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The MetaboNews Team

The Metabolomics Innovation Centre
metabolomics.innovation@gmail.com



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

Metabolomics Society News

Conference Corner

Metabolomics 2023 – Niagara Falls, Canada (June 18-22)



Save the date! Visit the website for updates over the coming weeks. The Call for Workshops will open in early October and the deadline for submission is mid-November. We look forward to receiving quality proposals to help shape the program! See <https://www.metabolomics2023.org/>.

Education and Training Committee

MetSoc Podcast

Episode #2: Sample Collection & Integrity for Metabolomics

Date: October 4, 2022

Time: 8:00 am ET

After designing a metabolomics study, the next important process to consider is sample collection and handling. There are several papers that illustrate the impacts that collection and processing have on biofluid (such as blood and urine) and tissue sample integrity. However, these procedures are not always straightforward. Join us for an exploration into the questions that often arise about sample collection and handling.

MetSoc PODCAST

Educating the Researcher in Study Design



Expert panelists for this episode include **Jerzy Adamski** (Helmholtz Zentrum München), **Dajana Vuckovic** (Concordia University), **Julia Kuligowski** (University of Valencia), and **Albert Koulman** (University of Cambridge).

Sign up at

<https://register.gotowebinar.com/register/3461773203271084048>



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

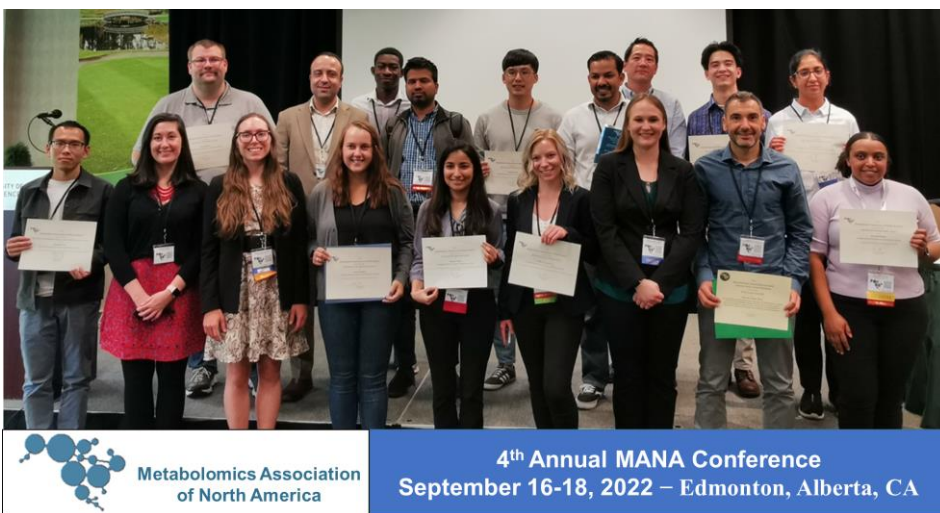
Membership Enquiries

membership@metabolomicssociety.org


International Affiliates' Corner

Metabolomics Association of North America (MANA)

Visit <https://metabolomicsna.org>




Thank you for joining us this past weekend (Sept. 16-18). TMIC is proud to have co-hosted this event with the University of Alberta. Thank you to our presenters, sponsors, committee members, volunteers, and all other contributors and participants. And congratulations to all the award winners (photo above). See you again next year at the University of Missouri-Columbia, United States!





TMIC


The **Metabolomics** Innovation Centre


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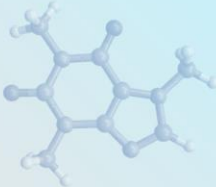
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SCAN ME

Nadja B. Cech, PhD



- Patricia A. Sullivan Distinguished Professor of Chemistry, University of North Carolina at Greensboro
- Principal Investigator for the Center for High Content Functional Annotation of Natural Products
- Co-Director of the Analytical Core for the Center of Excellence for Natural Product-Drug Interaction Research
- Co-Director of the Medicinal Chemistry Collaborative

