MetaboNews

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

Metabolomics Society News

Conference Corner

Metabolomics 2022: Valencia, Spain - June 19-23

The 18th Annual Conference of the Metabolomics Society will be held in Valencia, Spain, on June 19-23, 2022. The conference will present the latest advances in metabolomics and planning for the meeting is well underway. Call for Workshops is currently open and the deadline for submissions is January 10, 2022. You can submit your workshop proposal here. Registrations and call for Abstracts will open early in January.

For more information and regular updates please visit https://www.metabolomics2022.org/. We look forward to welcoming you in sunny Valencia for an exciting Metabolomics 2022!

Members Corner

Early-career Members Network (EMN)

EMN Webinar Series

The EMN would like to thank once again Dr Julien Boccard and Dr Miguel de Figueiredo for their wonderful talks on data structures as a key to knowledge discovery in metabolomics and strategies to handle high-dimensional metabolomic data from unbalanced multifactorial design. If you missed our latest webinars, the recordings are now available on EMN Webinars – 2021 – Metabolomics Society.

Stay tuned for announcements sent over email and posted on our social media platforms for the upcoming webinar in January!

International Affiliates Corner

Metabolomics Association of North America (MANA)

Visit https://metabolomicsna.org

Board of Directors Election Results

MANA is pleased to announce the results of the 2021 Board of Directors election. Professors Lloyd Sumner (University of Missouri) and Maryam Goudarzi (Cleveland Clinic Foundation Lerner Research Institute) were reelected to a second term, and Professor Xiuxia Du (University of North Carolina at Charlotte) was elected to a first term.







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

General Enquiries

info@metabolomicssociety.org

Membership Enquiries

membership@metabolomicssociety.org

MANA WomiX

Visit https://www.womixmetabolomics.org/mentorship-program.html.

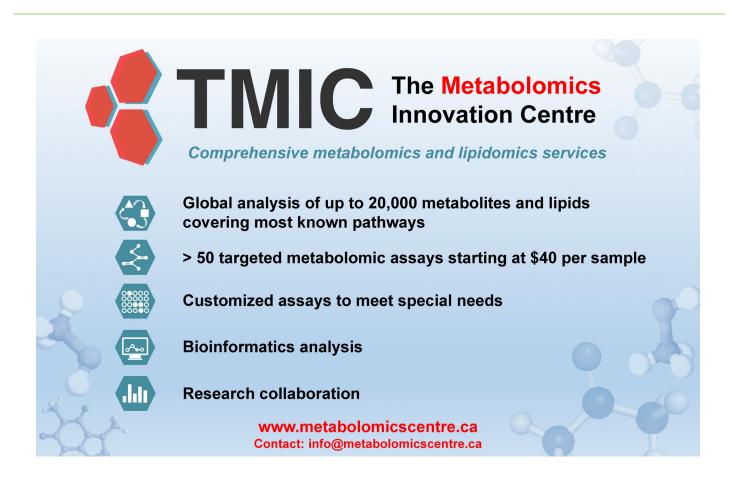
The MANA WomiX Interest Group held their last bi-monthly Images of Success (IOS) Seminar Series of 2021 on "Ask anything from A to Z: How to improve your network." Ph.D. students who are either early, mid-level, or seniors as well as a postdoc shared tips on how to prepare, actively build, and sustain their networks. The 2021 WomiX Mentorship Program has come to an end. We had 8 mentors and 11 mentees! Thank you to all our mentors for their time and contribution to making this program a success.

If you'd like to participate in the 2022 WomiX Mentorship Program, sign-up today!

- Mentor Sign-up
- Mentee Sign-up
- Deadline: Friday, Jan 21, 2022

WomiX is looking for content for the new WomiX RoundUP, a monthly email to stay connected with members. You can provide helpful tips, external events, job postings, etc. Send in content here!

If you'd like to join WomiX <u>sign-up here!</u> We encourage existing members to also fill this out so we can update member information!





Dr. Baljit Ubhi



Vice President, Strategic Marketing MOBILion Systems, Inc.

Biography

Baljit has 20 years of experience in the life sciences sector both in the pharmaceutical industry and academia as well as 10 years of expertise in marketing, predominantly in the precision medicine & Omics sector. Baljit is currently part of the senior leadership team at MOBILion Systems Inc., a venture-backed biotech start-up solving challenges for the biopharma industry. She serves as the VP of Strategic Marketing, managing the marketing and product management organization.

