship the product out of Canada. This tax will not be refunded at the airport upon departure.



# Social Programs

## Student Welcome Session

Students and post-doctoral fellows are invited to attend a special networking session on August 27 at 1:00pm until 3:00pm in the Provinces Ballroom. Presentations from research mentors and trainees will be made, followed by a social activity. This event is open to student and post-doctoral fellow registrants.

## Opening Session and Reception

The Opening Session will be held in the Shaw Centre on Saturday, August 27 at 4:00pm until 6:00pm. The Opening Reception will immediately follow in the Shaw Centre. Badges are required for both events.

## ICEM Welcome Pub Crawl

On Saturday Aug 27th, from 7:00 pm until 10:00 pm, come join us on a walking tour of 4 pubs in Ottawa. Are you on your own or with a group? Either way this will be a fun way to meet some conference buddies and see some of the great Ottawa hot spots!

## Lunch Tour at Sparks Street, Ottawa Pedestrian Promenade

**Date/Time:** Sunday, August 28, 12:30- 1:30PM  
**Location:** Sparks Street Mall, varied

restaurants, and shops  
([www.sparkslive.com](http://www.sparkslive.com))

**Maximum number of people:** The more, the merrier

**Meeting time and place:** 12:35PM, Main entrance of the Westin Hotel

**How to get there:** 10 min walk from Shaw Centre.

## EMGS President's Reception

The President's Reception will take place on Sunday, August 28, 2022 at 6:30PM to 8:00PM in Daly's -Level 3.

## ICEM Game Night

**Date/Time:** Sunday, August 28, 8:00-10:00PM

**Location:** Level One Game Pub  
([www.levelonegamepub.com](http://www.levelonegamepub.com))

**Maximum number of people:** 20 People

**Meeting place:** Main entrance of the Westin Hotel

Students and Young Investigators are welcome to join us at Level 1, Ottawa's favorite board game lounge. Enjoy a night of socializing over board games, good food and craft beer. Reservation made for up to 20 people, 8\$ entrance fee.

## Wine and Cheese Reception

A wine and cheese reception will be held in the National Gallery of Canada from 6:30pm until 8:00pm on Monday, August 29, 2022

## Japanese Dining

**Date/Time:** Tuesday, August 30, 6:30 to 9:00PM

**Location:** C'est Japon À Suisha  
([www.japaninottawa.com](http://www.japaninottawa.com))

**Maximum number of people:** 20

**Meeting time and place:** 6:10PM, Main Entrance of the Westin Hotel

**How to get there:** 15min walk from Shaw Centre.

# Social Programs

## Fun Run with the President

All levels of runners, walkers, and rollers are invited to participate in the 2022 ICEM Fun Run/Walk with the President! This event is a great opportunity to meet friends in a casual environment, joining EMGS President Joann Sweasy in showing support for the Society. Whether you're in it for some friendly competition or would rather stick with a group, this event's emphasis is on FUN and, bringing together all paces and styles.

**Date/Time:** Wednesday, August 31, 7:00AM

**Meeting place:** The Westin Hotel main entrance, Ottawa

**Route:** 3.9 km (2.4 mile) loop along the Ottawa River and in front of the historic Canadian Parliament buildings

**Contact:** Jen Keir, [jkeir031@uottawa.ca](mailto:jkeir031@uottawa.ca)

## Inaugural Women in the IAEMGS Luncheon

Inaugural Women in the IAEMGS Luncheon will be held in the Westin Hotel on Wednesday, August 31 at 12:30pm until 2:00pm.



## Lunch and Walk in the Glebe Lunch at Jericho

Jericho Restaurant, a well-regarded Middle Eastern/Mediterranean-themed restaurant in the Glebe neighborhood. After a nice, relaxing lunch, we have many options for other activities in the area, including pubs, pastry/bakery shops, coffee shops, a bubble tea shop, an ice creamery, and many small shops selling an eclectic range of items (good for those looking for distinctive souvenirs).

**Date/Time:** 12:30 to 5:00 pm on Wednesday, August 31, 2022.

**Location:** Jericho Restaurant ([www.jerichorestaurant.com](http://www.jerichorestaurant.com))

**Maximum number of people:** 40

**Contact:** Kin Chan, [kin.chan@uottawa.ca](mailto:kin.chan@uottawa.ca)

## ICEM Conference Banquet

### Dinner Shuttles to Museum of History – Wednesday August 31, 2022

Shuttle service for the dinner at the Museum of History will begin at 6:00pm from the main lobby of the Westin Ottawa. Shuttles will be available to be boarded and will depart as buses are filled. Shuttles will continue to run until 7:30pm at which time an active shuttle will remain on standby at the Museum. All buses will resume regular shuttle service at 9:00pm to the Westin Ottawa. The last shuttle will depart the Museum of History no later than 10:45pm. Transportation staff will be available to assist you on site.

The Banquet will be held at the Grand Hall in the Canadian Museum of History on Wednesday, August 31 at 6:00pm until 10:00pm. The Banquet will begin at 6:00pm for guests to view the museum for an hour, and dinner will be served at 7:00pm.

# Excursions

## Open Afternoon

Wednesday, August 31, 2022 12:30pm – 6:00pm ET

### Ottawa River Tour (2.5 hours)

See Ottawa from a different perspective- by boat! Enjoy the calm of the Ottawa River and indulge in an experience like no other as you discover Ottawa by yacht.

The tour will begin at 1:15pm ET/boat sailing at 2:00pm. The tour departs from the Westin Ottawa hotel lobby 20 minutes before start time at 12:55pm ET. Cost is \$46 USD per person (minimum number for tour is 15, maximum number of persons for this tour is 50).

- A tour escort will assist with wayfinding to the Boat Dock and with check-in
- A guided tour of the Ottawa River and points of interest along the river shoreline
- Participants will be provided with bottled water and an energy bar
- A selection of beverages and snacks will be available for purchase on the boat
- You may bring your own food/snacks/drinks on the tour
- Tour will proceed rain or shine



## Canadian Museum of Nature & Canadian War Museum (4 hours)

Explore Canada in a more in-depth way by attending the Canadian Museum of Nature and the Canadian War

Museum. *The Canadian Museum of Nature's* scientific research occurs across Canada, from coast to coast on the territories of the Métis and First Nations people and in Inuit Nunangat. The galleries at the Museum of Nature include the Fossil Gallery, Water Gallery, Nature Live, Bird Gallery, Earth Gallery, Mammal Gallery, and the Canada Goose Arctic Gallery. *The Canadian War Museum* traces back to 1880 and is Canada's national museum of military history and one of the world's most respected museums for the study of understanding armed conflict. The exhibition galleries and programs are designed to emphasize the human experience of war. The Special Exhibits being displayed during ICEM 2022 include "Forever Changed – Stories from the Second World War" and "Liberation! Canada and The Netherlands, 1944-1945".

The tour will begin at 1:00pm ET and depart from the Westin Ottawa hotel lobby by bus 20 minutes before the start of the tour at 12:40pm ET.

This tour requires registration. Cost is \$89 USD per person (minimum number for tour is 25, maximum number of persons for this tour is 50).

This tour includes:

- A tour escort will assist everyone with bus transportation and check-in at the Museum admission, bus transportation will be provided to take participants to and from the hotel and each museum
- 45 – 60 minute guided tour at each Museum
- Participants will be provided with a bottled water and an energy bar

Added feature: Explore the Glebe- pick up a coffee or snack at your leisure during a 30-minute stop exploring this iconic Ottawa Neighborhood, filled with boutiques and restaurants.

## Ottawa Walking Tour (2 hours)

This guided walk takes you through the historical highlights of downtown Ottawa, including stops at:

- Parliament Hill
- The National War Memorial
- Sparks Street
- Major's Hill Park
- The Fairmont Chateau Laurier
- The Bank of Canada
- The Rideau Canal
- The Prime Minister's Offices
- The By Ward Market
- And other areas of interest

The tour begins at 1:45pm ET and departs from the Westin Ottawa hotel at 1:25pm ET. Cost is \$21 USD per person (minimum number for tour is 15, maximum number of persons for tour is 45).

- A tour escort will accompany group on walking tour and will share points of interest and background on key landmarks and locations
- Participants will be provided with bottled water and an energy bar
- Walking tour will proceed rain or shine



## Ottawa Cycling Tour (3 hours)

Departing from the hotel, the group will take a short walk to the Bicycle location to get fitted with their ride. Our route begins from Sparks Street heading to the War Memorial. Next, a leisurely ride on the Rideau Canal Pathway will give you a beautiful view of Ottawa's downtown and popular Byward market neighborhood. Continuing cycling, we will visit Rideau Hall, Rideau Falls, and cross the bridge to visit the beautiful province of Quebec. Cycling back through Voyageurs and Ottawa River pathways (or Sir John A. MacDonald Parkway) you will see and hear more of Ottawa's beauty and major attractions including Parliament Hill, the National Art Gallery and Museum of History. The Rideau Locks and Bytown Museum will be the last attractions before returning to the starting point of this fun tour. The cycle tour is suited to all levels of experience and runs rain or shine.

The tour begins at 1:30pm ET and departs from the Westin Ottawa hotel lobby at 1:10pm ET. Cost is \$55 USD per person (minimum number for tour is 12, maximum number of persons for tour is 48).

- Tour will include a bike rental sized to your height and helmet
- A tour escort will assist with wayfinding to the Bike Rental location
- A tour escort will share points of interest and background on key landmarks and locations
- Participants will be provided with bottled water and an energy bar
- Walking tour will proceed rain or shine

# Sponsorship and Exhibits

## Sponsors

We would like to thank all our 2022 ICEM sponsors. Your support has enabled us to have an on-site meeting. Special thanks to our Diamond and platinum sponsors, some of which are sponsoring vital events. Please visit our 2022 ICEM sponsors online using the QR code below (Login Required).



## Sponsored Events

### Saturday, August 27, 2022

Opening Ceremony | Our Changing World: Keeping Precision Environmental Health at the Forefront: Rick Woychik, PhD, Director of the US National Institute of Environmental Health Sciences, Research Triangle Park, NC (Sponsored by TwinStrand Biosciences)

### Sunday, August 28, 2022

Plenary Speaker 3: Unraveling Mutagenic Translesion DNA Synthesis: A Personal Journey from the Ames Test to Cancer Chemotherapy:

Graham Walker, PhD, Massachusetts Institute of Technology, Cambridge, MA (Sponsored by TwinStrand Biosciences)

Symposium 1: Advancing Mechanistic Analyses in Genetic Toxicology Using High-Content and High-Throughput Methodologies (Sponsored by TwinStrand Biosciences)

Symposium 2: The Graham Walker Symposium: Complexity of Cellular Responses to DNA Damage (Sponsored by Carleton University)

Symposium 4: Analyses of DNA Modifications and Their Roles in Human Carcinogenesis (Sponsored by MGI Americas Inc.)

### Tuesday, August 30, 2022

Symposium 17: New Tools in Carcinogenicity Testing (Sponsored by Inotiv)

### Wednesday, August 31, 2022

Conference Banquet (Sponsored By Procter & Gamble, Inc. and the University of Ottawa)

## Exhibitors

Thank you to all 2022 ICEM Exhibitors.

Illumina  
Inotiv  
MGI Americas Inc.  
MOLTOX, Molecular Toxicology Inc.  
MultiCASE Inc.  
TwinStrand Biosciences  
VectorBuilder, Inc.  
Xenomatrix AG





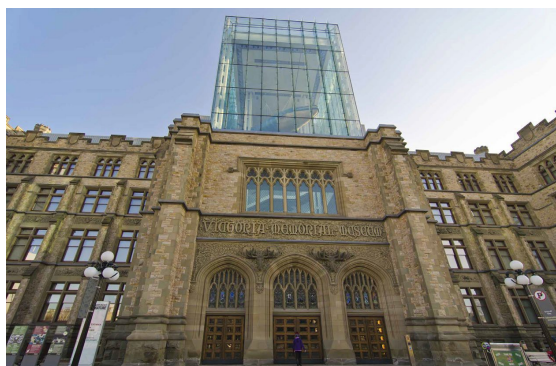
# Awards and Honors

## Student and New Investigator Travel Awards

**Aggie Rena Williams**, University of Louisville  
**Anne-Marie Fortin**, University of Ottawa  
**Annette Dodge**, University of Ottawa & Health Canada  
**Dana Janine Sowa**, McMaster University  
**Danila Cuomo**, Texas A&M University  
**David Manuel Schuster**, University of Ottawa & Health Canada  
**Deepak Keshava**, University of North Carolina at Chapel Hill  
**Dillon E. King**, Duke University  
**Elizabeth Huliganga**, University of Ottawa & Health Canada  
**Emily Victoria Speciale**, University of Miami  
**Estefany Merino Rojas**, University of Nevada Las Vegas  
**Eunnara Cho**, Health Canada  
**Geronimo Parodi-Matteo**, University of Ottawa  
**Idoia Meaza Isusi**, University of Louisville  
**Isaiah Thomas**, Northeastern Illinois University  
**Jennifer Keir**, University of Ottawa  
**Jennifer Liu**, Duke University  
**Johnny Wise**, University of Louisville  
**Joshua Bumgarner**, University of California Davis  
**Jun Xia**, Baylor College of Medicine & Creighton University  
**M. Alexandra Carpenter**, Wright State University  
**Mariarosaria De Rosa**, University of Pittsburgh  
**Marlo K. Thompson**, University of South Alabama  
**Melissa Drown**, University of Miami  
**Rebekah Lee Petroff**, University of Michigan  
**Rhizlane El omri-Charai**, INRS Centre Armand-Frappier Santé Biotechnologie  
**Ryan Barnes**, University of Pittsburgh  
**Samuel Thomas Vielee**, The University of Louisville  
**Sripriya Jaya Raja**, University of Pittsburgh  
**Takuma Kobayashi**, Shizuoka University  
**Tara Elizabeth Richbourg**, Duke University  
**Trisha Roshni Yogesh Patel**, De Montfort University  
**Vincent E. Provasek**, Texas A&M University  
**William Harold Cvammen IV**, Wright State University  
**Zhiqiang Jiang**, Fudan University

## Undergraduate Research Scholarship Award

**Celeste Marin**, Florida International University  
**Nader Abdalla**, University of South Florida



## Hollaender ICEM Travel Award

**Amanda Rodrigues Tanamachi**, São Paulo State University  
**Ana Letícia Hilario Garcia**, La Salle University  
**Ana Paulina Arévalo Jaramillo**, Universidad Técnica Particular de Loja  
**Aswathi P.**, Vellore Institute of Technology  
**Carlina Leila Colussi**, Universidad Nacional del Litoral  
**Clarissa Ribeiro Reily Rocha**, Federal University of São Paulo  
**Diego Luis Ribeiro**, University of São Paulo  
**Felippe Truglio Machado**, University of São Paulo  
**Fernanda Luiza Facioli**, University of Passo Fundo  
**Francisco Carlos da Silva Junior**, Federal University of Rio Grande do Norte  
**Gabriel Rampazzo Magalhães**, University of Campinas  
**Ibemusu Michael Otele**, De Montfort University  
**Jéssica Ellen Barbosa de Freitas Lima**, University of São Paulo  
**Lais Yoshie Morikawa Muta**, University of São Paulo  
**Marcela Teatin Latancia**, University of São Paulo  
**Marina Tenório Botelho**, University of São Paulo  
**Monyse de Nobrega**, State University of Londrina  
**Natália Chermont dos Santos Moreira**, University of São Paulo  
**Paula Rohr**, Barretos Cancer Hospital  
**Rebeca Bueno Alves**, University of São Paulo  
**Rone Aparecido De Grandis**, Federal University of Sao Carlos  
**Subeka A.G.**, Vellore Institute of Technology  
**Tolulope Dorcas Olawole**, Covenant University

# Satellite Meetings

Samuel H. Wilson Memorial meeting: DNA Damage & Repair –*Inspiring basic and applied research on the crucial importance of genome maintenance mechanisms*

**Chair:** Robert Sobol, Mitchell Cancer Institute, University of South Alabama, Mobile, AL, United States

**Date/time:** Saturday, August 27, 2022, 7:30am – 3:30pm ET

**Location:** Governor General II - Level 4

**Description:** This one-day session will highlight cutting edge research from both established leaders and junior trainees on DNA repair mechanisms, with emphasis on their importance for basic and environmental health sciences. The session will exemplify the same dedication to scientific discovery and support for trainees that was a lifelong pursuit of Sam Wilson over his productive and impactful career.

**Introduction - Dr. Sam Wilson - Mentor, friend, and leader**

Robert W. Sobol, PhD., Mitchell Cancer Institute, University of South Alabama

**Mouse DNA Polymerase Beta - does it work alone?** Robert W. Sobol, PhD., Mitchell Cancer Institute, University of South Alabama

**BER Processing of Oxidative Lesions in Tolomeres**

Patricia L. Opresko, PhD, University of Pittsburg & Genome Stability Program, UPMC Hillman Cancer Center

**The Causes and Consequences of Making Mistakes During DNA Synthesis**

Thomas A. Kunkel, PhD., National Institute of Environmental Health Sciences, NIF

**Polymerases, Both Big and Small, in Repair of Chromosome Breaks**

Dale A. Ramsden, PhD., Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill

**Aberrant BER and Human Disease**

Joann Sweasy, PhD., University of Arizona Cancer Center

**New Insights into Mitochondrial DNA Replication**

William C. Copeland PhD., National Institute of Environmental Health Sciences, NIH

**NEIL2: Rule Breaker and Shape Shifter**

Sylvie Doublé, PhD., University of Vermont

**Testimonial on my Time Working with Sam on the Cutting-edge Perspectives Series, and his Editorship of DNA Repair**

Phillip C. Hanawalt, PhD., Stanford University, Emeritus

**Mechanisms of PARP Activation in the DNA Damage Response**

John M. Pascal, PhD., Université de Montréal

**NEIL1 - The Tale of a Disordered Tail**

Aishwarya Prakash, PhD, Mitchell Cancer Institute, University of South Alabama

**BER, APE1 and Nucleases Related to BER**

John A. Tainer, PhD., The University of Texas MD Anderson Cancer Center

**A Personal Reflection of Knowing Sam Wilson**

Leona Samson, PhD., Massachusetts Institute of Technology, Emeritus

**Visualizing Base Excision Repair in Chromatin**

Bret David Freudenthal, PhD. University of Kansas Cancer Center

**The Role of Nucleotide Excision Repair Proteins in Processing 8-oxoG Base Damage: seeing is believing**

Bennett Van Houten, PhD., University of Pittsburg & Genome Stability Program, UPMC Hillman Cancer Center

**Reflections on Sam's leadership at NIEHS**

Rick Woychik, PhD; Director, National Institute of Environmental Health Sciences, NIH

Sponsored by:



General



## 9<sup>th</sup> International Workshops on Genotoxicity Testing (IWGT)

The 8th International Workshops on Genotoxicity Testing (IWGT), a satellite meeting of the ICEM, will be held August 23 - 26, 2022 at the nearby University of Ottawa. The goal of the IWGT is to gain consensus on current issues and approaches in genetic toxicology. World-leading experts representing different subject areas are assembled; recommendations on test systems, strategies and approaches are discussed and debated. The outcome, with accompanying consensus statements, are published in a peer-reviewed scientific journal. The 8<sup>th</sup> IWGT will include Working Groups that collectively address the following topics:

- Transcriptomic Biomarkers
- Predictivity of In Vitro Genotoxicity Testing
- Genotoxicity dose-response Analysis for Potency Comparisons and Risk Assessment
- In Vivo Genotoxicity Assessment Strategies
- Statistical Approaches and Data Interpretation

In addition, two plenary sessions will provide state-of-the-art information pertaining to:

- Epigenotoxicity and Germ Cell Effects
- Gene Therapy

Guests are welcome to observe and contribute to the discussions. For more information on registration and participation, please visit <https://iwgt.org>

# Saturday, August 27, 2022

## Samuel H. Wilson Memorial Meeting: DNA Damage & Repair

7:00AM-3:40PM  
Saturday, 27th August, 2022

Location Governor General II-Level 4  
Session Chairs Robert Sobol, PhD

This one-day session will highlight cutting edge research from both established leaders and junior trainees on DNA repair mechanisms, with emphasis on their import for basic and environmental health sciences and will exemplify the same dedication to scientific discovery and support for trainees that was a lifelong pursuit of Sam Wilson over his productive and impactful career.

### 8:00-8:20AM | Introduction-Dr. Sam Wilson-Mentor, friend, and leader

Robert W. Sobol, Mitchell Cancer Institute, University of South Alabama  
- A Video Presentation-In his own words-Sam's career trajectory

### 8:20-8:45AM | BER Processing of Oxidative Lesions in Telomeres

Patty Opresko, University of Pittsburgh & Genome Stability Program, UPMC Hillman Cancer Center

### 8:45-9:10AM | Mouse DNA Polymerase Beta-does it work alone?

Robert W. Sobol, Mitchell Cancer Institute, University of South Alabama

### 9:10-9:35AM | The Causes and Consequences of Making Mistakes During DNA Synthesis

Tom Kunkel, National Institute of Environmental Health Sciences, NIH

### 9:35-10:00AM | Visualizing Base Excision Repair in Chromatin

Bret Freudenthal, University of Kansas Cancer Center

### 10:00-10:15AM | Coffee Break and Networking

### 10:15-10:25AM | Reflections on Sam's Leadership at NIEHS

Rick Woychik, Director, National Institute of Environmental Health Sciences, NIH

### 10:25-10:50AM | 156 Mapping the DNA Damage Landscape in Various Species Using Repair Assisted Damage Detection (RADD)

Natalie R Gassman, University of Alabama at Birmingham, Birmingham, AL, USA

### 10:50-11:15AM | The Role of Nucleotide Excision Repair Proteins in Processing 8-oxoG Base Damage: seeing is believing

Ben Van Houten, University of Pittsburgh & Genome Stability Program, UPMC Hillman Cancer Center

### 11:15-11:40AM | Aberrant BER and Human Disease

Joann Sweasy, University of Arizona Cancer Center

### 11:40AM-12:05PM | Polymerases, Both Big and Small, in Repair of Chromosome Breaks

Dale Ramsden, Lineberger Comprehensive Cancer Center, University of North Carolina, Chapel Hill

### 12:05-12:30PM | 130 Mechanism of Nucleotide Discrimination by the Translesion Synthesis Polymerase Rev1

Tyler M Weaver, University of Kansas Medical Center, Kansas City, KS, USA

### 12:30-1:00PM | Lunch



## Saturday, August 27, 2022, continued...

**1:10-1:35PM | NEIL1-The Tale of a Disordered Tail**

*Ash Prakash, Mitchell Cancer Institute, University of South Alabama*

**1:35-2:00PM | New Insights into Mitochondrial DNA Replication**

*Bill Copeland, National Institute of Environmental Health Sciences, NIH*

**2:00-2:25PM | NEIL2: Rule Breaker and Shape Shifter**

*Sylvie Doublé, University of Vermont*

**2:25-2:35PM | A Personal Reflection on Knowing Sam Wilson**

*Leona Samson, Massachusetts Institute of Technology, Emeritus*

**2:35-3:00PM | Mechanisms of PARP Activation in the DNA Damage Response**

*John Pascal, Université de Montréal*

**3:00-3:25PM | BER, APE1 and Nucleases Related to BER**

*John A. Tainer, The University of Texas MD Anderson Cancer Center*

**3:25-3:35PM | Testimonial on my Time Working with Sam on the Cutting-edge Perspectives Series, and his Editorship of DNA Repair**

*Phil Hanawalt, Stanford university, Emeritus*

**3:35-3:40PM | Closing Remarks**

*Robert W. Sobol, Mitchell Cancer Institute, University of South Alabama*

## **Saturday, August 27, 2022, continued...**

### **Workshop 1: Mini versus Standard Ames Assays: What Have We Learned from the OECD's Comparative Evaluation**

8:00AM-12:00PM  
Saturday, 27th August, 2022

Location Confederation I-Level 4  
Session Chairs Patricia Escobar, Birgit Mertens

Several miniaturized versions of the bacterial reverse gene mutation (Ames) test have been developed and are already used, particularly for early screening of new products in industry research and development. However, results from these miniaturized assays are currently not widely accepted by the regulatory agencies since they are not described in any existing OECD Test Guideline. In 2016, an OECD project was launched to (a) identify the types of miniaturized assays in use; (b) procure comparative data for those assays relative to the standard OECD TG471 bacterial reverse gene mutation test; (c) evaluate the performance of each of the miniaturized versions compared to the standard assay; and (d) make recommendations regarding the utility of the miniaturized assays for regulatory purposes. This workshop will present a short overview of the different miniaturized Ames assays, the final results of the retrospective assessment and recommendations following from this assessment.