Biography

Dr. Nadja B. Cech is the Patricia A. Sullivan Distinguished Professor of Chemistry at the University of North Carolina Greensboro (United States). She supervises a dynamic research group engaged in developing novel mass spectrometry metabolomics approaches to solve challenging problems in natural products research. A major focus of this work is developing novel methodologies to identify combinations of molecules that interact to achieve biological effects (additivity, synergy, or antagonism). Dr. Cech is the recipient of the 2011 Jack L. Beal Award from the *Journal of Natural Products* and the 2017 Thomas Norwood Award for Undergraduate Research Mentorship. She is a Principal Investigator for the NCCIH- and ODS-funded [Center for High Content Functional Annotation of Natural Products](#), Co-Director of the Analytical Core for the [Center of Excellence for Natural Product-Drug Interaction Research](#), and Co-Director of the [Medicinal Chemistry Collaborative](#).

Interview Q&A

How did you get involved in metabolomics?

About 25 years ago my whole science career took a turn in a direction that eventually led me to metabolomics. I'd been planning to go to graduate school at the University of Colorado Boulder – my uncle was there on the faculty, Boulder had one of the best-rated analytical chemistry programs in the country, and those Rocky Mountains are awfully beautiful! But then I met Chris Enke, and something told me I needed to work with him. So, I went against everyone's advice and

joined him at the University of New Mexico – a chemistry graduate program most people had never heard of – and got involved in doing small molecule mass spectrometry. Back then we didn't call it metabolomics, but that's what it was. It was one of the best decisions I had ever made! Chris, who remains one of my dear friends and mentors today, is a real genius in mass spectrometry and was a wonderful life mentor as well. I learned a great deal from him about how to work collaboratively, how to mentor, and how to think about big scientific questions.

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

One of our projects involves looking at how the skin microbiome helps protect the body against infection. We're using mass spectrometry to track and identify bacterial signalling molecules. I'm also a part of a National Institutes of Health-funded program called the Center for High Content Functional Annotation of Natural Products (HiFAN) which develops new tools to identify active compounds from natural product mixtures. I'm lucky to get to work with some really talented collaborators and students on these projects, which is perhaps the most exciting part.

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

We have an ongoing project right now, which is part of HiFAN, that aims to understand and compare the various workflows used by some top metabolomics groups around the world for identifying analytes in mixtures and assigning their structures. We call it the "Metabolomics Annotation Collaboration." I'm excited to share some of our preliminary findings at the MANA Conference in September. [Dr. Cech was one of the plenary speakers at the 4th Annual Conference of the Metabolomics Association of North America in Edmonton, with the presentation entitled "How

Complicated is it Really? Exploring the Detectable Metabolome for Untargeted Mass Spectrometry".]

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

A lot of what our lab is working on is developing tools that help connect the structure to function for complex mixtures. I'd love to see there applied in the future to discover therapeutically useful small molecules from natural product mixtures.

What are metabolomics' greatest strengths?

I think its greatest strength is the ability to generate hypotheses – untargeted analysis especially makes this possible – and that's very exciting.

What do you see as the greatest barriers to metabolomics?

I'm excited to see the push towards open-access data, but limited data quality; lack of replication; lack of appropriate blanks, standards, and controls; or simply the wide variety in methods for data acquisition make it hard to compare datasets across laboratories. The size of metabolomics datasets makes it difficult to identify systematic and random errors, and I think we sometimes still end up with a "garbage in – garbage out" scenario in metabolomics studies. That's changing, but it's slow.

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

Better consensus across the community about approaches for acquiring and analyzing large datasets would really help. I'm really excited about the potential of having crowd-sourced MS² data out there that we can all rely on for annotation of our metabolomics data. We need more folks to share data on open-access



The Cech Research Team at the University of North Carolina Greensboro

databases like the [Global Natural Products Social Molecular Networking \(GNPS\)](#) website.

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

In the US, I think the science funding situation in general is looking promising for the next few years, barring any unforeseen changes. It's very difficult to get funding for purely metabolomics methodology projects, but when metabolomics is integrated in an

intelligent way into projects that address interesting biological or environmental questions, that's where the money is! (And where there is potential to really push the envelope of science and make important discoveries).

What role can metabolomics standards play?

Standards are awesome! Who doesn't love standards? We all need standards. More standards!!!