She obtained her PhD from the University of Cambridge, UK studying biomarkers of disease to advance drug discovery at GlaxoSmithKline (GSK). Recently she worked at SCIEX, part of Danaher Corporation (a Fortune 500 company) Life Sciences Platform Group, where she held a variety of roles over her 10-year tenure from applications scientist to business and product management/marketing. Outside of her work responsibilities, Baljit mentors young scientists, particularly women in science, who want to make an impact beyond the bench. More recently she has supported new mothers returning to work, allowing them to implement a work-life balance through a mother's mentorship program.

Baljit participates in the community driven effort, mQACC (metabolomics QA & QC consortium) where she was appointed co-chair of the Reference Testing Materials Working Group (RTMWG). Recently she was appointed to the Board of Directors for the International Metabolomics Society where she serves as Treasurer, managing the society's budget and is co-chair of the Industry Task Group (ITG) for broadening the Society's outreach. Lastly and most importantly she was appointed to be the head of the DEI Committee at MOBILion Systems!

Interview Q&A

How did you get involved in metabolomics?

After finishing my Master's in Analytical Chemistry in 2004, I applied for a job at GlaxoSmithKline as a research scientist. I wanted to work in the pharmaceutical industry, but the job description was vague and little did I know it was in the metabolomics group doing biomarker research. My hiring manager at the time asked, "Do you know what metabolomics is?" I didn't! He then did a whiteboard session with me to explain exactly the role of the group and what my role would entail. That was it – I was hooked! Luckily for me, I got offered the role due to my analytical background. I never looked back and here I am 17 years later!

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

Almost everything is exciting – where do I start? I moved away from the bench a long time ago. However, my expertise in the field still allows me to continue to collaborate with scientists and thought leaders globally.



The most exciting part is continuing to be invited to write review articles, be part of expert panels, and contribute back to the scientific community - this is very rewarding! More recently, I was elected to the Metabolomics Society's Board of Directors as Treasurer. I manage the budget and set this annually with the BoD's approval. As a non-profit organization, our goal is to give back to the Society's members. I am very passionate as I get to advance benefits for our members by, for example, working alongside the conference committee to increase the number of sponsors who support the annual meeting. Last year, I helped bring on sponsors who ordinarily have not provided support in the past. All this is to say that even though I have been involved in this field for so long, I am still excited, passionate, and determined more than ever - that's why metabolomics is so exciting!

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

I just joined a company called MOBILion Systems. We are a venture capital-backed biotechnology startup. We are employing high-resolution ion mobility (HRIM) technology to solve the challenges faced by the biopharmaceutical industry, from biomarker research to process development, allowing the advancement of therapies. We are currently supporting protein characterization and glycan and lipid workflows. The technology allows superior resolution of isobaric and challenging molecules, like never before! Our first product is focused on large molecule characterization address unmet needs in biopharmaceutical characterization; we have demonstrated success in separating and characterizing the most challenging classes of lipids and we intend to expand the platform to further investigate metabolomics. I am so excited to be a part of that journey!

What is happening in your country in terms of metabolomics?

The metabolomics field is growing rapidly in the United States and thus many new scientists are entering the field, whether they be from the proteomics field or a completely different biological discipline where there is zero analytical experience. Given the amount of information that can be delivered and its direct correlation to the phenotype, metabolomics workflows are being implemented in many companies in various industries, from British Petroleum using these workflows to optimize and make more efficient biofuels to human-based wellness start-ups such as Viome generating direct-to-consumer (business-to-consumer or b2c) microbiome health testing kits! This is driving the need

for higher-throughput workflows in a few minutes rather than tens of minutes, which is the case today.

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

I am currently the chair of the Reference and Test Materials Working Group (RTMWG) of the mQACC (Metabolomics QA & QC Consortium), a communitydriven effort. The work being done in this group is to review the reference materials being applied in the field, identifying opportunities, suggesting alternative options, and working with the community to educate. We have members of the National Institute of Standards and Technology (NIST) in this group, so working with them to highlight where the needs are is going to help standardize the field and measurements across laboratories. My earlier work on the Lipidyzer Platform (SCIEX, 2013-2015) with Metabolon and Avanti Polar Lipids also involved working towards an effort to standardize measurements from lab to lab. I hope these types of initiatives, amongst others in the field, will advance the metabolomics community to standardized measurements across labs and thus move us closer towards more robust, quantitative clinical applications.

