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

13th International Conference on Environmental Mutagens
Maintaining Genomic Health in a Changing World

53rd Annual Meeting of the Environmental Mutagenesis and Genomics Society
www.ICEM2022.org
Sponsors

13th International Conference on Environmental Mutagens

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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

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<th>Time</th>
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<tr>
<td>7:00AM-3:30PM</td>
<td>Workshop 4: Advancing the Next Generation of Genetic Toxicology and Cancer Risk Assessment</td>
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<tr>
<td>8:00AM-12:00PM</td>
<td>Workshop 1: Mini versus Standard Ames Assays: What Have We Learned from the OECD’s Comparative Evaluation</td>
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<td>8:00AM-12:00PM</td>
<td>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)?</td>
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<td>8:00AM-12:00PM</td>
<td>Workshop 3: Methods and Applications of the CometChip and Additional Cell Microarray Technologies</td>
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<td>8:00AM-12:00PM</td>
<td>Workshop 5: In silico Approaches in Genetic Toxicology: Application Ames QSAR to ICH-M7</td>
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<td>1:00-3:00PM</td>
<td>Plenary Speaker 2: Evan Eichler</td>
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<td>3:00-5:00PM</td>
<td>Workshop 6: In Vitro Screening Approaches for Risk Assessment</td>
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<td>5:00-6:30PM</td>
<td>Symposium 7: Impact of Obesity on DNA Stability and its Health Consequences</td>
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<tr>
<td>5:00-6:30PM</td>
<td>Symposium 8: DNA Cross-link Repair and Health</td>
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<tr>
<td>6:30-8:00PM</td>
<td>Poster Session I – Applied Gen Toxicology, Computational Toxicology and Bioinformatics, In Vivo Mutagenicity Assessment, and Radiation Biology</td>
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### Sunday, August 28

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<th>Time</th>
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<td>7:00AM-8:00AM</td>
<td>DNA Repair SIG Meeting</td>
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<td>7:00AM-8:00AM</td>
<td>Germ Cell and Heritable Effects SIG Meeting</td>
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<td>8:15-9:05AM</td>
<td>Plenary Speaker 2: Evan Eichler</td>
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<td>9:10-10:00AM</td>
<td>Plenary Speaker 3: Graham Walker</td>
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<td>9:30-10:30AM</td>
<td>Symposium 6: In Vitro Screening Approaches for Risk Assessment</td>
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<td>10:30AM-12:30PM</td>
<td>Symposium 7: Impact of Obesity on DNA Stability and its Health Consequences</td>
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<td>Symposium 8: DNA Cross-link Repair and Health</td>
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<td>5:00-6:30PM</td>
<td>Symposium 9: Cancer Genomics Provides Insight into Cancer Etiology, Progression and Therapeutic Response</td>
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<td>5:00-6:30PM</td>
<td>Symposium 10: Consequences of Pharmaceuticals and Chemicals for Male and Female Germ Cell Heritability</td>
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<td>5:00-6:30PM</td>
<td>Symposium 11: Developing Integrated Approaches to Testing and Assessment (IATA) Using an Adverse Outcome Pathway (AOP) Framework</td>
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<td>5:00-6:30PM</td>
<td>Symposium 12: How Cells Tolerate and Replicate DNA Damage?</td>
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<td>6:30-8:00PM</td>
<td>Platform 3: Advances in DNA Repair I</td>
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### Monday, August 29

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<tr>
<td>7:00AM-8:00AM</td>
<td>Symposium 1: Advancing Mechanistic Analyses in Genetic Toxicology using High-content and High Complexity of Cellular Responses to DNA Damage</td>
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<tr>
<td>8:00AM-10:00AM</td>
<td>Symposium 2: The Graham Walker Symposium: Complexity of Cellular Responses to DNA Damage</td>
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<tr>
<td>7:00AM-10:00PM</td>
<td>Symposium 3: Application of Computational Modeling and Bioinformatics in Toxicological Hazard and Risk Assessment</td>
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<td>1:30-2:30PM</td>
<td>Plenary Speaker 7: Maurice Whelan</td>
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<td>3:00-4:00PM</td>
<td>Plenary Speaker 8: Kym Boycott</td>
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<td>4:00-6:00PM</td>
<td>Symposium 6: In Vitro Screening Approaches for Risk Assessment</td>
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<td>6:30-8:00PM</td>
<td>Poster Session II – DNA Repair, Epigenetics, and Germ Cell and heritable Effects</td>
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<td>8:15-9:05AM</td>
<td>Plenary Speaker 5: Cynthia Burrows</td>
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<td>9:10-10:00AM</td>
<td>Plenary Lecture 6: Mayana Zats</td>
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### Tuesday, August 30

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<th>Time</th>
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<tbody>
<tr>
<td>7:00AM-8:00AM</td>
<td>Symposium 14: Polynucleotide Signatures and Therapeutic Response</td>
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<td>7:00AM-8:00AM</td>
<td>Symposium 15: Advances in In Vitro Testing Strategies</td>
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<td>7:00AM-8:00AM</td>
<td>Symposium 16: From Genomes to Ecosystems: Application of Ames QSAR to ICH-M7</td>
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<td>7:00AM-8:00AM</td>
<td>Symposium 17: Beyond the Ames: In Vitro Testing Strategies</td>
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<td>1:30-2:30PM</td>
<td>Plenary Speaker 9: Yukari Totsuka</td>
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<td>9:10-10:00AM</td>
<td>Plenary Speaker 10: Ulla Vogel</td>
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10:30AM-12:30PM
Symposium 13: De novo Germline Mutations and Environmental Mutagenesis
Symposium 14: Polynucleotide Signatures and Regulation of Genotoxic Stress Response
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: Syril 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 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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### Program Committee

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Bob Bevans-Kerr
Laura Custer

Robert Sobol
Robert Young
Francesco Marchetti
Guo-Min Li
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Vinita Chauhan

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

13th 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 7:00 AM 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. For airline booking assistance information, visit yow.ca/en/flies/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). 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.

Capital Taxi, a family owned and operated company since 1937, serving Ottawa & surrounding areas, is available 24/7. Download the app at 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.Alamo.ca

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

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

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

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

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

Thrifty
PARKADE (P1), Level 1
Hours: 6:30 a.m.-1:00 a.m.
(613) 521-3332
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.
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 13th ICEM, but are updated frequently on this website: 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

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 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. Wi-Fi 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)
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)
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)
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

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)
Maximum number of people: 40
Contact: Kin Chan, kin.chan@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.