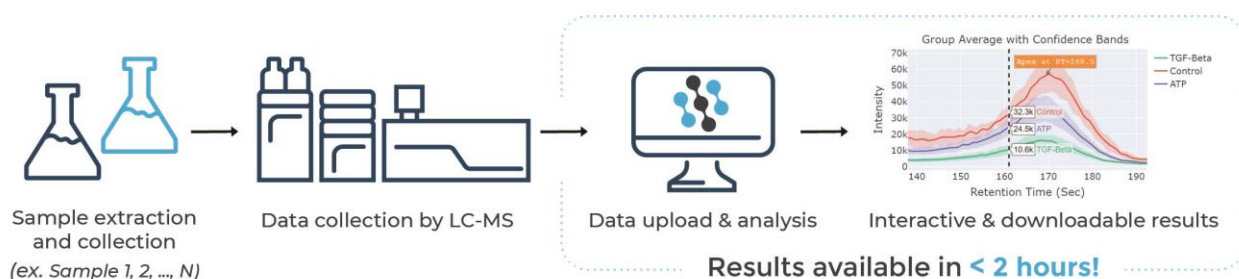


Dr. Nadja Cech's presentation on September 17, 2022, at the 4th Annual MANA Conference in Edmonton, Canada.



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Questions?

Do you have questions about your metabolomics data? Let's talk!



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Recent Publications

Recently published papers in metabolomics

- [Advances in mass spectrometry imaging for spatial cancer metabolomics](#) (Review)
- [Advances in measuring cancer cell metabolism with subcellular resolution](#) (Review)
- [Application of omics approaches for assessing microplastic and nanoplastic toxicity in fish and seafood species](#) (Review)
- [Benchmarking One-Phase Lipid Extractions for Plasma Lipidomics](#) (Open access)
- [Glycoside-specific metabolomics combined with precursor isotopic labeling for characterizing plant glycosyltransferases](#) (Open access)
- [Groundwater metabolome responds to recharge in fractured sedimentary strata](#) (Open access)
- [Identification of chia, flax and sesame seeds authenticity markers by NMR-based untargeted metabolomics and their validation in bakery products containing them](#)
- [Integrating transcriptomics, metabolomics, and GWAS helps reveal molecular mechanisms for metabolite levels and disease risk](#) (Open access)
- [Multi-omics analyses of airway host-microbe interactions in chronic obstructive pulmonary disease identify potential therapeutic interventions](#)
- [Nutrient \(C, N and P\) enrichment induces significant changes in the soil metabolite profile and microbial carbon partitioning](#) (Open access)
- [Personalized microbiome-driven effects of non-nutritive sweeteners on human glucose tolerance](#)
- [Purine nucleoside phosphorylase as a target to treat age-associated lower urinary tract dysfunction](#)
- [The emerging roles of next-generation metabolomics in critical care nutrition](#) (Review, Open access)
- [The Maternal Prenatal and Offspring Early-Life Gut Microbiome of Childhood Asthma Phenotypes](#)
- [The microbiome-derived metabolite TMAO drives immune activation and boosts responses to immune checkpoint blockade in pancreatic cancer](#)
- [Warburg-like metabolic transformation underlies neuronal degeneration in sporadic Alzheimer's disease](#) (Open access)



Metabolomics Events

September 30, 2022

Request for Information: Soliciting ideas for new NIH Common Fund programs

Venue: Online

[Learn More Here](#)

Overview

The NIH Common Fund (USA) is soliciting ideas for potential new scientific programs that may be supported in the fiscal year 2025 or beyond. The Common Fund supports bold scientific programs that catalyze discovery across all biomedical and behavioral research. These programs create a space where investigators and multiple NIH Institutes and Centers collaborate on innovative research expected to address high-priority challenges for the NIH as a whole and make a broader impact in the scientific community. Responses are due **September 30**.

October 6, 2022

Bits & Bites #8: Introduction to MetaboAnalyst

Venue: Online

[Learn More Here](#)

Overview

This 10-part short course series will feature in-depth topics in untargeted metabolomics such as Bayesian statistics, a deeper look into MS-DIAL, fundamental courses in mass spectrometry, lipidomics, and so many others. Each short course can be taken individually or you can select multiple Bites. Participants will gain a deeper insight into current software, methods, and pitfalls. Each session starts promptly at 9 a.m. (Pacific Time) and will take approx. 4 hours. The courses will be conducted in a highly interactive manner, with the use of freely available software and databases. The tuition is \$150 USD per Bite.

