

In This Issue

PAGE

- 1** Metabolomics Society News ****
- 4** Spotlight
CFM-ID 3.0
- 6** Recent Publications
- 7** Funding Opportunities
- 8** Conferences & Events
- 15** Jobs & Collaborations

Metabolomics Society News

Conference Corner

Metabolomics 2019 - June 23 - 27

Join your colleagues in The Hague

We are pleased to announce the hugely successful registration numbers to date! We currently have almost 900 participants registered, making this the BIGGEST conference ever! We're sure this number will continue to climb; The Hague event will be HUGE. With a record number of abstracts received, the agenda will be jam packed with scientific updates. Save your spot and [register online](#) today!

Career Night - Sunday, June 23

The Metabolomics Society is excited to announce our first Career Night during the conference. This dynamic event will feature representatives from all employment sectors who want to engage with job seekers.

Career Night will include a job fair for participants to learn about available positions and interact in a relaxed setting with potential employers. Potential employers will be able to conduct one-on-one interviews with candidates at a later time during the conference; meeting spaces will be set aside for this purpose.

As some participants may not be currently seeking new employment, the job fair will also include an interactive roundtable event for participants to develop rapport and expand their networks to ready themselves for future employment. This roundtable event will feature discussants covering topics such as career transitions and strategies for obtaining a postdoctoral position. If you are either a job seeker or employer who is hiring, [visit this webpage](#) for additional info!



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



Jules Griffin
Metabolomics Society
President

Board of Directors

Words From the President

The May Board of Directors TC has a special feel to it as it's the last telephone conference before our international conference so there is lots to organise. It also marks a change in how we meet. For much of the year the business of the society is conducted through telephone conferences by the board, the task groups and committees. Our international meeting is one of the few moments in the year where we all get to meet in person. The board holds a face-to-face meeting on the Sunday of the conference. Also, in Seattle, we started a town hall meeting where the officers of the Society make presentations to the membership as a whole about the state of the society. This is your chance to come along, ask questions and make suggestions about how you would like our society to develop.

To get us ready for the Hague we had the important job of voting on the society awards. As in previous years we have elected two honorary fellows. For the first time also we have two new medals to award - the President's Medal and the Society Medal, both aimed at mid-career fellows. I am particularly excited by the new awards as we have actual medals to award! Finally, we will announce where in Asia Metabolomics 2020 will be held. With the conference we are also approaching the end of the cycle for some of our board members. I will write more about this in September when they finish but if you are reading this and thinking you have ideas about where the society should be going remember we start the elections for new board members straight after the conference closes.

Jules Griffin



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@metabolomicsociety.org

Membership Enquiries

membership@metabolomicsociety.org

Members Corner

Early-Career Members Network (EMN)

The 2019 EMN Webinar Series!

EMN webinar was held on 24 May 2019 at 10:00 am Central Time, 3:00 pm UTC. Prof. Robert Powers from Department of Chemistry, University of Nebraska - Lincoln, USA, presented a combined NMR and MS metabolomics approach to study neurodegenerative diseases. He discussed about metabolomics protocols and MVAPACK software for integrating NMR and mass spectral data for the analysis of neurodegenerative disease. The molecular mechanisms of Parkinson's disease and the identification of biomarkers for multiple sclerosis were highlighted.

You can access the recorded videos of the past webinars on [the Metabolomics Society website](http://the-metabolomics-society.org). Please stay tuned and look out for the next EMN webinar series session.



METABOLOMICS SOCIETY
EARLY-CAREER MEMBERS NETWORK

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General Enquiries

info@metabolomicssociety.org

EMN Workshops at Metabolomics 2019: Coming up!

Save the date for EMN workshops on 23-24 June 2019 at The Hague, The Netherlands. This year, we will host 3 workshops plus 2 workshops in collaboration. Examples are:

- Professional career development: survival kit
- Data fusion: multi-omics platforms
- Volatomics in human health

For more details, please check [the website](#).

New to metabolomics or stuck with a problem? We recommend [Metabolomics wiki](#) and Metabolomics Forum. Follow us on Twitter ([@MetabolomicsSoc](#)) and Facebook ([@EMN.metabolomicssociety](#)) to stay up-to-date on all news and upcoming events.