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).

Exhibitors
Thank you to all 2022 ICEM Exhibitors.

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

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-Throughout 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)
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
Mario 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 Cwrongmen 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 Leticia Hilario Garcia, La Salle University
Ana Paulina Arévalo Jaramillo, Universidad Técnica Particular de Loja
Aswathi P, Vellore Institute of Technology
Carolina Leila Colussi, Universidade Nacional del Litoral
Clarissa Ribeiro Reily Rocha, Federal University of São Paulo
Diego Luis Ribeiro, University of São Paulo
Felipe 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
Ibemusui 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
Toluolope 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 Wilson
Phillip C. Hanawalt, PhD., Standford 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: NIH, Gilead, Agilent, Lumicks, VectorBuilder
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 8th 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](https://iwgt.org)
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
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)
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 Pfuhler

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, 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

10:15-10:45AM | DNA reactivity and relative potency of pyrrolizidine alkaloids in vitro and in vivo
Stefan Pfuhler, 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?
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.
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 (~$10^{-7}$ 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 (e.g., 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 NHS 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.
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
Syrl Pettit (HESI)

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

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

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

Location Confederation I-Level 4
Session Chairs Alexandra Long, Health Canada, Ottawa, ON, Canada, Eunnara 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. Andrews1,2, 1Sunnybrook Research Institute, Toronto, Ontario, Canada. 2University 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 Rees1,2, 1Swansea University, Swansea, United Kingdom. 2The 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
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.

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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.

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
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
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 mispairing 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 Sugimura1,2, 1Hamamatsu University School of Medicine, Hamamatsu, Japan, 2Sasaki Foundation Sasaki Institutei, 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.
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 Harte¹,², ¹Swansea University Medical School, Swansea, United Kingdom. ²GSK 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
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 Pfuhler, 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 Elje1,2, 1NILU-Norwegian Institute for Air Research, Kjeller, Norway, 2University of Oslo, Oslo, Norway.
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 Morales 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 Hande1, 1Department of Physiology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore.
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.

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, 1Fudan 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 Kasi1,2, 1Vellore Institute of Technology, Vellore, Tamil Nadu, India. 2University 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 Axelsson2,3,1, 1Department of Translational Medicine, Lund University, Malmö, Sweden. 2Reproductive Medicine Centre, Skåne University Hospital, Malmö, Sweden. 3Division of Occupational and Environmental Medicine, Department of Laboratory Medicine, Lund University, Lund, Sweden.
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<th>PS10 Genomic Instability in Brazilian Family Farmers Exposed to Pesticides: By BMCyt and Telomere Length (TL)</th>
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<tr>
<td>Paula Rohr¹, Isabela Campanelli dos Santos¹, Jefferson Tenesse da Silva², André van Helvoort Lengert³, Marcos Alves de Lima⁴, Vivian Francilia Silva Kah⁴,⁵, Juliana da Silva⁶,⁷, Rui Manuel Reis⁸,⁹, Henrique César Santejo Silva¹²,¹³, Barreto Cancer Hospital, Barreto, SP, Brazil.</td>
</tr>
<tr>
<td>¹University of Cuiabá, Cuiabá, MT, Brazil. ²The University of Queensland Diamantina Institute, Woolloongabba 4102 Queensland, Australia. ³Translational Research Institute, Woolloongabba 4102 Queensland, Australia. ⁴Post-Graduate Program in Cellular and Molecular Biology Applied to Health, Lutheran University of Brazil, Canoas, RS, Brazil. ⁵Laboratory of Genetic Toxicology, La Salle University (UniLaSalle), Canoas, RS, Brazil. ⁶Life and Health Sciences Research Institute (ICVS), Medical School, University of Minho, Braga, Portugal. ⁷ICVS/3B’s-PT Government Associate Laboratory, Braga, Portugal</td>
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<th>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</th>
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<td>Elizabeth Huliganga¹,², Francesco Marchetti², Jason O’Brien³, Vinita Chauhan⁴, Carole L Yauk¹,², ¹Department of Biology, University of Ottawa, Ottawa, ON, Canada. ²Mechanistic Studies Division, Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada. ³Ecotoxicology and Wildlife Health Division, Environment and Climate Change Canada, Ottawa, ON, Canada. ⁴Consumer and Clinical Radiation Protection Bureau, Health Canada, Ottawa, ON, Canada</td>
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<th>PS16 Low Dose Exposure Effect to Mammary Gland Development</th>
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<td>Estefany Merino Rojas, University of Nevada Las Vegas, Las Vegas, Nevada, USA</td>
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<th>PS18 Effect of Aging on the Repeated-Dose Liver Micronucleus Assay</th>
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<td>Shuichi Hamada¹, Kensuke Satomoto², Koji Mita², Isamu Suzuki³, Tatsuya Mitsumoto³, Atsushi Wakita³, Hiroshi Yamagata³, ¹BoZo Research Center Inc., Setagaya-ku, Tokyo, Japan. ²BoZo Research Center Inc. Gotemba Laboratory, Gotemba-shiGotemba-shi, Shizuoka, Japan. ³BoZo Research Center IncLaboratoryLaboratory, Tsukuba-shiTsukuba-shi, Ibaraki, Japan</td>
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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 Chen¹, Alexander W Alund², Bohu Pan³, Jian Yan⁴, Xiaqing Guo⁵, ¹Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, USA. ²Division 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 Matsumura¹, Takako Hirose¹, Yuki Otsubo¹, Naohiro Ikeda¹, Masayuki Yamanishi¹, Takayoshi Suzuki², Kenichi Masumura³, Kei-ichi Sugiyama⁴, ¹Kao Corporation, Kawasaki, Kanagawa, Japan. ²National 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 Ikehata¹, Toshio Kamijyo², Alfred Kirk³, Sachiko Yoshie¹, Akira Usihiyama², Kenji Hattori², Keiji Wada², Yukihisa Suzuki³, ¹Railway Technical Research Institute, Kokubunji, Tokyo, Japan. ²Tokyo Metropolitan University, Hachioji, Tokyo, Japan. ³National Institute of Public Health, Wako, Saitama, Japan. ⁴Meiji Pharmaceutical University, Kiyose, Tokyo, Japan