This 8th course is “Introduction to MetaboAnalyst”, taught by Dr. Jeff Xia of McGill University. In this short course, we will cover how to use MetaboAnalyst 5.0, a comprehensive platform dedicated to metabolomics data analysis. There will be a brief overview of data input, processing, and general workflow to perform PCA/PLS-DA/OPLS-DA analysis in MetaboAnalyst 5.0. More importantly, this course will cover how to use different functional analysis methods such as Enrichment Analysis, Pathway Analysis, Joint Pathway Analysis, and Network Analysis. Lastly, participants will also learn how to perform biomarker analysis and statistical analysis with complex metadata.

October 11, 2022

MANA SODAMeet

Venue: Online

[Learn More Here](#)

Overview

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. SODAMeets is a platform where data generators and computational scientists can share their use of software/data. During SODAMeets (every 2 months), we will have two speakers 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.

October 12, 2022

Pan-cohort studies – The future of population health

Venue: Boston, USA; Munich, Germany; Sendai, Japan; Hybrid

[Learn More Here](#)

Overview

It is our vision to connect scientists globally to tackle the challenges modern medicine faces. Huge sample sets lie dormant and need to find the means to be explored. The Omics era with vast computational means opens new perspectives on data and on insights to be gained from datasets. Integration of different technologies makes collaboration more necessary.

With the second edition of this cohort event, we are looking forward to expanding into the physical spaces and stretching the scope beyond metabolomics. Our intention is to connect science globally, with an event that will take place in three cities: Sendai (Japan), Munich (Germany), and Boston (USA). You will have the opportunity to attend in person or join online with a 22-hour livestream event.

We have invited outstanding speakers from around the world, coming from epidemiology, pharmaceutical, technological, research, and education fields. Biocrates offers a platform to connect scientists and their ideas globally with an agenda focused on Biobanks, Technology, Multi-omics and Pan-cohort studies in precision medicine.

Fulfilling our mission to make metabolomics accessible, the event is offered free of charge with prior registration. Don't miss out on this unique opportunity!

October 13-15, 2022

Nutrimetabolomics & Data Analysis for Early Career Scientists

Venue: Barcelona, Spain

[Learn More Here](#)

Overview

This Nutrimetabolomics Summer School is organized by FoodPhyt Early Career Scientists. It will be from Oct 13-15 in the Hospital Clínic de Barcelona. Dr. Marynka Ulaszewska (Thermo Fisher Scientific, Italy) and Dr. Carl Brunius (Chalmers, Sweden) will be the speakers. There is no registration fee but attendees must cover their own travel expenses and accommodation.

October 14, 2022

4th MANA Fall Symposium

Venue: Online

[Learn More Here](#)

Overview

The 4th Fall Symposium of the Metabolomics Association of North America is entitled "We are what we eat: Metabolomics leading the way for nutrition research". Speakers include Dr. Lars O. Dragsted, University of Copenhagen; Dr. Cristina Andrés-Lacueva, University of Barcelona; Dr. Carlito B. Lebrilla, UC Davis; Dr. Susan C. J. Sumner, University of North Carolina; Dr. Francene M. Steinberg, UC Davis; and Dr. Steven M. Watkins, Periodic Table of Food Initiative.

October 20-21, 2022

7th Gateway Symposium

Venue: Online

[Learn More Here](#)

Overview

The 7th Gateway Symposium at the University of Kentucky is entitled "NMR in Metabolism: New methods & applications".

October 25-27, 2022

2nd International Diabetes and Metabolic Surgery Summit

Venue: Tel Aviv, Israel

[Learn More Here](#)

Overview

The focus of IDMSS 2022 will be the relationship between obesity and type 2 diabetes and their associated complications and the beneficial results obtainable from metabolic/bariatric surgery. The Summit will bring together many of the world's experts in the fields of metabolic surgery and medicine. The range and scope of the program are a must for all clinicians caring for patients suffering from metabolic diseases.