**8:00-8:30AM | Overview of the OECD Process to Evaluate Miniaturized Ames Assays (including description of the different assays)**  
*Dr. Birgit Mertens (Sciensano, Belgium)*

**8:30-9:00AM | Regulatory Perspectives on Assay Utility and Acceptance**  
*Dr. Federica Madia (EURL ECVAM, Italy)-Slides will be presented by Patricia Escobar*

**9:00-9:30AM | Industry Perspectives on Assay Utility and Current Use**  
*Dr. Leon Stankowski (Charles River, US)*

**9:30-10:00AM | Coffee Break and Networking**

**10:00-10:45AM | Outcome of the Retrospective Performance Analyses**  
*Prof. Paul White (Health Canada, Canada)*

**10:45-11:30AM | Strengths and Limitations of the Retrospective Analyses, Recommendations and Next Steps**  
*Dr. Dan D. Levy (USFDA, Retired)*

**11:30AM-12:00PM | Discussion and Closing Summary**  
*Dr. Birgit Mertens (Sciensano, Belgium)*



## Saturday, August 27, 2022, continued...

### Workshop 2: Time to Solve a Crisis? Can the Risk from Exposure to the DNA Reactive Botanical Contaminant Family Pyrrolizidine Alkaloids be Managed Through Relative Potency Factors (RPF's)?

8:00AM-12:00PM  
Saturday, 27th August, 2022

Location Confederation III-Level 4  
Session Chairs Lin Ge, Stefan Pfuhrer

Pyrrolizidine alkaloids (PAs) are common plant constituents that can be found as contaminants in teas, herbs and honey, but are also sometimes found at higher concentrations in herbal medicinal products. The PA constituent family includes DNA reactive rodent hepatocarcinogens and the questions in this workshop address two risk scenarios: a high exposure scenario through Asian herbal medicines and the increasing indication that this is an important health issue that needs to be managed, and the low exposure scenario through difficult to avoid low-level contamination of plant-based products with PAs. In the context of managing these risk scenarios the use of relative potency factors (RPFs) will be discussed. To do this successfully, knowledge of their potency to damage DNA as well as knowledge of toxicokinetic factors that enable IVIVE modelling is necessary.

**8:00-8:30AM | Exposure to pyrrolizidine alkaloids from botanicals: natural occurrence and sources in daily life**

*Patrick Mulder, The Netherlands*

**8:30-9:15AM | Pyrrolizidine alkaloids (PAs)-induced liver injury in China: PA-containing herbal exposure, development of protein and DNA adduct biomarkers, and clinical diagnosis**

*Lin Ge, China*

**9:15-10:00AM | Interim Relative Potency Factors for pyrrolizidine alkaloids-current perspectives and open questions**

*Dieter Schrenk, Germany*

**Break**

**10:15 -10:45AM | DNA reactivity and relative potency of pyrrolizidine alkaloids in vitro and in vivo**

*Stefan Pfuhrer, USA*

**10:45-11:15AM | Relative potency factors (RPFs) of pyrrolizidine alkaloid N-oxides at realistic low dose levels**

*Frances Widjaja, The Netherlands*

**11:15-11:45AM | Modeling of DNA damage for PA N-Oxides and impact of ADME factors important for in vitro to in vivo extrapolation (IVIVE)**

*John Troutman, USA*

**11:45AM-12:00PM | Panel Discussion: Are there gaps in protection of the public and how could they be filled?**

## **Saturday, August 27, 2022, continued...**

### **Workshop 3: Methods and Applications of the CometChip and Additional Cell Microarray Technologies**

8:00AM-12:00PM  
Saturday, 27th August, 2022

Location Quebec-Level 4  
Session Chairs Bevin Engelward Sc.D.

The comet assay is an established method for detecting DNA damage. The underlying principle of the comet assay is that damaged DNA migrates more readily in agarose, giving the appearance of a comet-like shape. The traditional comet assay is broadly used, despite the fact that it is laborious, low-throughput, and often suffers from poor reproducibility. The CometChip was developed to overcome these limitations by exploiting a mammalian cell array. Rather than individual glass slides for every sample, the CometChip enables use of a standard 96-well plate format. With its more rapid imaging (dozens of comets can be captured in a single image due to their shared focal plane) and automated image analysis, the CometChip provides more than a 100-fold increase in throughput. It is also much easier to perform, and it has improved reproducibility. The focus of this workshop is to introduce the CometChip technology and to describe some of its many applications. Included will be descriptions of modifications that enable detection of bulky DNA adducts that form as a result of metabolic activation, and of its utility for the in vivo comet assay. There will also be a description of ongoing efforts to make the CometChip a component of the genetic toxicology battery and a description of its utility for studies of nanoparticles. Additionally, there will be a presentation on emerging software being developed using AI and there will be a hands-on demonstration. As such, this session has content to help newcomers to get started and to update users on its many applications and emerging opportunities.

#### **Introduction to the CometChip and the In Vivo CometChip**

*Bevin Engelward, ScD, Massachusetts Institute of Technology*

#### **Developing an in vitro Alternative to the in vivo Comet Assay: DNA Damage Assessment in HepaRG Cells and Hepatocytes**

*Leslie Recio, PhD, Integrated Laboratory Systems, Inc.*

#### **The Utility of CometChip in Nanogenotoxicological Studies**

*Christa Wright, PhD, Georgia State University*

#### **Analysis of Comets using In-House Software**

*Elliot Corless, PhD*

#### **Hands-on Demonstration of Technology and Informal Q&A**

*Cyrus Munshi, PhD, Bio-Techne, Inc.*





## Saturday, August 27, 2022, continued...

### Workshop 4: Advancing the Next Generation of Genetic Toxicology and Cancer Risk Assessment

7:30AM-3:30PM  
Saturday, 27th August, 2022

Location Ontario-Level 3  
Session Chairs Robert Young, Francesco Marchetti, Sheroy Minocherhomji

Advances in next-generation sequencing make it feasible to analyze the whole genome of an organism in a matter of days. However, direct sequencing of DNA to evaluate mutagenesis in mammalian genomes is currently not possible with conventional next-generation sequencing because of an error rate (1 error per ~1000 sequenced bases) well above the mutant frequency of normal cell replication ( $\sim 10^{-7}$  to  $10^{-8}$ ). In recent years, a set of new sequencing tools, termed collectively as Error Corrected Next Generation sequencing (EC-NGS), have emerged that allow the detection of rare mutations within the heterogeneous population of cells. These error-corrected sequencing technologies can be applied in any species/tissue and are poised to revolutionize genetic toxicology. New genomics approaches and paired-ends NGS techniques are also allowing a better understanding of structural variation in the genome (eg, duplication and deletion of large genomic regions), characterization of induced genomic instability and their impact on health. The primary aim for this workshop is to educate the wider genetic toxicology community on basic methodologies and principles such as EC-NGS and other genomics approaches, including wet lab and bioinformatic approaches available. The workshop will provide an opportunity to learn about the various EC-NGS, paired-end NGS and genomics platforms, understand the critical bioinformatics pipelines needed for extracting and analyzing data generated by these platforms. We will also cover other potential applications of these technologies for elucidating the mechanisms of mutagenesis for regulatory applications, cancer cell heterogeneity and basic biology.

Registration, light breakfast with coffee/tea

Welcome, opening remarks, purpose of the workshop

*Francesco Marchetti, Health Canada*

### Session 1: Unmet Need for Human Cancer Risk Assessment-Landscape for a need to advance preclinical cancer risk assessment of xenobiotics

**8:45-9:10AM | Improving preclinical cancer risk assessment-a regulatory perspective**

*Roland Frötschl (BfArM)*

**9:10-9:35AM | Preclinical hazard identification**

*Patricia Escobar (Merck & Co.)*

**9:35-10:00AM | Alternative to lifetime cancer bioassay**

*Frank Sistare (Consultant) (Presented by Patricia Escobar)*

### Session 2: New technologies to detect ultra-rare de novo mutants in mammalian genomes

**Part 1-Development, implementation, and data analysis of error-corrected sequencing technologies**

**10:00-10:30AM | Overview of Error Corrected Sequencing technologies**

*Jesse Salk (TwinStrand)*

**10:30-11:00AM | Coffee Break and Networking**

**11:00-11:30AM | Mutagenicity in Somatic Tissues, Technology Transfer of Duplex Sequencing: A case study**

*Shaofei Zhang (Pfizer)*

**11:30AM-12:00PM | Quantitative Analysis of Cancer Driver Mutations via Targeted Error-Corrected Sequencing**

*Meagan Myers (US FDA)*

## Saturday, August 27, 2022, continued...

12:00-1:00PM | Lunch

**Session 2, Part 2-Advancing mutagenicity and genome instability testing of xenobiotics**

1:00-1:20PM | Optimized approaches for fast detection of somatic mutations

*Ludmil Alexandrov (UC San Diego)*

1:20-1:40PM | New approaches to assess structural variation in the genome

*Tom Wilson (University of Michigan)*

1:40-2:00PM | Strategies to Minimize the Off-Target Effects in CRISPR-Cas-Mediated Genome Editing

*Alexei Slesarev (MilliporeSigma)*

2:00-2:15PM | Coffee Break and Networking

**Session 3: Regulatory requirements for implementation of new genomic sequencing endpoints for genotoxicity and cancer risk assessment & Discussion-Acceptance of Error Corrected Sequencing Technologies for Regulatory Testing**

2:15-2:45PM | Roadmap to Biomarker Qualification and Case study in HESI's role

*Sybil Pettit (HESI)*

2:45 to 3:30PM | Group discussion and closing remarks



## Saturday, August 27, 2022, continued...

### Workshop 5: In silico Approaches in Genetic Toxicology: Application Ames QSAR to ICH-M7

8:00AM-12:00PM  
Saturday, 27th August, 2022

Location Newfoundland/Nova Scotia-Level 4  
Session Chairs Catrin Hasselgren, Keiichi Sugiyama

This workshop will introduce the Ames / QSAR International Challenge Project and present the latest performance of QSAR tools with QSAR vendors and users. It will also present case studies from expert reviews experienced in this new project. We will also discuss the effective risk management of mutagenic impurities. The overarching purpose of the workshop is to provide an opportunity for participants to present and discuss in silico approaches in genotoxicity assessment using Ames/QSAR.

#### 8:05-8:30AM | Overview of Outcomes of 2nd Ames/ QSAR Project

*Ayako Furuhashi, National Institute of Health Sciences (NIHS), Kawasaki, Kanagawa, Japan*

#### 8:30-8:55AM | Outcome of ICH-M7 Expert Review Workshops in Japan

*Masayuki Mishima, Chugai Pharmaceutical, Tokyo, Japan*

#### 8:55-9:20AM | Undertaking Expert Review Under the ICH M7 Guideline

*Robert S Foster, Lhasa Limited, Leeds, United Kingdom*

#### 9:20-9:45AM | Effective Expert Review Strategy for ICH-M7 Assessment

*Roustem Saiakhov, MultiCASE, Inc., Cleveland, OH, USA*

#### 10:15-10:40AM | ICH M7 Expert Review Procedures and Assessment of Specific Chemical Classes

*Kevin P Cross, Instem, Stone, United Kingdom*

#### 10:40-11:05AM | An Integrative in Silico Approach to Assist Expert Review in the Assessment of Potential Genotoxic Impurities Under ICH-M7

*James F Rathman, Ohio State University, Columbus, OH, USA*

#### 11:05-11:30AM | (Q)SAR Evaluation of Drug Impurities from the US FDA Scientific Perspective

*Naomi L Kruhlak, US FDA/CDER, Silver Spring, MD, USA*

#### 11:30-11:55AM | Setting Toxicological-Based Limits for Mutagenic Impurities under ICH M7

*Joel P Bercu, Gilead Sciences, Foster City, CA, USA*

## **Saturday, August 27, 2022, continued...**

### **Student Welcome Session**

1:00-3:00PM  
Saturday, 27th August, 2022

Location Provinces Ballroom & Ballroom Foyer  
Social Programs

An informative and social program will be held on August 27 at 1:00PM until 3:00PM for students and post-doctoral fellows attending the 13th ICEM. This will be a time for students and post-doctoral fellows to meet and network with one another prior to the start of the meeting.

### **Plenary Speaker 1**

4:00-6:00PM  
Saturday, 27th August, 2022

Location Shaw Centre

#### **K1 Our Changing World: Keeping Precision Environmental Health at the Forefront**

*Rick Woychik. US National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina, USA*

### **Opening Reception**

6:00-7:30PM  
Saturday, 27th August, 2022

Location Shaw Centre  
Social Programs

The Opening Reception will be held Saturday, August 27 from 5:30PM until 7:00PM ET in the Shaw Center. Light Hors d'Oeuvres and drinks will be served. All registrants are encouraged to attend. Guests must be registered as an Accompanying Person to attend. Badges should be worn.

### **ICEM Welcome Pub Crawl**

7:00-10:00PM  
Saturday, 27th August, 2022

Location The Westin Hotel-Main Entrance  
Social Programs

Come join us on a walking tour of 4 pubs in Ottawa. Are you on your own or with a group? Either way this will be a fun way to meet some conference buddies and see some of the great Ottawa hot spots! We will be visiting four pubs on Elgin street and Sparks street (a pedestrian street), all within walking distance of the ICEM venue and the Westin hotel. We will be spending 30 minutes at each place and will be playing some games and trivia throughout the evening. Please meet in the lobby of the Westin Hotel-we will depart at 7 pm, so if possible, please plan to arrive about 10 minutes in advance.

Registration will be capped at 50 participants.

Contact: Alexandra Long, [alexandra.long@hc-sc.gc.ca](mailto:alexandra.long@hc-sc.gc.ca)



# Sunday, August 28, 2022

## 7:00-8:30AM

### DNA Repair SIG Meeting

Location Governor General I-Level 4

### Germ Cell and Heritable Effects SIG Meeting

Location Governor General II-Level 4

### Finance Committee

Location Newfoundland/Nova Scotia-Level 4

## Plenary Speaker 2: Evan E. Eichler

8:15-9:05AM

Sunday, 28th August, 2022

Location Confederation I/II - Level 4

### K2 Complex Structural Variation in a Complete Human Genome

*Evan E Eichler, University of Washington, Seattle, Washington, USA*

## Plenary Speaker 3: Graham Walker

9:10-10:00AM

Sunday, 28th August, 2022

Location Confederation I/II - Level 4

### K3 Unraveling Mutagenic Translesion DNA Synthesis: A Personal Journey from the Ames Test to Cancer Chemotherapy

*Graham C. Walker, Massachusetts Institute of Technology, Cambridge, MA, USA*

## Symposium 1: Advancing Mechanistic Analyses in Genetic Toxicology using High-content and High Throughput Methodologies

10:30AM-12:30PM

Sunday, 28th August, 2022

Location Confederation I-Level 4

Session Chairs Alexandra Long, Health Canada, Ottawa, ON, Canada, Eunna Cho, Health Canada & Carleton University, Ottawa, ON, Canada Daniel Roberts, Charles River Laboratories, Skokie, IL, USA

This symposium examines the advantages of high-throughput and high-content assays for the detection of genetic damage and explores the regulatory and mechanistic applications of data generated using such approaches. Join us as we showcase efforts to modernize genetic toxicity testing by incorporating innovative tools and analysis techniques.

### 10:30-11:00AM | S1 Evaluating Cellular Responses To Toxic Compounds By High Content Screening

*David W. Andrews<sup>1,2</sup>, <sup>1</sup>Sunnybrook Research Institute, Toronto, Ontario, Canada. <sup>2</sup>University of Toronto, Toronto, Ontario, Canada*

### 11:00-11:30AM | S2 Deep Neural Networks to Automate Scoring Of The Imaging Flow Cytometry In-Vitro Micronucleus Assay

*Paul Rees<sup>1,2</sup>, <sup>1</sup>Swansea University, Swansea, United Kingdom. <sup>2</sup>The Broad Institute of MIT and Harvard, Cambridge, MA, USA.*

### 11:30-11:40AM | S3 Development of a Universal Machine Learning Model to Facilitate Interlaboratory Transferability of an In Vitro Multiplexed Genotoxicity Mode of Action Assay

*Steven Bryce, Litron Labs, Rochester, NY, USA*

### 11:40-11:50AM | S4 High-Throughput Assessment of DNA damage using CometChip®

*Bevin Page Engelward, Massachusetts Institute of Technology, Cambridge, MA, USA*

## **Sunday, August 28, 2022, continued...**

**11:50AM-12:00PM | S5 TGx-DDI for High-Throughput, High-Content Identification of DNA Damaging Substances**

*Carole L. Yauk, University of Ottawa, Ottawa, ON, Canada.*

**12:00-12:15PM | S6 GeneTox21-An Integrated Platform for in vitro Genetic Toxicity Assessment and Regulatory Evaluation of New and Existing Substances**

*Hannah Battaion, Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada.*

**12:15-12:30PM | S7 High Content Imaging And Deep Learning: Opportunities And Challenges In Toxicology**

*J W Wills, University of Cambridge, Cambridge, Cambridgeshire, United Kingdom.*

### **Symposium 2: The Graham Walker Symposium: Complexity of Cellular Responses to DNA Damage**

10:30AM-12:30PM  
Sunday, 28th August, 2022

Location Confederation II - Level 4  
Session Chairs Bruce McKay, Carleton University, Ottawa, ON, Canada, Iain Lambert, Carleton University, Ottawa, ON, Canada

This symposium recognizes the extraordinary contributions of Graham Walker to the Mutagenesis and DNA Repair community. Graham is well known as an educator, an editor, and has been a leader in understanding the complexity of cellular responses to DNA damage in both bacteria and eukaryotes.

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**10:30-11:00AM | S8 RNA-DNA Hybrids Cause Genome-Wide Instability Through Nucleobase Deamination and Genomic Rearrangements in Bacteria**

*Jeremy W Schroeder, University of Michigan, Ann Arbor, MI, USA*

**11:00-11:30AM | S9 Insights Into How Bacteria Manage the Actions of Their DNA Polymerases**

*Michelle K. Scotland, University at Buffalo, SUNY, Buffalo, NY, USA*

**11:30AM-12:00PM | S10 Translesion Synthesis: From Cancer Resistance to Host-Pathogen Interactions**

*Nimrat Chatterjee M.Sc. Ph.D., The Larner College of Medicine at The University of Vermont, Burlington, VT, USA*

**12:00-12:15PM | S11 Unraveling DNA Polymerases Iota, Kappa and Eta Roles on Temozolomide Treatment**

*Marcela Teatin Latancia, Biomedical Science Institution-University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil*



## Sunday, August 28, 2022, continued...

### Symposium 3: Application of Computational Modeling and Bioinformatics in Toxicological Hazard and Risk Assessment

10:30AM-12:30PM  
Sunday, 28th August, 2022

Location Confederation III-Level 4  
Session Chairs Scott Auerbach, NIEHS, Durham, NC, USA, Marc Beal, Health Canada, Ottawa, ON, Canada, Julia Rager, University of North Carolina, Chapel Hill, NC, USA

The utility of in silico methods towards toxicological hazard and chemical risk assessment is rapidly expanding alongside advances in chemical screening and computational modeling approaches. This session provides timely updates on the integration of computational modeling and bioinformatics to address current problems in applied toxicology, exposure science, and risk assessment.

**10:30-11:00AM | S12 Systems Biology: Systematic Data Integration and Modeling for Toxicological Inference.**

*Olivier Thierry Taboureau, University of Copenhagen, Copenhagen, Denmark*

**11:00-11:30AM | S13 Application of Artificial Intelligence in Toxicology**

*Weida Tong, NCTR, Jefferson, AR, USA*

**11:30AM-12:00PM | S14 Applications of Literature Mining and Natural Language Processing to Evidence Mapping and Systematic Review**

*Danielle S. Wikoff PhD, ToxStrategies, Inc., Asheville, NC, USA*

**12:00-12:15PM | S15 Genomic Dose Response Modeling in Chemical Risk Assessment**

*Scott S Auerbach, NIEHS, RTP, NC, USA*

**12:15-12:30PM | S16 A Pathway Analysis and Connectivity Mapping Based Exploration of Oxidative Stress Mediated Genotoxicity Modes of Actions**

*K. Nadira De Abrew, The Procter & Gamble Company, Cincinnati, OH, USA*

## **Sunday, August 28, 2022, continued...**

### **Symposium 4: Analyses of DNA Modifications and Their Roles in Human Carcinogenesis**

10:30AM-12:30PM  
Sunday, 28th August, 2022

Location Governor General I - Level 4  
Session Chairs Haruhiko Sugimura, Hamamatsu University School of Medicine, Shizuoka, Japan, Silvia Balbo, University of Minnesota, Minneapolis, MN, USA

In contrast to rapid expansion of mutation signatures of cancers which may suggest individual carcinogenesis process, our understanding on the whole scheme of the ultimate DNA changes just before mis-pairing causing mutation in the human body are still incomplete. Updated knowledge on comprehensive search for human adductomics will be shared.

#### **10:30-11:00AM | S17 Human Adductomics, Challenges**

Haruhiko Sugimura<sup>1,2</sup>, <sup>1</sup>Hamamatsu University School of Medicine, Hamamatsu, Japan. <sup>2</sup>Sasaki Foundation Sasaki Institute, Tokyo, Japan

#### **11:00-11:30AM | S18 Untargeted DNA Adductomics**

Silvia Balbo, Masonic Cancer Center, Minneapolis, Minnesota, USA

#### **11:30AM-12:00PM | S19 An Experimental Tool-Box for Quantifying DNA Damage and Epigenetic Transformations**

Yuval Ebenstein, School of Chemistry, Tel Aviv University, Tel Aviv, Israel

#### **12:00-12:15PM | S20 Discovery DNA Adductomics: An Innovative Tool for the Discovery of Unknown Genotoxins**

Peter W Villalta, University of Minnesota, Masonic Cancer Center, Department of Medicinal Chemistry, Minneapolis, MN, USA

#### **12:15-12:30PM | S21 Mechanisms of APOBEC3 Mutagenesis in Human Cancer Cells**

Mia Petljak, Broad Institute of MIT and Harvard, Cambridge, MA, USA.

### **Platform 1: In vitro Testing Strategies**

10:30AM-12:30PM  
Sunday, 28th August, 2022

Location Governor General III-Level 4  
Session Chairs Deborah Roubicek, CETESB-Sao Paulo State Environmental Agency, Sao Paulo, Brazil, Jeffrey Bemis, Litron Laboratories, Rochester, NY, USA

#### **10:30-10:45AM | P1 NRF2 Modulates Ferroptosis in Temozolomide-Resistant Glioblastoma Cells**

Izadora Souza, UNIFESP, Sao Paulo, SP, Brazil

#### **11:00-11:15AM | P2 Establishment and Validation of the in Vitro Transgenic Rodent Assay Using Primary Hepatocytes From the MutaMouse.**

David Manuel Schuster, University Ottawa, Ottawa, Ontario, Canada. Health Canada, Ottawa, Ontario, Canada. BASF SE, Ludwigshafen, Rheinland-Pfalz, Germany. SYNLAB, Leinfelden-Echterdingen, Baden-Württemberg, Germany

#### **11:15-11:30AM | P3 Fate of Micronuclei and Micronucleated Cells**

Henning Hintzsche, University of Bonn, Bonn, Germany

#### **11:30-11:45AM | P4 In Vitro Genotoxicity Evaluation of PAHs in Mixtures Using Experimental Design**

Rebecca A. Castel<sup>1,2</sup>, <sup>1</sup>IMBE, Marseille, France. <sup>2</sup>LCE, Marseille, France

#### **11:45AM-12:00PM | P5 Investigation of Potential Respiratory Adverse Effects of Micro/nanofibrillated Cellulose and Cellulose Nanocrystals Using Human Lung Cell Lines**

Maria João Silva<sup>1,2</sup>, <sup>1</sup>National Institute of Health Doutor Ricardo Jorge, Department of Human Genetics, Lisbon, Portugal. <sup>2</sup>ToxOmics-Centre for Toxicogenomics and Human Health, NOVA Medical School, Universidade NOVA de Lisboa, Lisbon, Portugal





## Sunday, August 28, 2022, continued...

**12:00-12:15PM | P6 Development and Validation of Fourteen Human TK6-Derived Cell Lines That Individually Express a Human Cytochrome P450 for Genotoxicity Testing**

*Nan Mei, National Center for Toxicological Research, Jefferson, AR, USA*

**12:15-12:30PM | P7 A Multi-Biomarker Micronucleus Assay Using Imaging Flow Cytometry**

*Danielle SG Harte<sup>1,2</sup>, <sup>1</sup>Swansea University Medical School, Swansea, United Kingdom. <sup>2</sup>GSK R&D, Ware, United Kingdom*

**Lunch Tour at Sparks Street, Ottawa Pedestrian Promenade**

12:30-1:30PM  
Sunday, 28th August, 2022

Location The Westin Hotel-Main Entrance

**Location of Event:** Sparks Street Mall, varied restaurants and shops (<https://www.sparkslive.com/>)

**Maximum number of people:** The more, the merrier

**Time and place to meet:** 12:35PM, Main entrance of the Westin Hotel

**How to get there:** 10 min walk from Shaw Centre.

**EMM Editorial Board Meeting**

12:30-1:30PM  
Sunday, 28th August, 2022

Location Newfoundland/Nova Scotia - Level 4

**Plenary Speaker 4: Ajay Pillarisetti**

1:30-2:30PM  
Sunday, 28th August, 2022

Location Confederation I/II - Level 4

**K4 Household Energy and Health: What's Come and What's to Come.**

*Ajay Pillarisetti, School of Public Health, University of California, Berkeley, Berkeley, CA, USA*

## **Sunday, August 28, 2022, continued...**

### **Symposium 5: Genotoxic Hazards of Air Pollution-A Global Perspective**

3:00-5:00PM  
Sunday, 28th August, 2022

Location Confederation I-Level 4  
Session Chairs Paul White, Health Canada, Ottawa, ON, Canada, David DeMarini, University of North Carolina, Chapel Hill, NC, USA, Gisela de Aragão Umbuzeiro, State University of Campinas, Campinas, Brazil

This symposium will review the mechanistic evidence regarding the carcinogenicity of outdoor air. It will provide information about the mutagenicity of polluted air in Europe, South America, and Asia, and an overview of the types of mutations induced by the particulate and gas phase components of polluted outdoor air.