Membership News for 2019

Society Membership Survey - Results Now Available

The Metabolomics Society would like to thank all members who participated in the 2017 membership survey. The survey was conducted among Society members to evaluate the degree of its current success, identify opportunities for improving its service to the community and provide guidance for establishing the future goals and direction of the Society. The results of the survey have been published in Metabolites and can be found at <https://doi.org/10.3390/metabo9050089>. Additionally, the recommendations developed from the survey data will be presented at the Town Hall Meeting at Metabolomics 2019. We hope to see you there!



NMR Analysis You Can Trust

www.chenomx.com

Click to view a 2018 publication list.



SpOtlight



CFM-ID 3.0 for Accurate and Efficient Identification of Metabolites in ESI-MS/MS Spectra

CFM-ID (<http://cfmid3.wishartlab.com/>) provides a method for accurately and efficiently identifying metabolites in spectra generated by electrospray tandem mass spectrometry (ESI-MS/MS). The program uses **Competitive Fragmentation Modeling** to produce a probabilistic generative model for the MS/MS fragmentation process and machine learning techniques to adapt the model parameters from data.

This generated model can be used for:

Spectra Prediction

Predicting the Spectra for a Given Chemical Structure

This task predicts low/10V, medium/20V, and high/40V energy MS/MS spectra for an input structure provided in SMILES or InChI format. Spectra are predicted using combinatorial fragmentation, except in the case of select lipids in which a rule-based fragmentation approach is implemented. The rule-based fragmentation module is based on a library of 344 rules covering 21 lipid classes and seven adducts.

Peak Assignment

Annotating the peaks in set of spectra given a known chemical structure

This task takes a set of three input spectra (for ESI spectra, low/10V, medium/20V, and high/40V energy levels) or a single input spectra (for EI spectra, 70eV energy level) in peak list format and a chemical structure in SMILES or InChI format, then assigns a putative fragment annotation to the peaks in each spectrum.

Compound Identification

Predicted ranking of possible candidate structures for a target spectrum

This task takes a set of three input spectra (for ESI spectra, low/10V, medium/20V, and high/40V energy levels) or a single input spectra (for EI spectra, 70eV energy level) in peak list format, and ranks a list of candidate structures according to how well they match the input spectra. This candidate list may be provided by the user, or can be generated from select databases (CASMI2016, ContaminantDB, DrugBank, FiehnLib, HMDB, KEGG, MassBank, MetaboBASE, NIST, PhytoHub, and iTree). Chemical classes are predicted for each candidate molecule. The original similarity score used in the ranking was computed (Jaccard or DotProduct) by comparing the predicted spectra of a candidate compound with the input spectra. The new similarity score considers candidate molecule metadata (citation frequency and chemical classification) in addition to the original score. Users can choose to use either scoring method.

