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MetaboNews

This month in metabolomics

JULY, 2023
Vol 13, Issue 7

MetaboNews is a monthly newsletter published in a partnership between The Metabolomics Innovation Centre (TMIC) and The Metabolomics Society

METABOLOMICS SOCIETY

TMIC
The Metabolomics Innovation Centre

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Metabolomics Society News

The Metabolomics Society is an independent, non-profit organization dedicated to promoting the growth, use, and understanding of metabolomics in the life sciences.

General Enquiries

info@metabolomicssociety.org

Members' Corner

Board of Directors

Dear Society Members,

Well, it is nearly 3 weeks since our 19th annual conference in Niagara Falls. For those of you who were one of our ~725 attendees, I hope that you have fond memories of your time in Canada, had the time to catch up with old friends and colleagues, and made new acquaintances. Many of these connections will last decades and I have plenty from the many conferences and meetings I've been privileged enough to attend.

Remember that for all attendees, you are now part of our Society. I mentioned in the opening ceremony that the Board of Directors are mere guardians of the Metabolomics Society and that we all have our share of responsibilities for its future. Next year will be 20 years since the Society was formed and it's been wonderful to watch our community grow. What a fantastic journey and an exciting research area to be part of.

The science on display in Niagara was fantastic, and for those interested in statistics, here are a few:

- We had 5 plenary speakers give wonderful talks.
- A total of 10 keynote speakers started our sessions and were joined by 4 session keynotes.
- We celebrated our 4 Met Soc award winners:
    - Professor Jules Griffin was made a *Lifetime Honorary Fellow* for his impact in metabolomics for understanding the metabolic syndrome and how nutrition plays a major role in human health, as well as for his leadership of the society.
    - Professor Pieter Dorrestein was also made a *Lifetime Honorary Fellow* for his development and foundation of new mass spec techniques and informatics which he and his team have made available to the scientific community.
    - Professor Caroline Johnson received the *2023 Metabolomics Society Medal* for her contributions to the field of metabolomics.
    - Dr Mónica Cala was recognized for her outstanding achievements in metabolomics by a Society member and presented the *2023 The President's Award*.
- At the start of the conference, we hosted 12 workshops. We hope that these were enjoyable and that the training provided will be useful to the attendees.
- In our 3 parallel sessions, we had nearly 130 speakers present their latest research, with many podium presentations from early career researchers (ECRs).
- 13 presentations were during lunch by our sponsors.
- Last and by no means least, a staggering 376 posters were on display.

What a great scientific bonanza!

I hope you also had the opportunity to enjoy the many networking events some organised by our Society's EMN, others by MANA, as well as the WomiX + FeMS Mixer. There was also an International Affiliates meeting and plenty of further networking around those posters and exhibitors stands. The pinnacle being the conference dinner with breath-taking views of the Falls. It was a fun evening.

The future of our Society ultimately lies in those researchers who are just starting their academic or industrial careers. As a society, we want to support our ECRs. To help we have increased the EMN conference travel awards and started a new travel award scholarship for our Low-Middle Economy Country (LMIC) Metabolomics Society members. We would like to increase activities for our LMIC members and hope to have news for you on this in the next year.

During our closing ceremony, we presented many awards to our most deserving ECRs. For those of you watching, you'll have noticed a little disarray with the PowerPoint as we were finalising the final winners, so some last-minute editing was going on in the background; well actually foreground! I'd been warned about this and was prepared. No, let's be honest after a week of great science and a memorable conference dinner, my timing was (ahem) shall we say 'slightly' out.

Anyway, we are delighted that we presented the following awards to the following researchers:

- *Metabolomics Society Early-Career Travel Awards* to Stephanie L. Bishop, Minghao Gong, Ville Koistinen, Nuanyi Liang, Topi Meuronen, Safira Putri, Matteo Sangermani, Kenya Tanaka and Simone Zuffa,
    - with the Metabolomics Society Early-Career Prize going to Simone Zuffa.
- *Metabolomics Society Student Travel Awards* to Tomás Clive Barker Tejeda, Kinjal Bhatt, Samuel Goldman, Nikita Harvey, Elvire Landstra, Weifeng Lin, Kevin Mendez, Kateřina Šebelová, Christian Urzì,
    - with the Metabolomics Society Student Prize going to Elvire Landstra.
- The *Metabolomics Society LMIC Awards* were presented to Hardik Dodia from India, Ting-li Han from China and Daniel Mutithu from South Africa.
- The *EMN Travel Awards* went to the following Doctoral Students – Lucien Cayer, Manish Kumar and Monique Ryan. With the following Postdoctoral Researchers – Venus Baghalabadi, Jinni Jingya Yan and Shuang Zhao – also being presented with EMN Travel Awards.
- The 2023 *Travel Award from Genome Canada | Genome Alberta* was awarded to Stellena Mathiaparanam.
- The 2023 *Travel Award from Thermo Fisher Scientific* was presented to Sandi Azab.
- Three *MANA Travel Awards* were given to Kieran Tarazona Carrillo, Sandi Azab and Emily Hill.
- Two *Nordic Metabolomics Society Travel Awards* were presented to Weifeng Lin and Ambrin Babu.
- Finally, two *Réseau Francophone de Métabolomique et Fluxomique Travel Awards* were awarded to Nathan Carriot and Thomas Dussarrat.

Congratulations to all.