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 Sanders¹,², Anouck Thiernpont¹,², Roel Anthonissen¹, Tamara Vanhaecke², Birgit Mertens¹, ¹SD Chemical and Physical Health Risks, Sciensano, Brussels, Belgium. ²Department 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 Andrade¹, Heron DT Silva², Decio Semensatto Jr³, Deborah A Roubicek⁴, ¹Institute of Chemical and Pharmaceutical Environmental Sciences, Federal University of São Paulo, São Paulo, Brazil. ²Dept. of Exact and Earth Sciences, Federal University of São Paulo, São Paulo, Brazil. ³Dept. of Environmental Sciences, Federal University of São Paulo, São Paulo, Brazil. ⁴Dept. 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 Souza¹, Camila Guedes¹, Linda Seregni¹, Luciana Gomes¹, Clarissa Rocha¹, ¹UNIFESP, Sao Paulo, Brazil. ²Butantan, Sao Paulo, SP, Brazil

PS52 Non-Mutagenic ruthenium(II) Based Complexes With Naphthoquinones as New Antitumor Agents Against Prostate Metastatic Carcinoma
Rone A De Grandis¹,², Matheus R Ulbrich², Analu R Costa¹, Fernando R Pavani³, Flavia A Resende Nogueira², Alzir A Batista¹, ¹Federal University of São Carlos, Sao Carlos, SP, Brazil. ²University of Araraquara, Araraquara, SP, Brazil. ³Sao Paulo State University, Araraquara, SP, Brazil
PS55 Occupational Exposure of Farmers to Dry Tobacco Leaves
Juliana Da Silva1,2, Daiana Dalberto2, Ana Leticia Garcia1,2, Melissa Souza2, Juliana Picinini2, Fernanda Rabaioli Da Silva1, 1La Salle University (UniLaSalle), Canoas, RS, Brazil. 2Lutheran 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 Bemal1, Florence Jomod2, Xavier Coumoul1, Etienne Blanc1, Min Ji Kim2, Karine Audouze1, 1Université Paris Cité, Inserm U1124, Paris, France. 2Université 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 Zhou1, Danielle LeBlanc1, Annette Dodge1,2, Andrew Williams1, Geroge Douglas1, Carole Yauk1,2, Francesco Marchetti1, 1Environmental Health Science and Research Bureau, HECSB, Health Canada, Ottawa, Canada. 2Department 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 Kobayashi1, Yasukiyo Yoshioka1, Shinji Kishimoto1, Kenji Watanabe1, Yukari Totsuka1,2, Keiji Wakabaashi3, Noriyuki Miyoshi1, 1University of Shizuoka, Shizuoka, Shizuoka, Japan. 2National Cancer Institute, Chuo-ku, Tokyo, Japan. 3National Institute of Health Dr. Ricardo Jorge (INSA), Lisbon, Portugal

PS67 Analysis of the In Vitro Cytotoxicity and Genotoxicity of Cellulose Nanomaterials in Intestinal Cells
Nádia Vital1,2,3, Fátima Pinto1,2, Michel Kranendonk1,2, Maria João Silva1,2, Henriqueu Louro1,2, 1Department of Human Genetics, National Institute of Health Dr. Ricardo Jorge (INSA), Lisbon, Portugal. 2NOVA Medical School, Universidade NOVA de Lisboa, Lisbon, Portugal. 3Centre 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 Kim1, Seng Min Back2, Nan Young Kim2, Su Min BAK2, Na Young Jeung2, Seong Hoon Park2, 1KIT, Daejeon, Korea, Republic of. 2Korea Institute of Toxicology, Daejeon, Korea, Republic of

PS73 Application Of The Adverse Outcome Pathway Framework To Understand Mechanisms Of Radiation-induced Cataract Formation
Meghan Appleby1, Vita La1, Emma Carrothers1, Tatiana Kozbenko1, Snehal Sandhu1, Nobuyuki Hamada1, Patricia Hintorn1, Ruth Wilkins1, Carole Yauk1, Robyn Hocking1, Vinta Chauhan1, 1Health Canada, Ottawa, Canada. 2Central Research Institute of Electric Power Industry, Tokyo, Japan. 3Canadian Forces Environmental Medicine Establishment, Toronto, Canada. 4University of Ottawa, Ottawa, Canada

PS76 Using Historical Negative Control Data to Review Ames Test Results
Grace Kocks, Lhasa Limited, Leeds, West Yorkshire, United Kingdom

Nikola Chepelen, 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 Battaion1, Alexandra S Long2, Paul A White1, 1Environmental Health Science & Research Bureau, Health Canada, Ottawa, ON, Canada. 2Existing Substances Risk Assessment Bureau, Health Canada, Ottawa, ON, Canada
Sunday, August 28, 2022, continued...

PS89 Classification of In Vitro Genotoxictants 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
Yiying Wang¹, Ying Chen¹, Rebecca A. Wynne², Xlin Li³, Roberta A. Mittelstaedt¹, Xuefei Cao⁴, Levan Muskheilishvili⁵, Kelly Davis², Nan Mei², Wei Sun³, Timothy W. Robison³, Robert H. Heflich¹, ¹Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, USA.
²Toxicologic Pathology Associates, Jefferson, AR, USA.
³Division 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

PS97 In Vivo Comet Assay: Integration with Repeat Dose Toxicity Study Provides Concurrent DNA Damage Information in Potential Target Organs
S W Bruce¹, C Murphy², M Newkirk², P Gollapudi³, M L Klug LaForce³, S Springer³, W Madramootoo¹, G Krishna¹, ¹Inotiv, Rockville, MD, USA. ²Inotiv, Gaithersburg, MD, USA

PS100 Usefulness of Integrating the Micronucleus Test with Repeat Dose Toxicity Studies
Pavan Gollapudi¹, Caitlin Murphy², Madeline Newkirk², Shannon Wilson Bruce¹, Morgan Gray², Karen Shore¹, Anna Szkudlinska¹, Wannie Madramootoo¹, Gopala Krishna¹, ¹Inotiv, Rockville, MD, USA. ²Inotiv, Gaithersburg, MD, USA