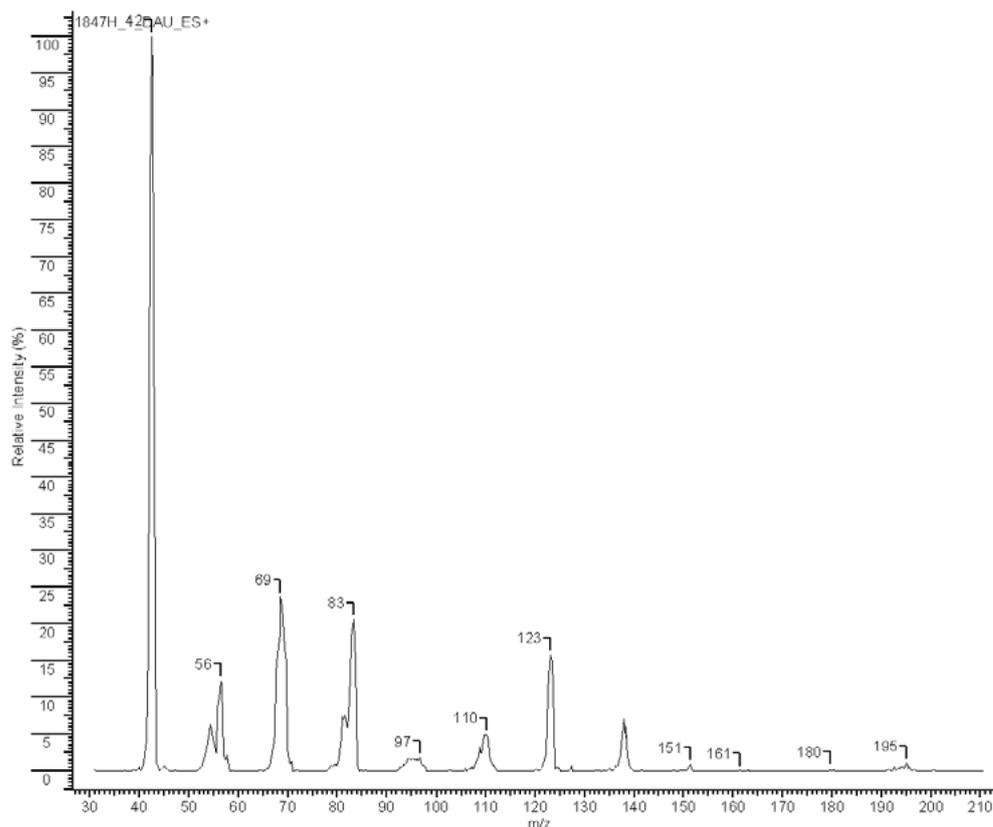


Figure 1: ESI-MS/MS positive ion spectra of caffeine.

Useful Links

- CFI-ID Functionality
 - Spectra Prediction: <http://cfmid3.wishartlab.com/predict>
 - Peak Assignment: <http://cfmid3.wishartlab.com/assign>
 - Compound Identification: <http://cfmid3.wishartlab.com/identify>
- Help: <http://cfmid3.wishartlab.com/help>
- Data (ESI Data, EI Data, Other Data): <http://cfmid3.wishartlab.com/data>
- Publications: <http://cfmid3.wishartlab.com/publications>
 - Latest Publication on CFI-ID 3.0:
CFM-ID 3.0: Significantly Improved ESI-MS/MS Prediction and Compound Identification. Djoumbou-Feunang Y, Pon A, Karu N, Zheng J, Li C, Arndt D, Gautam M, Allen F, Wishart DS. *Metabolites*. 2019 Apr 13;9(4). pii: E72. doi: 10.3390/metabo9040072. [PMID:31013937]

To contact the authors of CFI-ID, please visit <http://cfmid3.wishartlab.com/contact>

Recent Publications

Recent Publications

Recently published papers in metabolomics

- [Systems Biology and Multi-Omics Integration: Viewpoints from the Metabolomics Research Community](#)
- [Stress response and tolerance mechanisms of ammonia exposure based on transcriptomics and metabolomics in *Litopenaeus vannamei*](#)
- [Metabolome Wide Association Study of Serum Poly and Perfluoroalkyl Substances \(PFASs\) in Pregnancy and Early Postpartum](#)
- [Metabolomics-driven identification of adenosine deaminase as therapeutic target in a mouse model of Parkinson's disease](#)
- [Metabolomics for Animal Models of Rare Human Diseases: An Expert Review and Lessons Learned](#)
- [Combining hyperpolarized real-time metabolic imaging and NMR spectroscopy to identify metabolic biomarkers in pancreatic cancer](#)
- [Personalized Metabolomics](#)
- [Blood Biomarkers in Sports Medicine and Performance and the Future of Metabolomics](#)
- [Metabolomics Analyses to Investigate the Role of Diet and Physical Training](#)
- [Pre-analytic Considerations for Mass Spectrometry-Based Untargeted Metabolomics Data](#)

Funding Opportunities

Funding Opportunities

Ramsay Award Program 2019 RFA is Open!