**3:00-3:30PM | S22 IARC Evaluation of Air Pollution Carcinogenicity: Supporting Mechanistic Evidence**  
*Paul A White, Health Canada, Ottawa, Ontario, Canada*

**3:30-4:00PM | S23 Mutagenicity And Carcinogenicity Of The Gas Phase And Particulate Components Of Polluted Air**  
*David M DeMarini, Retired, U.S. EPA, RTP, NC, USA*

**4:00-4:30PM | S24 Comparative Mutagenicity of Airborne Particulate Matter from Three Continents**  
*Gisela A Umbuzeiro, Unicamp, Limeira, Sao Paulo, Brazil*

**4:30-5:00PM | S25 Mutagenic Hazards of Air Pollution in Asia**  
*Kazuichi Hayakawa, Kanazawa University, Nomi, Ishikawa, Japan*

### **Symposium 6: In Vitro Screening Approaches for Risk Assessment**

3:00-5:00PM  
Sunday, 28th August, 2022

Location Confederation II-Level 4  
Session Chairs Xiaoqing (Carol) Guo, National Center for Toxicological Research, FDA, Jefferson, AR, USA, Olivier Taboureau, Université de Paris, Paris, France

With advancements in in vitro systems along with large scale screening efforts, IVIVE approaches, and development of massive dimensionality, in vitro screening for toxicological characterization and risk assessment will be covered through a number of the recent advances in in vitro toxicity testing.

**3:00-3:30PM | S27 High-Throughput Molecular Profiling Assays and Potential Applications in Chemical Risk Assessment**  
*Joshua A Harrill, USEPA, Durham, NC, USA*

**3:30-4:00PM | S28 Using In Vitro to In Vivo Extrapolation (IVIVE) to Apply Genetic Toxicity Data to Regulatory Risk Assessment**  
*Marc A Beal, Health Canada, Ottawa, Ontario, Canada*

**4:00-4:15PM | S29 How In Vitro 3D Tissue Models can be Utilized in the Assessment of Genotoxicity Risk**  
*Stefan A Pfuhrer, Procter & Gamble, Cincinnati, OH, USA*

**4:15-4:30PM | S30 Improving the Utility of in Vitro Screening Through Combined in Silico Modeling to Better Predict and Test Health Risks of Environmental Chemicals**  
*Julia Rager, University of North Carolina, Chapel Hill, NC, USA*

**4:30-5:00PM | S31 Genotoxicity Assessment Of Nanomaterials In Advanced Liver And Lung Models**  
*Elisabeth Elje<sup>1,2</sup>, <sup>1</sup>NILU-Norwegian Institute for Air Research, Kjeller, Norway. <sup>2</sup>University of Oslo, Oslo, Norway. <sup>3</sup>Norwegian Institute of Public Health, Oslo, Norway*



## Sunday, August 28, 2022, continued...

### Symposium 7: Impact of Obesity on DNA Stability and its Health Consequences

3:00-5:00PM  
Sunday, 28th August, 2022

Location Governor General I

Session Chairs Siegfried Knasmueller, Institute of Cancer Research, Medical University Vienna, Vienna, Austria, Vanessa Moraes de Andrade, Laboratorio de Immunologia e MutageneseUNESC, Santa Catarina, Brazil, Helga Stopper, Institute of Pharmacology and Toxicology, University of Wuerzburg, Wuerzburg, Germany

Most activities in genetic toxicology focused on chemicals. Recent investigations indicate that obesity which is increasing worldwide plays an important role that was underestimated. The contributions describe the mechanisms by which obesity causes DNA-damage and the impact of dietary interventions and weight loss on the integrity of the genetic material.

#### 3:00-3:30PM | S32 Obesity and DNA Damage-an Overview

*Siegfried Knasmueller, Center for Cancer Research, Medical University of Vienna, Vienna, Austria.*

#### 3:30-4:00PM | S33 Impact of Obesity on Cancer-Associated Mutation Hotspots

*Karen M. Vasquez, University of Texas at Austin, Austin, TX, USA*

#### 4:00-4:15PM | S34 Prevention Of Obesity Induced DNA Damage By Dietary Antioxidants In Mice

*Vanessa Moraes de Andrade, Laboratory of Translational Biomedicine, Graduate Program of Health Sciences, University of Southern Santa Catarina-UNESC, Criciúma, Santa Catarina, Brazil*

#### 4:15-4:45PM | S35 Reduction of Genomic Damage by Weight Loss

*Helga Stopper, University of Wuerzburg, Wuerzburg, Bavaria, Germany*

#### 4:45-5:00PM | S36 Association Between Dietary Interventions and the Dynamics of Telomere-DNA Repair: Implications for Obesity- Related Disorders

*Prakash Hande<sup>1</sup>, <sup>1</sup>Department of Physiology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore.*

## **Sunday, August 28, 2022, continued...**

### **Symposium 8: DNA Cross-link Repair and Health**

3:00-5:00PM  
Sunday, 28th August, 2022

Location Governor General I  
Session Chairs Alfredo Rodríguez, Instituto de Investigaciones Biomédicas, UNAM, Mexico City, Mexico, Sara Fraiss, Instituto de Investigaciones Biomédicas UNAM/Instituto Nacional de Pediatría, Mexico City, Mexico

ICLs are highly damaging DNA lesions. ICLs are recognized, removed and repaired by 22 genes of the FA / BRCA pathway; a zygote with biallelic mutation will be a patient with Fanconi anemia, while in somatic cells might cause cancer. Research in this area has generated important knowledge for cancer treatment.

#### **3:05-3:20PM | S37 The FA/BRCA Pathway; Cellular and Clinical Consequences of Its Failure**

*Sara Frias, Instituto de Investigaciones Biomédicas, Universidad Nacional Autónoma de México, Ciudad de México, CDMX, Mexico. Instituto Nacional de Pediatría, Ciudad de México, CDMX, Mexico*

#### **3:20-3:45PM | S38 Fanconi Anemia: From DNA Interstrand Crosslink Repair to Novel Therapies**

*Jordi Surrallés, Sant Pau Institute Research Institute, IIB Sant Pau, Barcelona, Spain, Barcelona, Spain*

#### **3:45-4:10PM | S39 Cell Fate Decisions In Fanconi Anemia Cells In The Face Of DNA Damage**

*Alfredo J. Rodríguez Gómez, Instituto de Investigaciones Biomédicas, UNAM, Mexico City, Mexico City, Mexico*

#### **4:10-4:35PM | S40 Ovarian Cancer as a Disease of DNA Repair**

*Liisa Kauppi, University of Helsinki, Helsinki, Finland*

#### **4:35-4:45PM | S41 DNA Containing Bulky DNA Adducts is Released from Keratinocytes after Genotoxin Exposure**

*M Alexandra Carpenter, Department of Pharmacology and Toxicology, Wright State University Boonshoft School of Medicine, Dayton, Ohio, USA*

### **Platform 2: Public Health Issues**

3:00-5:00PM  
Sunday, 28th August, 2022

Location Governor General III-Level 4  
Session Chairs Nina Holland, University of California-Berkeley, Berkeley, CA, USA, Jennifer Keir, University of Ottawa, Ottawa, ON, Canada

#### **3:00-3:15PM | P8 Exposure to Fipronil and Its Metabolites Disrupted Human Thyroid Cells**

*Zhiqiang Jiang, <sup>1</sup>Fudan University, Shanghai, Shanghai, China*

#### **3:15-3:30PM | P9 Reduction of Genomic Damage by Weight Loss**

*Helga Stopper, University of Wuerzburg, Wuerzburg, Bavaria, Germany*

#### **3:30-3:45PM | P10 In Vitro Substantiation of the Harm Reduction Potential of Next Generation Nicotine Delivery Products Compared to Traditional Tobacco Products**

*Fiona Chapman, Imperial Brands, Bristol, United Kingdom*

#### **3:45-4:00PM | P11 Arsenic Stressed Fibroblast-Derived Exosome Contains Molecular Cargo With Carcinogenic Potential**

*Vishnuvardhinidutt Kasi<sup>1,2</sup>, <sup>1</sup>Vellore Institute of Technology, Vellore, Tamil Nadu, India. <sup>2</sup>University of Miyazaki, Miyazaki, Kyushu, Japan*

#### **4:00-4:15PM | P12 How and How Much to Use Turmeric for the Reduction of Genotoxic Risk**

*Nagabhushan Moolky, Independent Consultant, Oak Brook, Illinois, USA*

#### **4:15-4:30PM | P13 Traffic-related Air Pollution is Associated with Biomarkers of Oxidative Stress in Children**

*Nina Holland, University of California, Berkeley, CA, USA*

#### **4:30-4:45PM | P14 Decreased Sperm Counts In Swedish Users Of Oral Tobacco**

*Jonatan Axelsson<sup>2,3,1,4</sup>, <sup>1</sup>Department of Translational Medicine, Lund University, Malmö, Sweden. <sup>2</sup>Reproductive Medicine Centre, Skåne University Hospital, Malmö, Sweden. <sup>3</sup>Division of Occupational and Environmental Medicine, Department of Laboratory Medicine, Lund University, Lund, Sweden.*

*<sup>4</sup>Department of Biology, University of Ottawa, Ottawa, Canada*

## Sunday, August 28, 2022, continued...

### Poster Session I

5:00-6:30PM

Sunday, 28th August, 2022

Location Provinces Ballroom & Ballroom Foyer  
Posters

#### PS1 Determination of Whole Mixture-Based Potency Factors for Cancer Risk Assessment of Complex Environmental Mixtures by in Vitro Testing of Standard Reference Materials

Marcos Felipe de Oliveira Galvão<sup>1</sup>, Ioannis Sadiktsis<sup>2</sup>, Tiago Marques Pedro<sup>1</sup>, Kristian Dreij<sup>1</sup>,<sup>1</sup>Karolinska Institutet, Stockholm, Sweden. <sup>2</sup>Stockholm University, Stockholm, Sweden

#### PS4 Non-Mutagenic ruthenium(II) Based Complexes With Naphthoquinones as New Antitumor Agents Against Prostate Metastatic Carcinoma

Rone A De Grandis<sup>1,2</sup>, Matheus R Ulbrich<sup>2</sup>, Analu R Costa<sup>1</sup>, Fernando R Pavan<sup>3</sup>, Flávia A Resende Nogueira<sup>2</sup>, Alzir A Batista<sup>1</sup>,<sup>1</sup>Federal University of Sao Carlos, Sao Carlos, Sao Paulo, Brazil. <sup>2</sup>University of Araraquara, Araraquara, Sao Paulo, Brazil. <sup>3</sup>Sao Paulo State University, Araraquara, Sao Paulo, Brazil

#### PS7 Pesticides Residues in Plasma and Their Correlation With Cytome Assay Parameters in Childbearing Women From Santa Fe, Argentina

Carlina Leila Colussi<sup>1</sup>, Eduardo Rafael Quiñonez<sup>2</sup>, Gisela Laura Poletta<sup>1,3</sup>, María Fernanda Simoniello<sup>1</sup>,<sup>1</sup>Facultad de Bioquímica y Ciencias Biológicas, Universidad Nacional del Litoral, Santa Fe, Santa Fe, Argentina. <sup>2</sup>Hospital de Niños "Dr. Orlando Alassia", Santa Fe, Santa Fe, Argentina. <sup>3</sup>Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Buenos Aires, Argentina

#### PS10 Genomic Instability in Brazilian Family Farmers Exposed to Pesticides: By BMCyt and Telomere Length (TL)

Paula Rohr<sup>1</sup>, Isabela Campanelli dos Santos<sup>1</sup>, Jefferson Tenesse da Silva<sup>2</sup>, André van Helvoort Lengert<sup>1</sup>, Marcos Alves de Lima<sup>1</sup>, Vivian Francília Silva Kah<sup>3,4</sup>, Juliana da Silva<sup>5,6</sup>, Rui Manuel Reis<sup>1,7,8</sup>, Henrique César Santejo Silveira<sup>1,2</sup>,<sup>1</sup>Barretos Cancer Hospital, Barretos, SP, Brazil. <sup>2</sup>University of Cuiabá, Cuiabá, MT, Brazil. <sup>3</sup>The University of Queensland Diamantina Institute, Woolloongabba 4102 Queensland, Australia. <sup>4</sup>Translational Research Institute, Woolloongabba 4102 Queensland, Australia. <sup>5</sup>Post-Graduate Program in Cellular and Molecular Biology Applied to Health, Lutheran University of Brazil, Canoas, RS, Brazil. <sup>6</sup>Laboratory of Genetic Toxicology, La Salle University (UniLaSalle), Canoas, RS, Brazil. <sup>7</sup>Life and Health Sciences Research Institute (ICVS), Medical School, University of Minho, Braga, Portugal. <sup>8</sup>ICVS/3B's-PT Government Associate Laboratory, Braga, Portugal

#### PS13 A Case Study on Integrating a New Key Event Into an Existing Adverse Outcome Pathway on Oxidative DNA Damage: Challenges and Approaches in a Data-Rich Area

Elizabeth Hulganga<sup>1,2</sup>, Francesco Marchetti<sup>2</sup>, Jason O'Brien<sup>3</sup>, Vinita Chauhan<sup>4</sup>, Carole L Yauk<sup>1,2</sup>,<sup>1</sup>Department of Biology, University of Ottawa, Ottawa, ON, Canada. <sup>2</sup>Mechanistic Studies Division, Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada. <sup>3</sup>Ecotoxicology and Wildlife Health Division, Environment and Climate Change Canada, Ottawa, ON, Canada. <sup>4</sup>Consumer and Clinical Radiation Protection Bureau, Health Canada, Ottawa, ON, Canada

#### PS16 Low Dose Exposure Effect to Mammary Gland Development

Estefany Merino Rojas, University of Nevada Las Vegas, Las Vegas, Nevada, USA

#### PS18 Effect of Aging on the Repeated-Dose Liver Micronucleus Assay

Shuichi Hamada<sup>1</sup>, Kensuke Satomoto<sup>2</sup>, Koji Mita<sup>2</sup>, Isamu Suzuki<sup>2</sup>, Tatsuya Mitsumoto<sup>2</sup>, Atsushi Wakita<sup>3</sup>, Hiroshi Yamagata<sup>2</sup>,<sup>1</sup>BoZo Research Center Inc., Setagaya-ku, Tokyo, Japan. <sup>2</sup>BoZo Research Center Inc. Gotemba Laboratory, Gotemba-shiGotemba-shi, Shizuoka, Japan. <sup>3</sup>BoZo Research Center IncLaboratoryLaboratory, Tsukuba-shiTsukuba-shi, Ibaraki, Japan

## Sunday, August 28, 2022, continued...

### PS21 Detecting Non-Genotoxic Carcinogens Using an in Vitro Test Battery

*Demi J Pritchard, Swansea, Swansea, United Kingdom*

### PS24 Effects of Alcohol on Mutagenicity of Benzo[a]pyrene in Mouse Lymphoma and HepaG2 Cells

*Tao Chen<sup>1</sup>, Alexander W Alund<sup>1</sup>, Bohu Pan<sup>2</sup>, Jian Yan<sup>1</sup>, Xiaoqing Guo<sup>1</sup>, <sup>1</sup>Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, USA. <sup>2</sup>Division of Bioinformatics and Biostatistics, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, USA*

### PS27 Evaluation Of The Error-Corrected Sequencing-Based Mutagenicity Assay Using Gpt Delta Mice

*Shoji Matsumura<sup>1</sup>, Takako Hirose<sup>1</sup>, Yuki Otsubo<sup>1</sup>, Naohiro Ikeda<sup>1</sup>, Masayuki Yamane<sup>1</sup>, Takayoshi Suzuki<sup>2</sup>, Kenichi Masumura<sup>2</sup>, Kei-ichi Sugiyama<sup>2</sup>, <sup>1</sup>Kao Corporation, Kawasaki, Kanagawa, Japan. <sup>2</sup>National Institute of Health Sciences, Kawasaki, Kanagawa, Japan*

### PS30 Experimental Design for Evaluation of Genotoxicity by Exposure to 28 GHz Radio Wave Using Reconstructed Skin Micronucleus Assay

*Masateru Ikehata<sup>1</sup>, Toshio Kamijyo<sup>2</sup>, Alfred Kirk<sup>2</sup>, Sachiko Yoshie<sup>1</sup>, Akira Ushiyama<sup>3</sup>, Kenji Hattori<sup>3</sup>, Keiji Wada<sup>2</sup>, Yukihisa Suzuki<sup>2</sup>, <sup>1</sup>Railway Technical Research Institute, Kokubunji, Tokyo, Japan. <sup>2</sup>Tokyo Metropolitan University, Hachioji, Tokyo, Japan. <sup>3</sup>National Institute of Public Health, Wako, Saitama, Japan. <sup>4</sup>Meiji Pharmaceutical University, Kiyose, Tokyo, Japan*

### PS34 The Measurement of DNA Damage in Circulating Blood Cells as a Potential Biomarker for Early Detection of Oesophageal Adenocarcinoma.

*Kathryn Munn, Rachel Lawrence, Rhiannon Wright, Gareth Jenkins, Swansea University, Swansea, United Kingdom*

### PS37 Establishing a Method for Increasing Accuracy of Error-Corrected Sequencing Using Single-Strand-Specific Nucleases

*Yuki Otsubo, Kao Corporation, Kawasaki, Kanagawa, Japan*

### PS40 Cell Type and Exposure Time: Two Important Factors to Consider in the Quantitative Analysis of in Vitro Genotoxicity Data

*Julie Sanders<sup>1,2</sup>, Anouck Thienpont<sup>1,2</sup>, Roel Anthonissen<sup>1</sup>, Tamara Vanhaecke<sup>2</sup>, Birgit Mertens<sup>1</sup>, <sup>1</sup>SD Chemical and Physical Health Risks, Sciensano, Brussels, Belgium. <sup>2</sup>Department of In-vitro Toxicology and Dermato-Cosmetology, VUB, Brussels, Belgium*

### PS43 Is Mutagenesis Associated To Cyanobacteria Blooms In São Paulo State (Brazil) Reservoirs?

*Priscila S Andrade<sup>1</sup>, Heron DT Silva<sup>2</sup>, Decio Semensatto Jr<sup>3</sup>, Deborah A Roubicek<sup>4</sup>, <sup>1</sup>Institute of Chemical and Pharmaceutical Environmental Sciences, Federal University of São Paulo, São Paulo, Brazil. <sup>2</sup>Dept. of Exact and Earth Sciences, Federal University of São Paulo, São Paulo, Brazil. <sup>3</sup>Dept. of Environmental Sciences, Federal University of São Paulo, São Paulo, Brazil. <sup>4</sup>Dept. of Environmental Analyses, São Paulo State Environmental Company, São Paulo, Brazil*

### PS46 Did Mutagenic Activity In Surface Waters Change During The COVID-19 Pandemic Period?

*Flavia M Bertoni, Celso F Suzuki, Deborah A Roubicek, Dept. of Environmental Analyses, São Paulo State Environmental Company, São Paulo, Brazil*

### PS49 NRF2 Modulates Ferroptosis in Temozolomide-Resistant Glioblastoma Cells

*Izadora Souza<sup>1</sup>, Camila Guedes<sup>1</sup>, Linda Seregni<sup>1</sup>, Luciana Gomes<sup>2</sup>, Clarissa Rocha<sup>1</sup>, <sup>1</sup>UNIFESP, Sao Paulo, Brazil. <sup>2</sup>Butantan, Sao Paulo, SP, Brazil*

### PS52 Non-Mutagenic ruthenium(II) Based Complexes With Naphthoquinones as New Antitumor Agents Against Prostate Metastatic Carcinoma

*Rone A De Grandis<sup>1,2</sup>, Matheus R Ulbrich<sup>2</sup>, Analu R Costa<sup>1</sup>, Fernando R Pavam<sup>3</sup>, Flavia A Resende Nogueira<sup>2</sup>, Alzir A Batista<sup>1</sup>, <sup>1</sup>Federal University of Sao Carlos, Sao Carlos, SP, Brazil. <sup>2</sup>University of Araraquara, Araraquara, SP, Brazil. <sup>3</sup>Sao Paulo State University, Araraquara, SP, Brazil*

## Sunday, August 28, 2022, continued...

### PS55 Occupational Exposure of Farmers to Dry Tobacco Leaves

Juliana Da Silva<sup>1,2</sup>, Daiana Dalberto<sup>2</sup>, Ana Leticia Garcia<sup>1,2</sup>, Melissa Souza<sup>2</sup>, Juliana Picinin<sup>2</sup>, Fernanda Rabaioli Da Silva<sup>1</sup>, <sup>1</sup>La Salle University (UniLaSalle), Canoas, RS, Brazil. <sup>2</sup>Lutheran University of Brazil (ULBRA), Canoas, RS, Brazil

### PS58 Uses of AOP-helpFinder to Develop an Adverse Outcome Network for Obesity Initiated by Endocrine Disruptors

Kevin Bernal<sup>1</sup>, Florence Jornod<sup>1</sup>, Xavier Coumoul<sup>1</sup>, Etienne Blanc<sup>1</sup>, Min Ji Kim<sup>2</sup>, Karine Audouze<sup>1</sup>, <sup>1</sup>Université Paris Cité, Inserm U1124, Paris, France. <sup>2</sup>Université Sorbonne Paris Nord, Inserm U1124, Paris, France

### PS61 Temporal Analysis of Mutations in MutaMouse Germ Cells to Select the Optimal Experimental Design for Mutagenicity Testing

Gu Zhou<sup>1</sup>, Danielle LeBlanc<sup>1</sup>, Annette Dodge<sup>1,2</sup>, Andrew Williams<sup>1</sup>, Geroge Douglas<sup>1</sup>, Carole Yauk<sup>1,2</sup>, Francesco Marchetti<sup>1</sup>, <sup>1</sup>Environmental Health Science and Research Bureau, HECSB, Health Canada, Ottawa, Canada. <sup>2</sup>Department of Biology, University of Ottawa, Ottawa, Canada

### PS64 In Vitro Metabolic Dynamics for p-Semidine-Type Homo- and Hetero-Dimerization of Monocyclic Aromatic Amines

Takuma Kobayashi<sup>1</sup>, Yasukiyo Yoshioka<sup>1</sup>, Shinji Kishimoto<sup>1</sup>, Kenji Watanabe<sup>1</sup>, Yukari Totsuka<sup>2,3</sup>, Keiji Wakabaashi<sup>1</sup>, Noriyuki Miyoshi<sup>1</sup>, <sup>1</sup>University of Shizuoka, Shizuoka, Shizuoka, Japan. <sup>2</sup>Nihon University, Funabashi, Chiba, Japan. <sup>3</sup>National Cancer Institute, Chuo-ku, Tokyo, Japan

### PS67 Analysis of the in Vitro Cytotoxicity and Genotoxicity of Cellulose Nanomaterials in Intestinal Cells

Nádia Vital<sup>1,2,3</sup>, Fátima Pinto<sup>1,3</sup>, Michel Kranendonk<sup>2,3</sup>, Maria João Silva<sup>1,3</sup>, Henriqueta Louro<sup>1,3</sup>, <sup>1</sup>Department of Human Genetics, National Institute of Health Dr. Ricardo Jorge (INSA), Lisbon, Portugal. <sup>2</sup>NOVA Medical School, Universidade NOVA de Lisboa, Lisbon, Portugal. <sup>3</sup>Centre for Toxicogenomics and Human Health (ToxOmics), NOVA Medical School, Universidade NOVA de Lisboa, Lisbon, Portugal

### PS70 Toxicity in Hematopoietic Stem Cells in C57BL/6 After the Asari Radix Et Rhizoma Exposure: Transcriptome Analysis.