PS103 Mutagenicity of N-Hydroxycytidine and Monilupiravir in E. Coli and Mammalian Cell Cultures
Vasily N Dobrovolsky, Javier R Revollo, Page McKenzie, 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 Madramootoo, 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 Madramootoo, Gopala Krishna, Inotiv, Rockville, MD, USA

PS112 Effects of Treatment with Beneficial Microbes on NDMA-induced Cancer and Mutations
Aimee C Moise¹, Supawadee Chawanthayatham¹, Robert Croy¹, John Essigmann¹,², Bevin Engelward¹, Susan Erdma³, ¹Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA. ²Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, USA. ³Division 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, Xiaqing 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-Gorozpe¹, Ana Cecilia Luis-Castañeda¹, Marco Antonio Carballo-Ontiveros¹, Claudia Coronel², Omar Arellano³, Rosario Rodríguez⁴, América Nitxin Castañeda-Sortibrán¹, ¹Facultad de Ciencias, UNAM, Mexico City, Mexico. ²Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico. ³Universidad Nacional Autónoma de México, Mexico City, Mexico. ⁴Universidad Nacional Autónoma de México, Mexico City, Mexico.
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 Yamada¹, Daichi Koyabu¹, Yoshimitsu Oda², Takeyoshi Suzuki³, National Defense Academy of Japan, Yokosuka, Kanagawa, Japan. ²Osaka Shin-ai College, Osaka, Osaka, Japan. ³National Institute of Health Sciences, Kawasaki, Kanagawa, Japan

PS127 Effects of radiation exposure on reactive oxygen species in blood cells of atomic bomb survivors
Tomonori Hayashi¹, Naohiro Kato¹, Kyoji Furukawa², Misa Imaizumi³, Ayumi Hida³, Waka Ohishi³, Radiation Effects Research Foundation, Hiroshima, Japan. ²Kurume University, Kurume, Japan. ³Radiation Effects Research Foundation, Nagaasaki, Japan

PS130 Optimizing Study Design for Quantitative Analysis of Genotoxicity Data
Alexandra S. Long¹, Marc A Beal², Svetlana Avlasevich³, Tina Pellegrin⁴, Stephen D Dertinger⁵, Paul A White⁶, ¹Emerging Approaches Unit, Existing Substances Risk Assessment Bureau, Health Canada, Ottawa, ON, Canada. ²Bureau of Chemical Safety, Health Products and Food Branch, Health Canada, Ottawa, ON, Canada. ³Litron Laboratories, Rochester, NY, USA. ⁴Mechanistic 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 Anderson¹, Lana Talmane¹, Juliet Luft¹, Michael D Nicolson¹, John Connelly², Núria López-Bigas³, Paul Flicek⁴, Colin A Semple⁴, Duncan T Odom⁵, Sarah J Aitken⁶, Martin S Taylor⁷, ¹MRC Human Genetics Unit, University of Edinburgh, Edinburgh, United Kingdom. ²Medical Research Council Toxicology Unit, University of Cambridge, Cambridge, United Kingdom. ³Institute for Research in Biomedicine (IRB Barcelona), The Barcelona Institute of Science and Technology, Barcelona, Spain. ⁴European Molecular Biology Laboratory, European Bioinformatics Institute, Hinxton, United Kingdom. ⁵Cancer Research UK Cambridge Institute, University of Cambridge, Cambridge, United Kingdom. ⁶German Cancer Research Center (DKFZ), Heidelberg, Germany

Robert Leverette, John Wertman, Thomas Shutsky, Reagan McRae, Ken Szeliga, Kristen Jordan, RAI Services Company, Winston Salem, NC, USA
Sunday, August 28, 2022, continued...

**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

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

8:30AM-9:30AM | 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

9:00-10:00AM | S43 Chemical-Induced Somatic Mutation Signatures Identified By Next-Generation Sequencing
Shoji Matsumura, Kao Corporation, Kawasaki, Kanagawa, Japan

10:00-11:00AM | 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

11:00-12:00PM | 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

10:30AM-12:30PM
Symposium 9: Cancer Genomics Provides Insight into Cancer Etiology, Progression and Therapeutic Response

10:30AM-12:30PM
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

Plenary Lecture 6: Mayana Zats
9:10-10:00AM
Monday, 29th August, 2022

K6 Genomics and the Future of Medicine
Mayana Zatz, University of São Paulo, São Paulo, Brazil

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
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
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.

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 Moreno1,2,3, 1Institute of Biomedical Sciences, University of Sao Paulo (USP), Sao Paulo, SP, Brazil.
2Institute of Chemistry, University of Sao Paulo (USP), Sao Paulo, SP, Brazil. 3National 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
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 Hawaiensis
Marina Tenório Botelho¹, Vicente Gomes¹, Gisela de Aragão Umbuzeiro¹, ¹Oceanograhic Institute-University of São Paulo, São Paulo, São Paulo, Brazil. ²School of Technology-Campinas State University, Limeira, São Paulo, Brazil

PS5 Nanopore Sequencing Utility in Environmental Epigenetics
Melissa K Drown¹, Nicole Flack², Douglas L Crawford¹, Marjorie F Oleksiak¹, Christopher Faulk², ¹University of Miami, Key Biscayne, FL, USA. ²University 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 Ribeiro¹, Marcela T Latancia¹, Davi Mendes¹, Clarissa RR Rocha², Carlos FM Menck², ¹Institute of Biomedical Sciences/University of São Paulo (USP), Sao Paulo, Sao Paulo, Brazil. ²Federal University of São Paulo, Sao Paulo, Sao Paulo, Brazil. ³Institute of Biomedical Sciences/University of São Paulo (USP), Sao Paulo, Sao 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 Bumgarner¹, Olivia N Matsumoto-Elliot³, April M Averill³, Brian E Eckenroth³, Sylvie Doublé³, Sheila S David¹, ¹UC, Davis, Davis, CA, USA. ²University 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. Dańbrowska, 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 Fasullo1, Abderrahmame Tagmouti2, Chris Vulpe2, 1SUNY Polytechnic Institute, Albany, New York, USA. 2University 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 Olawole1, Opeyemi C De Campos1, Isaacson B Adelani1, Oluwakemi A Rotimi1, Solomon O Rotimi1, Jaclyn M Goodrich1, 1Covenant University, Ota, Ogun State, Nigeria. 2University of Michigan, Ann Arbor, Michigan, USA