Finally, and most importantly, the lipidomics research being advanced at MOBILion is highly rewarding! We are identifying alterations in the metabolism of selective glycosphingolipids (GSLs) in specific brain regions that contribute to the early onset and progression of Parkinson's disease. This project is funded by a grant from The Michael J. Fox Foundation and the research will include use of MOBILion's Structures for Lossless Ion Mobility (SLIM)-based High-Resolution Ion Mobility (HRIM) instrument to identify alterations in the metabolism of selective glycosphingolipids (GSLs) in specific brain regions that contribute to early Parkinson's onset and accelerated progression rates.

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

The ability to understand in real time what is happening to a biological system still fascinates me today. This is metabolomics' biggest strength.

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

Limits in resolution are an issue today. Achieving higher resolution upfront of the mass spectrometer would allow the differentiation of many metabolites that are isomers and isobaric species but are biologically significant.



It seems there is a threshold of resolution that no one has been able to break through and MOBILion is well-positioned to do just that with our SLIM technology. Then the bottleneck becomes data handling, which is still very complex, and in the almost 20 years I have been in the field, we still have more to do here. Currently turning data into biological endpoints that can aid decision-making is still far behind that of other omics fields. Metabolomics is being applied by highly-trained scientists, so how do we make it more accessible and adoptable by early-career scientists or professionals trained outside of metabolomics? That is what would make the field adopted by more of the global scientific community.

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

Several things are holding the field back from really taking off. The major bottleneck in the field is metabolite identification. How do we get away from just generating lists of features and instead enable them to be identified metabolites that can then be mapped to biochemical pathways and biologically interpreted? At the same time, how do we allow the user access to automated processing tools that can handle thousands of end points in a high-throughput fashion? I spoke of the data-handling challenges earlier but to make any sense of the data, we need to employ tools that will allow scientists to make those decisions fast; this is what is required of the biopharmaceutical industry.

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

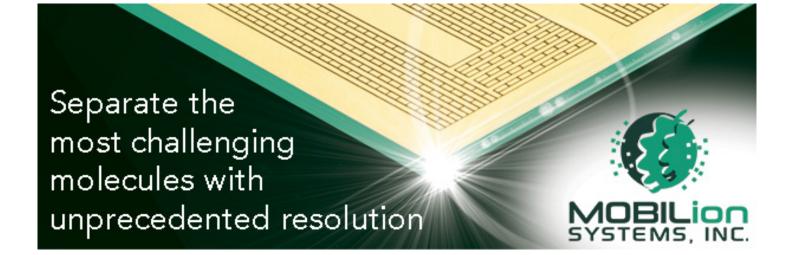
From a public funding aspect, the US has many arms, most importantly, the National Institutes of Health (NIH) and

National Science Foundation (NSF) grants. Metabolomics is now pursued as part of multi-omics grants as there is still a large research space to be able to integrate data from proteomics and metabolomics experiments.

Private funding is an exciting and an ever-evolving space to be in right now for metabolomics. Start-ups are obtaining venture-capital funding to push the field forward, whether the application be nutrition-based or human wellness or even wine-profiling!

What role can metabolomics standards play?

Metabolomics standards can be used to align and correct datasets, for relative or absolute quantitation, as system suitability tests, and for quality control (QC) purposes too. They play a very important role as described to allow the field to report high-quality data that is interpretable across labs. The challenge in the field is how many standards to add to your experiment, what are the cost-benefit tradeoffs and how to determine them. Simply put, you need to have enough standards to cover the compound classes, molecular weights, and retention times (if using liquid chromatography) for your analysis. As part of the mQACC working group, RTMWG recently had a review manuscript accepted by Metabolomics journal. Led by myself and Katrice Lippa (and her group at NIST), the article discusses the use of reference materials in the field of metabolomics and lipidomics. Watch this space for its official publication!