Da Yeon Kim<sup>1</sup>, Seng Min Back<sup>2</sup>, Nan Young Kim<sup>2</sup>, Su Min BAK<sup>2</sup>, Na Young Jeung<sup>2</sup>, Seong Hoon Park<sup>2</sup>, <sup>1</sup>KIT, Daejeon, Korea, Republic of. <sup>2</sup>Korea Institute of Toxicology, Daejeon, Korea, Republic of

### PS73 Application Of The Adverse Outcome Pathway Framework To Understand Mechanisms Of Radiation-induced Cataract Formation

Meghan Appleby<sup>1</sup>, Vita Lai<sup>1</sup>, Emma Carrothers<sup>1</sup>, Tatiana Kozbenko<sup>1</sup>, Snehal Sandhu<sup>1</sup>, Nobuyuki Hamada<sup>2</sup>, Patricia Hinton<sup>3</sup>, Ruth Wilkins<sup>1</sup>, Carole Yauk<sup>4</sup>, Robyn Hocking<sup>1</sup>, Vinita Chauhan<sup>1</sup>, <sup>1</sup>Health Canada, Ottawa, Canada. <sup>2</sup>Central Research Institute of Electric Power Industry, Tokyo, Japan. <sup>3</sup>Canadian Forces Environmental Medicine Establishment, Toronto, Canada. <sup>4</sup>University of Ottawa, Ottawa, Canada

### PS76 Using Historical Negative Control Data to Review Ames Test Results

Grace Kocks, Lhasa Limited, Leeds, West Yorkshire, United Kingdom

### PS80 Novel Cytotoxicity Assay to Reduce False Negatives for Chemicals Assessed Using the Microplate Bacterial Reverse Mutation (Ames II) Assay.

Nikolai Chepelev, Paul White, Environmental Health Science and Research Bureau, Health Canada, Ottawa, Ontario, Canada

### PS83 Application of Modifying Agents to a Multiplexed DNA Damage Assay Yields Deeper Levels of Mechanistic Information on Genotoxic Mechanisms and Molecular Targets

Jeffrey C Bemis, Kyle Tichenor, Nikki Hall, Steven M Bryce, Stephen D Dertinger, Litron Laboratories, Rochester, NY, USA

### PS86 Polycyclic Aromatic Hydrocarbon Potency Equivalence Factors Determined Using In-Vivo Mutagenicity Dose-response Data

Hannah Battaion<sup>1</sup>, Alexandra S Long<sup>2</sup>, Paul A White<sup>1</sup>, <sup>1</sup>Environmental Health Science & Research Bureau, Health Canada, Ottawa, ON, Canada. <sup>2</sup>Existing Substances Risk Assessment Bureau, Health Canada, Ottawa, ON, Canada

## **Sunday, August 28, 2022, continued...**

**PS89 Classification of In Vitro Genotoxicants Requiring Metabolic Activation using a Multiplexed Assay (MultiFlow®)**

*Robert P Smith, Labcorp Drug Development, Harrogate, United Kingdom*

**PS92 Temporal Characterization of Ethyl Methanesulfonate-Induced DNA Damage, Micronucleus Formation and Gene Mutation in the Human in Vitro Organotypic Airway Tissue Model**

*Yiyang Wang<sup>1</sup>, Ying Chen<sup>1</sup>, Rebecca A. Wynne<sup>1</sup>, Xlin Li<sup>1</sup>, Roberta A. Mittelstaedt<sup>1</sup>, Xuefei Cao<sup>1</sup>, Levan Muskhelishvili<sup>2</sup>, Kelly Davis<sup>2</sup>, Nan Mei<sup>1</sup>, Wei Sun<sup>3</sup>, Timothy W. Robison<sup>3</sup>, Robert H. Heflich<sup>1</sup>, <sup>1</sup>Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, USA. <sup>2</sup>Toxicologic Pathology Associates, Jefferson, AR, USA. <sup>3</sup>Division of Pharmacology/Toxicology for Immunology & Inflammation, Office of Immunology and Inflammation, Office of New Drugs, Center for Drug Evaluation and Research, U.S. Food and Drug Administration, Silver Spring, MD, USA*

**PS94 Metabolic and Genotoxic Effects of an Hypercaloric Diet in Offspring During Adulthood**

*AM Salazar, M Martínez-Zamudio, M Sordo, E Navarrete-Monroy, P Panico, Andrea Díaz-Villaseñor, R Montúfar-Chaveznava, I Caldelas, P Ostrosky-Wegman, UNAM, Ciudad de México, Mexico, Mexico*

**PS97 In Vivo Comet Assay: Integration with Repeat Dose Toxicity Study Provides Concurrent DNA Damage Information in Potential Target Organs**

*S W Bruce<sup>1</sup>, C Murphy<sup>2</sup>, M Newkirk<sup>2</sup>, P Gollapudi<sup>1</sup>, M L Klug LaForce<sup>1</sup>, S Springer<sup>1</sup>, W Madraymootoo<sup>1</sup>, G Krishna<sup>1</sup>, <sup>1</sup>Inotiv, Rockville, MD, USA. <sup>2</sup>Inotiv, Gaithersburg, MD, USA*

**PS100 Usefulness of Integrating the Micronucleus Test with Repeat Dose Toxicity Studies**

*Pavan Gollapudi<sup>1</sup>, Caitlin Murphy<sup>2</sup>, Madeline Newkirk<sup>2</sup>, Shannon Wilson Bruce<sup>1</sup>, Morgan Gray<sup>2</sup>, Karen Shore<sup>1</sup>, Anna Szkudlinska<sup>1</sup>, Wannie Madraymootoo<sup>1</sup>, Gopala Krishna<sup>1</sup>, <sup>1</sup>Inotiv, Rockville, MD, USA. <sup>2</sup>Inotiv, Gaithersburg, MD, USA*

**PS103 Mutagenicity of N-Hydroxycytidine and MonInupiravir in E. Coli and Mammalian Cell Cultures**

*Vasily N Dobrovolsky, Javier R Revollo, Page McKinzie, Jaime Miranda, Robert H Heflich, NCTR/FDA, Jefferson, AR, USA*

**PS106 Comparative Evaluation of Phenobarbital/ beta-Naphthoflavone Versus Aroclor 1254- Induced Rat S9 for Use in in Vitro Cytogenetic Assays**

*Shambhu Roy, Pavan Gollapudi, Keyan Wang, Geoffrey Khasamba, Javier M Santiago, Anna Szkudlinska, Vanessa Peltier, Yong Xu, Wannie Madraymootoo, Gopala Krishna, Inotiv, Rockville, MD, USA*

**PS109 Human Melanoma Cell line (A375): As a Potential In Vitro Micronucleus Assay Test System for Genotoxicity Assessment**

*Shambhu Roy, Javier M Santiago, Anna Szkudlinska, Alexa Somers, Vanessa Peltier, Wannie Madraymootoo, Gopala Krishna, Inotiv, Rockville, MD, USA*

**PS112 Effects of Treatment with Beneficial Microbes on NDMA-induced Cancer and Mutations**

*Aimee C Moise<sup>1</sup>, Supawadee Chawanthayatham<sup>1</sup>, Robert Croy<sup>1</sup>, John Essigmann<sup>1,2</sup>, Bevin Engelward<sup>1</sup>, Susan Erdma<sup>3</sup>, <sup>1</sup>Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA. <sup>2</sup>Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, USA. <sup>3</sup>Division of Comparative Medicine, Massachusetts Institute of Technology, Cambridge, MA, USA*

**PS115 Evaluation a Three-Dimensional (3D) HepaRG High-Throughput Micronucleus Assay for in Vitro Genotoxicity Testing**

*Ji-Eun Seo, Xiaoqing Guo, National Center for Toxicological Research, Jefferson, AR, USA*

**PS118 Genotoxicity Of Water From “La Estanzuela” Dam In Mexico In The Drosophila Wing Test**

*Diana Ascencio-Gorozepe<sup>1</sup>, Ana Cecilia Luis-Castañeda<sup>1</sup>, Marco Antonio Carballo-Ontiveros<sup>1</sup>, Claudia Coronel<sup>2</sup>, Omar Arellano<sup>3</sup>, Rosario Rodríguez<sup>4</sup>, América Nitxin Castañeda-Sortibrán<sup>1</sup>, <sup>1</sup>Facultad de Ciencias, UNAM, Mexico City, Mexico City, Mexico. <sup>2</sup>Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico. <sup>3</sup>Universidad Nacional Autónoma de México, Mexico, Mexico City, Mexico. <sup>4</sup>Universidad Nacional Autónoma de México, Mexico, Mexico City, Mexico*



## Sunday, August 28, 2022, continued...

### PS121 Evaluating Genotoxic Potential in 2D HepaRG Cultures Using a High Throughput CometChip Method

Erica A. Pinkus, Amy Reeder, Leon F. Stankowski, Jr., Melissa Wells, Daniel J. Roberts, Charles River, Skokie, IL, USA

### PS124 Mechanism of the Mutagenicity in Bacterial Mutation Assay for Aristolochic Acid

Masami Yamada<sup>1</sup>, Daichi Koyabu<sup>1</sup>, Yoshimitsu Oda<sup>2</sup>, Takayoshi Suzuki<sup>3</sup>, <sup>1</sup>National Defense Academy of Japan, Yokosuka, Kanagawa, Japan. <sup>2</sup>Osaka Shin-ai College, Osaka, Osaka, Japan. <sup>3</sup>National Institute of Health Sciences, Kawasaki, Kanagawa, Japan

### PS127 Effects of radiation exposure on reactive oxygen species in blood cells of atomic bomb survivors

Tomonori Hayashi<sup>1</sup>, Naohiro Kato<sup>1</sup>, Kyoji Furukawa<sup>2</sup>, Misa Imaizumi<sup>3</sup>, Ayumi Hida<sup>3</sup>, Waka Ohishi<sup>1</sup>, Radiation Effects Research Foundation, Hiroshima, Japan. <sup>2</sup>Kurume University, Kurume, Japan. <sup>3</sup>Radiation Effects Research Foundation, Nagasaki, Japan

### PS130 Optimizing Study Design for Quantitative Analysis of Genotoxicity Data

Alexandra S. Long<sup>1</sup>, Marc A Bea<sup>2</sup>, Svetlana Avlasevich<sup>3</sup>, Tina Pellegrin<sup>3</sup>, Stephen D Dertinger<sup>3</sup>, Paul A White<sup>4</sup>, <sup>1</sup>Emerging Approaches Unit, Existing Substances Risk Assessment Bureau, Health Canada, Ottawa, ON, Canada. <sup>2</sup>Bureau of Chemical Safety, Health Products and Food Branch, Health Canada, Ottawa, ON, Canada. <sup>3</sup>Litron Laboratories, Rochester, NY, USA. <sup>4</sup>Mechanistic Studies Division, Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada

### PS133 Development of a comet assay method targeting leydig cells

R Matsuyama, M Fujikawa, T Miyamoto, M Izumi, Y Hosokawa, H Asano, Environmental Health Science Laboratory, Sumitomo Chemical Co. Ltd., Osaka, Osaka, Japan

### PS136 Strand-resolved mutagenicity of DNA damage and repair using lesion segregation

Craig J Anderson<sup>1</sup>, Lana Talmane<sup>1</sup>, Juliet Luft<sup>1</sup>, Michael D Nicolson<sup>1</sup>, John Connelly<sup>1,2</sup>, Núria López-Bigas<sup>3</sup>, Paul Flicek<sup>4,5</sup>, Colin A Semple<sup>1</sup>, Duncan T Odom<sup>5,6</sup>, Sarah J Aitken<sup>2,5</sup>, Martin S Taylor<sup>1</sup>, <sup>1</sup>MRC Human Genetics Unit, University of Edinburgh, Edinburgh, United Kingdom. <sup>2</sup>Medical Research Council Toxicology Unit, University of Cambridge, Cambridge, United Kingdom. <sup>3</sup>Institute for Research in Biomedicine (IRB Barcelona), The Barcelona Institute of Science and Technology, Barcelona, Spain. <sup>4</sup>European Molecular Biology Laboratory, European Bioinformatics Institute, Hinxton, United Kingdom. <sup>5</sup>Cancer Research UK Cambridge Institute, University of Cambridge, Cambridge, United Kingdom. <sup>6</sup>German Cancer Research Center (DKFZ), Heidelberg, Germany

### PS138 Genotoxicity Assessment of Combustible Cigarette and Electronic Nicotine Delivery Systems (ENDS) Aerosols and Modern Oral Nicotine Product Extracts in the Ames and In Vitro Micronucleus Assays

Robert Leverette, John Wertman, Thomas Shutsky, Reagan McRae, Ken Szeliga, Kristen Jordan, RAI Services Company, Winston Salem, NC, USA

## ***Sunday, August 28, 2022, continued...***

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### **EMGS President's Reception**

6:30-8:00PM  
Sunday, 28th August, 2022

Location Daly's-Level 3

### **ICEM Game Night**

8:00-10:00PM  
Sunday, 28th August, 2022

Location The Westin Hotel-Main Entrance

Students and Young Investigators are welcome to join us at Level 1, Ottawa's favorite board game lounge. Enjoy a night of socializing over board games, good food and craft beer. Reservation made for up to 20 people, 8\$ entrance fee.



# Monday, August 29, 2022

## 7:00AM- 8:30AM

### Genomics and Data Sciences SIG Meeting

Location Governor General I-Level 4

### Applied Genetic Toxicology SIG Meeting

Location Governor General II-Level 4

### Awards and Honors Committee Meeting

Location Governor General III-Level 4

### YSA Committee Meeting

Location Quebec-Level 4

### ESNIA Committee Meeting

Location Newfoundland/Nova Scotia - Level 4

## Plenary Speaker 5: Cynthia Burrows

8:15-9:05AM

Monday, 29th August, 2022

Location Confederation I/II - Level 4

### K5 Base Excision Repair at the Crossroads of Mutagenesis and Gene Expression during Oxidative Stress

*Cynthia J. Burrows, University of Utah, Salt Lake City, Utah, USA*

## Plenary Lecture 6: Mayana Zatz

9:10-10:00AM

Monday, 29th August, 2022

Location Confederation I/II - Level 4

Plenary Speakers

### K6 Genomics and the Future of Medicine

*Mayana Zatz, University of São Paulo, São Paulo, Brazil*

## Symposium 9: Cancer Genomics Provides Insight into Cancer Etiology, Progression and Therapeutic Response

10:30AM-12:30PM

Monday, 29th August, 2022

Location Confederation I-Level 4

Session Chairs Kelly Harris, US Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR, USA, Jiri Zavadil, International Agency for Research on Cancer, Lyon, France, Barbara Parsons, US Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR, USA

The symposium will illustrate how cancer genomic/epigenomic data can elucidate epigenetic mechanisms of carcinogenesis, the natural history and clonal evolution of tumors, intratumor heterogeneity and its impact on tumor response, and the complex interaction between tumor cells and their microenvironment, including the immune environment.

### 10:30-11:00AM | S42 Hereditary cancer surveillance using circulating tumour DNA sequencing

*Trevor J Pugh, Princess Margaret Cancer Centre, Toronto, ON, Canada. Ontario Institute for Cancer Research, Toronto, ON, Canada*

### 11:00-11:30AM | S43 Chemical-Induced Somatic Mutation Signatures Identified By Next-Generation Sequencing

*Shoji Matsumura, Kao Corporation, Kawasaki, Kanagawa, Japan*

### 11:30AM-12:00PM | S44 Multi-Omics Analysis in Experimental Models of Carcinogen-Mediated, Progressive Cell Transformation

*Michael Korenjak, Epigenomics and Mechanisms Branch, International Agency for Research on Cancer, Lyon, France*

### 12:00-12:30PM | S45 Variation in Cancer Driver Mutation Levels as a Metric of Clonal Expansion for Cancer Risk Assessment

*Barbara L Parsons, US FDA, Jefferson, AR, USA*

## **Monday, August 29, 2022, continued...**

### **Symposium 10: Consequences of Pharmaceuticals and Chemicals for Male and Female Germ Cell Heritability**

10:30AM-12:30PM  
Monday, 29th August, 2022

Location Confederation II-Level 4  
Session Chairs Jill Escher, Escher Fund for Autism, San Jose, CA, USA, Bernard Robaire, McGill University, Montreal, QC, Canada

It has become increasingly clear that certain exposures and toxicants can adversely impact the genetic and/or epigenetic integrity of germ cells, that is, eggs, sperm, and their lineage of precursors, raising serious questions for toxicology and public health. This symposium highlights some of the significant findings.

**10:30-10:55AM | S46 Paternally Mediated Developmental Toxicity**  
*Bernard Robaire, McGill University, Montreal, QC, Canada*

**10:55-11:20AM | S47 Polycomb-Dependent Regulation of the Oocyte Epigenome and Its Impacts on Offspring**  
*Patrick S Western, Hudson Institute of Medical Research and Monash University, Clayton, Vic, Australia*

**11:20-11:45AM | S48 Germline Exposure to Sevoflurane Results in Dysregulation of Brain-Related Genes in Offspring**  
*Vesna Jevtovic-Todorovic, University of Colorado School of Medicine, Aurora, Colorado, USA*

**11:45AM-12:10PM | S49 General Anesthetics Induce Epigenetic Alterations in Germ Cells that Result in Autism-like Behaviors**  
*Hsiao-Lin V Wang, Emory University, Atlanta, GA, USA*

**12:10-12:25PM | S50 Effects of Intergenerational Arsenic Exposure on the Mouse Epigenome**  
*Mathia L Colwell, University of Minnesota, St. Paul, MN, USA*

### **Symposium 11: Developing Integrated Approaches to Testing and Assessment (IATA) Using an Adverse Outcome Pathway (AOP) Framework**

10:30AM-12:30PM  
Monday, 29th August, 2022

Location Confederation III-Level 4  
Session Chairs Anax Oliveira, Lhasa Limited, Leeds, United Kingdom, Bette Meek, University of Ottawa, Ottawa, ON, Canada

In this session we will explore some new approach methodologies (NAMs), the information that can be generated from these, and how the results can be organized and reasoned in an AOP context to reach robust conclusions on human relevant genotoxicity risk.

**10:30-10:50AM | S51 Activation Levels of MIE Transcriptional Biomarkers Identify Liver Tumorigenic Dose Levels**  
*J Chris Corton, EPA, Research Triangle Park, NC, USA*

**10:50-11:10AM | S52 Update on the ongoing OECD Validation of the ToxTracker Assay for Genotoxic Mode of Action Assessment**  
*Giel Hendriks, Toxys, Oegstgeest, Netherlands*

**11:10-11:30AM | S53 Developing Integrated Approaches to Testing and Assessment (IATA) Using an Adverse Outcome Pathway (AOP) Framework**  
*Anthony M Lynch, GlaxoSmithKline R&D, Genetic Toxicology & Photosafety, Stevenage, Hertfordshire, United Kingdom*

**11:30-11:50AM | S54 Integration of Data With Adverse Outcome Pathways (AOPs) to Support Genotoxicity Assessment.**  
*Steven Kane, Lhasa Limited, Leeds, United Kingdom*

**11:50AM-12:10PM | S55 Practical Application of AOPs in Regulatory Risk Assessments**  
*Crina Heghes, Lhasa Limited, Leeds, United Kingdom*



## Monday, August 29, 2022, continued...

### Symposium 12: How Cells Tolerate and Replicate DNA Damage?

10:30AM-12:30PM  
Monday, 29th August, 2022

Location Governor General I - Level 4  
Session Chairs Carlos FM Menck, University of Sao Paulo, Sao Paulo, Brazil, Vanesa Gottifredi, Fundación Instituto Leloir, Buenos Aires, Argentina

This symposium will present up-to-date work related to DNA damage replication processing in human cells. These processes which require translesion synthesis polymerases are necessary for cells to tolerate DNA lesions induced naturally or by exogenous agents, including chemotherapeutic agents.

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**10:30-11:00AM | S56 Does the Error-Prone DNA Polymerase eta Replicate Pyrimidine Dimers Correctly?**  
*Carlos FM Menck, Department of Microbiology, Institute of Biomedical Sciences, University of São Paulo, São Paulo, SP, Brazil*

**11:00-11:30AM | S57 Revealing New Functions of the Translesion DNA Polymerase Zeta and the Consequences on Genome Stability**  
*Patricia L Kannouche, Gustave Roussy-CNRS, Villejuif, France*

**11:30AM-12:00PM | S58 Non-TLS (Translesion DNA Synthesis) Functions of TLS Polymerases**  
*Sabrina F Mansilla, Fundación Instituto Leloir-CONICET, Buenos Aires, Argentina*

**12:00-12:15PM | S59 The Essential Role Of Oxidative Stress In Translesion Synthesis Deficient Human Patients Cells (XP-V)**  
*Natália C Moreno<sup>1,2,3</sup>, <sup>1</sup>Institute of Biomedical Sciences, University of Sao Paulo (USP), Sao Paulo, SP, Brazil. <sup>2</sup>Institute of Chemistry, University of Sao Paulo (USP), Sao Paulo, SP, Brazil. <sup>3</sup>National Institute of Child Health and Human Development (NICHD), National Institutes of Health (NIH), Bethesda, MD, Bethesda, MD, USA*

**12:15-12:30PM | S60 Time-Lapse Crystallography Reveals Hidden DNA Polymerase Lambda Fidelity Checkpoints**  
*Joonas Jamsen, NIEHS, RTP, USA*

## Monday, August 29, 2022, continued...

### Platform 3: Advances in DNA Repair I

10:30AM-12:30PM  
Monday, 29th August, 2022

Location Governor General III-Level 4  
Session Chairs Nadja Cristhina de Souza Pinto, Mariarosaria De Rosa, University of Pittsburgh, Pittsburgh, PA, USA, Patricia Opresko, University of Pittsburgh, Pittsburgh, PA, USA

#### 10:30-10:45AM | P15 Examining the Role of LRRK2 in Genome Maintenance With Implications for Breast Cancer Disease Progression

*Jennifer Liu, Robin E Bachelder, Laurie H Sanders, Duke University, Durham, NC, USA*

#### 10:45-11:00AM | P16 Tolerable Hypermutation Threshold Upon Acrolein and Chloroacetaldehyde Treatment Differently Influences the Fitness of Adaptive Response Defective E. Coli Strains.

*Izabela R. Dąbrowska, Institute of Biochemistry and Biophysics PAS, Warsaw, Poland*

#### 11:00-11:15AM | P17 Activation of Microglia and Impairment of Neurogenesis through DNA Repair Enzyme, MUTYH, in the Pathogenesis of Alzheimer's Disease.