PS23 Particulate Hexavalent Chromium Exposure Inhibits RAD51 Paralog Complex (BCDX2) Response in Human Lung Cells
Aggie R Williams1, Rachel M Speer2, Cynthia L Browning1, Idooa Meaza1, Jennifer H Toyoda1, Sandra S Wise1, Calvin J Kouokam1, John P Wise1, 1University of Louisville, Louisville, Kentucky/Jefferson, USA. 2University of New Mexico, Albuquerque, New Mexico, USA

PS26 Characterization of Novel Single-Domain Nanobodies Against NEIL1
Marlo K Thompson1,2, Nidhi Sharma1,2, Jennifer F Arrington1,2, Joel F Andrews2, Aishwarya Prakash1,2, 1University of South Alabama, Mobile, AL, USA. 2Mitchell 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 Cvammen1, Mike G Kemp1,2, 1Wright State University, Dayton, Ohio, USA. 2Dayton VA Medical Center, Dayton, Ohio, USA
PS35 Understanding the Role of UV-DDB in the SMUG1-Mediated Repair of the Oxidative DNA Lesion, 5-Hydroxymethyl-2-Deoxyuridine
Sripriya J Raja1,2,3, Sunbok Jang2,3, Bennett Van Houten2,3. 1Graduate Program in Molecular Pharmacology, Pittsburgh, PA, USA. 2Department of Pharmacology and Chemical Biology, Pittsburgh, PA, USA. 3UPMC-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 Opresko, University of Pittsburgh Hillman Cancer Center, Pittsburgh, PA, USA

PS54 Rabs and Mitochondrial Dysfunction in the Pathogenesis of Parkinson’s Disease
Tara E Richbourg, Duke University, Durham, NC, USA

PS68 PMS2 Variant Results in Loss of ATPase Activity without Compromising Mismatch Repair
Brandon M D’Arcy1, Jennifer Arrington1, Justin Weisman1, Steven B. McClellan1, Vandana LNU1, Zhengrong Yang2, Champion Deivanayagam2, Jessa Blount1, Aishwarya Prakash1, University of South Alabama, Mobile, AL, USA. 2University 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 Opresko, University of Pittsburgh, Pittsburgh, PA, USA

PS101 Novel Interaction Interfaces Mediate the Interaction Between the NEIL1 DNA Glycosylase and Mitochondrial Transcription Factor A
Nidhi Sharma1, Marlo K. Thompson1, Jennifer F. Arrington1, Dava M. Terry1, Srinivas Chakravarty2, Peter E. Prevelige3, Aishwarya Prakash1, University of South Alabama, Department of Biochemistry and Molecular Biology, Mobile, AL, USA. 2Illinois Institute of Technology, Advanced photon source, Argonne, IL, USA. 3University 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 Hou1, Wei Zhu1, Ariel AfeK1,2, Alexander C Drohat2, Raluca Gordan1, Duke University, Durham, NC, USA. 2Weizmann Institute of Science, Rehovot, Israel. 3University of Maryland, Baltimore, MD, USA

PS125 Structural Basis For Engagement Of Nucleosomal DNA Damage By DNA Polymerase Beta
Benjamin J Ryan, Tyler M Weaver, Brett D Freudenthal, University of Kansas Medical Center, Kansas City, KS, USA

PS128 DNA Integrity in the Brain (Ageing and Disease)
Aris A Polyzos1, Jung Hyun Yoo1, Ana Cheong2, Zachary D Nage2, Cynthia T McMurray1, Lawrence Berkeley National Laboratory, Berkeley, CA, USA. 2Harvard 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.
Monysse de Nobrega1,2, Marilesia Ferreira De Souza1, Mariana Bisarros dos Reis3, Hellen Kuasne2, Larissa Cristina Bastos de Oliveira1, Paulo Emilio Fuganti2, Morag Park3, Icle Mara de Syllos Cólus1, State University of Londrina, Londrina, PR, Brazil. 2McGill University, Montreal, QC, Canada. 3Barretos Cancer Hospital, Barretos, SP, Brazil. 4Londrina 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. Schaich1,2, Brittani Schnable2,3, Namrata Kumar1,4, Vera Roginskaya2, Rachel C. Jakielski1,2, Roman Urban3, Zhou Zhong6, Neil M. Kad4, Bennett Van Houten1,2,4,3, 1Department of Pharmacology and Chemical Biology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA. 2UPMC-Hillman Cancer Center, Pittsburgh, PA, USA. 3Molecular Biophysics and Structural Biology Program, University of Pittsburgh, Pittsburgh, PA, USA. 4Molecular Genetics and Developmental Biology Graduate Program, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA. 5School of Biosciences, University of Kent, Canterbury, United Kingdom. 6LUMICKS, Waltham, MA, 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 Chvojkova, 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 Flack1, Mathia Colwell1, Carrie Walls1, Christopher Faulk1, 1University of Minnesota, Saint Paul, MN, USA. 2University 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.

**PS137 PARP-1 Inhibition Does Not Protect Neuronal-Like And Primary Neuronal Progenitor Cells Against In Vitro Induced-Oxidative Damage**
Larissa Oliveira Piassi1, Natalia Chemont dos Santos Moreira1, Elza Tiemi Sakamoto-Hijo2,1, 1University of Sao Paulo, Ribeirao Preto Medical School, Ribeirão Preto, SP, Brazil. 2University 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
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
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 Axelsson1,2,3,4, 1Reproductive Medicine Centre, Skåne University Hospital, Malmö, Sweden. 2Department of Laboratory Medicine, Lund UniversityLund University, Lund, Sweden. 3Department of Translational Medicine, Lund University, Malmö, Sweden. 4Department 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.
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 Fouquerel, 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
10:30AM-12:30PM
Tuesday, 30th August, 2022

Location: Confederation III-Level 4

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, 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 Gyasi1,2, University of Ottawa, Ottawa, ON, Canada. 1National Wildlife Research Centre, Environment and Climate Change Canada, Ottawa, ON, Canada.
**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, Xi Lin “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
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 Xia¹,², ¹Creighton University, Omaha, NE, USA. ²Baylor 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, 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 Togawa1,2, 1International Agency for Research on Cancer, Lyon, France. 2National 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
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 Matteo1,2, 1University of Ottawa, Ottawa, ON, Canada. 2Environmental 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  