Solve M.E. will be accepting applications from May 1 – June 30

This year marks the fourth cycle of the Ramsay Award Program. We are at a very pivotal moment at both this juncture in the Program and the ME/CFS research landscape as a whole. The broad scientific domains of immunology, metabolism, the microbiome, genetics, and neurology are central to ME/CFS research, but a lack of researchers working on the disease remains a major barrier to progress, a fact that was recently emphasized by experts in the field at the National Institutes of Health (NIH) “Accelerating Research on ME/CFS” conference.

Through the Ramsay Program, Solve M.E. invests in studies into the etiology of ME/CFS led by diverse researchers, with a particular emphasis on engaging young investigators and researchers new to the field. We aim to make 2019 the largest group of investigators ever funded through the Ramsay Program by supporting at least 10 scientifically-rigorous studies and carving out funding for at least one collaborative proposal across two or more labs.

The application scope and instructions can be found on our Ramsay microsite:

<https://solvecfs.org/applying-for-an-award/>

Questions about the Ramsay Award Program and 2019 RFA should be directed to Allison Ramiller, Director of Research Programs, at research@solvecfs.org



Metabolomics Events



16-20 September 2019

The EMBO Practical Course “Metabolomics Bioinformatics in Human Health”

Venue:

The International Agency for Research on Cancer (IARC), Lyon, France

Application Deadline:

April 15, 2019

Registration:

<https://training.iarc.fr/embo-practical-course-metabolomics-bioinformatics-in-human-health/>

Overview

The EMBO Practical Course “Metabolomics Bioinformatics in Human Health” will be held in the International Agency for Research on Cancer on September 16-20, 2019 and will provide an advanced overview with hands-on practical on key issues and challenges in metabolomics, handling datasets and procedures for the analysis of metabolomics data using bioinformatics tools. Combining lectures from experts, computer-based practical sessions and interactive discussions, the EMBO Practical Course will provide a platform for discussion of the key questions and challenges in this field, from study design to metabolite identification.

This five-day course is aimed at PhD students, post-docs and researchers with at least one to two years of experience in the field of metabolomics who are seeking to improve their skills in metabolomics data analysis. Participants ideally must have working experience using R (including a basic understanding of the syntax and ability to manipulate objects).

During this course you will learn about:

- Metabolomics study design, QC, workflows and sources of experimental error, targeted and untargeted approaches
- Metabolomics data processing tools: **hands on open source** R based programs, XCMS, MetFrag, and MetFusion
- NMR and Computer-assisted structure elucidation
- Metabolomics data analysis: Using R Bioconductor, understanding usage of univariate and multivariate data analysis, data fusion concepts, data clustering, machine learning and regression methods
- Metabolomics downstream analyses: KEGG, BioCyc, and MetExplore for metabolic pathway and network analysis with visualisation of differential expression, understanding metabolomics flux analysis

Metabolomics Events



23 Sept - 18 Oct 2019

Metabolomics: Understanding Metabolism in the 21st Century

Venue:

Birmingham Metabolomics Training Centre, School of Biosciences, University of Birmingham, Birmingham, UK

Overview

Metabolomics is an emerging field that aims to measure the complement of metabolites (the metabolome) in living organisms. The metabolome represents the downstream effect of an organism's genome and its interaction with the environment. Metabolomics has a wide application area across the medical and biological sciences. The course provides an introduction to metabolomics, describes the tools and techniques we use to study the metabolome and explains why we want to study it. By the end of the course you will understand how metabolomics can revolutionise our understanding of metabolism.

Topics Covered

- Metabolism and the interaction of the metabolome with the genome, proteome and the environment
- The advantages of studying the metabolome
- The application of hypothesis generating studies versus the use of traditional hypothesis directed research
- The use of targeted and non-targeted studies in metabolomics
- An interdisciplinary approach with case-studies from clinical and environmental scientific areas
- Important considerations in studying the metabolome
- Experimental design and sample preparation
- The application of mass spectrometry in metabolomics
- An introduction to data processing and analysis
- Metabolite identification

Course link:

<https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/Metabolomics-MOOC.aspx>



25-27 Sep 2019

Multiple Biofluid and Tissue Types, From Sample Preparation to Analysis Strategies for Metabolomics

Venue:

Birmingham Metabolomics Training Centre, School of Biosciences, University of Birmingham, Birmingham, UK

Overview

This three-day course provides a theoretical overview and hands-on training to apply multiple sample preparation and UPLC-MS methods to characterise the metabolomes of complex biological samples using the mass spectrometer (Xevo QToF G2-XS - a maximum of 4 people working on the instrument in a session). The course is led by experts in the field who have experience of the analysis of microbial, plant and mammalian samples, and illustrates the different approaches that are available to analyse a range of biological samples and applying complementary liquid chromatography approaches to maximise the coverage of the metabolome.