*Nona Abolhassani, Kyushu University, Fukuoka, Fukuoka, Japan*

#### 11:15-11:30AM | P18 APE1 Promotes the DNA Damage Response in the Nucleoli

*Shan Yan, University of North Carolina at Charlotte, Charlotte, NC, USA*

#### 11:30-11:45AM | P19 SWSAP1-SWS1 Stimulates D-Loop Formation on RPA-Coated SsDNA

*Sarah R Hengel, University of Pittsburgh, Pittsburgh, PA, USA*

#### 11:45AM-12:00PM | P20 Replication Stress Induces Genomic Deletions with Microhomologous Junctions at Common Fragile Sites During M Phase

*TE Wilson, University of Michigan, Ann Arbor, MI, USA*

#### 12:00-12:15PM | P21 Alcohol Dehydrogenase-Mediated Activation of Glycidol Leads to the Generation of DNA-Crosslinking Metabolites

*Yuya Fujita, Osaka Metropolitan University, Sakai, Osaka, Japan*

#### 12:15-12:30PM | P22 Understanding Inter-Chromosomal Homologous Recombination to Repair Double-Strand Breaks in Stem and Progenitor Cells: The "Rainbow Mouse" Model

*Kiran Lalwani, University of North Carolina Charlotte, Charlotte, NC, USA*

### Plenary Speaker 7: Maurice Whelan

1:30-2:30PM  
Monday, 29th August, 2022

Location Confederation I/II - Level 4

#### K7 How Scientific Data Can Meet Evidence Needs in Chemicals Policy and Regulation

*Maurice Whelan, European Commission, Joint Research Centre (JRC), Ispra, Italy*

### Plenary Speaker 8: Local Spotlight: Kym Boycott

3:00-4:00PM  
Monday, 29th August, 2022

Location Confederation I/II - Level 4

#### K8 Understanding the Molecular Basis for All Rare Genetic Diseases

*K M Boycott, CHEO Research Institute, University of Ottawa, Ottawa, ON, Canada*

## Monday, August 29, 2022, continued...

### Poster Session II

4:00-6:00PM

Monday, 29th August, 2022

Location Provinces Ballroom & Ballroom Foyer  
Posters

#### PS2 Developing an Alternative Platform to Evaluate Somatic and Germ Cells Mutagenicity Using the amphipod *Parhyale hawaiiensis*

Marina Tenório Botelho<sup>1</sup>, Vicente Gomes<sup>1</sup>, Gisela de Aragão Umbuzeiro<sup>2</sup>, <sup>1</sup>Oceanographic Institute-University of São Paulo, São Paulo, São Paulo, Brazil. <sup>2</sup>School of Technology-Campinas State University, Limeira, São Paulo, Brazil

#### PS5 Nanopore Sequencing Utility in Environmental Epigenetics

Melissa K Drown<sup>1</sup>, Nicole Flack<sup>2</sup>, Douglas L Crawford<sup>1</sup>, Marjorie F Oleksiak<sup>1</sup>, Christopher Faulk<sup>2</sup>, <sup>1</sup>University of Miami, Key Biscayne, FL, USA. <sup>2</sup>University of Minnesota, St. Paul, MN, USA

#### PS8 Lead Induced Functional Perturbations in DNA Repair Proteins— A Computational Study

Trupti Patel, Lucky Parida, Vellore Institute of Technology, Vellore, Tamilnadu, India

#### PS11 Variation Among *Fundulus heteroclitus* Genomic Regions in CpG Site Density and Implications for Environmental Epigenetics

Emily V Speciale, Melissa K Drown, Douglas L Crawford, Marjorie F Oleksiak, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL, USA

#### PS14 Translesion DNA Polymerases in Temozolomide Resistance: Cytotoxic and Antiproliferative Analysis in Glioblastoma Spheroids in vitro

Diego L Ribeiro<sup>1</sup>, Marcela T Latancia<sup>1</sup>, Davi Mendes<sup>1</sup>, Clarissa RR Rocha<sup>2</sup>, Carlos FM Menck<sup>3</sup>, <sup>1</sup>Institute of Biomedical Sciences/University of São Paulo (USP), Sao Paulo, Sao Paulo, Brazil. <sup>2</sup>Federal University of São Paulo, Sao Paulo, Sao Paulo, Brazil. <sup>3</sup>Institute of Biomedical Sciences/University of São Paulo (USP), Sao Paulo, São Paulo, Brazil

#### PS41 Analysis of the Role of RAD52 in Maintaining Mitochondrial Function

Felippe Truglio Machado, Valquiria Tiago Santos, Nadja Cristhina Souza-Pinto, University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil

#### PS44 Presence of MRN Complex Subunits and Their Relationship With Double Strand Break Repair in Human Mitochondria

Lais Yoshie Morikawa Muta, Nadja Cristhina de Souza-Pinto, University of São Paulo, São Paulo, São Paulo, Brazil

#### PS47 Investigation of the Role of Alkyladenine DNA Glycosylase (AAG) in the Repair of Alkylated Bases in Mouse Mitochondrial DNA

Rebeca Bueno-Alves, Nadja Cristhina de Souza-Pinto, University of São Paulo, São Paulo, São Paulo, Brazil

#### PS51 The Effects of Circadian Disruption on Behavior and Lifespan in *Drosophila melanogaster*

Isaiah F Thomas, Gina Ishu, Aaron Schirmer, Elyse Bolterstein, Northeastern Illinois University, Chicago, IL, USA

#### PS57 Evidence to Classify Cr(VI) as a Gerontogen: A Mechanistic Approach to Making Heads or Tails of a Toxic Aging Coin

Samuel T. Vielee, Aggie R. Williams, Idoia I. Meaza, Jennifer H. Toyoda, John P. Wise, Sr., John P. Wise, Jr., The University of Louisville, Louisville, KY, USA

#### PS60 Insights into the Elusive Base Excision Repair Glycosylase NEIL2's Substrate Scope and Specificity

Joshua D Bumgarner<sup>1</sup>, Olivia N Matsumoto-Elliott<sup>1</sup>, April M Averill<sup>2</sup>, Brian E Eckenroth<sup>2</sup>, Sylvie Doublé<sup>2</sup>, Sheila S David<sup>1</sup>, <sup>1</sup>UC, Davis, Davis, CA, USA. <sup>2</sup>University of Vermont, Burlington, VT, USA

#### PS85 Separating the Role of FBH1 in Fork Reversal and Promoting Sensitivity to Replication Stress

Joshua L Turner, MegAnn Haubold, Kathryn Goff, Jennifer M Mason, Clemson University, Clemson, SC, USA

## Monday, August 29, 2022, continued...

### PS88 Monitoring Circadian Behavior in DNA repair-deficient *Drosophila*

Gina Ishu, Shahida Qazi, Aaron E. Schirmer, Elyse Bolterstein, Northeastern Illinois University, Chicago, IL, USA

### PS91 Unraveling the Role of a DNA Helicase in Bacterial DNA Double-Strand Break Repair

Monica M Warner, Sara N Andres, McMaster University, Hamilton, ON, Canada

### PS95 Repair of RNA Exocyclic Adducts by *E. Coli* AlkB Dioxygenase

Agnieszka M. Maciejewska, Izabela R. Dąbrowska, Jarosław Poznański, Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, Poland

### PS98 Understanding G-quadruplex Oxidation and Positioning in Nucleosomes

Jackson I Gargaro, Cynthia Burrows, Aaron Fleming, University of Utah, Salt Lake City, UT, USA

### PS104 High-throughput Screening for Resistance Genes to Aflatoxin B1 in Budding Yeast and VERO Cells

Michael T Fasullo<sup>1</sup>, Abderrahmane Tagmoun<sup>2</sup>, Chris Vulpe<sup>2</sup>, <sup>1</sup>SUNY Polytechnic Institute, Albany, New York, USA. <sup>2</sup>University of Florida, Gainesville, Florida, USA

### PS108 High-Throughput Screening the *Saccharomyces cerevisiae* Genome for 2-amino-3-methylimidazo [4,5-f] quinoline Resistance Identifies Colon Cancer Associated Genes

Michael J Dolan, Nick St. John, Faizan Zaidi, Michael T Fasullo, SUNY Polytechnic Institute, Albany, NY, USA

### PS111 mTOR Knockdown Protects mtDNA from Oxidative Damage Despite Lower Levels of DNA Repair Enzymes

Caio MPF Batalha, Nadja C de Souza-Pinto, University of Sao Paulo, Sao Paulo, Brazil

### PS20 Bisphenol A Associated Epigenetic Changes in Young Adults in Ota, Nigeria.

Tolulope D Olawole<sup>1</sup>, Opeyemi C De Campos<sup>1</sup>, Isaacson B Adelani<sup>1</sup>, Oluwakemi A Rotimi<sup>1</sup>, Solomon O Rotimi<sup>1</sup>, Jaclyn M Goodrich<sup>2</sup>, <sup>1</sup>Covenant University, Ota, Ogun State, Nigeria. <sup>2</sup>University of Michigan, Ann Arbor, Michigan, USA

### PS71 Tobacco Smoke Exposure Alters CD8 T Cell Characteristics Towards Immune Aging

Michelle R Campbell, Suzanne N Martos, Alex K Merder, Kathleen V Embury, Douglas A Bell, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC, USA

### PS74 Contraception of Genotoxic Pharmaceuticals in Japanese Market

Takesh Morita<sup>1</sup>, Ayako Furuhashi<sup>2</sup>, Kei-ichi Sugiyama<sup>2</sup>, <sup>1</sup>Chemical Management Center, National Institute of Technology and Evaluation, Tokyuu, Japan. <sup>2</sup>Division of Mutagenesis and Genetics, National Institute of Health Sciences, Kanagawa, Japan

### PS17 Telomeric 8-Oxo-Guanine Drives Rapid Premature Senescence in the Absence of Telomere Shortening

Ryan P Barnes<sup>1</sup>, Mariarosaria de Rosa<sup>1</sup>, Sanjana A Thosar<sup>1</sup>, Ariana C Detwiler<sup>1</sup>, Vera Roginskaya<sup>1</sup>, Bennett Van Houten<sup>1</sup>, Marcel Bruchez<sup>2</sup>, Jacob Stewart-Ornstein<sup>1</sup>, Patricia L Opresko<sup>1</sup>, <sup>1</sup>University of Pittsburgh Hillman Cancer Center, Pittsburgh, Pa, USA. <sup>2</sup>Carnegie Mellon Departments of Biological Sciences and Chemistry, Pittsburgh, PA, USA

### PS23 Particulate Hexavalent Chromium Exposure Inhibits RAD51 Paralog Complex (BCDX2) Response in Human Lung Cells

Aggie R Williams<sup>1</sup>, Rachel M Speer<sup>2</sup>, Cynthia L Browning<sup>1</sup>, Idoia Meaza<sup>1</sup>, Jennifer H Toyoda<sup>1</sup>, Sandra S Wise<sup>1</sup>, Calvin J Kouokam<sup>1</sup>, John P Wise<sup>1</sup>, <sup>1</sup>University of Louisville, Louisville, Kentucky/Jefferson, USA. <sup>2</sup>University of New Mexico, Albuquerque, New Mexico, USA

### PS26 Characterization of Novel Single-Domain Nanobodies Against NEIL1

Marlo K Thompson<sup>1,2</sup>, Nidhi Sharma<sup>1,2</sup>, Jennifer F Arrington<sup>1,2</sup>, Joel F Andrews<sup>2</sup>, Aishwarya Prakash<sup>1,2</sup>, <sup>1</sup>University of South Alabama, Mobile, AL, USA. <sup>2</sup>Mitchell Cancer Institute, Mobile, AL, USA

### PS29 Pharmacological Enhancement of the Circadian Clock Protects Keratinocytes from UV Damage and Increases Transcription of DNA Damage Response Genes

William H Cvammen<sup>1</sup>, Mike G Kemp<sup>1,2</sup>, <sup>1</sup>Wright State University, Dayton, Ohio, USA. <sup>2</sup>Dayton VA Medical Center, Dayton, Ohio, USA





## Monday, August 29, 2022, continued...

**PS35 Understanding the Role of UV-DDB in the SMUG1-Mediated Repair of the Oxidative DNA Lesion, 5-Hydroxymethyl-2-Deoxyuridine**

Sripriya J Raja<sup>1,2,3</sup>, Sunbok Jang<sup>2,3</sup>, Bennett Van Houten<sup>2,3</sup>, <sup>1</sup>Graduate Program in Molecular Pharmacology, Pittsburgh, PA, USA. <sup>2</sup>Department of Pharmacology and Chemical Biology, Pittsburgh, PA, USA. <sup>3</sup>UPMC-Hillman Cancer Center, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

**PS38 The Processing of 8-Oxoguanine at Telomeres Promotes Cellular Senescence**

Mariarosaria De Rosa, Ryan P Barnes, Patricia L Opreko, University of Pittsburgh Hillman Cancer Center, Pittsburgh, PA, USA

**PS54 Rabs and Mitochondrial Dysfunction in the Pathogenesis of Parkinson's Disease**

Tara E Richbough, Duke University, Durham, NC, USA

**PS68 PMS2 Variant Results in Loss of ATPase Activity without Compromising Mismatch Repair**

Brandon M D'Arcy<sup>1</sup>, Jennifer Arrington<sup>1</sup>, Justin Weisman<sup>1</sup>, Steven B. McClellan<sup>1</sup>, Vandana LNU<sup>1</sup>, Zhengrong Yang<sup>2</sup>, Champion Deivanayagam<sup>2</sup>, Jessa Blount<sup>1</sup>, Aishwarya Prakash<sup>1</sup>, <sup>1</sup>University of South Alabama, Mobile, AL, USA. <sup>2</sup>University of Alabama at Birmingham, Birmingham, AL, USA

**PS77 Investigating the Role of Telomeric Oxidative Base Damage in the Regulation of ALT and the Antitumor Immune Response.**

Sanjana Thosar, Dayana Rivadeneira, Greg Delgoffe, Patricia Opreko, University of Pittsburgh, Pittsburgh, PA, USA

**P50 Establishment of Cancer Cell Models Derived From Human iPS Cells Based on Mitochondrial Complex II Deficiency**

Sugako Oka, Department of Medical Biophysics and Radiation Biology, Faculty of Medical Science, Kyushu University, Fukuoka, Fukuoka, Japan

**PS82 Revealing Chaperone-Mediated Autophagy Role in Repair of Bulky DNA Lesions**

Maria CC Ramalho<sup>1</sup>, Isabeli YA Osawa<sup>1</sup>, Natália C Moreno<sup>2</sup>, Marina Andrade-Tomaz<sup>3</sup>, Hugo A Armelin<sup>1</sup>, Clarissa RR Rocha<sup>3</sup>, Luciana R Gomes<sup>1</sup>, <sup>1</sup>Instituto Butantan, São Paulo, SP, Brazil. <sup>2</sup>National Institute of Health, Rockville, MD, USA. <sup>3</sup>Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

**PS101 Novel Interaction Interfaces Mediate the Interaction Between the NEIL1 DNA Glycosylase and Mitochondrial Transcription Factor A**

Nidhi Sharma<sup>1</sup>, Marlo K. Thompson<sup>1</sup>, Jennifer F. Arrington<sup>1</sup>, Dava M. Terry<sup>1</sup>, Srinivas Chakravarthy<sup>2</sup>, Peter E. Prevelige<sup>3</sup>, Aishwarya Prakash<sup>1</sup>, <sup>1</sup>University of South Alabama, Department of Biochemistry and Molecular Biology, Mitchell Cancer Institute, Mobile, AL, USA. <sup>2</sup>Illinois Institute of Technology, Advanced photon source, Argonne, IL, USA. <sup>3</sup>University of Alabama, at Birmingham, Department of Microbiology, Birmingham, AL, USA

**PS117 High-Throughput Characterization of TDG-DNA Binding and Excision Activity Reveals Strong Correlation With Genomic Methylation Levels**

Yuze Hou<sup>1</sup>, Wei Zhu<sup>1</sup>, Ariel AfeK<sup>1,2</sup>, Alexander C Drohat<sup>3</sup>, Raluca Gordan<sup>1</sup>, <sup>1</sup>Duke University, Durham, NC, USA. <sup>2</sup>Weizmann Institute of Science, Rehovot, Israel. <sup>3</sup>University of Maryland, Baltimore, MD, USA

**PS125 Structural Basis For Engagement Of Nucleosomal DNA Damage By DNA Polymerase Beta**

Benjamin J Ryan, Tyler M Weaver, Bret D Freudenthal, University of Kansas Medical Center, Kansas City, KS, USA

**PS128 DNA Integrity in the Brain (Ageing and Disease)**

Aris A Polyzos<sup>1</sup>, Jung Hyun Yoo<sup>1</sup>, Ana Cheong<sup>2</sup>, Zachary D Nagef<sup>2</sup>, Cynthia T McMurray<sup>1</sup>, <sup>1</sup>Lawrence Berkeley National Laboratory, Berkeley, CA, USA. <sup>2</sup>Harvard T.H. Chan School of Public Health, Boston, MA, USA

**PS131 Transcript RNA-Mediated Repair of CRISPR/Cas9-Induced Double-Strand Breaks in Yeast Genomic DNA**

Yilin Lu, Georgia Institute of Technology, Atlanta, Georgia, USA

**PS32 Potential Clinical Application and Functional Roles of Cell-Free miRNA-25-3p in Prostate Cancer.**

Monyse de Nobrega<sup>1,2</sup>, Marilesia Ferreira De Souza<sup>1</sup>, Mariana Bisarro dos Reis<sup>3</sup>, Hellen Kuasne<sup>2</sup>, Larissa Cristina Bastos de Oliveira<sup>1</sup>, Paulo Emílio Fugant<sup>4</sup>, Morag Park<sup>2</sup>, Ilce Mara de Syllos Cólus<sup>1</sup>, <sup>1</sup>State University of Londrina, Londrina, PR, Brazil. <sup>2</sup>McGill University, Montreal, QC, Canada. <sup>3</sup>Barretos Cancer Hospital, Barretos, SP, Brazil. <sup>4</sup>Londrina Hospital Cancer, Londrina, PR, Brazil

## Monday, August 29, 2022, continued...

### PS65 Dietary Methionine Restriction Improves the Response to Immune Checkpoint Inhibitors

Lauren C Morehead, Sarita Garg, Eric R. Siegel, Isabelle R Miousse, University of Arkansas for Medical Sciences, Little Rock, AR, USA

### PS120 Investigating the Impact of Ribonucleotides in Telomeres and Their Role in Human Disease

Griffin A Welfer, Bret D Freudenthal, KUMC, Kansas City, KS, USA

### PS122 Multiple Roles Of The Mycobacterium tuberculosis Ku C-terminus In Repairing DNA Double-Strand Breaks

Dana J Sowa, Monica M Warner, Andriana Tetenych, Lucas Koechlin, Pardis Balari, Jose PR Perez, Cody Caba, Sara N Andres, McMaster University, Hamilton, ON, Canada

### PS134 Single-molecule analysis of damage detection by UV-DDB and OGG1 from nuclear extracts

Matthew A. Schaich<sup>1,2</sup>, Brittani Schnable<sup>2,3</sup>, Namrata Kumar<sup>2,4</sup>, Vera Roginskaya<sup>2</sup>, Rachel C. Jakielski<sup>1,2</sup>, Roman Urban<sup>5</sup>, Zhou Zhong<sup>6</sup>, Neil M. Kad<sup>6</sup>, Bennett Van Houten<sup>1,2,4,3</sup>, <sup>1</sup>Department of Pharmacology and Chemical Biology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA. <sup>2</sup>UPMC-Hillman Cancer Center, Pittsburgh, PA, USA. <sup>3</sup>Molecular Biophysics and Structural Biology Program, University of Pittsburgh, Pittsburgh, PA, USA. <sup>4</sup>Molecular Genetics and Developmental Biology Graduate Program, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA. <sup>5</sup>School of Biosciences, University of Kent, Canterbury, United Kingdom. <sup>6</sup>LUMICKS, Waltham, MA, USA

### PS137 PARP-1 Inhibition Does Not Protect Neuronal-Like And Primary Neural Progenitor Cells Against In Vitro Induced-Oxidative Damage

Larissa Oliveira Piassi<sup>1</sup>, Natalia Chermont dos Santos Moreira<sup>1</sup>, Elza Tiemi Sakamoto-Hojo<sup>2,1</sup>, <sup>1</sup>University of Sao Paulo, Ribeirao Preto Medical School, Ribeirão Preto, SP, Brazil. <sup>2</sup>University of Sao Paulo, Department of Biology, Faculty of Philosophy Sciences and Letters at Ribeirao Preto-USP, Ribeirão Preto, SP, Brazil

### PS143 Inhibiting RAD51 binding partially rescues replication stress phenotypes in FBH1-deficient cells

Alexandra L Hawks, Garrett Buzzard, Conner Kovacs, Michael G Sehorn, Jennifer M Mason, Clemson University, Clemson, SC, USA

### PS140 Effects of the various types of environments and their changes on the cytogenetic endpoints affected by epigenetic settings

Andrea Rossnerova, Fatima Elzeinova, Irena Chvojikova, Katerina Honkova, Michal Sima, Alena Milcova, Anna Pastorkova, Pavel Rossner Jr., Jan Topinka, Radim J. Sram, Institute of Experimental Medicine CAS, Prague, Czech Republic

### PS114 Nanopore bisulfite amplicon sequencing as an alternative to pyrosequencing for DNA methylation analysis

Nicole Flack<sup>1</sup>, Mathia Colwell<sup>2</sup>, Carrie Walls<sup>1</sup>, Christopher Faulk<sup>1</sup>, <sup>1</sup>University of Minnesota, Saint Paul, MN, USA. <sup>2</sup>University of Michigan, Ann Arbor, MI, USA

## Wine and Cheese Reception

6:30-8:00PM  
Monday, 29th August, 2022

Location National Gallery of Canada

A wine and cheese reception will be held in the National Gallery of Canada from 6:30PM until 8:00PM on Monday, August 29, 2022.



# Tuesday, August 30, 2022

## 7:00AM- 8:30AM

### **Genotoxicity Risk Assessment and Public Health SIG Meeting**

Location Governor General I-Level 4

### **In Vivo Mutagenesis SIG Meeting**

Location Governor General II-Level 4

### **Membership Committee Meeting**

Location Governor General III-Level 4

### **Publication Policy**

Location Newfoundland/Nova Scotia-Level 4

## Plenary Speaker 9: Yukari Totsuka

8:15-9:05AM

Tuesday, 30th August, 2022

Location Confederation I/II - Level 4

### **K9 New Horizons of DNA Adductome for Exploring Environmental Causes of Cancer**

*Yukari Totsuka, Laboratory of Environmental Toxicology and Carcinogenesis, Nihon University School of Pharmacy, Funabashi-Shi, Chiba, Japan. National Cancer Center Research Institute, Chuo-ku, Tokyo, Japan*

## Plenary Speaker 10: Ulla Vogel

9:10-10:00AM

Tuesday, 30th August, 2022

Location Confederation I/II - Level 4

### **K10 Status After Two Decades of Nanosafety Research: Toxicology of Inhaled Nanoparticles and Regulatory Needs**

*Ulla Vogel, Sarah S. Poulsen, Pernille H. Danielsen, Maria Helena G. Andersen, Karin S. Hougaard, Trine Berthing, Alicja Mortensen, Niels Hadrup, Anne T. Saber, National Research Centre for the Working Environment, Copenhagen, Denmark*

## Tuesday, August 30, 2022, continued...

### Symposium 13: De novo Germline Mutations and Environmental Mutagenesis

10:30AM-12:30PM  
Tuesday, 30th August, 2022

Location Confederation I-Level 4

Session Chairs Mathia Colwell, University of Minnesota, Minneapolis, MN, USA, Jonatan Axelsson, Division of Occupational and Environmental Medicine, Lund University, Lund, Sweden, Kenichi Masumura, Division of Genetics and Mutagenesis, National Institute of Health Sciences, Kanagawa, Japan

Germline mutations are source of genomic variation between populations and species. This symposium will present current studies of detection of de novo germline mutation and discuss how do genetic or environmental factors affect mutation rate and spectra. The experimental approaches using mouse models are also valuable for studying these issues.

**10:30-11:00AM | S61 Mutagenicity in Germ Cells and de Novo Mutations in the Offspring**  
*Kenichi Masumura, National Institute of Health Sciences, Kanagawa, Japan*

**11:00-11:30AM | S62 Analysis of de Novo Germline Mutations in DNA Repair-Deficient Mice Lines**  
*Mizuki Ohno, Kyushu University, Fukuoka, Fukuoka, Japan*

**11:30AM-12:00PM | S63 Duplex Sequencing For Mutations In Blood And Spermatozoa From Young Men-A Pilot Study**  
*Jonatan Axelsson<sup>1,2,3,4</sup>, <sup>1</sup>Reproductive Medicine Centre, Skåne University Hospital, Malmö, Sweden. <sup>2</sup>Department of Laboratory Medicine, Lund UniversityLund University, Lund, Sweden. <sup>3</sup>Department of Translational Medicine, Lund University, Malmö, Sweden. <sup>4</sup>Department of Biology, University of Ottawa, Ottawa, Canada.*

**12:00-12:15PM | S64 Harnessing Genomic Technologies for Assessing Germ Cell Mutagenicity in Humans and Laboratory Models**  
*Francesco Marchetti, PhD, Health Canada, Ottawa, ON, Canada*

**12:15-12:30PM | S65 Investigating the Connection Between Germline Mutation Rates, Age, and Male Fertility Using Duplex DNA Sequencing of Bulk Sperm**  
*Jason Kunisaki, University of Utah, Salt Lake City, UT, USA.*



## Tuesday, August 30, 2022, continued...

### Symposium 14: Polynucleotide Signatures and Regulation of Genotoxin Stress Response

10:30AM-12:30PM  
Tuesday, 30th August, 2022

Location Confederation II-Level 4  
Session Chairs Bret D. Freudenthal, PhD, University of Kansas, Kansas City, KS, USA, Ryan Barnes, PhD, Post-doctoral fellow University of Pittsburgh, Pittsburgh, PA, USA Robert Sobol, PhD, Point Clear Charities Professor, Department of Pharmacology Mitchell Cancer Institute, University of South Alabama, Mobile, AL, USA, Aishwarya Prakash, PhD, Associate Professor, Department of Biochemistry Mitchell Cancer Institute, University of South Alabama, Mobile, AL, USA

The three main polynucleotides that respond to and or regulate DNA repair and the cellular response to genotoxic stress include DNA, RNA as well as the polymer of ADP-ribose, PAR. These polynucleotides play unique and overlapping roles in regulating DNA repair capacity and in modulating the response to DNA insults. This symposium will discuss the unique and overlapping roles of these polynucleotides in regulation of and response to DNA damage.

#### 10:30-11:00AM | S66 Functions of the DNA Repair Polymerase POLq in Processing ssDNA Gaps and Promoting Replication Fork Progression

*Joanna Loizou, PhD, Comprehensive Cancer Centre, Medical University of Vienna, Vienna, Austria*

#### 11:00-11:15AM | S67 PARP1 Association to R-Loops Triggers Its Activity

*Elise Fouquere, PhD, University of Pittsburgh, Pittsburgh, PA, USA*

#### 11:15-11:45AM | S68 RNA-Mediated DNA Double-Strand Break Repair

*Youngkyu Jeon, Georgia Institute of Technology, Atlanta, GA, USA*

#### 11:45AM-12:00PM | S69 High-Throughput Transcriptomics and Chemical Toxicity Testing: Quality Control Approaches to Enhance Consistency and Reproducibility

*Matthew J Meier, Health Canada, Ottawa, Ontario, Canada*

#### 12:00-12:30PM | S70 Poly-ADP-Ribose in the Regulation of DNA Repair and the Cellular Response to Genotoxins

*Robert W Sobol, PhD, University of South Alabama, Mobile, Alabama, USA*

**Tuesday, August 30, 2022, continued...**

**Symposium 15: New Approaches for Informing Population Variability in Chemical Risk Assessment**

10:30AM-12:30PM  
Tuesday, 30th August, 2022

Location Confederation III-Level 4  
Session Chairs Michael Stewart, US EPA, Washington D.C., VA, USA, Catherine Gibbons, US EPA, Washington D.C., VA, USA Chelsea Weitekamp, US EPA, Washington D.C., VA, USA

The speakers in this session will present innovative methods for identifying sources of susceptibility to environmental exposures, analyses of novel data streams and computational approaches to quantitatively estimate interindividual variability, and examples of improved approaches for characterizing population variability in human health risk assessment.