Recent Publications

Recently published papers in metabolomics

- Advances in decomposing complex metabolite mixtures using substructure- and network-based computational metabolomics approaches
- Application of Metabolomics to the Discovery of Biomarkers for Ischemic Stroke in the Murine Model: a Comparison with the Clinical Results
- A Canadian Study of Cisplatin Metabolomics and Nephrotoxicity (ACCENT): A Clinical Research Protocol
- Combinatorial, additive and dose-dependent drug-microbiome associations
- Current state-of-the-art of separation methods used in LC-MS based metabolomics and lipidomics
- Data mining of natural hazard biomarkers and metabolites with integrated metabolomic tools
- An Extensive Metabolomics Workflow to Discover Cardiotoxin-Induced Molecular Perturbations in Microtissues
- How Ceramides Orchestrate Cardiometabolic Health—An Ode to Physically Active Living
- Metabolic Profiling and Metabolites Fingerprints in Human Hypertension: Discovery and Potential
- Metabolomics and genomics in natural products research: complementary tools for targeting new chemical entities
- Metabolomics and lipidomics in NAFLD: biomarkers and non-invasive diagnostic tests
- A Metabolomics approach for the diagnosis Of SecondAry InfeCtions in COVID-19 (MOSAIC): a study protocol
- Metabolomics in Clinical Practice: Improving Diagnosis and Informing Management
- Metabolomics in the understanding and management of hepatic encephalopathy
- Metabolomics Insights into Inflammatory Bowel Disease: A Comprehensive Review
- Metabolomics to understand placental biology: Where are we now?
- MetEx, a Metabolomics Explorer Application for Natural Product Discovery
- Prediction of small-molecule compound solubility in organic solvents by machine learning algorithms
- Plasma Metabolomics and Lipidomics Differentiate Obese Individuals by Peripheral Neuropathy Status
- Recent Metabolomics Analysis in Tumor Metabolism Reprogramming
- SARS-CoV-2 infects human adipose tissue and elicits an inflammatory response consistent with severe COVID-19
- Serum metabolomics of end-stage renal disease patients with depression: potential biomarkers for diagnosis
- Sweat metabolomics before and after intravenous antibiotics for pulmonary exacerbation in people with cystic fibrosis
- TIMSCONVERT: A workflow to convert trapped ion mobility data to open data formats
- <u>Unbiased Metabolomics Links Fatty Acid Pathways to Psychiatric Symptoms in People Living with HIV</u>
- Untargeted metabolomics reveals the mechanism of quercetin enhancing the bioavailability of ticagrelor
- <u>Utility, promise, and limitations of liquid chromatography-mass spectrometry-based therapeutic drug monitoring in precision medicine</u>





31 December 2021

Women in STEM Alberta Scholarship Application Deadline

Learn more here.

Overview

This second intake for the Women in STEM Scholarship, which was introduced earlier this year, demonstrates the Alberta government's commitment to supporting women in pursuing rewarding careers in these fields. Each successful applicant will receive \$2,500 to support their studies. The Women in STEM Scholarship supports women pursuing careers in STEM (science, technology, engineering and mathematics) fields where their gender is underrepresented and working to advance gender equality in their chosen field.

4-13 January 2022

ACCESS CHINA Biotech Forum @JPM Week 2022

Learn more here.

Overview

As the largest CHINA corporate access event during the JPM WEEK in 2022, the forum expects to have over 1000 participants from China pharma and Biotech companies. ACCESS CHINA is the most effective deal-making platform for Western pharma and biotech leaders looking to enter or expand in the Chinese market. ACCESS CHINA creates invaluable business development opportunities by directly connecting and meeting with the right partners for development, licensing or commercial collaborations.



11 January 2022

Clinical Studies In Silico

Learn more <u>here</u>.

Overview

In silico studies use computer modeling to assess the tolerance and efficacy of a drug, medical device or advanced therapy drug. Because of its potential it is supposed to facilitate and optimize clinical evaluation. In silico is now positioned as an essential pillar of modern R&D in healthcare companies. Participants will explore these technologies in the R&D of a drug or a medical device. At the end of the training, the participant will be able to assess the benefits provided by in silico to the various developments in which he participates.

13 January - 1 December 2022

Bits & Bites 2022

Register here.