A word or two of thanks.
We first thank our sponsors for their support and for many sponsors, their continual backing of the society's meetings. We very much appreciate this, and without this support, the meetings would be much harder to organise. These include this year in Niagara:

- *Platinum Sponsors*: Agilent, Bruker, Metabolon, SCIEX, and ThermoFisher Scientific.
- *Gold Sponsors*: Biocrates, Cambridge Isotope Labs, LECO, Miltenyi Biotec, and Owlstone Medical.
- *Silver Sponsors*: Enveda Biosciences, IROA Tech., *Metabolites*, Millipore Sigma, Waters, and ZefSci.
- *University and Non-Profit*: Calgary Metabolomics Research facility, Genome Canada and Genome Alberta, Michael G. DeGroote Centre for Medicinal Cannabis Research, and The Metabolomics Innovation Centre.

I'd like to thank our two co-chairs – Phillip Britz-McKibbin and Dajana Vuckovic – for bringing the Society to Niagara Falls – what a lovely location – and for putting on a phenomenal meeting. I also mentioned Natasa during the opening and closing ceremonies and her leadership of the conference committee has been simply brilliant. She has been a dream to work with and her eye for detail and professionalism in this role is second to none. Finally, I'd also like to thank Leslie and her Snap Conference Solutions team for all their hard work, much of it hidden in the background ensuring that every delegate had a great time. Thanks Leslie!

Want to revisit Metabolomics 2023?
If the answer is yes, then for those presenters that gave us permission, all of the recordings have been added to the OnAIR platform, so if you were a registered conference attendee you will be provided with unique log-in details in order to watch all the presentations. This means that you will have access to all the parallel sessions too.

In other news, we have renewed several of our International Affiliates and will be revamping the website to reflect this and future activities going forwards. We shall also be discussing some new task groups and keeping an eye on activities from our current scientific assemblies.

I have an important message from the website and communications committee who are

eager to understand how you, as members, like to receive information from the society and how you want to communicate with the society.

Please complete the short survey to help us help you – the survey is available here: https://tinyurl.com/y7u4b2my

Finally, as detailed during our opening ceremony we've opened our “Call for Nominations” for the Board of Directors and shall be accepting nominations through to August 4. If you’d like to get involved, then please consider this. It’s great fun on the BoD!

All the very best.

Roy Goodacre, University of Liverpool, UK

President, Metabolomics Society

Early-career Members Network (EMN)

EMN at Niagara Falls

At the Metabolomics 2023 conference held in Niagara Falls, the Early Career Members Network (EMN) was once again actively present by organizing different events. On Sunday June 18, the EMN hosted a workshop on how to become an independent researcher. In addition, the third edition of the Career Night event was organized, with a

Job Fair and a discussion round tables event with 20 invited experts to discuss about 10 different interesting topics (e.g. Career Transitions, International Networking, Women in Science and more). Finally, on Tuesday, June 20, the EMN reception took place where the activities of the EMN were presented, how to become a member of the EMN committee and a Quizz was held with the aim of entertaining and promoting networking among the attendees.

Call for EMN applications

Announcement of Opportunity: Applications are being sought from early-career scientists to join the EMN committee 2023/24! We are looking for students and post-docs (up to 5 years after graduation) in the metabolomics field to join us for the next term. More information about and details can be found here.
Apply by filling out the google form here.
Our transparent application evaluation criteria are also available here.
Application deadline: 7 August 2023

International Affiliates' Corner

Metabolomics Association of North America (MANA)

Visit: https://metabolomicsna.org

5th Annual MANA Conference

Registration and abstract submission are both now open for the 5th Annual MANA Conference! The 2023 conference will be held **October 23-27, 2023** on the campus of the **University of Missouri in Columbia, MO**, which is located in the middle of everywhere! This year, MANA is excited to partner with the **International Lipidomics Society (ILS)**, and the 2023 conference will have dedicated sessions for lipidomics, and an evening workshop with the ILS. Based on your feedback from previous conferences, the organizers have made the following changes to this year's program: the conference will be held during the week, rather than over the weekend; parallel sessions will occur to allow for more speaker opportunities; poster sessions will be held in the afternoon; and workshops will occur in the evening.

To learn more, register for the meeting, and submit abstracts, visit the conference website. You may **register here** and **submit abstracts here.**

2023 MANA Awards

As with previous MANA conferences, we are proud to offer MANA members a number of **awards to support attendance at the 2023 conference**. You can learn all about the

different categories of awards here.

Resume/CV Editing Workshop

The MANA Early Career Members (ECM) Interest Group is hosting a resume/CV editing workshop! Are you entering the job search but need to sharpen your resume or CV prior to applying? Then register for this workshop, which is open to early career members seeking jobs in industry, academia, or government.

The 90-minute workshop will take place on **August 17, 2023** from **9-10:30am PST/12-1:30pm EST**. We will cover general tips about structuring your resume/CV and give advice on how to sell yourself as the best candidate for the position. The workshop will have an interactive format in which participants get peer-to-peer feedback during the session, so please come with a current resume/CV draft.

We look forward to seeing you there! **Register here**.

Other news

Call for Nominations for Directors of the Metabolomics Society

It is the time of year for the Metabolomics Society to undertake the annual process of nominating and electing new members to serve on the Society's Board of Directors. We strongly encourage all Society members to play a role in nominations and elections.