**10:30-11:00AM | S71 New Approaches in Cancer Risk Assessment: Why study design matters.**

*Mary Beth Terry, Columbia, New York, NY, USA*

**11:00-11:30AM | S72 Application of Bayesian and Probabilistic approaches for Cancer Dose-Response Assessment incorporating Model Uncertainty and Human Variability**

*Suji Jang, Texas A&M University, College Station, TX, USA*

**11:30AM-12:00PM | S73 Approaches To Addressing Population Variability At CalEPA/OEHHA**

*Vincent James Cogliano, CalEPA Office of Environmental Health Hazard Assessment, Oakland, California, USA*

**12:00-12:15PM | S74 Variation in Blood Lead (Pb) Accumulation Is Strongly Influenced by Genetics**

*Danila Cuomo, Texas A&M University, College Station, Texas, USA*

**12:15-12:30PM | S75 A Toxic Aging Coin: Case for Cr(VI) Neurotoxicity and Gerontogenicity**

*John P Wise, Jr., University of Louisville, Louisville, KY, USA*

**Symposium 16: From Genomes to Ecosystems: What are the Ecological Consequences of Genotoxicity?**

10:30AM-12:30PM  
Tuesday, 30th August, 2022

Location Governor General III-Level 4  
Session Chairs Awadhesh Jha, University of Plymouth, Plymouth, United Kingdom, Helina Gyasi, University of Ottawa, Ottawa, ON, Canada, Gisela de Aragão Umbuzeiro, State University of Campinas, Campinas, Brazil, Jason O'Brien, Environment and Climate Change Canada, Ottawa, ON, Canada

In this symposium, we will share recent advances in the field of 'ecogenotoxicology'. We will also discuss how the Adverse Outcome Pathway framework be an effective organization and evaluation tool for promoting the regulatory utility of ecogenotoxicology evidence.

**10:30-11:00AM | S76 From Molecules to Ecosystems: An AOP-Based Perspective on the Current Status of the Field of Ecogenotoxicology**

*Jason M. O'Brien, Environment and Climate Change Canada, Ottawa, Ontario, Canada*

**11:00-11:30AM | S77 An Integrated Approach to Assess the Impact of Emerging Contaminants on Aquatic Organism**

*Awadhesh N Jha, University of Plymouth, Plymouth, Devon, United Kingdom*

**11:30AM-12:00PM | S78 Ecogenotoxicological Effects Related to Coal Mining and Burning**

*Juliana Da Silva, La Salle University, Canoas, RS, Brazil*

**12:00-12:15PM | S79 Knowing the Resistance: 'Omics for Screening and Understanding the Impacts of Insecticide Resistance in Non-Target Species**

*Helen Poynton, <sup>1</sup>University of Massachusetts Boston, Boston, MA, USA*

**12:15-12:30PM | S80 Investigating the Mutagenicity of Polycyclic Aromatic Compounds from the Athabasca Oil Sands Region in River Otters and a Mammalian Cell Line**

*Helina Gyasi<sup>1,2</sup>, <sup>1</sup>University of Ottawa, Ottawa, ON, Canada. <sup>2</sup>National Wildlife Research Centre, Environment and Climate Change Canada, Ottawa, ON, Canada.*



## Tuesday, August 30, 2022, continued...

### Symposium 17: New Tools in Carcinogenicity Testing

10:30AM-12:30PM  
Tuesday, 30th August, 2022

Location Governor General I - Level 4  
Session Chairs Patricia Escobar, Merck & Co. Inc., West Point, NY, USA, Xilin "Shan" Li, National Center for Toxicological Research, Jefferson, AR, USA, Barbara Parsons, US Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR, USA

This symposium will address the question of whether high-dimensional genetic analyses and/or in vitro screening of pathways relevant to known modes of carcinogenic action can provide early predictions of carcinogenic risk from chronic exposures.

**10:30-10:55AM | S81 A Weight-of-Evidence Approach for Assessing Human Carcinogenic Risk of Small Molecule Pharmaceuticals that Reduces Reliance on Conventional Rodent Carcinogenicity Studies: An Overview of the ICH S1B(R1) Addendum**

*Patricia A. Escobar, Merck & Co., Inc., West Point, PA, USA*

**10:55-11:20AM | S82 Toxicogenomics in Carcinogenic Risk Assessment**

*Heidrun C Ellinger-Ziegelbauer, Bayer AG, Wuppertal, NRW, Germany*

**11:20-11:45AM | S83 Duplex Sequencing for Quantitative Detection of Clonal Expansions for the in vivo Assessment of Nongenotoxic Carcinogens**

*Keith Q Tanis, Merck & Co., Rahway, NJ, USA.*

**11:45AM-12:10PM | S84 Relationship Between Cancer Driver Mutational Based Biomarkers and Tissue-Specific Tumor Susceptibility in Rodents**  
**Kelly Harris. National Center for Toxicological Research/FDA, Jefferson, AR, USA**

**12:10-12:25PM | S85 Duplex Sequencing Reveals Variability In Mutation Susceptibility Across The Genome And An Attenuated Response In The Germ Cells Of MutaMouse Males Exposed To Benzo[a]pyrene Relative To The TGR LacZ Assay**

*Danielle LeBlanc, Environmental Health and Radiation Sciences Bureau, Health Canada, Ottawa, ON, Canada*

### EMGS Business Meeting

12:30-1:30PM  
Tuesday, 30th August, 2022

Location Confederation II

### Plenary Speaker 11: Sir Michael Stratton

1:30-2:30PM  
Tuesday, 30th August, 2022

Location Confederation I/II - Level 4

**K11 Surveying somatic mutations for evidence of environmental exposures.**

*Sir Michael Stratton, Wellcome Trust Sanger Institute, Hinxton, United Kingdom*

## Tuesday, August 30, 2022, continued...

### **Symposium 18: Personalized Cancer Risk and Prevention: Models Integrating Genetics, Environmental Exposures, Infections, Diet, and Other Factors for Specific Cancers**

3:00-5:00PM  
Tuesday, 30th August, 2022

Location Confederation I-Level 4

Session Chairs Jonatan Axelsson, Division of Occupational and Environmental Medicine, Lund University, Lund, Sweden, Clarissa Ribeiro Reily Rocha, Departamento de Microbiologia, Instituto de Ciencias Biomedicas, Universidade de Sao Paulo, Sao Paulo, SP, Brazil, Rosalie Lijinsky, US Food and Drug Administration, Silver Spring, MD, USA

Cancer risk assessment is performed generally in relation to exposure to products such as drugs and other therapies, or to environmental exposures. This symposium includes an examination of the potential for personalized cancer risk and prevention, exploring the factors known for involvement in the development of specific cancers in humans.

#### **3:00-3:30PM | S86 Integration of Risk Factors for Specific Cancers Into a Cancer Risk Assessment Paradigm for Medical Devices**

*Rosalie K Elespuru, US Food and Drug Administration, Silver Spring, MD, USA*

#### **3:30-4:00PM | S87 Colorectal Cancer Risk Factors and Their Potential for Precision Prevention**

*Mingyang Song, Harvard T.H. Chan School of Public Health, Boston, MA, USA. Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA*

#### **4:00-4:30PM | S88 Risk Prediction of Gastric Cancer in Asian Populations: its Potential Application to Personalized Prevention and Screening**

*Shoichiro Tsugane, National Institute of Health and Nutrition, National Institutes of Biomedical Innovation, Health and Nutrition, Tokyo, Japan*

#### **4:30-4:45PM | S89 Prolonged Exposure to Particulate Hexavalent Chromium Induces Inhibition of RAD51 and Increased Chromosome Instability in Human Bronchial Epithelial Cells**

*Idoia Meaza, University of Louisville, Louisville, KY, USA*

#### **4:45-5:00PM | S90 DNA Damage and Mutation Hotspots Caused by Aquaporin 3 and its Interaction with low-dose arsenic—Potential Roles in Lung Cancer Evolution**

*Jun Xia<sup>1,2</sup>, <sup>1</sup>Creighton University, Omaha, NE, USA. <sup>2</sup>Baylor College of Medicine, Houston, TX, USA*



## Tuesday, August 30, 2022, continued...

### Symposium 19: Novel Experimental Strategies for Investigating the Incidence and Mechanisms of Mutations

3:00-5:00PM  
Tuesday, 30th August, 2022

Location Confederation II-Level 4  
Session Chairs Bevin Engelward Sc.D., Department of Biological Engineering Massachusetts Institute of Technology, Cambridge, MA, USA, Steve Rozen, Duke-NUS Centre for Computational Biology, Duke-NUS Medical School, Singapore, Singapore

New strategies let us exhaustively study patterns of DNA changes induced by mutagens in animal or cell-culture systems. These new strategies leverage whole genome sequencing to provide data that are unbiased and that are more extensive and informative with respect to mechanisms and patterns of mutations than classical reporter systems.

#### 3:10-3:32pm | S91 Experimental Delineation of Mutational Signatures

Jiri Zavadil, International Agency for Research on Cancer, WHO, Lyon, Rhône-Alpes, France

#### 3:32-3:54pm | S92 Using Normal Human Tissue-Derived Organoids To Identify Mutational Signatures Of Environmental And Chemotherapeutic Agents

Jill E. Kucab, King's College London, London, United Kingdom

#### 3:54-4:16pm | S93 Opportunities and challenges in using mutational signature analysis to illuminate cancer biology and epidemiology

Steven G Rozen, Duke-NUS Medical School, Singapore, Singapore

#### 4:16-4:38pm | S94 DNA Damage and Repair Processes Shape Mutational Signatures

Joanna Loizou, Comprehensive Cancer Centre, Medical University of Vienna, Vienna, Austria

#### 4:38-5:00PM | S95 Application of Mutational Signatures of Carcinogens as Biomarkers of Cancer

Bogdan I. Fedeles, Massachusetts Institute of Technology, Cambridge, MA, USA

### Symposium 20: Risk Assessment of Low-dose Rate Radiations, Lessons from the Fukushima Nuclear Accident

3:00-5:00PM  
Tuesday, 30th August, 2022

Location Confederation III-Level 4  
Session Chairs Takayoshi Suzuki, National Institute of Health Sciences, Kawasaki, Japan, Yoshihisa Matsumoto, Tokyo Institute of Technology, Tokyo, Japan

The health hazards caused by low-dose radiation are a serious problem for the residents of Fukushima after the Nuclear Plant accident. Then thyroid examinations of children were conducted as part of a health survey. This symposium was proposed to re-evaluate the health risks of low-dose radiation.

#### 3:00-3:15PM | S96 Fukushima Daiichi Nuclear Power Station Accident From the Aspect of Radiation Biology and Risk Communication

Yoshihisa Matsumoto, Tokyo Institute of Technology, Tokyo, Japan

#### 3:15-3:45PM | S97 Long-term Strategies for Thyroid Health Monitoring After Nuclear Accidents: Recommendations from an Expert Group Convened by IARC

Kayo Togawa<sup>1,2</sup>, <sup>1</sup>International Agency for Research on Cancer, Lyon, France. <sup>2</sup>National Cancer Center, Institute for Cancer Control, Tokyo, Japan

#### 3:45-4:15PM | S98 Evaluation of Biological and Health Effects in Response to Chronic Low Dose Radiation on Human Population: Current Scenario in High Background Radiation Areas of Kerala, India

Birajalaxmi Das, Bhabha Atomic Research Centre, Mumbai, Maharashtra, India

#### 4:15-4:45PM | S99 Experimental Studies on the Biological Effects of Chronic Low Dose-Rate Radiation Exposures in Mice

Ignacia III B. Tanaka, Institute for Environmental Sciences, Rokkasho, Aomori, Japan

#### 4:45-5:00PM | S100 Workshop report: Fundamentals of Benchmark Dose Modeling and application to support areas in the Radiation Field

Vinita Chauhan, Health Canada, Ottawa, ON, Canada

## Tuesday, August 30, 2022, continued...

### Symposium 21: Role of RNA in DNA Repair

3:00-5:00PM  
Tuesday, 30th August, 2022

Location Governor General I - Level 4  
Session Chairs Heather O'Hagan, University of Indiana, Bloomington, IN, USA, Mats Ljungman, University of Michigan, Ann Arbor, MI, USA

This symposium will bring together leading scientists from three continents to highlight the connections between RNA and DNA repair and discuss their implications for maintaining genomic integrity.

**3:00-3:15PM | S101 Transcription for Genome Integrity**  
*Mats Ljungman, University of Michigan, Ann Arbor, MI, USA*

**3:15-3:45PM | S102 Nucleotide Excision Repair controls RNA polymerase II levels.**  
*Manuel J. Muñoz, IFIBYNE, Buenos Aires, Argentina.*

**3:45-4:15PM | S103 Molecular Mechanisms in Transcription-Coupled DNA Repair**  
*Martijn S Luijsterburg, Leiden University Medical Center, Leiden, Netherlands*

**4:15-4:45PM | S104 DROSHA and DICER RNA Products Control PRC1-Dependent Transcriptional Repression at DNA Damage Sites.**  
*Sofia Francia, Istituto di Genetica Molecolare, Pavia, Italy*

**4:45-5:00PM | S105 Transcription-Coupled DNA Repair of Cytotoxic Alkylation Damage**  
*Peng Mao, University of New Mexico, Albuquerque, NM, USA*

### Platform 4: Environmental Mutagens I

3:00-5:00PM  
Tuesday, 30th August, 2022

Location Governor General III-Level 4  
Session Chairs Anne-Marie Fortin, University of Ottawa, Ottawa, ON, Canada, Sabine Langie, Maastricht University, Maastricht, Netherlands, P. David Josephy, University of Guelph, Guelph, ON, Canada

**3:00-3:15PM | P23 A Look Beyond the Priority: A Comprehensive Investigation of the Toxicity of Retene**  
*Francisco Carlos da Silva Junior, UFRN, Natal, RN, Brazil*

**3:15-3:30PM | P24 In Vitro Transcriptomic Analyses Reveal Pathway Perturbations, Estrogenic Activities, and Potencies of Data-Poor BPA Alternative Chemicals**  
*Geronimo Matteo<sup>1,2</sup>, <sup>1</sup>University of Ottawa, Ottawa, ON, Canada. <sup>2</sup>Environmental Health Science and Research Bureau, Ottawa, ON, Canada*

**3:30-3:45PM | P25 Cytotoxic Metabolites of o-Toluidine and o-Anisidine Induce ALDH1A1 in Rat Bladder Epithelium**  
*Takuma Kobayashi, <sup>1</sup>Grad. Sch. Integr. Pharm. Nutr. Sci. Univ. Shizuoka, Shizuoka, Shizuoka, Japan*

**3:45-4:00PM | P26 Quantitative Genotoxicity Assessment of Mycotoxins Co-Occurring in Food and Feed**  
*J Sanders<sup>1,2</sup>, <sup>1</sup>Scientific Direction of Chemical and Physical Health Risks, Sciensano, Brussels, Belgium. <sup>2</sup>Department of In-vitro Toxicology and Dermato-Cosmetology, Vrije Universiteit Brussel, Brussels, Belgium.*

## Tuesday, August 30, 2022, continued...

### 4:00-4:15PM | P27 Toxicogenomic Effects of the Mycotoxins Deoxynivalenol and Patulin in Experimental Cell Models

Liesel Claeys<sup>1,2,3</sup>, <sup>1</sup>International Agency for Research on Cancer (IARC), Lyon, France. <sup>2</sup>Ghent University, Ghent, Belgium. <sup>3</sup>Cancer Research Institute Ghent (CRIG), Ghent, Belgium

### 4:15-4:30PM | P28 Assessment of the Mutagenic Potential of a Protoporphyrinogen-Oxidase Inhibitor Herbicide

Naveed Honarvar, BASF SE, Ludwigshafen, Germany

### 4:30-4:45PM | P29 Resistance of Mitochondrial DNA to Cadmium and Aflatoxin B1 -Induced Germline Mutations Over 50 Generations of Exposure in *C. Elegans*

Tess C Leuthner, Duke University, Durham, NC, USA

### 4:45-5:00PM | P30 Occupational Exposure to Inhalational Anesthetic in Veterinary Operating Rooms is Associated with Genetic Instability and Oxidative Stress

Mariana G Braz, UNESP, Botucatu, SP, Brazil

## Poster Session III

5:00-7:00PM

Tuesday, 30th August, 2022

Location Provinces Ballroom & Ballroom Foyer

### PS28 Eco/genotoxicity Assessment of A Modified Natural Dye For Sustainable Processes

Gabriel Rampazzo Magalhães<sup>1</sup>, Natalia Oliveira<sup>1</sup>, Daniel Morales<sup>1</sup>, Anjaina Albuquerque<sup>1</sup>, Harold Freeman<sup>2</sup>, Riikka Räisänen<sup>3</sup>, Gisela de Aragão Umbuzeiro<sup>1</sup>, <sup>1</sup>University of Campinas, Limeira, São Paulo, Brazil. <sup>2</sup>North Carolina State University, Raleigh, North Carolina, USA. <sup>3</sup>University of Helsinki, Helsinki, Finland

### PS31 Maize in Southern Region of Ecuador: In Vitro Evaluation of the Effects of Pesticide Mixtures Used in Its Cultivation.

Ana Paulina Arevalo Jaramillo<sup>1,2</sup>, Jackeline Elizabeth Guaman Hurtado<sup>1</sup>, Luis Miguel Guaman Ortiz<sup>1</sup>, Gabriela Cevallos Solorzano<sup>1</sup>, Maria Isabel Ramirez Orellana<sup>1</sup>, Natalia Bailon Moscoso<sup>1</sup>, <sup>1</sup>Departamento de Ciencias de la Salud, Universidad Técnica Particular de Loja, Loja, Loja, Ecuador. <sup>2</sup>Programa de Doctorado en Ciencias, Universidad Nacional de Educación a Distancia, Madrid, Madrid, Spain

### PS96 Regulation of Inflammatory Genes in Response to E-Cigarette Exposure in the Hippocampi of Pregnant Mice

Antonio F Saporito, Christina Awada, Judith T Zelikoff, NYU Grossman School of Medicine, New York, NY, USA

### PS119 Hexavalent Chromium Targets Securin and Causes Numerical Chromosome Instability in Human Cells but Not in Whale Cells

Jennifer H. Toyoda<sup>1</sup>, Rachel M. Speer<sup>1</sup>, Idoia Meaza<sup>2</sup>, Haiyan Lu<sup>1</sup>, Aggie R. Williams<sup>1</sup>, J. Calvin Kouokam<sup>1</sup>, John P Wise<sup>1</sup>, <sup>1</sup>University of Louisville, Louisville, KY, USA. <sup>2</sup>University of Louisville, Louisville, Ky, USA

### PS66 Uptake of Per- And Poly-fluoroalkyl Substances (PFAS) By Liver Spheroids Over 24-hr Exposure

Andrea Rowan-Carroll<sup>1</sup>, Karen Leingartner<sup>1</sup>, Anthony Reardon<sup>1</sup>, Andrew Williams<sup>1</sup>, Rocio Aranda-Rodriguez<sup>1</sup>, Adam Wawrzynczak<sup>1</sup>, Emma Fantin<sup>1</sup>, Ivy Moffat<sup>1</sup>, Richard Carrier<sup>1</sup>, Luigi Lorusso<sup>1</sup>, Matthew Meier<sup>1</sup>, Carole Yauk<sup>2</sup>, Ella Atlas<sup>1</sup>, <sup>1</sup>Health Canada, Ottawa, ON, Canada. <sup>2</sup>University of Ottawa, Ottawa, On, Canada

## Tuesday, August 30, 2022, continued...

### **S69 High-Throughput Transcriptomics and Chemical Toxicity Testing: Quality Control Approaches to Enhance Consistency and Reproducibility**

Matthew J Meier<sup>1</sup>, Andrew Williams<sup>1</sup>, Kate B Cook<sup>1</sup>, Chris J Corton<sup>2</sup>, Logan J Everett<sup>2</sup>, Joshua A Harrill<sup>2</sup>, Carole L Yauk<sup>3</sup>, <sup>1</sup>Health Canada, Ottawa, Ontario, Canada. <sup>2</sup>US Environmental Protection Agency, Research Triangle Park, North Carolina, USA. <sup>3</sup>University of Ottawa, Ottawa, Ontario, Canada

### **PS99 A Simulation Study Exploring Factors for Controlling the Empirical False Discovery Rate in Transcriptomic Points of Departure Studies**

Andrew Williams<sup>1</sup>, Matthew J Meire<sup>1</sup>, Ella Atlas<sup>1</sup>, Carole L Yauk<sup>2</sup>, <sup>1</sup>Health Canada, Ottawa, ON, Canada. <sup>2</sup>University of Ottawa, Ottawa, ON, Canada

### **PS102 E-Cigarette Exposure During Fetal Development Alters Protein Transporters and Gene Expression Activity in Neural Pathways Associated With Obesity in Mice**

Christina Awada<sup>1</sup>, Jason L Blum<sup>2</sup>, Catherine B Klein<sup>1</sup>, Judith T Zelikoff<sup>3</sup>, <sup>1</sup>New York University Grossman School of Medicine, NEW YORK, NEW YORK, USA. <sup>2</sup>Product Safety Labs, Dayton, NJ, USA. <sup>3</sup>NYU School of Medicine, NEW YORK, USA

### **PS15 Application of Combined Omics in Nanotoxicity Studies**

Zhihui Wang, Southeast University, Nanjing, Jiangsu, China

### **PS33 The Cytotoxic Potential of Mesoporous Silica Loaded Anticancer Drug on 3D Model of HCT116 Colon Cancer Cell Line<sup>†</sup>**

Ibemusu Michael Otele, Neenu Singh, Ahmad Zeeshan, Elshaima Sayed, Ketan Ruparelia, De Montfort University, Leicester, Leicestershire, United Kingdom

### **PS56 Use of a Metabolically Competent Human Liver Derived Cell Line (Huh6) for the Detection of Mutagens**

Miroslav Misik<sup>1</sup>, Armen Nersesyan<sup>1</sup>, Monika Waldherr<sup>1</sup>, Franziska Ferk<sup>1</sup>, Michael Kund<sup>2</sup>, Siegfried Knasmueller<sup>1</sup>, <sup>1</sup>Center for Cancer Research, Medical University of Vienna, Vienna, Austria. <sup>2</sup>Department of Environmental Health, Center for Public Health, Medical University of Vienna, Vienna, Austria

### **PS69 Used of HepaRG Cells as Exogenous Human Metabolic System on in Vitro Genotoxicity Assays**

Ludovic Le Hegarat, Sullivan Madec, ANSES- French Agency for Food, Environmental and Occupational Health & Safety-Fougeres Laboratory-Toxicology of Contaminants Unit, Fougeres, France

### **PS72 Comparison of the in Vitro Genotoxic Potential of Pyrrolizidine Alkaloids on 2D and 3D HepaRG Cells Using the High-Throughput CometChip Assay**

Ludovic Le Hegarat, Audrey Barranger, ANSES- French Agency for Food, Environmental and Occupational Health & Safety-Fougeres Laboratory-Toxicology of Contaminants Unit, FOUGERES, France

### **PS78 Detection of Genotoxic Reactions Through Directly Analyzing DNA Damage Responses on Chromatin Fraction**

Katsuyoshi Horibata, Kei-Ichi Sugiyama, Division of Genetics and Mutagenesis, National Institute of Health Sciences, Japan, Kawasaki, Kanagawa, Japan

### **PS87 Genotoxicity Assessment of Potentially Mutagenic Nucleoside Analogues Using ToxTracker**

Inger Brandsma, Remco Derr, Gaonan Zhang, Nynke Moelijker, Paula van Rossum, Giel Hendriks, Torben Østerlund, Toxys, Leiden, Netherlands

### **PS93 Characterization of Substance Induced Mutations in the in Vitro Transgenic Rodent (TGR) Assay**

Naveed Honarvar, Alina Goepfert, Claudia Ruelker, Michael Eichenlaub, Bogdan Tokovenko, Gomez Caroline, Dorothee Funk-Weyer, Robert Landsiedel, BASF SE, Ludwigshafen, Germany

### **PS105 Quantifying and Categorizing DNA Damage in Microorganisms Using BER Principles**

J C Dingman<sup>1</sup>, C J Burrows<sup>2</sup>, <sup>1</sup>University of Utah, Salt Lake City, Utah, USA. <sup>2</sup>University of Utah, Salt Lake City, Utah, USA