3:45-4:00PM | P26 Quantitative Genotoxicity Assessment of Mycotoxins Co-Occurring in Food and Feed  
J Sanders1,2, 1Scientific Direction of Chemical and Physical Health Risks, Sciensano, Brussels, Belgium. 2Department 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 Claeys1,2,3, 1International Agency for Research on Cancer (IARC), Lyon, France. 2Ghent University, Ghent, Belgium. 3Cancer 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 Magalhães1, Natalia Oliveira1, Daniel Morales1, Anjaina Albuquerque1, Harold Fremar2, Riiika Raisänen3, Gisela de Aragão Umbuzeiro1, 1University of Campinas, Limeira, São Paulo, Brazil. 2North Carolina State University, Raleigh, North Carolina, USA. 3University of Helsinki, Helsinki, Finland

Ana Paulina Arevalo Jaramillo1,2, Jackeline Elizabeth Guaman Hurtado1, Luis Miguel Guaman Ortiz1, Gabriela Cevallos Solorzano1, Maria Isabel Ramirez Orellana1, Natalia Bailon Moscoso1, 1Departamento de Ciencias de la Salud, Universidad Técnica Particular de Loja, Loja, Loja, Ecuador. 2Programa 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. Toyoda1, Rachel M. Speer1, Idoia Meaza2, Haiyan Lu1, Aggie R. Williams1, J. Calvin Kouokam1, John P Wise1, 1University of Louisville, Louisville, KY, USA. 2University of Louisville, Louisville, Ky, USA

PS66 Uptake of Per-And Poly-fluoroalkyl Substances (PFAS) By Liver Spheroids Over 24-hr Exposure
Andrea Rowan-Carroll1, Karen Leingartner4, Anthony Reardon1, Andrew Williams1, Rocio Aranda-Rodriguez1, Adam Wawrzychczak1, Emma Fantin1, Ivy Moffat1, Richard Carrier1, Luigi Lorusso1, Matthew Meier1, Carole Yauk2, Ella Atlas1, 1Health Canada, Ottawa, ON, Canada. 2University 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 Meier¹, Andrew Williams¹, Kate B Cook¹, Chris J Corton², Logan J Everett², Joshua A Harrill², Carole L Yauk², ¹Health Canada, Ottawa, Ontario, Canada. ²US Environmental Protection Agency, Research Triangle Park, North Carolina, USA.

PS99 A Simulation Study Exploring Factors for Controlling the Empirical False Discovery Rate in Transcriptomic Points of Departure Studies
Andrew Williams¹, Matthew J Meier¹, Ella Atlas¹, Carole L Yauk², ¹Health Canada, Ottawa, ON, Canada. ²University 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 Awada¹, Jason L Blum², Catherine B Klein¹, Judith T Zelikoff³, ¹New York University Grossman School of Medicine, NEW YORK, NEW YORK, USA. ²Product Safety Labs, Dayton, NJ, USA. ³NYU School of Medicine, NEW YORK, USA.

PS15 Application of Combined Omics in Nanotoxicity Studies
Zihui 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
Ibemusu Michael Otele, Neenu Singh, Ahmad Zeeshan, Elshaimaa 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 Misik¹, Armin Nersesyan¹, Monika Waldhen³, Franziska Ferko¹, Michael Kundr³, Siegfried Krasmueller³, ¹Center for Cancer Research, Medical University of Vienna, Vienna, Austria. ²Department 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 Dingman¹, C J Burrows², ¹University of Utah, Salt Lake City, Utah, USA. ²University 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 Rotimi¹, Deborah Koyejo¹, Victor Tuesday, August 30, 2022, continued...

13th International Conference on Environmental Mutagens
Synergistic Interactions for a Better World
Agenda

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Tuesday, August 30, 2022, continued...

**Okebalama**, Paul Jibrin, Solomon O Rotimi, Covenant University, Ota, Ogun, Nigeria, Babcock University, Remo, Ogun, Nigeria, 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 Keshava¹, Vullimi V Suryanarayana¹, Suna Nicola², Florenez A Cruz², Ariane Lenzner³, Patrick Tamów¹, Narges Ghorembali¹, Sven Knuépe¹, Amanda S Persad¹, Kristina A Thayer¹, Antony J Williams¹, Nancy Baker³, Jens T Vanselow², Ralph Pirow², U.S. Environmental Protection Agency, Research Triangle Park, NC, USA.² German Federal Institute for Risk Assessment, Berlin, Germany.³ 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 Mercurochloric Chloride: Systematic Review and Analysis**
Nagalakshmi Keshava, Brittany Schulz, Suryanarayana V Vullimi, Jeff Gilt, Geoffrey Peterson, Catheryne Chiang, Chelsea A Welteckamp, 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 Faciolì¹, Arthur N Da Silva², Marson B Warpechowski³, Janine De Camargo³, Juliano O Da Cruz³, Caren C Loss³, Ricardo Zanelle³,¹ University of Passo Fundo, Passo Fundo, Rio Grande do Sul, Brazil.² University of Saskatchewan, Saskatoon, Saskatchewan, Canada.³ Brazilian 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 Perehinick, 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 Leuthner¹, Nathan Keith², Craig Jackson², Stephen Glaholt³,¹ Duke University, Durham, NC, USA.² Lawrence Berkeley National Lab, Berkeley, CA, USA.³ 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 Chappell¹, Mark A Harris², Chad M Thompson²,¹ ToxStrategies Inc., Asheville, NC, USA.² 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-Rodriguez1, Andrew Williams2, Sarah S Poulsen1, Pernille H Danielsen1, Ulla B Vogel1, Sabina Halappanavar1, 1Mechanistic Studies Division, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Canada. 2Population Studies Division, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Canada. 3National 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 Chermont dos Santos Moreira1, Elvira Regina Tamarozzi2, Larissa de Oliveira Piassi3, Jéssica Ellen Barbosa de Freitas Lima4, Ivone Carvalho5, Elza Tiemi Sakamoto-hojo6, 1Department of Genetics, Ribeirão Preto Medical School, University of São Paulo-USP, Ribeirão Preto, São Paulo, Brazil. 2Department of Biotechnology, School of Arts, Sciences and Humanities-USP, São Paulo, São Paulo, Brazil. 3Department of Biotechnology, School of Arts, Sciences and Humanities-USP, Ribeirão Preto, São Paulo, Brazil. 4Department 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 Cho1,2, Andrew Williams2, Carole Yauk1,2,3 1Carleton University, Ottawa, Ontario, Canada. 2Health Canada, Ottawa, Ontario, Canada. 3University 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
Xiaqing Guo1, Ji-Eun Seo1, Levan Mushkelishvil1, Pritpal Malhi2, Xiaobo He3, Mugimane Manjanatha3, Nan Mei2, 1NCTR/FDA, Jefferson, AR, USA. 2Toxicologic Pathology Associates, Jefferson, USA. 3NCTR/FDA, Jefferson, USA