- **Expectations for Directors appointment**
  The Society is led through the voluntary efforts of the Board of Directors. While this provides motivated individuals a fantastic opportunity to contribute to the activities, communications and ultimate growth of our metabolomics community, it also requires a time commitment of typically 2 hours per week. In addition to tasks orchestrated through the monthly Board Meeting, each Director is expected to serve on at least two committees or task groups, and, in many cases, to lead and chair such a group.
- **Nominations process**
  Please keep in mind that the Society is an international organization involved in a wide range of subjects in the field of metabolomics. Our directors will serve us best if they reflect the diversity of backgrounds, expertise, interests, and geographic distribution of the many individuals who comprise our membership.
  In brief:
    - All individuals nominated must be current members of the Metabolomics Society.

- All non-student members are eligible to stand for the Board.
- At least two members of the Society must second the nomination of the Proposer; a total of 3 members must support each nominee.
- There is 1 open position.

If you wish to nominate an individual to stand for election to the Board of Directors, please complete the nomination form (button below) no later than **August 4.**

Nomination Form

Nominees will be required to provide a short biography and statement of purpose by August 9.

We look forward to welcoming new talent to the Board!

Best regards,
Fabien Jourdan (Secretary, Chair Nominations & Elections Committee)
Roy Goodacre (President)

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We are excited to announce that we have implemented a new format for our advertisements. However, we would like to inform you that the price is currently subject to review and may change in the near future. We encourage you to get in touch with us as soon as possible in order to freeze the current price and take advantage of this opportunity. Thank you for your continued support and we look forward to working with you.

MetaboInterview

Gary Patti

Michael and Tana Powell Professor
Center for Metabolomics and Isotope Tracing
Siteman Cancer Center
Washington University in St. Louis
patti.lab.wustl.edu

Biography

Gary Patti is the Michael and Tana Powell Professor at Washington University in St. Louis, where he holds appointments in the department of chemistry, the department of genetics, and the department of medicine. Dr. Patti is the Senior Director of the Center for Metabolomics and Isotope Tracing, Director of the Clinical Research Core in the Nutrition Obesity Research Center, Co-director of the Biospecimens, Metabolomics, and Pathology Core in the Siteman Cancer Center, the Dean's Fellow of Advancement and Entrepreneurship, Director of Faculty Affairs in the Chemistry Department, and the Chief Scientific Officer and Co-Founder of Panome Bio. Professor Patti’s research focuses on developing and applying mass spectrometry-based metabolomics technologies to enhance our understanding of human metabolism. His laboratory is particularly interested in using stable isotope tracers to assess metabolic cycles in cancer and how these cycles are affected by nutrition and other environmental exposures. Applications of his work range from studies of molecular processes in cell culture to physiological regulation at the organ level in animal models and human patients. Professor Patti has been recognized with numerous awards including the Pew Biomedical Scholars Award, the Alfred P. Sloan Award, the Camille Dreyfus Teacher-Scholar Award, the ACS Midwest Award, the Mallinckrodt Scholar Award, and the inaugural NIEHS award for revolutionizing, innovative, and visionary research.

How did you get involved in metabolomics?

My journey into metabolomics was circuitous and unplanned. As a young student, I was studying mechanisms of resistance to antibiotics. I was specifically interested in antibiotics that bind to the bacterial cell wall, which is a large complex polymer made up of sugars and amino acids. I was in a lab using NMR to do structural biology and, as a beginning graduate student, I expected that to be my path. To my surprise, however, it wasn't a structural alteration that drove my bacteria to resistance. It was a change in their metabolism to make modified cell-wall precursors.

Rather than focusing on structural biology, I began using NMR instruments to assess intracellular amino acid metabolism. In a serendipitous meeting, Mike Gross (the famous mass spectrometrist) suggested that I look at intracellular metabolites by LC/MS and generously agreed to help me. I immediately became obsessed with tracking labels through central carbon metabolism and haven't looked back since.

By today's standards, what we were doing was metabolomics, though we never called it by that name. The term wasn't yet widely used, having only appeared in a couple dozen papers or so at that point.

What are some of the most exciting aspects of your work in metabolomics?

As scientists, it seems that what we are often most excited about is not the puzzles we have solved, but those that we are currently working on. I think that's a good thing. At least for me, it drives an obsessive passion and is part of why I love my job so much. It keeps getting better with time.

Right now, one ongoing research effort in the lab that I find to be particularly intriguing relates to cancer. Dating back to Otto Warburg's seminal work over a century ago, it has been evident that cancer cells adapt their metabolism to support tumor growth. The impact that tumors have on the metabolism of other healthy cells, however, has been less clear. We recently demonstrated that the presence of a tumor has surprisingly large effects on the metabolism of cells throughout the body, including anatomically distant tissues. We've learned that, at least in some cases, these changes occur because cancer cells become biochemically coupled to other healthy tissues, with tumors hijacking the metabolism of non-malignant cells for their own benefit (Figure 1). I think we have only uncovered the tip of the iceberg with respect to interesting metabolic physiology in cancer, but there is great promise that it could lead to new diagnostic and therapeutic paradigms. Metabolomics is well positioned to catalyze breakthrough discoveries in this space.