### **PS3 Extracellular Vesicles are Impacted by Per- and Polyfluoroalkyl Substances in Human Liver Cells**

Deepak M Keshava, Celeste K Carberry, Julia E Rager, UNC, Chapel Hill, NC, USA

### **PS42 Characterization of MED-12 Mutations in Uterine Leiomyomas of Nigerian Women**

Oluwakemi A Rotimi<sup>1</sup>, Deborah Koyejo<sup>1</sup>, Victor

## Tuesday, August 30, 2022, continued...

Okebalama<sup>2</sup>, Paul Jibrin<sup>3</sup>, Solomon O Rotimi<sup>1</sup>, <sup>1</sup>Covenant University, Ota, Ogun, Nigeria. <sup>2</sup>Babcock University, Remo, Ogun, Nigeria. <sup>3</sup>National Hospital, Abuja, Nigeria

### PS116 The Environmental Integrity Framework: Building Informative Models Relevant to Local Needs

Nnamdi C Osakwe, David M Reif, North Carolina State University, Raleigh, NC, USA

### PS9 Intergenerational Effects Of C.I. Disperse Red 1 Azo Dye Exposure In Male Mice

Amanda R Tanamachi, Fábio H Fernandes, Geovana CR Lima, Noemia AP Mariani, Alan AS Silva, Erick JR Silva, Daisy MF Salvadori, São Paulo State University-UNESP, Botucatu, São Paulo, Brazil

### PS12 Assessing the Toxicity of Functionalised Porous Silica Nanoparticles

Trisha R.Y Patel, Umakhanth V Girija, Zeeshan Ahmad, Neenu Singh, De Montfort University, Leicester, East Midlands, United Kingdom

### PS50 Application of Systematic Evidence Mapping to Identify the Potential Human Health Hazards of Azo Dyes

Channa Keshava<sup>1</sup>, Vulimiri V Suryanarayana<sup>1</sup>, Suna Nicola<sup>2</sup>, Florenz A Cruz<sup>2</sup>, Ariane Lenzner<sup>2</sup>, Patrick Tarnow<sup>2</sup>, Narges Ghoreishi<sup>2</sup>, Sven Knueppe<sup>2</sup>, Amanda S Persad<sup>1</sup>, Kristina A Thayer<sup>1</sup>, Antony J Williams<sup>1</sup>, Nancy Baker<sup>3</sup>, Jens T Vanselow<sup>2</sup>, Ralph Pirow<sup>2</sup>, <sup>1</sup>U.S. Environmental Protection Agency, Research Triangle Park, NC, USA. <sup>2</sup>German Federal Institute for Risk Assessment, Berlin, Germany. <sup>3</sup>Leidos, Research Triangle Park, NC, USA

### PS53 Creating Genotoxicity Assay Summary Calls And Using Them To Generate New Knowledge

Emma Hill, Grace Kocks, Andrew Thresher, Lhasa Limited, Leeds, United Kingdom

### PS81 Inorganic Mercury Salts-Mercuric Chloride, Mercuric Sulfide and Mercurous Chloride: Systematic Review and Analysis

Nagalakshmi Keshava, Brittany Schulz, Suryanarayana V Vulimiri, Jeff Gift, Geoffrey Peterson, Catheryne Chiang, Chelsea A Weitekamp, David M Lehmann, Amanda S Persad, Yu-Sheng Lin, Anuradha Mudipalli, Michelle Angrish, Andrew Hotchkiss, Kristina A Thayer, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, USA

### PS6 Association of NOS3 Gene Polymorphism and Oxidative Stress in Asthma Patients-a Hospital-Based Study, Vellore, India

Aswathi P, Radha Saraswathy, Vellore Institute of Technology, Vellore, Tamil Nadu, India

### PS19 Deciphering the Role of miR-506-3p and Its Potential Target Genes in Renal Cell Carcinoma

Subeka A.G, Pragasam Viswanathan, Vellore Institute of Technology, Vellore, Tamil Nadu, India

### PS36 The Mulefoot Phenotype and The Association With Foot-and-mouth Disease Resistance Gene in Pigs

Fernanda L Facioli<sup>1</sup>, Arthur N Da Silva<sup>2</sup>, Marson B Warpechowski<sup>3</sup>, Janine De Camargo<sup>1</sup>, Juliano O Da Cruz<sup>1</sup>, Caren C Loss<sup>1</sup>, Ricardo Zanella<sup>1</sup>, <sup>1</sup>University of Passo Fundo, Passo Fundo, Rio Grande do Sul, Brazil. <sup>2</sup>University of Saskatchewan, Saskatoon, Saskatchewan, Canada. <sup>3</sup>Federal University of Paraná, Curitiba, Paraná, Brazil

### PS75 De Novo Sequencing, Assembly, Epigenetics, and Annotation of the Black Carpenter Ant, Camponotus Pennsylvanicus, and Its Symbionts by One Person for \$1000, Using Nanopore Sequencing.

Christopher Faulk, University of Minnesota, Saint Paul, MN, USA

### PS84 The Role of ATF4 in the Cellular Response to Pre-mRNA Splicing Stress

Erin van Zyl, Evan Perehiniak, Bruce McKay, Carleton University, Ottawa, ON, Canada

### PS107 Effects of Cadmium on Mitochondrial DNA Mutation Rates, Spectrum, and Heteroplasmy in Naïve and Cadmium-Adapted Populations of Daphnia Pulex

Tess C Leuthner<sup>1</sup>, Nathan Keith<sup>2</sup>, Craig Jackson<sup>3</sup>, Stephen Glaholt<sup>3</sup>, <sup>1</sup>Duke University, Durham, NC, USA. <sup>2</sup>Lawrence Berkeley National Lab, Berkeley, CA, USA. <sup>3</sup>Indiana University, Bloomington, IN, USA

### PS110 Transcriptomic Profiles in Target Tissues Following Drinking Water Exposure to Hexavalent Chromium: A Comparison of Tissues (Intestine vs Oral Mucosa), Tissue Compartments (Crypt vs Villus), and Species (Mice vs Rats) Using Gene Set Enrichment and Upstream Regulator Analyses

Grace A Chappell<sup>1</sup>, Mark A Harris<sup>2</sup>, Chad M Thompson<sup>2</sup>, <sup>1</sup>ToxStrategies Inc., Asheville, NC, USA. <sup>2</sup>ToxStrategies Inc., Katy, TX, USA

## Tuesday, August 30, 2022, continued...

### PS113 Pulmonary Toxicity of Functionalized Single-walled and Multi-walled Carbon Nanotubes: A Comparative Transcriptomic Study

Silvia A Solorio-Rodriguez<sup>1</sup>, Andrew Williams<sup>2</sup>, Sarah S Poulsen<sup>3</sup>, Pernille H Danielsen<sup>3</sup>, Ulla B Vogel<sup>3</sup>, Sabina Halappanavar<sup>1</sup>, <sup>1</sup>Mechanistic Studies Division, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Canada. <sup>2</sup>Population Studies Division, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Canada. <sup>3</sup>National Research Centre for the Working Environment, Copenhagen, Denmark

### PS25 Novel AChE and ROCK Dual Inhibitor Designed for Alzheimer's Disease Therapy Promotes Neurodifferentiation and Neuritogenesis in SH-SY5Y Cells

Natália Chemont dos Santos Moreira<sup>1</sup>, Elvira Regina Tamarozzi<sup>2</sup>, Larissa de Oliveira Piassi<sup>1</sup>, Jéssica Ellen Barbosa de Freitas Lima<sup>1</sup>, Ivone Carvalho<sup>3</sup>, Elza Tiemi Sakamoto-hojo<sup>1,4</sup>, <sup>1</sup>Department of Genetics, Ribeirão Preto Medical School, University of São Paulo-USP, Ribeirão Preto, São Paulo, Brazil. <sup>2</sup>Department of Biotechnology, School of Arts, Sciences and Humanities-USP, São Paulo, São Paulo, Brazil. <sup>3</sup>Department of Biotechnology, School of Arts, Sciences and Humanities-USP, Ribeirão Preto, São Paulo, Brazil. <sup>4</sup>Department of Biology, Faculty of Philosophy, Sciences and Letters at Ribeirão Preto, University of São Paulo-USP, Ribeirão Preto, São Paulo, Brazil

### PS39 Comparison of Concentration-Response in the TGx-HDACi Transcriptomic Biomarker of Histone Deacetylase (HDAC) Inhibition and HDAC Enzyme Activity Levels in TK6 Cells

Eunnara Cho<sup>1,2</sup>, Andrew Williams<sup>2</sup>, Carole Yauk<sup>1,2,3</sup>, <sup>1</sup>Carleton University, Ottawa, Ontario, Canada. <sup>2</sup>Health Canada, Ottawa, Ontario, Canada. <sup>3</sup>University of Ottawa, Ottawa, Ontario, Canada

### PS48 In Situ Liver Perfusion from Rhesus Macaque for Isolation of Primary Hepatocytes and In Vitro Assessment of DNA Damage

M G Manjanatha, J E Seo, N Mei, X Guo, FDA/NCTR, Jefferson, AR, USA

### PS59 High-Throughput Evaluation of DNA Damage Using Three-Dimensional (3D) HepaRG Spheroid

Xiaoqing Guo<sup>1</sup>, Ji-Eun Seo<sup>1</sup>, Levan Muskhelishvili<sup>2</sup>, Pritpal Malhi<sup>2</sup>, Xiaobo He<sup>3</sup>, Mugimane Manjanatha<sup>3</sup>, Nan

Mei<sup>3</sup>, <sup>1</sup>NCTR/FDA, Jefferson, AR, USA. <sup>2</sup>Toxicologic Pathology Associates, Jefferson, USA. <sup>3</sup>NCTR/FDA, Jefferson, USA

### PS22 Exposure to Fipronil and Its Metabolites Disrupted Human Thyroid Cells

Zhiqiang Jiang<sup>1</sup>, Jianhui Zhuang<sup>1</sup>, Yuxin Zheng<sup>2</sup>, Weidong Qu<sup>1</sup>, <sup>1</sup>Fudan University, Shanghai, Shanghai, China. <sup>2</sup>Qingdao University, Qingdao, Shandong, China

### PS62 A Look Beyond the Priority: A Comprehensive Investigation of the Toxicity of Retene

Francisco Carlos da Silva Junior, Ana Carolina Luchiar, Silvia Regina Batistuzzo de Medeiros, UFRN, Natal, Rio Grande do Norte, Brazil

### PS132 Ribonucleotide Incorporation Characteristics in Human Mitochondrial DNA and Relationship to Gene Size

P Xu, T Yang, D Kundnani, M Sun, F Storici, Georgia Institute of Technology, Atlanta, GA, USA

### PS126 MicroRNA Biomarkers of Nephrotoxicity Demonstrate Reduced Variability and Altered Directionality in Exosomal Fraction Compared to Unfractionated Urine

Brian N Chorley<sup>1</sup>, Tatiana Sharapova<sup>2</sup>, Takayuki Tsuji<sup>3</sup>, Peter S.T. Yuen<sup>3</sup>, Prathap K Mahalingaiah<sup>2</sup>, Constance A Mitchell<sup>4</sup>, Syril D Pettit<sup>1</sup>, <sup>1</sup>Center for Computational Toxicology and Exposure US EPA, RTP, NC, USA. <sup>2</sup>Investigative Toxicology and Pathology, Chicago, IL, USA. <sup>3</sup>Renal Diagnostics and Therapeutics Unit, NIDDK, NIH, Bethesda, MD, USA. <sup>4</sup>Health and Environmental Sciences Institute, Washington, DC, USA

### PS129 Production Of Knowledge at Toxicological Genetics laboratories In Mexico through global collaboration (1970-1990). Historical approach

Ma-Alicia Villela, UNAM, Coyoacán, Mexico city, Mexico



## Tuesday, August 30, 2022, continued...

### PS135 Elucidating nanofibre genotoxic mechanisms: An interlaboratory approach

Michael J Burgum<sup>1</sup>, Naouale El-Yaman<sup>2</sup>, Eleonora Marta Longhir<sup>2</sup>, Espen Mariussen<sup>2</sup>, Elise Rundén-Pran<sup>2</sup>, Anita Sosnowska<sup>3</sup>, Julian J Reinosa<sup>4</sup>, Victor Alcolea-Rodríguez<sup>5</sup>, Jose' F Fernandez<sup>4</sup>, Raquel Portela<sup>5</sup>, Tomasz Puzyn<sup>3,6</sup>, Miguel Bañares<sup>5</sup>, Martin J D Clift<sup>1</sup>, Maria Dusinska<sup>2</sup>, Shareen H Doak<sup>1</sup>, <sup>1</sup>In Vitro Toxicology Group, Faculty of Medicine, Health and Life Sciences, Institute of Life Sciences, Swansea University Medical School, Singleton Park, Swansea, United Kingdom. <sup>2</sup>Health Effects Laboratory, Department for Environmental Chemistry, NILU-Norwegian Institute for Air Research, Lillestrøm, Norway. <sup>3</sup>QSAR Lab Ltd, Trzy Lipy 3 St., 80-172, Gdansk, Poland. <sup>4</sup>Instituto de Cerámica y Vidrio, CSIC, c/Kelsen, 5, E-28049, Madrid, Spain. <sup>5</sup>Institute of Catalysis and Petrochemistry, CSIC, C/Marie Curie, 2, E-28049, Madrid, Spain. <sup>6</sup>University of Gdansk, Faculty of Chemistry, Wita Stwosza 63, 80-308, Gdansk, Poland

### PS139 Advanced assessment of mutations in an in vitro micronucleus and Pig-a assay through Duplex Sequencing

Joanne M Elloway, AstraZeneca, Cambridge, Cambridgeshire, United Kingdom

### PS45 Toxicophore-Based Assessment of the Predictivity of Ames Strains: A Data-Driven Approach Towards Strain Selection in Directed Testing and Review

Robert S Foster, Adrian Fowkes, Alex Cayley, Lhasa Limited, Leeds, United Kingdom

### PS142 Investigating Somatic Mutation Signatures Across the Length of the Colon With Duplex Sequencing

Laurel Hiatt, Jason Kunisaki, Suchita Lulla, Xichen Nie, Yixuan Guo, Joemy Ramsay, Joshua Horns, Jim Baldwin-Brown, Jingtao Guo, Nitin Phadnis, Tim Jenkins, Kenneth I Aston, James Hotaling, Aaron Quinlan, University of Utah, Salt Lake City, UT, USA

### PS145 A Geospatial Assessment of Toxic Industrial Releases and Pediatric Neuroblastic Tumours at Diagnosis: A Retrospective Case Series

Domenica Tambasco<sup>1,2</sup>, Meredith Franklin<sup>2</sup>, Andrea Doria<sup>3,2</sup>, Shelley Harris<sup>2,4</sup>, Rahim Moineddin<sup>2,5</sup>, <sup>1</sup>Women's College Hospital, Toronto, Ontario, Canada. <sup>2</sup>University of Toronto, Toronto, Ontario, Canada. <sup>3</sup>Hospital for Sick Children, Toronto, Ontario, Canada. <sup>4</sup>Dalla Lana School of Public Health, Toronto, Ontario, Canada. <sup>5</sup>DFCM, Toronto, Ontario, Canada

### Japanese Dining

6:00-9:00PM  
Tuesday, 30th August, 2022

Location The Westin Hotel-Main Entrance  
Social Programs

Date/Duration of Event: Monday, August 29, 6:00-9:00PM

Location of Event: C'est Japon À Suisha  
(<https://www.japaninottawa.com/>)

Maximum number of people: 20

Time and place to meet: 6:10PM, Main Entrance of the Westin Hotel

How to get there: 15min walk from Shaw Centre.

### Editorial Board Dinner

6:30-9:30PM  
Tuesday, 30th August, 2022

Location Social Restaurant  
Social Programs

This is a closed event for only Editorial Board Members.

### IAEMGS Business/Council Meeting

7:00-8:00PM  
Tuesday, 30th August, 2022

Location Quebec-Level 4

# Wednesday, August 31, 2022

## 7:00- 8:30AM

### Epigenomics SIG Meeting

Location Governor General I-Level 4

### Hollaender International Outreach Committee Meeting

Location Governor General III-Level 4

### Public Relations Committee Meeting

Location Quebec-Level 4

### Diversity Committee Meeting

Location Newfoundland/Nova Scotia-Level 4

## Fun Run with the President

7:00-8:00AM

Wednesday, 31st August, 2022

Location The Westin Hotel-Main Entrance  
Social Programs

All levels of runners, walkers, and rollers are invited to participate in the 2022 ICEM Fun Run/Walk with the President!

This event is a great opportunity to meet friends in a casual environment, joining EMGS President Joann Sweasy in showing support for the Society. Whether you're in it for some friendly competition or would rather stick with a group, this event's emphasis is on FUN and, bringing together all paces and styles.

Where: The Westin Hotel main entrance, Ottawa  
Route: 3.9 km (2.4 mile) loop along the Ottawa River and in front of the historic Canadian Parliament buildings-route here:

<https://www.mapmyrun.com/routes/view/4660989979>

Sign up: [https://docs.google.com/forms/d/e/1FAIpQLScww6PYDVosKO2Y8IfGITOAW8EzQ7Mtkm6r\\_J-qoRBVY5rW0A/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLScww6PYDVosKO2Y8IfGITOAW8EzQ7Mtkm6r_J-qoRBVY5rW0A/viewform?usp=sf_link)

Contact: Jen Keir, [jkeir031@uottawa.ca](mailto:jkeir031@uottawa.ca)

## EMGS Award Winner, Dr. Karen Vasquez

8:15-9:05AM

Wednesday, 31st August, 2022

Location Confederation I/II - Level 4

### L1 Novel Mechanisms of Genetic Instability in Cancer

*Karen M. Vasquez. The University of Texas at Austin, Austin, TX, USA*

## Hollaender Award Winner, Dr. Michael Plewa

9:10-10:00AM

Wednesday, 31st August, 2022

Location Confederation I/II - Level 4

### L2 Alexander Hollaender Lecture: Defining Genotoxic Mechanisms of Drinking Water Disinfection By-Products

*Michael J. Plewa, University of Illinois Urbana-Champaign, Urbana, IL, USA*

## Young Scientist Award Winners, Jun Xia and Raghuvaran Shanmugam

10:30-11:15AM

Wednesday, 31st August, 2022

Location Confederation I/II - Level 4

### L3 The DNA damageome: sources of endogenous DNA damage and new instigators of genome evolution

*Jun Xia, Creighton University, Omaha, NE, USA*

### L4 I's (Inosine) on RNA by ADAR enzymes: An epitranscriptomic mutation process in action.

*Raghuvaran Shanmugam, Institute of Molecular and Cell Biology (IMCB), Singapore, Singapore, Singapore*





## Wednesday, August 31, 2022, continued...

### Platform 5: Environmental Mutagens II

11:30AM-12:30PM  
Wednesday, 31st August, 2022

Location Confederation I-Level 4  
Session Chairs Awadhesh Jha, University of Plymouth, Plymouth, United Kingdom, Alexandra Long, Health Canada, Ottawa, ON, Canada

#### 11:30-11:45AM | P31 Application of a New Approach Methodology (NAM)-based Strategy for Genotoxicity Assessment of Data-poor Compounds

Anne-Marie Fortin, University of Ottawa, Ottawa, ON, Canada. 2Health Canada, Ottawa, ON, Canada

#### 11:45AM-12:00PM | P32 Automated High Content Screening for Carcinogenicity Testing In Vitro

Linda Reilly<sup>1</sup>, <sup>1</sup>In Vitro Toxicology Group, Swansea University, Swansea, United Kingdom

#### 12:00-12:15PM | P33 Application of the ToxTracker Assay in the Consumer Goods Industry for Prioritization of Testing Strategies and Follow-Up Approaches

Ashley Allemang, Procter & Gamble, Mason, OH, USA

#### 12:15-12:30PM | P34 In Vivo and in Vitro Evaluation of the Genotoxic Effects and Cellular Mechanisms of Fluoride

Ana Letícia Hilario Garcia, <sup>1</sup>Laboratory of Genetic Toxicology, Postgraduate program in Health and Human Development, La Salle University (UniLaSalle), Canoas, Rio Grande do Sul, Brazil

### Platform 6: Epigenomics and Heritable Effects

11:30AM-12:30PM  
Wednesday, 31st August, 2022

Location Confederation II-Level 4  
Session Chairs Rachel Morgan, University of Michigan School of Public Health, Ann Arbor, MI, USA, Patrick Allard, University of California, Los Angeles, CA, USA, Barbara Hales, McGill University, Montreal, QC, Canada

#### 11:30-11:45AM | P35 DNA Methylation Programming and Environmental Influences During Rat Gametogenesis

Rhizlane El omri-Charai, INRS- Armand Frappier Santé Biotechnologie, Laval, Quebec, Canada

#### 11:45AM-12:00PM | P36 A Gene Expression Biomarker Identifies Inhibitors of Two Classes of Epigenome Effectors in a Human Microarray Compendium

J Chris Corton, EPA, Durham, NC, USA

#### 12:00-12:15PM | P37 Exploring the Role of piRNA in Neural Differentiation and Its Susceptibility to Lead Exposure

Rachel K Morgan, University of Michigan Department of Environmental Health Sciences, Ann Arbor, MI, USA

#### 12:15-12:30PM | P38 Epigenomic And Transcriptomic Profiles In Inducible Models Of Mitochondrial DNA Copy Number Depletion And Heteroplasmic Burden

Amanda L Morin, Department of Pathology and Laboratory Medicine, Schulich School of Medicine and Dentistry, University of Western Ontario, London, ON, Canada

## Wednesday, August 31, 2022, continued...

### Platform 7: Risk Assessment

11:30AM-12:30PM  
Wednesday, 31st August, 2022

Location Confederation III - Level 4  
Session Chairs Gareth Jenkins, Swansea University, Swansea, United Kingdom, Mirjam Luijten, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands

#### 11:30-11:45AM | P39 Cellular, Molecular and Genotoxic Effects of Digested Titanium Dioxide Nanomaterials

Henriqueta Louro<sup>1,2</sup>, <sup>1</sup>Department of Human Genetics, National Institute of Health Dr. Ricardo Jorge (INSA), Lisbon, Portugal. <sup>2</sup>Centre for Toxicogenomics and Human Health (ToxOmics), NOVA Medical School, NOVA University, Lisbon, Portugal.

#### 11:45AM-12:00PM | P40 Deriving an Optimal Transcriptomic Metric to Establish Protective and Relevant Transcriptomic Points of Departure for Risk Assessment Application

Anthony J F Reardon, Existing Substances Risk Assessment Bureau, Healthy Environments & Consumer Safety Branch, Health Canada, Ottawa, ON, Canada

#### 12:00-12:15PM | P41 A Strategy for Developing a Framework of Genotoxicity Assays for Safety Assessment of Botanicals

Stefan Pfuhrer, Procter & Gamble, Mason, OH, USA

#### 12:15-12:30PM | P42 Thirdhand Smoke Exposure: Implications for inflammatory lung diseases

Altaf H Sarker, Lawrence Berkeley Lab, Berkeley, CA, USA

### Platform 8: DNA Repair II

11:30AM-12:30PM  
Wednesday, 31st August, 2022

Location Governor General III - Level 4  
Session Chairs Dr. Tyler Weaver, University of Kansas, Lawrence, KS, USA, Bret D. Freudenthal, PhD, University of Kansas, Lawrence, KS, USA

#### 11:30-11:45AM | P43 Unravelling The Multifunctionality Of LigD In Bacterial DNA Repair

Dana J Sowa, McMaster University, Hamilton, ON, Canada

#### 11:45AM-12:00PM | P44 Understanding the Role of UV-DDB in the SMUG1-Mediated Repair of the Oxidative DNA Lesion, 5-Hydroxymethyl-2-Deoxyuridine

Sripriya J Raja<sup>1,2,3</sup>, <sup>1</sup>Graduate Program in Molecular Pharmacology, Pittsburgh, PA, USA. <sup>2</sup>Department of Pharmacology and Chemical Biology, Pittsburgh, PA, USA. <sup>3</sup>UPMC-Hillman Cancer Center, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

#### 12:00-12:15PM | P45 Chronic Hyperglycemia Potentiates Oxidative and Neurotoxic Damage by Increasing Cell Death in Differentiated Neurons From SH-SY5Y Cells

Jéssica Ellen Barbosa de Freitas Lima<sup>1</sup>, Department of Genetics, Ribeirão Preto Medical School, University of São Paulo-USP, Ribeirão Preto, São Paulo, Brazil.