November 2-4, 2022

IV LAMPS Meeting

Venue: Cartagena, Colombia

[Learn More Here](#)

Overview

We are delighted to invite you to the IV LAMPS meeting, which will be held in Cartagena, Colombia, on November 2-4, 2022, at the Universidad de los Andes - Sede Caribe located in the Serena del Mar urban development, 12 km from the historic centre of Cartagena. This is the first time that the LAMPS meeting will be held in Colombia and our first face-to-face meeting after two years of postponing our meeting due to the COVID-19 pandemic. Poster abstracts will be accepted until **September 30**.

November 7-11, 2022

14th Annual Course on Isotope Tracers in Metabolic Research

Venue: Nashville, Tennessee, USA

[Learn More Here](#)

Overview

The 14th Annual Isotope Tracers Course in Metabolic Research: Principles and Practice of Kinetic Analysis course registration is now open! The in-person course this year will take place in Nashville, TN, USA, from November 7-11, 2022. Registration deadline is **October 14** or until the course is full. We highly recommend registering for the course early. The course tends to reach capacity before the registration deadline. Scholarships are available for students and postdoctoral fellows. Submit by **September 23** to be considered. Registration deadline is **October 14** unless the course is full earlier.

November 21-25, 2022

Hands-on Data Analysis for Metabolic Profiling (Training Course)

Venue: [Online](#)

[Learn More Here](#)

Overview

This 5-day course (offered by Imperial College London) provides a comprehensive overview of data analysis for metabolic profiling studies focussing on data from NMR spectroscopy and liquid chromatography-mass spectrometry (LC-MS). It combines lectures and tutorial sessions using open-source software to ensure a thorough understanding of the theory and practical applications. Early-bird registration deadline is **October 21**.

December 4-7, 2022

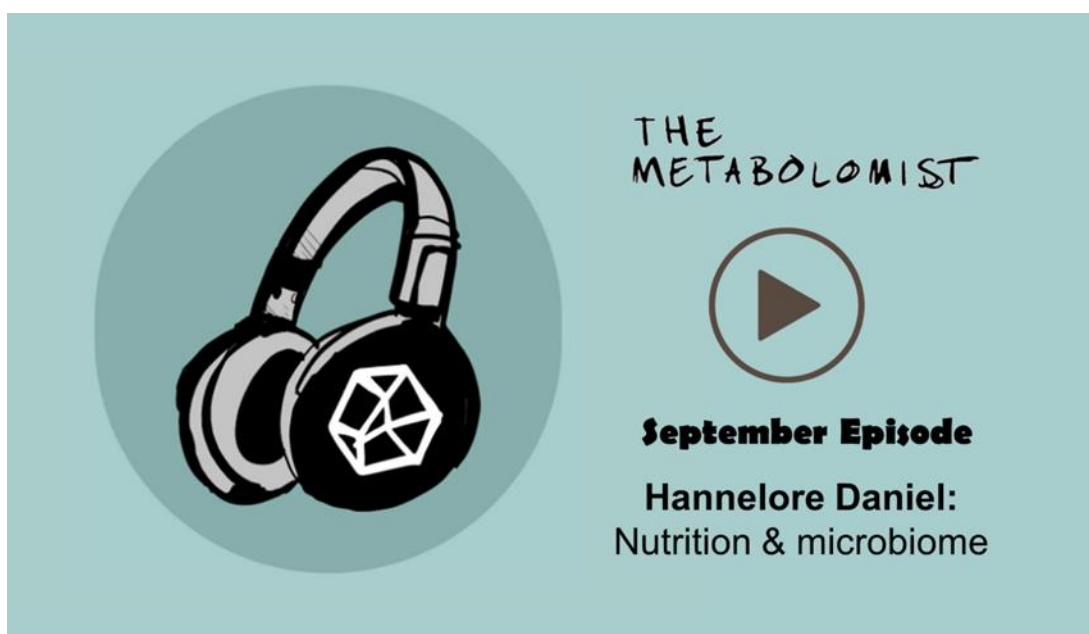
The Human Microbiome: Ecology and Evolution

Venue: [Banff, Alberta, Canada; Online \(Hybrid\)](#)

[Learn More Here](#)

Overview

This Keystone Symposia conference will explore the evolutionary and ecological forces shaping the interplay between the human host and microbiome. The microbiome is implicated in a widening set of disease conditions, yet many questions remain as to how its diversity and composition are assembled and maintained. The registration deadline is on **October 5**.