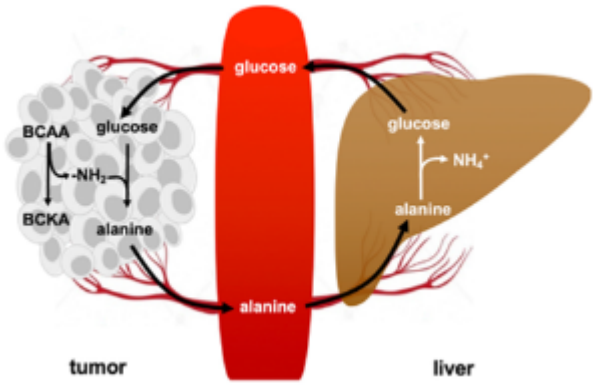

Figure 1: Schematic of the tumor-liver alanine cycle in animals bearing melanoma. Image adapted from Cell Metabolism 33, 1493-1504 2021.

What key metabolomics initiatives are you pursuing at your research centre or institute?

At Washington University in St. Louis, I've been fortunate to have an opportunity to work with Sam Klein through the Nutrition Obesity Research Center. Among the questions being explored is why a subgroup of people with obesity are resistant to developing metabolic diseases such as diabetes. These individuals appear to have the ability to expand their body fat in a healthy way, possibly due to lifestyle factors such as exercise and dietary intake. The Nutrition Obesity Research Center has an impressive clinical setup with a metabolic kitchen where chefs make custom meals for subjects enrolled in dietary studies, equipment to facilitate exercise training tests, and the capacity to infuse stable isotope tracers before samples are collected for metabolomics analysis. These facilities are proving to be useful for isotope-tracer and nutritional studies in cancer patients as well.

Another exciting initiative at Washington University is called the Agilent-Merck postdoctoral training program. Trainees perform research at Washington University, but they work closely with Agilent scientists to design new metabolomics workflows that can be applied in collaboration with Merck to accelerate drug development. It is really a unique opportunity for postdocs because they get co-mentored by researchers in academia and researchers in industry at Agilent and Merck.

Lastly, as the demand for metabolomics has continued to surge, some project requests from industry have not been well suited for the Center for Metabolomics and Isotope Tracing at Washington University. It has been a lot of fun to work with BioGenerator to build a venture-funded startup called Panome Bio, which is helping to make metabolomics and proteomics technologies more accessible to biopharma

innovators. BioGenerator is a partner of Washington University that helps support the development of bioscience startups such as Panome Bio in Saint Louis.

What is happening in the United States in terms of metabolomics?

Eleven years ago, the Common Fund program at the National Institutes of Health established the Metabolomics Consortium. Its goals were to create a national public repository, advance technologies to facilitate data interpretation, and help establish best practices in the field. I think it was an enormous success. Equally important to the funding provided was the network the Metabolomics Consortium created to foster collaborative discussion and partnerships. We got a lot done and had fun while doing it. There are too many accomplishments to name them all. What people are probably most familiar with is the Metabolomics Workbench led by Shankar Subramaniam. Another contribution that I anticipate to be available soon is the generation of a reference dataset for benchmarking metabolomics processing software.

Alas, all good things must come to an end. The Metabolomics Consortium reached the limit for Common Fund support and came to a formal conclusion this summer. I am encouraged to see, however, that metabolomics is an integral part of several other emerging NIH programs such as Nutrition for Precision Health and the Multi-Omics of Health and Disease Consortium.

How do you see your work in metabolomics being applied today or in the future?

The metabolomics community has been lucky to have an amazing group of scientists working in the field. In terms of impact, the discipline of metabolomics may not even exist without the seminal contributions of some of the early pioneers. Standing on the shoulders of giants, one of our goals has been to improve peak annotation by leveraging stable isotopes. In particular, we've been interested in getting a better handle on the signals in a metabolomics dataset that are not of biological relevance. When we developed credentialing a decade ago, the basic premise was that artifacts and contaminants would not incorporate label. As it turns out, isotope labeling has also been useful to annotate other types of biological signals as well, such as heteromers. The results that have emerged from these experiments and many others have helped me appreciate that the structure of metabolomics data is much more complex than I had naively assumed years ago, with the majority of signals not representing unique biological metabolites (Figure 2). Initially, a limiting factor to other labs applying credentialing was the difficulty in producing labeled samples. It was great to see Cambridge Isotope Labs begin to offer credentialed kits as a commercial solution a few

years ago. I hope that this will continue to be a useful resource to researchers to provide insights into data structure.

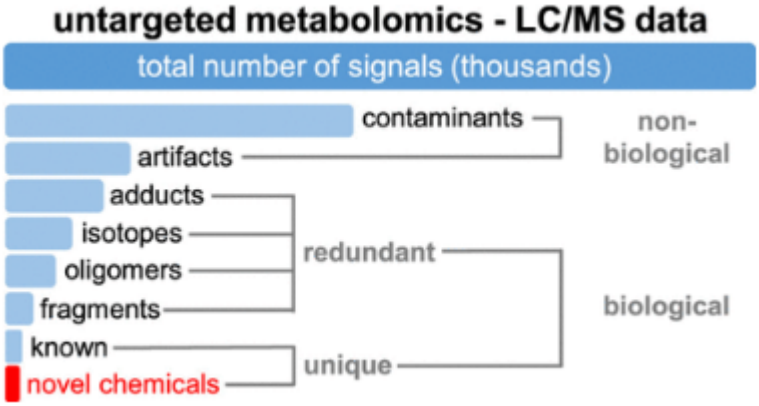

Figure 2: Roadmap of the structure of an untargeted metabolomics dataset. Image adapted from JACS 142, 20, 9097-9105, 2020.