Metabolomics Events

Topics Covered

- Introduction to dealing with the complexity of biological samples using UPLC-MS
- Overview of different sample collection, sample quenching and sample extraction methods
- The challenges of working with cellular and tissue samples
- Overview of different UPLC methods including HILIC and reversed phase methods
- Hands-on sample preparation of plasma, urine, cell and tissue samples
- Monophasic and biphasic solvent extraction methods to target polar and non-polar metabolites
- SPE and liquid-liquid sample clean-up methods
- Hands-on HILIC and reversed-phase liquid chromatography
- Hands-on UPLC-MS analysis for untargeted studies (maximum of 4 people)
- Overview of data analysis and metabolite identification
- Problem solving and tips and tricks session with the experts

Course link: <https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/sample-analysis.aspx>

9-13 Sep 2019

5th Metabolomics Sardinian Summer School:
"Metabolomics in Cancer Biomarkers and Therapy: Promise and Future"

Venue:

Polaris Technology Park, Pula, Sardinia, Italy

Course Objectives and Targets

Participants will attend theoretical sessions with lectures by experts, and practical sessions to deepen the theoretical and practical knowledge for using the main tools available to better understand the role of metabolism in cancer from a metabolomics point of view. The School is mainly targeted to researchers at an early stage in their career (but not only), from Biological Sciences, Health Sciences and other different background (including Bioinformatics) who are interested in learning about the role of metabolism in cancer by using a metabolomics approach.

Topics Covered

- Analytical approaches in metabolomics: application of MS and NMR
- Metabolite identification
- Data analysis and integration with omics
- Metabolic reprogramming and vulnerability of tumors
- Oncogenes, oncometabolites, and tumor metabolism
- Metabolomics for discovery of new cancer drugs

Applications

The course is funded by the Regional Sardinian government and **registration will be free of charge for all attendees**. Selection will be based on CV and a letter stating the motivations for attending the course and future research plans of candidates. Registration includes course material, lunches and coffee breaks (not accommodation expenses).

Organising Committee

- Atzori Luigi, Università Cagliari, Cagliari, Italy
- Caboni PierLuigi, University of Cagliari, Italy
- Griffin Jules, University of Cambridge, Cambridge, UK
- Pastorelli Roberta, Istituto di Ricerche Farmacologiche Mario Negri, IRCCS, Milano, Italy

Program: <http://sites.unica.it/metabolomicaclinica/events/scientific-school-2019/program-2019/>

Registration: <http://sites.unica.it/metabolomicaclinica/events/scientific-school-2019/>

Summer School Contact: latzori@unica.it; metabolomicschool2019@gmail.com

Metabolomics Events



9-11 Oct 2019

Introduction to Metabolomics for the Microbiologist

Venue:

Birmingham Metabolomics Training Centre, School of Biosciences, University of Birmingham, Birmingham, UK

Overview

This three-day course introduces how untargeted metabolomics can be applied to study microbial systems in academic and industrial research. The course provides an overview of the metabolomics pipeline, experimental design, sample preparation and data acquisition. The course is led by experts in the field of metabolomics and will include lectures, hands-on laboratory sessions in sample preparation and data acquisition and computer workshops focused on data processing and data analysis.