PS22 Exposure to Fipronil and Its Metabolites Disrupted Human Thyroid Cells
Zhiqiang Jiang1, Jianhui Zhuang1, Yuxin Zheng2, Weidong Qu1, 1Fudan University, Shanghai, Shanghai, China. 2Qingdao 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 Luchiari, 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 Chorley1, Tatiana Sharapova2, Takayuki Tsuji3, Peter S.T. Yuen3, Prathap K Mahalingaiah3, Constance A Mitchell4, Syril D Pettit4, 1Center for Computational Toxicology and Exposure US EPA, RTP, NC, USA. 2Investigative Toxicology and Pathology, Chicago, IL, USA. 3Renal Diagnostics and Therapeutics Unit, NIDDK, NIH, Bethesda, MD, USA. 4Health 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\textsuperscript{1}, Naouale El-Yamani\textsuperscript{2}, Eleonora Marta Longhini\textsuperscript{3}, Espen Mariusser\textsuperscript{2}, Elise Rundén-Pran\textsuperscript{2}, Anita Sosnowska\textsuperscript{3}, Julian J Reino\textsuperscript{s}\textsuperscript{4}, Victor Alcolea-Rodriguez\textsuperscript{5}, Jose' F Fernandez\textsuperscript{6}, Raquel Portela\textsuperscript{6}, Tomasz Puzyn\textsuperscript{3,6}, Miguel Bañares\textsuperscript{5}, Martin J D Cliff\textsuperscript{4}, Maria Dusinska\textsuperscript{6}, Shareen H Doak\textsuperscript{1}, \textsuperscript{1}In Vitro Toxicology Group, Faculty of Medicine, Health and Life Sciences, Institute of Life Sciences, Swansea University Medical School, Singleton Park, Swansea, United Kingdom. \textsuperscript{2}Health Effects Laboratory, Department for Environmental Chemistry, NILU-Norwegian Institute for Air Research, Lillestrøm, Norway. \textsuperscript{3}QSAR Lab Ltd, Trzy Lipy 3 St., 80-172, Gdansk, Poland. \textsuperscript{4}Instituto de Cerámica y Vidrio, CSIC, c/Kelsen, 5, E-28049, Madrid, Spain. \textsuperscript{5}Institute of Catalysis and Petrochemistry, CSIC, c/Marie Curie, 2, E-28049, Madrid, Spain. \textsuperscript{6}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, Yxuan Guo, Joemy Ramsay, Joshua Homs, 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\textsuperscript{1,2}, Meredith Franklin\textsuperscript{1}, Andrea Doria\textsuperscript{3,4}, Shelley Harris\textsuperscript{3,4}, Rahim Moineddin\textsuperscript{5,6}, \textsuperscript{1}Women’s College Hospital, Toronto, Ontario, Canada. \textsuperscript{2}University of Toronto, Toronto, Ontario, Canada. \textsuperscript{3}Hospital for Sick Children, Toronto, Ontario, Canada. \textsuperscript{4}Dalla Lana School of Public Health, Toronto, Ontario, Canada. \textsuperscript{5}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/1FAIpQLScww6PYDVosKO2Y8IIGITOAW8EzQ7Mtkm6r_J-qoRBVY5rW0A/viewform?usp=sf_link

Contact: Jen Keir, jkeir031@uottawa.ca

8:15-9:05AM

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

9:10-10:00AM

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

10:30-11:15AM

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 Is (Inosine) on RNA by ADAR enzymes: An epitranscriptomic mutation process in action
Raghuvaran Shanmugam, Institute of Molecular and Cell Biology (IMCB), Singapore, Singapore, Singapore
### 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

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<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Speakers</th>
</tr>
</thead>
</table>
| 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  
                  |                                                                                                       | Health Canada, Ottawa, ON, Canada                                        |
| 11:45AM-12:00PM  | **P32 Automated High Content Screening for Carcinogenicity Testing In Vitro**                          | Linda Reilly¹, 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 Leticia Hilario Garcia, 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

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<tr>
<th>Time</th>
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<tr>
<td>11:30-11:45AM</td>
<td><strong>P35 DNA Methylation Programming and Environmental Influences During Rat Gametogenesis</strong></td>
<td>Rhizlane El omri-Charai, INRS- Armand Frappier Santé Biotechnologie, Laval, Quebec, Canada</td>
</tr>
</tbody>
</table>
| 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 |
## 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

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<tbody>
<tr>
<td>11:30-11:45AM</td>
<td>P39 Cellular, Molecular and Genotoxic Effects of Digested Titanium Dioxide Nanomaterials</td>
<td>Henriqueta Louro¹ ², ¹Department of Human Genetics, National Institute of Health Dr. Ricardo Jorge (INSA), Lisbon, Portugal, ²Centre for Toxicogenomics and Human Health (ToxOmics), NOVA Medical School, NOVA University, Lisbon, Portugal.</td>
</tr>
<tr>
<td>11:45AM-12:00PM</td>
<td>P40 Deriving an Optimal Transcriptomic Metric to Establish Protective and Relevant Transcriptomic Points of Departure for Risk Assessment Application</td>
<td>Anthony J F Reardon, Existing Substances Risk Assessment Bureau, Healthy Environments &amp; Consumer Safety Branch, Health Canada, Ottawa, ON, Canada</td>
</tr>
<tr>
<td>12:00-12:15PM</td>
<td>P41 A Strategy for Developing a Framework of Genotoxicity Assays for Safety Assessment of Botanicals</td>
<td>Stefan Pfuhler, Procter &amp; Gamble, Mason, OH, USA</td>
</tr>
<tr>
<td>12:15-12:30PM</td>
<td>P42 Thirdhand Smoke Exposure: Implications for inflammatory lung diseases</td>
<td>Altaf H Sarker, Lawrence Berkeley Lab, Berkeley, CA, USA</td>
</tr>
</tbody>
</table>