Another area that I think has a lot of potential is zebrafish metabolomics. Shortly after starting my lab at Washington University, I was approached by Steve Johnson. Steve was a pioneer in zebrafish genetics. He was convinced that zebrafish and metabolomics were like peanut butter and chocolate, although we enjoyed debating which should be the peanut butter and which the chocolate. Steve and I became good friends, and he ended up being one of the most inspiring mentors of my career. I learned so much from him, including how to do zebrafish biology. Steve tragically passed away in 2017, however, his vision of zebrafish metabolomics lives on. After Steve passed, we built a zebrafish facility in my lab. We have now established robust protocols for isotope tracing and for performing metabolomics on individual organs from single animals. As Steve predicted, our experiments are providing unique insights into cancer and metabolic physiology. I am looking forward to seeing the community of zebrafish metabolomics grow and hearing others weigh in on which is the peanut butter and which is the chocolate!

As you see it, what are metabolomics' greatest strengths?

In my opinion, one of the greatest strengths of metabolomics is the degree of collaboration between scientists in the field. I think this is absolutely essential to achieving standardization, harmonization, and maximizing the utility of datasets. We are lucky to have such strong leadership driving a number of community-based initiatives forward. One of many examples is the Metabolomics Quality Assurance and Control Constortium (mQACC). Currently, mQACC is collecting data from labs that analyzed NIST's SRM 1950 human plasma. The idea is to coordinate consensus values and compound identifications, which will better define the composition of SRM 1950 and

make it more useful as a standard reference material. Please consider submitting your data if you haven't already!

What improvements, technological or otherwise, need to take place for metabolomics to really take off?

I would say that metabolomics has already taken off. Of course, there is always room for improvement but I think it is fair to say that metabolomics is widely recognized as a key profiling science in biology.

With this in mind, the future of biomedical research is precision medicine. A requirement of precision medicine is profiling exceptionally large numbers of subjects (tens of thousands to hundreds of thousands) so that cohorts can be stratified into subgroups based on individual variability. In some fields, such as genomics, this is already possible. Metabolomics isn't there yet. One barrier is that, because untargeted metabolomics labs generally use different experimental methods, data from one group cannot be easily compared to data from another. As a consequence, study cohorts have mostly been limited to sample numbers that can be analyzed in a single lab. There are two potential solutions to this issue. Conceptually, the easiest answer is for labs to apply the same methods. But as Charles Evans once said, getting an analytical scientist to use someone else's method is like getting them to use someone else's toothbrush. The alternative path is to develop informatics solutions that enable robust data comparisons between different methods.

What do you see as the greatest barriers for metabolomics?

I think one of the greatest barriers in metabolomics, at least for tissues, is that most analyses are currently performed on bulk specimens. When evaluating tissues such as tumors, where a multitude of different cell types are present, the data are challenging to interpret. The problem is that the majority of cells, whether they are cancer or stroma, rely on the same general biochemical pathways and therefore contain mostly the same metabolites. From bulk measurements, we only measure the average signal for each. Unfortunately, experimentally purifying specific cell populations usually does not work because the process of isolation causes metabolic perturbations. An attractive alternative is imaging mass spectrometry, where metabolites can be directly measured from intact tissues at spatial resolutions approaching single cells. The imaging technology is evolving rapidly. I see it as one of the most exciting areas in the field.

How does the future look in terms of funding for metabolomics?

Metabolism is the cornerstone of most biological processes. Metabolomics is usually the most rigorous experimental technique to evaluate metabolism. Thus, future prospects for funding metabolomics research are bright.

That said, it is worth noting a point of contrast between metabolomics and other profiling sciences such as genomics. During their training, most researchers in the life sciences learn genetics and develop a reasonable understanding of genomics. Accordingly, there will almost always be genetics and genomics expertise within a grant review panel. The same cannot he said about metabolism and metabolomics. At least in the US where study sections at the National Institutes of Health are typically organized around a disease theme, my experiences have been that it is relatively common for there to be little expertise in metabolism and metabolomics among grant reviewers. This isn't a deal breaker, but it means we often have to provide more basic background information in our applications. Hopefully, as metabolomics continues to grow and be incorporated into training programs, this will be less of a consideration for future generations of scientists.

What role can metabolomics standards play?

I don't think there is any doubt that authentic standards play a critical role in metabolomics. They are the foundation that makes metabolomics robust. Without authentic standards, we can't confidently identify compounds in biological samples. I would love to see more commercial solutions for collections of standards, such as the one being offered by IROA Technologies. I think that would be a great benefit to the community.

Dr. Gary Patti was delivering a plenary session "Enhancing biological discovery in metabolomics through the use of stable isotopes" at Metabolomics 2023

Conference, Niagara Falls.