Topics Covered

- Introduction to metabolomics, both targeted and untargeted approaches
- Experimental design and the importance of quality control samples in untargeted metabolomics
- Analytical strategies applied in metabolomics with a focus on mass spectrometry
- Hands-on laboratory sessions focused on sample preparation and to include metabolic quenching and extraction procedures, intracellular and exometabolome samples and polar and non-polar extraction methods
- Hands-on laboratory sessions focused on sample analysis for untargeted metabolomics studies using an Acquity UPLC coupled to a Xevo QToF mass spectrometer
- Hands-on workshop focused on data processing and data analysis
- Hands-on workshop focused on an introduction to metabolite identification
- Question and answer session with the experts

Course Link: <https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/introduction-metabolomics-microbiologist.aspx>



Metabolomics Events



21 Oct - 15 Nov 2019

Metabolomics Data Processing and Data Analysis

Venue:

The University of Florida Clinical & Translational Science Institute, Gainesville, Florida USA

Overview

This online course explores the tools and approaches that are used to process and analyse metabolomics data. You will investigate the challenges that are typically encountered in the analysis of metabolomics data, and provide solutions to overcome these problems. The course is delivered using a combination of short videos, articles, discussions, and online workshops with step-by-step instructions and test data sets. We provide quizzes, polls and peer review exercises each week, so that you can review your learning throughout the course.

The material is delivered over a four-week period, with an estimated learning time of four hours per week. We support your learning via social discussions where you will be able post questions and comments to the team of educators and the other learners on the course. In the final week of the course there is a live question and answer session with the entire team of educators. If you do not have time to complete the course during the 4-week period you will retain access to the course material to revisit, as you are able.

Topics Covered

- An introduction to metabolomics
- An overview of the untargeted metabolomics workflow
- The influence of experimental design and data acquisition on data analysis and data quality
- Processing of NMR data
- Processing direct infusion mass spectrometry data
- Processing liquid chromatography-mass spectrometry data
- Reporting standards and data repositories
- Data analysis, detecting outliers and drift, and pre-treatment methods
- Univariate data analysis
- Multivariate data analysis (including unsupervised and supervised approaches)
- The importance of statistical validation of results
- Computational approaches for metabolite identification and translation of results into biological knowledge
- What are the future challenges for data processing and analysis in metabolomics

Course link: <https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/Metabolomics-Data-Processing-and-Data-Analysis.aspx>



25 Oct 2019

Introduction to Metabolomics for the Clinical Scientist

Venue:

Birmingham Metabolomics Training Centre, School of Biosciences, University of Birmingham, Birmingham, UK

Overview

This one-day course in partnership with the Phenome Centre Birmingham provides clinicians with an overview of the metabolomics pipeline highlighting the benefits of this technique to the medical field and an introduction to the Phenome Centre Birmingham and the MRC-NIHR National Phenome Centre.

The course provides a suitable introduction to metabolomics prior to taking additional training courses at either the Birmingham Metabolomics Training Centre or the Imperial International Phenome Training Centre.

Metabolomics Events

Topics Covered

- Introduction to the Phenome Centre Birmingham and the Imperial MRC-NIHR National Phenome Centre showcasing facilities and expertise available.
- Introduction to metabolomics
- Importance of experimental design and sample collection
- Overview of technologies available for data acquisition highlighting discovery phase profiling technologies and targeted platforms for the validation of biomarkers
- Overview of technologies available for data analysis
- Case studies – large-scale metabolic phenotyping, translation to targeted assays, clinical practice
- Question and answer session with the experts

Course link:

<https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/introduction-metabolomics.aspx>

6-8 Nov 2019

Metabolomics with the Q Exactive

Venue:

Birmingham Metabolomics Training Centre, School of Biosciences, University of Birmingham, Birmingham, UK

Overview

This three-day course introduces you to using the Q Exactive mass spectrometer in your metabolomics investigations. The course is led by experts in the field of metabolomics and includes lectures, laboratory sessions and computer workshops to provide a detailed overview of the metabolomics pipeline applying the Q Exactive mass spectrometer.