#### 12:15-12:30PM | P46 Visualizing Base Excision Repair in Chromatin

Bret D Freudenthal, University of Kansas Medical Center, Kansas City, KS, USA



## Wednesday, August 31, 2022, continued...

### Platform 9: In vivo Testing Strategies

11:30AM-12:30PM  
Wednesday, 31st August, 2022

Location Governor General I - Level 4  
Session Chairs Mizuki Ohno, Masami Yamada,  
National Defense Academy of Japan, Yokosuka,  
Japan

**11:30-11:45AM | P47 Characterisation of Procarbazine-induced Mutation Spectrum in the Bone Marrow of MutaMouse Males using Duplex Sequencing.**

*Annette E Dodge*<sup>1,2</sup>, <sup>1</sup>University of Ottawa, Ottawa, ON, Canada. <sup>2</sup>Health Canada, Ottawa, ON, Canada

**11:45AM-12:00PM | P48 Impact of Mgmt-Mediated DNA Repair on Mutation Susceptibility and Cancer in Mice**

*Lee J Pribyl*, <sup>1</sup>Massachusetts Institute of Technology, Cambridge, MA, USA

**12:00-12:15PM | P49 Establishing Laboratory Proficiency in the OECD 488 Big Blue® Transgenic Rodent Somatic and Germ Cell Mutation Assay**

*Matt Tate*, Gentrionix Ltd, Alderley Park, United Kingdom

**12:15-12:30PM | P50 Establishment of Cancer Cell Models Derived From Human iPS Cells Based on Mitochondrial Complex II Deficiency**

*Sugako Oka*, Department of Medical Biophysics and Radiation Biology, Faculty of Medical Science, Kyushu University, Fukuoka, Fukuoka, Japan

### First Inaugural Women in IAEMGS Luncheon

12:30-1:30PM  
Wednesday, 31st August, 2022

Location Governor General II - Level 4  
Social Programs  
Session Chairs Meagan Myers

Dr. Kim Hellemans, Associate Dean of Science at Carleton University (and a bit of a local celebrity) has graciously agreed to present "Stress, Gender & Coping during the COVID-19 Pandemic" at the Women in the IAEMGS Luncheon. Registration is required.

## **Wednesday, August 31, 2022, continued...**

### **Lunch and Walk in the Glebe**

12:30-5:00PM  
Wednesday, 31st August, 2022

Session Coordinator: Kin Chan (kin.chan@uottawa.ca).  
Summary of Event: Lunch at Jericho (www.jerichorestaurant.com), a well-regarded Middle Eastern/Mediterranean-themed restaurant in the Glebe neighborhood.

After a nice, relaxing lunch, we have many options for other activities in the area, including pubs, pastry/bakery shops, coffee shops, a bubble tea shop, an ice creamery, and many small shops selling an eclectic range of items (good for those looking for distinctive souvenirs).

Participants who want to self-organize and split off from the main group to explore the area on their own are welcome to do so, we can reassemble later at an agreed upon time/location.

Folks attending the Women in EMGS luncheon who can make their way to the Glebe afterwards are also welcome to join us later.

After touring the Glebe, the main group will travel together by bus to the Canadian Museum of History for the evening banquet.

Folks who want to leave earlier to return to the Westin (or go elsewhere) are free to do so as well.

Location of Event: Jericho Middle Eastern & Mediterranean Food (840 Bank Street, Ottawa, Ontario K1S 3W1).

We will travel as a group to Jericho from the main entrance of the Shaw Centre. After lunch, we will be in the same general area for the afternoon.

Travel from the Shaw Centre is straightforward: Get on #6 or #7 bus line at Rideau A stop, get off bus at Bank St & Fifth Ave stop (~20 minute trip).

#### **Additional Notes:**

Jericho is a restaurant with an intimate, artistic setting. Lunch capacity is capped at ~40 diners. There is no limit on folks joining later for the neighborhood tour.

### **Conference Banquet**

6:00-10:00PM  
Wednesday, 31st August, 2022

Location Grand Hall, Canadian Museum of History  
Social Programs

The Banquet will be held at the Grand Hall in the Canadian Museum of History, The Banquet will begin at 6:00PM for guests to view the museum for an hour, and dinner will be served at 7:00PM.



# Thursday, September 1, 2022

**7:00- 8:30AM**

**EMGS Endowment Board**

Location Governor General I-Level 4

**Program Committee Meeting**

Location Governor General III-Level 4

**Plenary Speaker 12: Amander Clark**

8:15-9:05AM

Thursday, 1st September, 2022

Location Confederation I/II - Level 4

**K12 Stem Cell-Based Approaches for Studying  
Germline Environmental Exposure**

*Amander Clark, UCLA, Los Angeles, CA, USA*

**Plenary Speaker 13: Cyril Pettit**

9:10-10:00AM

Thursday, 1st September, 2022

Location Confederation I/II - Level 4

**437 The Last Mile Problem in Health Protection  
Sciences**

*Sybil D Pettit, Health and Environmental Sciences Institute,  
Arlington, VA, USA*

## **Thursday, September 1, 2022, continued...**

### **Symposium 22: Dynamics of Mutation Acquisition in Somatic Cells: SNVs and SVs in the Brain, Blood and Beyond**

10:30AM-12:30PM  
Thursday, 1st September, 2022

Location Confederation I-Level 4

Session Chairs Natalie Saini, Medical University of South Carolina, Charleston, SC, USA, Thomas Glover, University of Michigan, Ann Arbor, MI, USA, Thomas Wilson, University of Michigan, Ann Arbor, MI, USA

Mutagenesis is ongoing in all cells. This session focuses on genomic technologies capable of detecting low frequency mutations. We will explore what these approaches are telling us about the states of genomes in tissues and how somatic mutations contribute to alterations over time in tissue function, development, aging and disease.

#### **10:30-10:55AM | S106 Interrogating the Architecture of Cancer Genomes**

*Peter Campbell, Wellcome Sanger Institute, Hinxton, Cambs, United Kingdom*

#### **10:55-11:20AM | S107 Single Cell Sequencing Reveals New Insights into Genomic Structural Variation**

*Jan O Korbel, European Molecular Biology Laboratory, Heidelberg, Germany. German Cancer Research Center, Heidelberg, Germany*

#### **11:20-11:45AM | S108 Recurrent Somatic Mutations in Human Neurons**

*Michael J McConnell, Lieber Institute for Brain Development, Baltimore, MD, USA*

#### **11:45AM-12:10PM | S109 Implications of DNA Double-Strand Break Formation and Repair for Neural Progenitors and Mature Neurons**

*Bjoern Schwer, University of California, San Francisco, San Francisco, CA, USA*

#### **12:10-12:25PM | S110 Neurodegeneration-Associated TDP-43 Regulates Expression of Key DNA Mismatch Repair (MMR) Genes With Implications to Mutator Phenotype in Neurons**

*Vincent E Provasek<sup>1,2</sup>, <sup>1</sup>Texas A&M University, College Station, Texas, USA. <sup>2</sup>Houston Methodist Research Institute, Houston, Texas, USA*



## Thursday, September 1, 2022, continued...

### Symposium 23: Managing Genes in Space

10:30AM-12:30PM  
Thursday, 1st September, 2022

Location Confederation II-Level 4  
Session Chairs Tatiana Kozbenko, University of Ottawa, Ottawa, ON, Canada. Health Canada, Ottawa, ON, Canada, William Kaufmann, Past-President of EMGS, Durham, NC, USA

Space exploration carries risks from exposure to stressors including solar and extra-solar radiation. Knowledge on the mechanism of these effects on humans can inform development of countermeasures to mitigate or prevent harm. This symposium, Managing Genes in Space, presents our current understanding of how space radiation may harm humans.

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#### 10:30-11:00AM | S111 New Insights Into the Effects of Space Radiation on the Brain

*Janet E Baulch, University of California, Irvine, Irvine, CA, USA*

#### 11:00-11:15AM | S112 Effects of Simulated Microgravity on Mammary Cells in 2 and 3 D Tissue Architecture

*Janice M. Pluth, University of Nevada, Las Vegas, Las Vegas, NV, USA*

#### 11:15-11:45AM | S113 Effects of Galactic Cosmic Rays and Other Environmental Factors in Space on the Cardiovascular System

*Marjan Boerma, University of Arkansas for Medical Sciences, Little Rock, AR, USA*

#### 11:45AM-12:00PM | S114 The Adverse Outcome Pathway Approach to Define Mechanisms of Vascular Remodeling Resulting From Space Exposure

*T Kozbenko<sup>1,2</sup>, <sup>1</sup>Health Canada, Ottawa, Ontario, Canada. <sup>2</sup>University of Ottawa, Ottawa, Ontario, Canada*

#### 12:00-12:30PM | S115 Individual Susceptible to Cancer from Space Radiation Exposure

*Michael M Weil, Colorado State University, Fort Collins, Colorado, USA*

## **Thursday, September 1, 2022, continued...**

### **Symposium 24: Using Quantitative Genetic Toxicology to Advance the Assessment of Genotoxic Impurities in Pharmaceuticals**

10:30AM-12:30PM  
Thursday, 1st September, 2022

Location Confederation III-Level 4  
Session Chairs Andreas Zeller, Hoffman La Roche, Basel, Switzerland, George Johnson, Swansea University, Swansea, United Kingdom

Genotoxic impurities are emerging as a relatively common issue during drug development, and also in certain marketed pharmaceuticals. The assessments are therefore very advanced, and although the proactive reduction of these through advanced chemistry and suitable safety assessment is excellent, there are emerging cases where a more reactive assessment is needed. Therefore, quick assessments are often essential, on which major decisions are required. We investigate these different aspects, using cutting edge procedures, with focus on the quantitative assessment using genetic toxicology data and cancer bioassay data.

Genetic toxicology is moving from dichotomy towards quantitative data interpretation. Like much of scientific progress, this advancement is mainly driven by the availability of new tools like easy-to-use benchmark dose (BMD) software. However, there is still a severe lack of guidance-both in scientific and regulatory terms-on the application of such BMD tools.

The proposed symposium will inform on the most recent developments in this field, by first explaining basic concepts, pointing out advantages and remaining issues, and advise on best practices. Several case examples will be used to demonstrate field applicability of the concepts. Topics will include recommendations for suitable benchmark response (BMR) / critical effect size (CES) values, a set of assessment factors (AF) to account for extrapolation across species as well as interindividual differences, cellular scavenging/compensation, variability of human DNA repair capacity, and possible effect severity. There will be time allocated to a panel discussion, to ensure a thorough level of debate and investigation are included.

**10:30-11:00AM | S116 Quantitative Analysis of In Vivo Mutagenicity Dose Response Data for Risk Assessment and Regulatory Decision-making: A Case Study of Nitrosamines**  
*George E Johnson, Swansea University, Swansea, United Kingdom*

**11:00-11:30AM | S117 NDMA Induced Genotoxicity in the Low Dose Region in Muta™ Mouse**  
*Anthony M Lynch, GSK, Stevenage, Herts, United Kingdom*

**11:30AM-12:00PM | S118 Current Regulatory Risk Assessment Procedure and Regulatory Concerns with Using Quantitative Genetic Tox Data for Risk Assessment**  
*Roland Froetschl, BfArM-Federal Institute for Drugs and Medical Devices, Germany, Bonn, Germany*

**12:00-12:30PM | S119 Nitrite Levels in Common Excipients, Impact on Nitrosamine Risk Assessment**  
*Grace J Kocks, Lhasa Limited, Leeds, United Kingdom*





## Thursday, September 1, 2022, continued...

### Symposium 25: R-loop Roadblocks to Transcription and Replication

10:30AM-12:30PM  
Thursday, 1st September, 2022

Location Governor General I - Level 4  
Session Chairs Andrés Aguilera, Centro Andaluz de Biología Molecular y Medicina Regenerativa (CABIMER), Universidad de Sevilla-CSIC, Seville, Spain, Yesenia Rodriguez, Genome Integrity and Structural Biology Laboratory, National Institute of Environmental Health Sciences, Research Triangle Park, NC, USA, Philip Hanawalt, Department of Biology, Stanford University, Stanford, CA, USA

R-loops consist of an RNA-DNA duplex and an unpaired DNA strand that can form during transcription. Of particular importance are consequences when replication forks or transcription complexes collide with R-loops. We present mechanistic aspects of R-loop formation and their resolution to contribute to an improved understanding of their biological functions.

#### 10:30-11:00AM | S121 Chromatin Modifications Upon Transcription-Dependent or Independent Replication Stress

*Andres Aguilera, Andalusian Center for Molecular Biology and Regenerative Medicine CABIMER, Universidad de Sevilla-CSIC, Seville, Spain*

#### 11:00-11:30AM | S122 Investigating the Mechanisms Behind R-Loop Induced Lethality Upon Replication -Transcription Conflicts

*Houra Merrikh, Vanderbilt University, Nashville, TN, USA*

#### 11:30AM-12:00PM | S123 Toxic R-loops as a Cause and Consequence of Replication Stress

*Philippe Pasero, IGH, CNRS and University of Montpellier, Montpellier, France*

#### 12:00-12:15PM | S124 The Multifaceted Roles of Base Excision Repair Enzymes in DNA Repair and R-Loop Homeostasis

*Yesenia Rodriguez<sup>1</sup>, <sup>1</sup>National Institute of Environmental Health Sciences, Durham, NC, USA*

#### 12:15-12:30PM | S125 Perspectives on the processing of R-loops by nucleotide excision repair

*Philip Hanawalt, Department of Biology, Stanford University, Stanford, CA, USA*

## Thursday, September 1, 2022, continued...

### Platform 10: Bioinformatics and Data Sciences

10:30AM-12:30PM  
Thursday, 1st September, 2022

Location Governor General III-Level 4  
Session Chairs Amanda Morin, Western University, London, ON, Canada, Christina Castellani, Western University, London, ON, Canada, Kathleen Hill, Western University, London, ON

**10:30-10:45AM | P51 Sex-Specific DNA Methylation and Associations with in utero Tobacco Smoke Exposure at Nuclear-Encoded Mitochondrial Genes**  
*Dillon King, Duke University, Durham, NC, USA*

**10:45-11:00AM | P52 First Trimester Exposures to Per- and Polyfluoroalkyl Substances (PFAS) and Neonatal DNA Methylation**  
*Rebekah L Petroff, University of Michigan, Ann Arbor, MI, USA*

**11:00-11:15AM | P53 Characteristics of de Novo Mutations (DNMs) in 13 Multi-Sibling Mexican-American Families.**  
*HA Shojaeisaadi, Health Canada, Ottawa, Ontario, Canada*

**11:15-11:30AM | P54 Quantitative Analysis of GENOMARK Gene Expression Data to Compare Genotoxic Potencies.**  
*Anouck Thienpont, Vrije Universiteit Brussel, Brussels, Belgium*

**11:30-11:45AM | P55 Impact Of Wildfire Smoke On The Airway Epigenome**  
*Anthony P Brown, University of California, California National Primate Research Center, Davis, USA*

**11:45AM-12:00PM | P56 Mitochondrial DNA Copy Number and Heteroplasmy in Families with Monozygotic Twins Discordant for Schizophrenia**  
*Phyo W Win, Western University, London, ON, Canada*

**12:00-12:15PM | P57 Artificial Intelligence (AI) Approaches as Alternatives to Animal Studies**  
*Weida Tong, FDA/NCTR, Jefferson, AR, USA*

### Symposium 26: Genome Editing: Intentional Mutagenesis of the Genome and Implications for Human Health

1:30-3:30PM  
Thursday, 1st September, 2022

Location Confederation I-Level 4  
Session Chairs P.J. Brooks, NCATS, NIH, Bethesda, MD, USA

In genome editing, the genome is intentionally altered for the treatment and/or prevention of disease. This symposium will discuss ongoing activities in the genome editing field, including transcriptome sequencing to detect on/off target editing, a public-private genome editing consortium, and novel genome editing approaches based on DNA repair.

**1:30-2:00PM | S127 Understanding Human Genetic Variation with Precision Genome Editing Tools**  
*Alexis C Komor, University of California, San Diego, La Jolla, CA, USA*

**2:00-2:30PM | S128 Profiling Cell Type Specificity and Adverse Events of Genome Editing Nucleases in the Brain and Retina Using Single Cell Transcriptomics**  
*Krishanu Saha, University of Wisconsin–Madison, Madison, Wisconsin, USA*

**2:30-2:45PM | S129 Low Frequency Somatic Copy Number Alterations in Normal Human Lymphocytes Revealed by Large Scale Single-Cell Whole Genome Profiling**  
*Yusi Fu1, 1Creighton University, Omaha, Nebraska, USA*

**2:45-3:00PM | S130 Designed Synthesis of Translocations and Induction of Chromosomal Aberrations by Genome Editing**  
*Takayoshi Suzuki, National Institute of Health Sciences, Kawasaki, Kanagawa, Japan*



## Thursday, September 1, 2022, continued...

### Symposium 27: International Workshop on Genotoxicity Testing: Summary of Consensus Statements

1:30-3:30PM

Thursday, 1st September, 2022

Location Confederation II-Level 4

Session Chairs Hans-Joerg Martus, Novartis, Basel, Switzerland, Andreas Zeller, Hoffman La Roche, Basel, Switzerland, David Kirkland, Kirkland Consulting, Tadcaster, United Kingdom

Feedback from Working Group discussions of 7th IWGT

#### S131 International Workshop on Genotoxicity Testing: Summary of Consensuses

*Hans-Joerg Martus*1, 1Novartis Institutes for BioMedical Research, Basel, Switzerland

### Symposium 28: Carcinogens, Carcinogenesis and Cancer: Application of Artificial Intelligence & Machine Learning

1:30-3:30PM

Thursday, 1st September, 2022

Location Confederation III-Level 4

Session Chairs Maria Zhivagui, Department of Cellular and Molecular Medicine, University of California, San Diego, CA, USA, Luoping Zhang, School of Public Health, University of California, Berkeley, CA, USA

Many cancer research studies generated myriad datasets from investigating carcinogenesis associated with exposures to toxic chemicals or therapeutic drugs. These potential carcinogens can be identified by artificial intelligence and machine learning (AI/ML) rather than traditional toxicological methods. Additionally, AI/ML is currently employed to explore the cancer mutation spectrum or other carcinogenic mechanisms.

#### 1:30-2:00PM | S132 How AI Can Beat Animal Testing at Finding Toxic Chemicals as Potential Carcinogens

*Thomas Hartung*, Johns Hopkins University, Baltimore, Maryland, USA

#### 2:00-2:15PM | S133 Predicting the Binding of Small Molecules to Nuclear Receptors Using Machine Learning and Molecular Modeling Techniques

*Azhagiya Singam Ettayapuram Ramaprasad*, University of California, Berkeley, Berkeley, CA, USA.

#### 2:15-2:30PM | S134 Benchmarking Indel Detection Methods for Oncopanel Sequencing Data Through a precision FDA Bioinformatics Challenge

*Joshua Z Xu*, National Center for Toxicological Research, US Food and Drug Administration, Jefferson, AR, USA

#### 2:30-3:00PM | S135 COSMIC eSignatures: a collection of experimentally derived mutational signatures due to environmental agents

*Maria Zhivagui*, University of California San Diego, La Jolla, CA, USA

#### 3:00-3:30PM | S136 A Multi-omic Approach and Bioinformatic Analysis of Exposures to Chemical Carcinogens

*Luoping Zhang*, University of California at Berkeley, Berkeley, CA, USA

## Thursday, September 1, 2022, continued...

### Symposium 29: Approaches for Studies of DNA Damage and Repair with Applications in Human Biomonitoring and Disease Risk Prediction

1:30-3:30PM  
Thursday, 1st September, 2022

Location Governor General III-Level 4  
Session Chairs Andrew Collins, University of Oslo, Oslo, Norway, Sabine Langie, Maastricht University, Maastricht, Netherlands, Bevin Engelward Sc.D., Department of Biological Engineering Massachusetts Institute of Technology, Cambridge, MA, USA

#### 1:30-2:00PM | S137 The Comet Assay; Past Success and Future Promise

*Andrew Collins, University of Oslo, Oslo, Norway*

#### 2:00-2:30PM | S138 Measuring Nucleotide Excision Repair Capacity to Identify Disease Risk

*Laura J. Niedernhofer<sup>1,2,3</sup>, 1Institute on the Biology of Aging and Metabolism, Minneapolis, MN, USA. 2Department of Biochemistry, Molecular Biology and Biophysics, Minneapolis, MN, USA. 3University of Minnesota Medical School, Minneapolis, MN, USA*

#### 2:30-3:00PM | S139 Studying Nutritional Modulation of DNA Repair: The Value of the Comet Based in Vitro DNA Repair Assay

*Sabine Langie, Department of Pharmacology & Toxicology, School for Nutrition and Translational Research in Metabolism (NUTRIM), Maastricht University, Maastricht, Netherlands*

#### 3:00-3:15PM | S140 Use of the CometChip for Public Health and Molecular Epidemiology

*Bevin P Engelward, Massachusetts Institute of Technology, Cambridge, MA, USA*

#### 3:15-3:30PM | S141 Assessing Testicular Germ Cell DNA Damage in the Comet Assay; Introduction of a Proof-Of-Concept

*Ann Karin Olsen<sup>1,2</sup>, 1Norwegian Institute of Public Health, Division of Climate and Environmental Health, Oslo, Norway. 2Centre for Environmental Radioactivity (CERAD, Centre of Excellence of the Norwegian Research Council), Oslo, Norway*

### Symposium 30: Mutagenic Hazards of PAHs and PAH Mixtures

1:30-3:30PM  
Thursday, 1st September, 2022

Location Governor General I - Level 4  
Session Chairs Yasunobu Aoki, National Institute for Environmental Studies, Tsukuba, Japan, Jennifer Keir, University of Ottawa, Ottawa, ON, Canada

Polycyclic aromatic hydrocarbons (PAHs) are a family of more than a hundred compounds, some of which are genotoxic. In this symposium, exposures to and hazard identification of PAHs and PAH mixtures will be discussed.

#### 1:30-2:00PM | S142 Genotoxic Effect of Polycyclic Aromatic Hydrocarbons Alone or in Mixture in Human Cells

*Marc Audebert, INRAE, Toulouse, France*

#### 2:00-2:30PM | S143 Polycyclic Aromatic Compound Mixtures Research to Inform Component-based Risk Assessment

*Cynthia V Rider, NIEHS, Research Triangle Park, NC, USA*

#### 2:30-3:00PM | S144 In Vivo Mutagenesis of PAHs and Related Compounds Contained in Airborne Particles

*Yasunobu Aoki, National Institute for Environmental Studies, Tsukuba, Japan*

#### 3:00-3:15PM | S145 Biomonitoring Studies of Exposure to Airport Emissions, Diesel exhaust and Firefighting

*Anne T Saber, National Research Centre for the Working Environment, Copenhagen, Denmark*

#### 3:15-3:30PM | S146 Firefighters' Combustion-derived PAH Exposures and Investigating Exposure Reduction Methods

*Jennifer Keir, University of Ottawa, Ottawa, Ontario, Canada*



## ***Thursday, September 1, 2022, continued...***

### **Closing & Awards Ceremony**

4:00-5:00PM

Thursday, 1st September, 2022

Location Confederation I/II - Level 4

### **EMGS Council Meeting**

5:00-7:00PM

Thursday, 1st September, 2022

Location Quebec-Level 4

Session Chairs Francesco Marchetti



- 1 The Westin Ottawa**  
11 Colonel By Drive, Ottawa
- 2 Fairmont Château Laurier**  
1 Rideau Street, Ottawa
- 3 Les Suites Hotel Ottawa**  
130 Besserer Street, Ottawa
- 4 Lord Elgin Hotel**  
100 Elgin Street, Ottawa

- 5 Canadian Museum of History**  
100 Laurier Street, Gatineau
- 6 National Gallery of Canada**  
100 Laurier Street, Gatineau



**Environmental  
Mutagenesis and  
Genomics Society**

Synergistic Interactions for a Better World



# 54<sup>TH</sup> ANNUAL MEETING

*EMGS in the Windy City: Billowing the Sails of DNA Science*

**September 9 – 13, 2023**

Palmer House Hilton  
17 East Monroe Street  
Chicago, IL, USA

*EMGS President:*

**Dr. Francesco Marchetti**

*Program Chair:*

**Jeffrey Craig Bemis, PhD**

*New Investigator Co-Chair:*

**Isabelle R. Miousse, PhD**

## **KEYNOTE SPEAKERS**

**IVAN RUSYN, MD, PhD**

Texas A&M University, College Station, TX, USA

**MARIANA G. FIGUEIRO, PhD**

Icahn School of Medicine at Mount Sinai, New York, NY

**SIR MICHAEL STRATTON, PhD**

Wellcome Sanger Institute, Cambridge, UK

## **SPECIAL INTEREST GROUPS**

Applied Genetic Toxicology  
DNA Repair & Mutagenic Mechanisms  
Epigenomics  
Genomics and Data Sciences  
Germ Cell and Heritable Effects  
Genotoxicity Risk Assessment and Public Health (GRAPH)  
In Vivo Mutagenesis  
Women in EMGS

## **IMPORTANT DATES**

February 1: Abstract Collection and Registration Opens  
May 15: Abstract Submission Deadline (Late breaking abstract deadline August 15)  
May 15: Travel Award Application Deadline  
July 15: Early Bird Registration Ends  
August 12: Hotel Reservation Deadline