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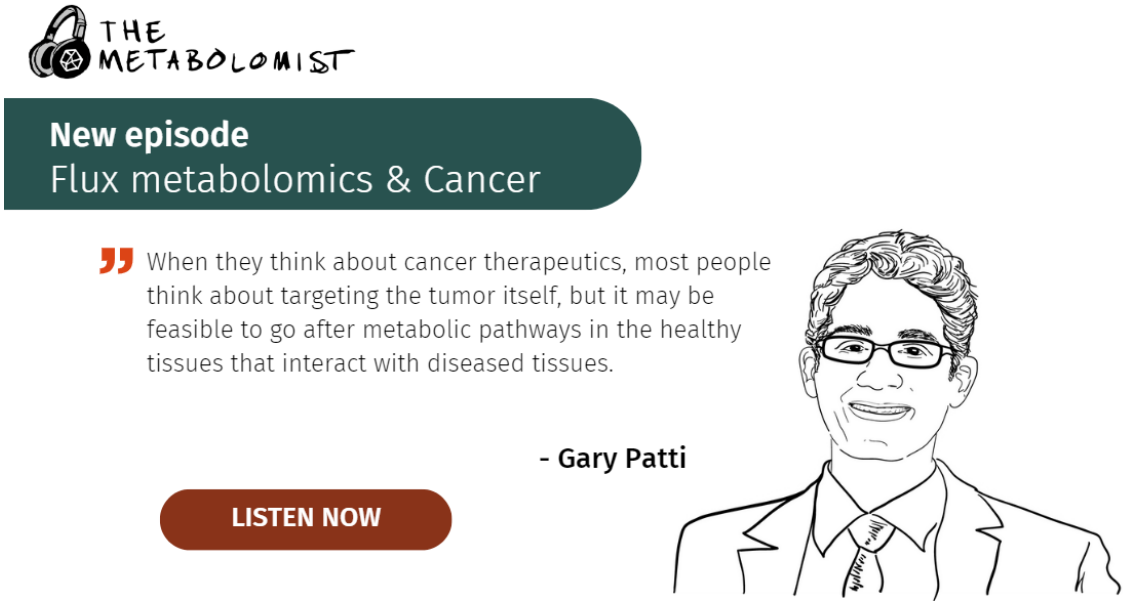
The Metabolomist Podcast



Recent Publications

Reviews:

- A systematic review and comprehensive evaluation of human intervention studies to unravel the bioavailability of hydroxycinnamic acids (Open access)
- Omics Approaches for the Assessment of Biological Responses to Nanoparticles
- Pesticide exposure and the microbiota-gut-brain axis (Open access)
- PFAS Exposures and the Human Metabolome: A Systematic Review of Epidemiological Studies

Articles:

- A discriminant analysis of plasma metabolomics for the assessment of metabolic responsiveness to red raspberry consumption (Open access)

- Altered urinary tryptophan metabolites in alcohol-associated liver disease
- Atlas of plasma NMR biomarkers for health and disease in 118,461 individuals from the UK Biobank (Open access)
- Childhood exposure to non-persistent endocrine disrupting chemicals and multi-omic profiles: A panel study (Open access)
- Comparing GC×GC-TOFMS-based metabolomic profiling and wood anatomy for forensic identification of five meliaceae (mahogany) species (Open access)
- Exploring the internal exposome of seminal plasma with semen quality and live birth: A Pilot Study
- Highly multiplexed bioactivity screening reveals human and microbiota metabolome-GPCRome interactions
- Integrating Microbiome Analysis, Metabolomics, Bioinformatics, and Histopathology to Elucidate the Protective Effects of Pomegranate Juice against Benzo-alpha-pyrene-Induced Colon Pathologies (Open access)
- Metabolomic Profiling and Drug Interaction Characterization Reveal Riboflavin As a Breast Cancer Resistance Protein-Specific Endogenous Biomarker That Demonstrates Prediction of Transporter Activity In Vivo
- PeakDetective: A Semisupervised Deep Learning-Based Approach for Peak Curation in Untargeted Metabolomics
- Phospholipid Removal for Enhanced Chemical Exposomics in Human Plasma
- Understanding the impact of radical changes in diet and the gut microbiota on brain function and structure: rationale and design of the EMBRACE study
- Untargeted Metabolomic Profiling of Aqueous and Lyophilized Pooled Human Feces from Two Diet Cohorts Using Two-Dimensional Gas Chromatography Coupled with Time-of-Flight Mass Spectrometry (Open access)
- Urinary 1H NMR Metabolomic Analysis of Prenatal Maternal Stress Due to a Natural Disaster Reveals Metabolic Risk Factors for Non-Communicable Diseases: The QF2011 Queensland Flood Study (Open access)

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Metabolomics Events

MANA SODAMeet

August 8, 2023

Venue: Online

Learn More Here

The goal of SODA is to provide a community-driven resource of actively-maintained software, test datasets used for software benchmarking, and results produced by software. SODAMeetsis a platform where data generators and computational scientists can share their use of software/data. During SODAMeets (every 2 months), two speakers will present on software or data they would like to share with the community, emphasizing how these software/data are used. Speakers will be requested to fill out a form on our SODA website so that we collect relevant information on these software/data presented.

International Summer Sessions in Metabolomics

August 21 - September 1, 2023

Venue: Online

Learn More Here

During the summer sessions, participants will engage in both theoretical and practical aspects of metabolomics applications. Utilizing example data sets for training and discussions, attendees will work in small teams to explore various solutions to metabolomic challenges. The course content encompasses study design, sample preparation and compound identification, various metabolomics methodologies, data processing and interpretation, as well as statistical analysis and data visualization techniques. Additionally, the curriculum covers pathway and network analysis. This course welcomes beginners and advanced users. For more details, please click here.

The 8th Lipidomics Forum of iLS

August 27 - 30, 2023

Venue: Vienna, Austria.