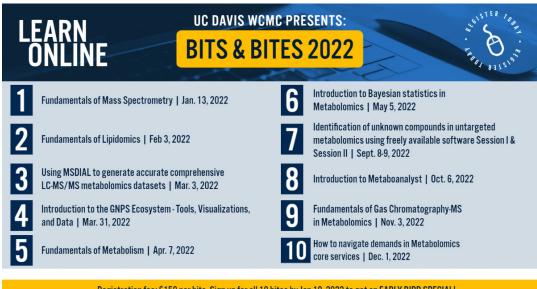
Overview

These courses hosted by the UC Davis West Coast Metabolomics Center are great for grad students, postdocs, and other STEM professionals.

Bits & Bites is an online course series that features in-depth topics in untargeted metabolomics. Each short course can be taken individually, or you can select multiple Bites. You will gain a deeper insight into current software, methods, and pitfalls. We've added multiple fundamental courses for those interested in learning the advantages and disadvantages of such topics as Mass Spectrometry, Lipidomics, Metabolism, and Gas Chromatography-MS in Metabolomics.

For more information check out our flyer or visit our website: https://metabolomics.ucdavis. edu/courses-and-seminars/courses/217-bits-and-bites-2021

The registration fee is \$150USD per bite. Sign-up for all 10 bites by Jan 10, 2022, to get an EARLY BIRD SPECIAL!



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14 January 2022

Accelerating Innovations into CarE (AICE) – Validate Program Application Deadline

Learn more here.

Overview

AICE-Validate supports innovators in rapidly progressing towards market entry across the key domains of, product development, business readiness, product-market fit, and regulatory compliance. Applicants who participate in the program can expect the following outcomes:

- Accelerated progression along the commercialization pathway in multiple areas including Product-Market Fit, Business Readiness, Regulatory Compliance, and Product Development.
- Contribution to Alberta's competitiveness in digital health.

18 January 2022

Startup TNT Life Sciences Investment Summit Application Deadline

Learn more here.

Overview

The Startup TNT Life Sciences Investment Summit, a platform for life sciences entrepreneurs and innovators seeking seed stage funding and will provide them with an opportunity to receive seed funding for their idea or business, and to network with investors and representatives from the start-up and the life sciences ecosystem. The summit also offers hands-on training for investors interested in Life Sciences through a team-based due diligence process.

Applicants shortlisted by the investors will be invited to participate in an 8-week due diligence process. You'll have an opportunity to build relationships and engage with investors and mentors as a direct outcome of your participation in this process.

24-28 January 2022

Hands-on LC-MS Data processing and Statistics

Learn more here.

Overview

This course offered by UC Davis will feature hands-on training with real-world untargeted metabolomics data covering LC-MS data processing, compound identification, statistical analysis, network mapping, & data interpretation.

- Untargeted data processing and exercises on MS-DIAL software.
- Exercises on the identification of unknowns by cheminformatics software workflows (including MS-FINDER, CFM-ID, various databases, and small software routines)
- Data normalization and transformation with and without internal standards and quality controls
- Multivariate and univariate statistics
- Pathway mapping and enrichment analysis



15 February 2022

Work-integrated Learning Industry Voucher (WILIV) Program

Learn more here.

Overview

BioAlberta will use WILIV to support a total of 136 unique (16-week long) full time life science and STEM student internships to qualifying Alberta small and medium sized enterprises (SMEs) who successfully recruit skilled students enrolled in an under-graduate, graduate or post-graduate degree program.

SME internships must provide students with practical work in a field related to their studies within the Alberta life sciences eco-system that enable them to gain a better understanding of your company's work. Eligible SMEs will be awarded \$5000 in matching wage support per student placement. These Alberta SMEs are then free to match WILIV support with their own operational funds or apply to other available student funding programs (i.e. BioTalent Canada, Eco Canada, etc).

BioAlberta is now recruiting SMEs to participate in WILIV Summer and Fall 2022. For more information or to apply contact <u>trish@bioalberta.com</u>.

22-25 February 2022

6th HBP Student Conference on Interdisciplinary Brain Research

Learn more here.