Topics Covered

- Introduction to Metabolomics on the Q Exactive, the metabolomics workflow, and case studies using the Q Exactive
- Using the Q Exactive family of instruments in your metabolomics investigations
- Experimental design and the importance of quality control samples
- Sample preparation including polar and non-polar preparation methods on biofluids (urine and plasma) and tissue samples
- Preparation of samples for profiling and targeted analyses on the Q Exactive
- Hands-on data acquisition for profiling and targeted studies, setting up the Vanquish UHPLC coupled to the Q Exactive MS
- Data processing workshop
- Data analysis workshop (univariate and multivariate analysis)
- Introduction to metabolite identification applying Data Dependent Analysis and Data Independent Analysis
- Question and answer session with a panel of experts
 - Tips and Tricks
 - Problem Solving

Course link:

<https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/q-exactive.aspx>



Metabolomics Events



20-21 November 2019

Metabolite identification with the Q Exactive and LTQ Orbitrap

Venue:

Birmingham Metabolomics Training Centre, School of Biosciences, University of Birmingham, Birmingham, UK

Overview

This two-day course will provide a hands-on approach to teach the attendees about the latest techniques and tools available to perform metabolite identification in non-targeted metabolomics studies. The course will be led by experts working within the fields of metabolomics and chemical analysis and will include a significant proportion of hands-on experience of using mass spectrometers, software tools and databases. A maximum of four people will be working on each mass spectrometer in a session. We will apply these tools on the Q Exactive and LTQ-Orbitrap family of mass spectrometers.

Topics Covered

- Importance of mass spectral interpretation
- Types of data which can be collected on the QE and LTQ-Orbitrap (m/z, retention time, MS/MS, MS_n)
- Conversion of raw data to molecular formula and putative metabolite annotations
- MS/MS experiments in metabolic phenotyping for on-line data acquisition using the QE (DDA, DIA, all-ion)
- MS/MS and MS_n experiments for sample fractions using the LTQ-Orbitrap
- Mass spectral libraries (using mzCloud)
- Searching mass spectral libraries
- Tools for mass spectral interpretation
- Reporting standards for metabolite identification
- Question and answer session with the experts

Course link: <https://www.birmingham.ac.uk/facilities/metabolomics-training-centre/courses/metabolite-identification.aspx>

Metabolomics Jobs

Metabolomics Jobs & Collaborations

If you have a job you would like posted, please email Ian Forsythe (metabolomics.innovation@gmail.com).

Jobs Offered

Job Title	Employer	Location	Posted	Closes	Source
Various Positions			24-May-19		Metabolomics Association of North America Jobs
Metabolite Scientist	Olaris, Inc.	Cambridge, MA, U.S.A.	14-May-19	Until filled	LinkedIn
PhD in Metabolomics (BBSRC iCASE with Unilever)	University of Birmingham	Birmingham, United Kingdom	9-May-19	9-Jun-19	FindAPhD
Chemometrician	Valagro	Atessa, Italy	30-Apr-19	30-Jun-19	Valagro
Postdoctoral Position	The Affiliated Stomatological Hospital of Chongqing Medical University	Chongqing, China	28-Apr-19	Until filled	Metabolomics Society Jobs
Postdoctoral Position	Chongqing Medical University	Chongqing, China	28-Apr-19	Until filled	Metabolomics Society Jobs
Professorship in Molecular Nutrition at Department of Animal Science	Aarhus University	Aarhus, Denmark	23-Apr-19	11-Aug-19	Aarhus University
Lab and Research Manager: Mass-Spectrometry	Icahn School of Medicine at Mount Sinai	New York, New York, USA	12-Apr-19	Until filled	Metabolomics Society Jobs
Metabolomics Specialist	Friedrich Schiller University Jena	Jena, Germany	3-Apr-19		Friedrich Schiller University Jena
Postdoctoral Fellow in Metabolomics and Lipidomics -	University of Washington	Seattle, Washington, USA	3-Apr-19	Until filled	Metabolomics Society Jobs
Postdoctoral Researcher in the molecular profiling of urinary markers of lung disease	Karolinska Institutet	Stockholm, Sweden	1-Apr-19	30-Jun-19	Metabolomics Society Jobs
Postdoctoral Researcher in the functional metabolic profiling of lipid mediators in lung disease	Karolinska Institutet	Stockholm, Sweden	1-Apr-19	30-Jun-19	Metabolomics Society Jobs

Metabolomics Jobs

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 Ian Forsythe (metabolomics.innovation@gmail.com). Upon review, a limited number of job submissions will be selected for publication in the Jobs Wanted section.

- **There are currently no listings**
-