Learn More Here

A Conference of the International Lipidomics Society and Partners. You will get a chance to learn about the latest lipidomics research from your presentations, posters, and of course from the keynote speakers Frances Platt, Giovanni D'Angelo, Maria Fedorova, Valerie O'Donnell, Peter Meikle, Christoph Thiele, Zoltan Takats, Julijana Ivanisevic, and Andrej Shevchenko. Regular registration is open until **August 30, 2023.**

Bits & Bites # 05: Identification of unknown compounds in untargeted metabolomics using freely available software

September 7, 2023

Venue: Online

Learn More Here

This 5th course is taught by Dr. Arpana Vaniya from UC Davis, and participants required to have basic knowledge of computer skills and no coding experience is needed. The tuition for #5 is $350 and it takes approximately 8 hours.

Short description of the course: Compound identification is known as the bottleneck in metabolomics. However, there are many approaches one may consider while tackling this challenge (i.e. mass spectral library search, in silico fragmentation tools, or database

searching). This short course will provide an overview of the current status of compound ID in metabolomics, participants will learn how to use freely available in silico fragmentation tools MS-FINDER and SIRIUS+CSI: FingerID, web-based tools such as MetFrag and CFM-ID and learn how to use MassBank of North America in NIST MS Search.

Early Career Members (ECM) Virtual Job Fair

September 7, 2023

Venue: Online

Learn More Here

Are you seeking new lab members or exploring new career opportunities? If so, consider attending the Metabolomics Society of North America (MANA) ECM Virtual Job Fair! This event is for employers, recruiters, and job seekers alike, providing a platform to connect with potential candidates or employers from diverse sectors such as academia, industry, or government/ nonprofit organizations. Through the virtual Zoom setup, organizers facilitate effortless interactions between employers and prospective candidates, helping you make valuable connections for your career or organization.

5th Annual MANA Fall Symposium "Expanding the Exposome: The Power of Mass Spectrometry"

September 8, 2023

Venue: Online

Register Here

5th MANA Fall Symposium "Expanding the Exposome: The Power of Mass Spectrometry" is hosted and organized by the UC Davis West Coast Metabolomics Center on September , 2023, from 9 am - 2 pm PT. The list of distinguished speakers:

Dr. Dana Barr, Emory University
Dr. Jonathan Martin, Stockholm University
Dr. Lauren Petrick, Mount Sinai Health System
Dr. Antony Williams, EPA, Center of Computational Toxicology and Exposure
Dr. Krystal Godri Pollitt, Yale
Dr. Dinesh Barupal, Mount Sinai Health System

MANA sponsors will also join and present their recent updates. Seize this unique opportunity to engage with leading scholars and expand your understanding of mass spectrometry's role in exposome studies. Registration is free, and for more details click here.

2023 World Critical Care & Anesthesiology Conference

September 8-9, 2023

Venue: Hybrid, Singapore

Learn More Here

The 5th 2023 WCAC will serve as a platform for discussions on current trends, emerging technologies, advancements, challenges and research in the field of critical care and various surgical procedures. This conference aims to bring together a diverse group of professionals including Intensivist Doctors, Professors, Pulmonologists, Anesthesiologists, Nursing officers, Scientists, and Researchers.

Abstract submission deadline is extended till July 30, 2023. For more conference and registration details, click here.

2023 World Pediatrics Conference

September 8-9, 2023

Venue: Hybrid, Singapore

Learn More Here

2023 World Pediatrics Conference (WPC) will focus on the latest advancements and innovations in different fields of Pediatrics research. The theme of the conference is "Scientific advancement and exploration in Pediatrics and Neonatology." where professionals from around the world exchange their views on a wide range of topics related to childcare and pediatric diseases globally. For more conference and registration details, click here.

9th Swiss Metabolomics Society Annual Meeting

September 15, 2023

Venue: Zurich, Switzerland

Learn More Here

This year's science day will be hosted by Nicola Zamboni in the historic main building of the Eidgenössisch Technische Hochschule Zürich (ETHZ). The theme for this meeting is "Frontiers in Metabolomics", focusing on the latest advancements in analytics, small molecule structure elucidation, omics integration & application, cheminformatics, and computational mass spectrometry. The event has confirmed two distinguished plenary speakers: Emma Schymanski and Matej Orešič, who will be joining the gathering in Switzerland. The deadline for the poster submission deadline is **August 15, 2023.** For more details click here.

Bits & Bites # 06: Mass Spectrometry for Metabolomics

October 5, 2023

Venue: Online

Learn More Here

This 6th course is taught by Dr. Uri Keshet from UC Davis, and no prior knowledge or software is required. The tuition is $175.

Short description of the course: Mass spectrometry (MS) is an important analytical technique in many metabolomics labs. With a wide range of MS systems available, such as GC-MS, LC-MS, EI, ESI, TOF, QQQ, and Orbitrap, selecting the appropriate instrument to suit specific needs and constraints can be a daunting task. In this short course, the fundamental principles of MS will be explored, encompassing various sample introduction methods, ionization techniques, and mass analyzer options, with a particular focus on their application in metabolomics. Whether for

targeted or untargeted applications, participants will gain insights into reading and comprehending MS output data, including EI-MS, ESI-MS, or ESI-MS/MS spectra. The course will also provide valuable guidance on developing high-throughput MS methods, (i.e., short 5-min method) that can be used in metabolomics. By the end of the course, attendees will have acquired a solid understanding of the available MS systems in the market, the challenges associated with their use, the essentials of designing studies using different MS approaches, and the tools required for reading and processing MS data files.