## 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

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<tr>
<td>11:30-11:45AM</td>
<td>P43 Unravelling The Multifunctionality Of LigD In Bacterial DNA Repair</td>
<td>Dana J Sowa, McMaster University, Hamilton, ON, Canada</td>
</tr>
<tr>
<td>11:45AM-12:00PM</td>
<td>P44 Understanding the Role of UV-DDB in the SMUG1-Mediated Repair of the Oxidative DNA Lesion, 5-Hydroxymethyl-2-Deoxyuridine</td>
<td>Sripriya J Raja¹ ² ³, ¹Graduate Program in Molecular Pharmacology, Pittsburgh, PA, USA, ²Department of Pharmacology and Chemical Biology, Pittsburgh, PA, USA, ³UPMC-Hillman Cancer Center, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA</td>
</tr>
<tr>
<td>12:00-12:15PM</td>
<td>P45 Chronic Hyperglycemia Potentiates Oxidative and Neurotoxic Damage by Increasing Cell Death in Differentiated Neurons From SH-SY5Y Cells</td>
<td>Jéssica Ellen Barbosa de Freitas Lima¹, Department of Genetics, Ribeirão Preto Medical School, University of São Paulo-USP, Ribeirão Preto, São Paulo, Brazil.</td>
</tr>
<tr>
<td>12:15-12:30PM</td>
<td>P46 Visualizing Base Excision Repair in Chromatin</td>
<td>Bret D Freudenthal, University of Kansas Medical Center, Kansas City, KS, USA</td>
</tr>
</tbody>
</table>
### 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.

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### 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 Dodge1,2, 1University of Ottawa, Ottawa, ON, Canada. 2Health 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, 1Massachusetts 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, Gentronix 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
**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.
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<td>7:00-8:30AM</td>
<td>EMGS Endowment Board</td>
<td>Governor General I-Level 4</td>
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<td>Program Committee Meeting</td>
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<td>Plenary Speaker 12: Amander Clark</td>
<td>Confederation I/II - Level 4</td>
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<tr>
<td>8:15-9:05AM</td>
<td>K12 Stem Cell-Based Approaches for Studying Germline Environmental Exposure</td>
<td>UCLA, Los Angeles, CA, USA</td>
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<td>Plenary Speaker 13: Syril Pettit</td>
<td>Confederation I/II - Level 4</td>
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<tr>
<td></td>
<td>437 The Last Mile Problem in Health Protection Sciences</td>
<td>Health and Environmental Sciences Institute, Arlington, VA, USA</td>
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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

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 Provasek1,2, 1Texas A&M University, College Station, Texas, USA. 2Houston Methodist Research Institute, Houston, Texas, USA
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.

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 Kozbenko1,2, 1Health Canada, Ottawa, Ontario, Canada. 2University 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
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.
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 Rodriguez1, 1National 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
### Platform 10: Bioinformatics and Data Sciences

10:30AM-12:30PM
Thursday, 1st September, 2022

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<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tr>
<td>10:30-10:45AM</td>
<td>P51 Sex-Specific DNA Methylation and Associations with in utero Tobacco Smoke Exposure at Nuclear-Encoded Mitochondrial Genes</td>
<td>Dillon King</td>
<td>Governor General III-Level 4</td>
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<tr>
<td>10:45-11:00AM</td>
<td>P52 First Trimester Exposures to Per- and Polyfluoroalkyl Substances (PFAS) and Neonatal DNA Methylation</td>
<td>Rebekah L. Petroff</td>
<td>Governor General III-Level 4</td>
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<tr>
<td>11:00-11:15AM</td>
<td>P53 Characteristics of de Novo Mutations (DNMs) in 13 Multi-Sibling Mexican-American Families.</td>
<td>HA Shojaeisaadi</td>
<td>Governor General III-Level 4</td>
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<tr>
<td>11:15-11:30AM</td>
<td>P54 Quantitative Analysis of GENOMARK Gene Expression Data to Compare Genotoxic Potencies.</td>
<td>Anouck Thienpont</td>
<td>Governor General III-Level 4</td>
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<tr>
<td>11:30-12:00PM</td>
<td>P55 Impact Of Wildfire Smoke On The Airway Epigenome</td>
<td>Anthony P Brown</td>
<td>Governor General III-Level 4</td>
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<td>12:00-12:15PM</td>
<td>P57 Artificial Intelligence (AI) Approaches as Alternatives to Animal Studies</td>
<td>Weida Tong</td>
<td>Governor General III-Level 4</td>
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### Symposium 26: Genome Editing: Intentional Mutagenesis of the Genome and Implications for Human Health

1:30-3:30PM
Thursday, 1st September, 2022

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<tr>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tr>
<td>1:30-2:00PM</td>
<td>S127 Understanding Human Genetic Variation with Precision Genome Editing Tools</td>
<td>Alexis C Komor</td>
<td>Confederation I-Level 4</td>
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<tr>
<td>2:00-2:30PM</td>
<td>S128 Profiling Cell Type Specificity and Adverse Events of Genome Editing Nucleases in the Brain and Retina Using Single Cell Transcriptomics</td>
<td>Krishanu Saha</td>
<td>Confederation I-Level 4</td>
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<tr>
<td>2:30-3:00PM</td>
<td>S129 Low Frequency Somatic Copy Number Alterations in Normal Human Lymphocytes Revealed by Large Scale Single-Cell Whole Genome Profiling</td>
<td>Yusi Fu1</td>
<td>Confederation I-Level 4</td>
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<tr>
<td>2:45-3:00PM</td>
<td>S130 Designed Synthesis of Translocations and Induction of Chromosomal Aberrations by Genome Editing</td>
<td>Takayoshi Suzuki</td>
<td>Confederation I-Level 4</td>
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Thursday, September 1, 2022, continued...


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, Kirland Consulting, Tadcaster, United Kingdom

Feedback from Working Group discussions of 7th IWGT

S131 International Workshop on Genotoxicity Testing: Summary of Consensuses
Hans-Joerg Martus1, 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

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**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.

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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. Niedernhofer1,2,3, 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 Olsen1,2, 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
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
**54th 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

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**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

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**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

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**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

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[www.emgs-us.org/page/am2023](http://www.emgs-us.org/page/am2023)