Overview

The 4-day conference will be held in a hybrid format with most sessions being streamed online. Participation in the 6th HBP Student Conference is open to the entire student community and early career researchers, regardless of whether they are affiliated with the HBP or not. Participants without contributions to the scientific programme are also welcome. We

or not. Participants without contributions to the scientific programme are also welcome. We encourage all young scientists to register and aim for an equal representation of all genders.

Abstract submission deadline is October 27, 2021.

13-16 May 2022

2nd Metabolism in Health and Disease Conference

Learn more here.

Overview

Topics will span diverse areas such as cancer metabolism, organismal metabolism in disease, metabolic pathway engagement in cell function, metabolites as signaling molecules, mitochondrial biology, nutrient sensing, metabolism in tissue homeostasis and repair, neurometabolism, and metabolism in host-microbe interactions.

Early-bird registration deadline is January 31, 2022



29 May - 2 June 2022

International GCxGC Symposium

20-24 June & 20-23 September 2022

CliMetabolomics

7-12 August 2022

Gordon Research Conference on Lipidomics

22 August - 2 September 2022

International Summer Sessions in Metabolomics

26-27 December 2022

2nd International Diabesity and Metabolic Surgery Summit

Take the Lead

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Learn more





Metabolomics Jobs

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

Jobs Offered

Job Title	Employer	Location	Posted	Closes	Source
Various Positions	Various	Various	13-Dec-21	Various	Metabolomics Association of North America Job Board
Metabolomics Research Scientist	Victor Chang Cardiac Research Institute	Darlinghurst, Australia	21-Dec-21	10-Jan-22	<u>MetaboNews</u> <u>Jobs</u>
Postdoctoral Researcher in Cheminformatics/ Bioinformatics	Friedrich-Schiller- Universitat	Jena, Thuringia, Germany	21-Dec-21	15-Jan-22	Friedrich- Schiller- Universitat
Postdoctoral Researcher in Cheminformatics/ Bioinformatics	Friedrich-Schiller- Universitat	Jena, Thuringia, Germany	21-Dec-21	15-Jan-22	Friedrich- Schiller- Universitat
Sr. Marine Education Specialist - Science Technology Centre (STC)	Woods Hole Oceanographic Institution	Massachusetts, USA	4-Oct-21	Until Filled	<u>Careers@</u> <u>WHOI</u>
Postdoctoral Position	Fernandez Lab, School of Chemistry and Biochemistry, Georgia Institute of Technology	Georgia, USA	Sep-21	Until Filled	MetaboNews Jobs
PhD Student and Post- doctoral Fellow Positions in Mass Spectrometry Metabolomics and Proteomics	Technion - Israel Institute of Technology	Haifa, Israel	29-Mar-21	Until Filled	<u>MetaboNews</u> <u>Jobs</u>
Postdoctoral R&D Scientist - NMR-based Metabolomics	Lesaffre	Loos, France	16-Mar-21	Until Filled	MetaboNews Jobs
PhD Research Project Opportunities, Centre for Integrative Metabolomics and Computational Biology	Edith Cowan University	Joondalup, Australia	16-Mar-21	Until Filled	<u>MetaboNews</u> <u>Jobs</u>



Jobs Wanted

This section is intended for very highly qualified individuals (e.g., lab managers, professors, directors, executives with extensive experience) who are seeking employment in metabolomics.

We encourage these individuals to submit their position requests to your MetaboNews team at (<u>metabolomics.innovation@gmail.com</u>). Upon review, a limited number of job submissions will be selected for publication in the Jobs Wanted section.

• <u>Dr. Paulina Samczuk</u> - Seeking an interesting Postdoc offer or other position which would allow her to develop herself.





Want to see your content in MetaboNews?

Do you have an interesting story you would like to share with the metabolomics community? <u>Fill out this form</u> to learn more about contributing a Spotlight Article to MetaboNews.

Would you like to share your metabolomics story? <u>Fill out this form</u> to be featured as one of our Metabolnterviews.

Do you have a new publication that the metabolomics community should hear about? <u>Fill out this form</u> to have your publication featured in MetaboNews.

Are you searching for a highly qualified individual for your organization? <u>Fill out this form</u> to post your job in MetaboNews.









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Full page ad - \$450 CAD

Featured Job Posting - \$50CAD

Featured Event Posting - \$100CAD

Commercial Spotlight Article or Interview – \$300CAD

*Prices do not include GST