5th Annual Metabolomics Society of North America (MANA) Conference

October 23 – 27, 2023

Venue: Columbia, MO, USA

Learn More Here

The 2023 conference will be held October 23-27, 2023 on the campus of the University of Missouri in Columbia, MO. Professor Lloyd Sumner will chair the meeting and is developing an exciting program that will appeal to many interests in metabolomics. This year, MANA is excited to partner with the International Lipidomics Society (ILS), and the 2023 conference will have dedicated sessions for lipidomics, and an evening workshop with the ILS. Check out the conference website for program updates.

- Early bird registration deadline is extended: July 30, 2023
- Oral abstract submissions deadline is extended: August 13, 2023
- Poster abstract submissions deadline is extended: August 31, 2023

14th European Nutrition Conference (ENC) FENS 2023

November 17 – 25, 2023

Venue: Belgrade, Serbia

Learn More Here

The 14th European Nutrition Conference will be held in Belgrade, the capital city of Serbia. The theme of the conference is “Food, Nutrition, and Health: Translating science into practice”. Around this theme, the conference will deliver a high-quality program, featuring international speakers across plenary sessions and symposia. Other features of the program will be discussions and debates, industry symposia, panel sessions, and networking opportunities including several specifically catering to early career researchers.

- Abstract submission for late posters accepted until August 14th, 2023

- Registration deadline is August 19th, 2023

NIST SRM1950 Customer Feedback Survey

NIST SRM 1950 Survey
We Need Your Help!!

Dear Colleagues,

The National Institute of Standards and Technology (NIST) is conducting a survey about NIST SRM 1950 Metabolites in Frozen Human Plasma to gather feedback directly from **existing and potential users** on their experiences and needs to better design SRM products in the future.

SRM 1950 was first made available in 2011 and has been widely used by researchers and scientists in the metabolomic and lipidomic communities and beyond. NIST will be renewing SRM 1950 and/or developing new reference materials in the coming years, a process that typically takes 5-7 years. The survey results will help NIST devise future reference material formulations to fulfill your needs and continue to support the clinical chemistry, metabolomic and lipidomic communities.

Help the succession of NIST SRM 1950!

Click for Survey

Or, copy-and-paste the link in a web browser:
https://usability.gov1.qualtrics.com/jfe/form/SV_25hVWSW2sOr16bc

If you have any questions regarding the survey, please don't hesitate to email the survey point of contact, Yee-Yin Choong at yee-yin.choong@nist.gov.

Best regards,

The NIST SRM 1950 Survey Team:

Yee-Yin Choong, Human Factors Scientist, Information Technology Laboratory
Johanna Camara, Research Chemist, Material Measurement Laboratory
Tracey Schock, Research Chemist, Material Measurement Laboratory
Clay Davis, Research Chemist, Material Measurement Laboratory

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Metabolomics Jobs

Metabolomics Jobs

If you have a job to post, please email the MetaboNews team at metabolomics.innovation@gmail.com

We may remove a listing after 6 months if we do not receive a confirmation that it is still necessary. However, if you would like us to repost it, please contact us.

Job Title	Employer	Location	Source
Postdoctoral Position	Institute of Legal Medicine/Core Facility Metabolomics, Medical University of Innsbruck	Innsbruck, Austria	Send the application by July 26, 2023 stating the reference code MEDI-18902 to: bewerbung@i-med.ac.at. More details here.
PhD Position	The Computational Metabolomics for Systems Biology lab	Catalonia, Spain	METSYS Lab Send a motivation letter with your CV to xavier.domingoa@eurecat.org

Research Technician	Department of Preventive Medicine, Northwestern University	Chicago, USA	Metabolomics Society
Operations Assistant	NovaMT and TMIC Li Node at the University of Alberta	Edmonton, Alberta, Canada	Dr. Liang Li (please contact liang.li@ualberta.ca)
Postdoctoral Research Associate-Sumner Lab	Nutrition Research Institute	Kannapolis, North Carolina, US	The University of North Carolina
Metabolomics Project Coordinator	Human Metabolome Technologies of America	Remote or Boston, MA, USA	Metabolomics Society
Senior Data Scientists	Olaris, Inc.	Framingham, MA, USA	Metabolomics Society
Doctoral Candidates	HUMAN – Harmonising and Unifying Blood Metabolomics Analysis Networks	Europe	HUMAN Doctoral Network
Postdoctoral Fellow in Omics	Georgia Institute of Technology	Atlanta, USA	Metabolomics Society
Assistant Professor in Mass Spec and/or Metabolomics	Michigan State University	East Lansing, Michigan, USA	Michigan State University
Postdoctoral Research Fellow (LC-MS and Data Science for Metabolomics)	The Li Lab and the Li Node of TMIC, University of Alberta	Edmonton, Alberta, Canada	University of Alberta

MetaboNews Feedback Form

As you noticed, we change to a new format starting this April 2023 issue. We hope to provide enough useful content to keep you interested and informed and appreciate your

comments and feedback on how we can make this newsletter better. Please fill out this quick survey and let us know your thoughts (your answers will be anonymous). It will only take less than one minute with only two mandatory questions

Fill Out Your Survey Here

If you have any questions, don't hesitate to contact us at metabolomics.innovation@gmail.com

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Our mailing address is:
metabolomics.innovation@gmail.com