March 12-17, 2023

Gordon Research Conference: Metabolomics and Human Health

Venue: Barga, Lucca, Italy

[Learn More Here](#)

Overview

The Metabolomics and Human Health Gordon Research Conference (March 2023) will highlight state-of-the-art metabolomics technologies and how such technologies can be used to study human health. Applications for this meeting must be submitted by **February 12, 2023**. Please apply early, as it may become oversubscribed (full) before this deadline.

June 18-22, 2023

19th Annual Conference of the Metabolomics Society

Venue: Niagara Falls, Ontario, Canada

[Learn More Here](#)

Overview

Save the date! Visit the website for updates over the coming weeks. The Call for Workshops will open in early October and the deadline for submission is mid-November. We look forward to receiving quality proposals to help shape the program!

Metabolomics Jobs

Jobs Offered

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	Posted	Closes	Source
Postdoctoral Research Associate (Metabolomics Core Technology Platform)	Heidelberg University	Heidelberg, Baden-Württemberg, Germany	19-Sep-2022	10-Oct-2022	Heidelberg University
Postdoctoral Fellows (Metabolomics, Proteomics, and Informatics - Microbial Infections)	University of Calgary	Calgary, Alberta, Canada	19-Sep-2022	Until filled	Lewis Research Group
Periodic Table of Food Initiative Research Scientist I	Colorado State University	Fort Collins, Colorado, USA	9- Sep-2022	25-Sep-2022 (Until filled)	Colorado State University
Research Technician (Mass Spectrometry)	University of Alberta	Edmonton, Alberta, Canada	5-Sep-2022	Until filled	University of Alberta
Postdoc in Mass Spectrometry	University of Alberta	Edmonton, Alberta, Canada	1-Sep-2022	Until filled	University of Alberta
Postdoc in Metabolomics/ Exposomics	University of Vienna	Vienna, Austria	4-Aug-2022	Until filled	University of Vienna
Operations Manager (TMIC-The Metabolomics Innovation Centre)	University of Alberta	Edmonton, Alberta, Canada	2-Aug-2022	Until filled	University of Alberta
Research Director – In vitro Diagnostics	Metabolomic Technologies Inc.	Edmonton, Alberta, Canada	20-Jun-2022	Until filled	MetaboNews Jobs
Postdoctoral Position in Metabolomics and Proteomics	Brigham and Women's Hospital	Boston, Massachusetts, USA	17-Jun-2022	Until filled	Brigham and Women's Hospital
Postdoctoral Research Fellow in Metabolomics (Diabetes)	Lund University	Lund, Sweden	15-Jun-2022	Until filled	MetaboNews Jobs

Jobs Offered

Job Title	Employer	Location	Posted	Closes	Source
Post-Doctoral Researcher in Computational Metabolomics	Institute of Molecular Systems Biology, ETH Zurich	Zürich, Switzerland	14- Jun-2022	Until filled	ETH Zurich
Senior Research Associate in Mass Spectrometry	Chan Zuckerberg Biohub	Stanford, California, USA	27-May-2022	Until filled	CZ Biohub
Postdoctoral Research Fellow (Exometabolomics)	North Carolina State University	Raleigh, North Carolina, USA	13-May-2022	Until filled	North Carolina State University
Senior Associate Researcher in Mass Spectrometry	Icahn School of Medicine at Mount Sinai	New York City, New York, USA	6-May-2022	Until filled	Icahn School of Medicine at Mount Sinai
Postdoctoral Research Fellow (LC-MS and Data Science for Metabolomics)	University of Alberta	Edmonton, Alberta, Canada	4-May-2022	Until filled	University of Alberta
Assistant Professor in Metabolomics of Adaptive Responses	University of California, Riverside	Riverside, California, USA	15-Apr-2022	Until filled	University of California, Riverside
Postdoctoral Research Associate (Sumner Lab)	University of North Carolina at Chapel Hill	Kannapolis, North Carolina, USA	12-Jan-2022	Until filled	University of North Carolina Careers
Various Positions	Various	Various (within North America)	Various	Various	Metabolomics Association of North America

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 the MetaboNews team at metabolomics.innovation@gmail.com. Upon review, a limited number of job submissions will be selected for publication in the Jobs Wanted section.