

ISMRM WORKSHOP ON Frontiers in Metabolomics & Metabolomic Imaging in Medicine: Challenges & Opportunities

Endorsed by the Italian Mass Spectrometry Society (IMaSS);
Italian Metabolomics Network (IMN);
Metabolomics Association of North America (MANA);
Metabolomics Society; &
World Molecular Imaging Society (WMIS);

16-18 OCTOBER 2025

Cultural Center Altinate San Gaetano
Padua, Italy



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SPEAKER UPLOAD INFORMATION

- | | |
|-----------------------------|-------------|
| • Thursday, 16 October 2025 | 08:00-09:00 |
| • Friday, 17 October 2025 | 08:00-09:00 |
| • Saturday, 18 October 2025 | 08:30-09:00 |

CERTIFICATE OF PARTICIPATION

To obtain your Certificate of Participation for this workshop, log into the ISMRM membership portal at www.ismr.org, then click the "My Meeting Evaluations" menu option, select "View Meeting Evaluation" by the appropriate meeting name, and follow the instructions provided.

Workshop Program

Day 1: Thursday, 16 October 2025

08:00 Registration & Speaker Upload Available

Session 1: NMR Metabolomics & Imaging

Moderator: Candace Fleischer, Ph.D.

09:00	Welcome	Leo Cheng, Ph.D. & Candace Fleischer, Ph.D.
09:15	Overview: NMR Metabolomics & Imaging	Joseph J. H. Ackerman, Ph.D. Washington University in St. Louis St. Louis, MO, USA
09:30	Keynote: NMR Metabolomics & Imaging in Cancer: Tripping the Light Metabolic	Zaver M. Bhujwalla, Ph.D. Johns Hopkins University School of Medicine Baltimore, MD, USA
10:15	MRSI & Metabolomic Imaging with SPICE	Jie Luo, Ph.D. Shanghai Jiao Tong University Shanghai, China
10:40	Break & Speaker Upload Available	
11:10	And Yet They Move: What Does Metabolite Diffusion Tell Us About Cell Structure & Physiology?	Itamar Ronen, Ph.D. Brighton & Sussex Medical School Sussex, England, UK
11:35	CEST & Metabolomics	Guanshu Liu, Ph.D. Johns Hopkins University Baltimore, MD, USA

Proffered Papers - Oral Session

12:00	Metabolomic Relationships Between Lung Cancer & Alzheimer's Disease Using Serum Nuclear Magnetic Resonance Spectroscopy	Rajshree Ghosh Biswas, Ph.D. Massachusetts General Hospital & Harvard Medical School Charlestown, MA, USA
12:15	Multimodal Metabolic Imaging Reveals Age- & Sex-Specific Bioenergetic Impairments in a Mouse Model of Alzheimer's Disease	Tamara Vasilkovska, M.D., Ph.D. University of California, San Francisco San Francisco, CA, USA
12:30	Lunch & Speaker Upload Available	
14:00	Poster Session (Even Numbered Posters)	

Session 2: Clinical Needs

Moderator: Kevin Chuen Wing Chan, Ph.D.

15:05	Salute To Our Sponsors	
15:10	NVision-Polaris: New Horizons in Hyperpolarized MRI	Simon Bennett, Ph.D.
15:25	United Imaging Healthcare	YongQuan Ye, Ph.D.
15:30	Overview: Clinical Needs	Victor Ferrari, M.D. Hospital of University of Pennsylvania Philadelphia, PA, USA
15:45	Keynote: Metabolic Liver Diseases: Expanding Clinical Role of MRI-Based Quantitative Biomarkers	Richard L. Ehman, M.D. Mayo Clinic Rochester, MN, USA
16:30	Pathology	Lynn Bry, M.D., Ph.D. Harvard Medical School Charlestown, MA, USA
16:55	Break & Speaker Upload Available	

17:25	Cardiology	Craig Malloy, M.D. University of Texas Southwestern Advanced Imaging Research Center Dallas, TX, USA
17:50	<i>A New Platform for Early & Objective Evaluation of the Breast When Disease Can Be Managed or Cured</i>	Carolyn Mountford, D.Phil. DatChem Brisbane, QLD, Australia
Proffered Papers - Oral Session		
18:15	<i>Differences in Brain Metabolite Quantification Between Spectra Acquired with 3T & 7T MR Field Strengths</i>	Rachel Goldberg, B.Sc. Emory University Atlanta, GA, USA
18:30	Adjourn & Networking Reception	

Day 2: Friday, 17 October 2025

08:00	Registration & Speaker Upload Available	
Session 3: MS Based Metabolomics & Imaging		
Moderator: Rajshree Ghosh Biswas, Ph.D.		
09:00	MS Metabolomics & Imaging	Ian Lewis, Ph.D. University of Calgary Calgary, AB, Canada
09:15	Keynote: Making MS-Based Metabolomics Matter to Medicine	David Wishart, Ph.D. University of Alberta Edmonton, AB, Canada
10:00	Mass Spectrometry from Metabolomics: Basics & Applications	Andrea Armirotti, Ph.D. Istituto Italiano di Tecnologia Genova, Italy
10:25	Break & Speaker Upload Available	
10:55	Clinical Research Applications for Metabolomics Combined with Imaging Techniques	Julia Kuligowski, Ph.D. Health Research Institute La Fe Valencia, Spain
Proffered Papers - Oral Session		
11:20	Time-Resolved Mapping of Glucose Oxidative Metabolism in Rats by Indirect Deuterium Detection with 1H-FID-MRSI at 9.4T	Alessio Siviglia, M.Sc. Swiss Federal Institute of Technology - CIBM Center for Biomedical Imaging Bussigny, Switzerland
11:35	Integrated LC–MS Profiling of Aqueous Humor Reveals Proteo-Metabolomic Signatures of Glaucoma Progression	Muneeb Faiq, Ph.D. New York University Grossman School of Medicine New York, NY, USA
11:50	Metabolomic Imaging & Hyperpolarized Flux Identifies Ornithine Derived Proline Synthesis as a Biomarker of Prostate Cancer Progression	Nancy Santiappillai, Ph.D. Memorial Sloan-Kettering Cancer Center New York, NY, USA
12:05	Relationship Between Gut Microbiota, Cardiac Muscle Metabolomics, Systemic Inflammation & Survival in a Murine Model of Diet-Induced Ischemic Coronary Disease	Katherine Rivera, Ph.D. Candidate Pontificia Universidad Catolica de Chile Santiago, Chile
12:20	1H NMRs Metabolic Profiling of Human Synovial Fluid in Progressive Osteoarthritis	Andrei Damyanovich, Ph.D., CCPM University Health Network & University of Toronto Toronto, ON, Canada
12:35	Lunch & Speaker Upload Available	
14:00	Poster Session (Odd Numbered Posters)	

Session 4: Multi-Modality & Imaging

Moderator: Rachel Goldberg, B.Sc.

15:00	Overview: Multi-Modality & Imaging	Joseph J. H. Ackerman, Ph.D. Washington University in St. Louis St. Louis, MO, USA
15:15	Keynote: The Historical Curve Leading to Modern Metabolomics	Stephen Barnes, Ph.D. University of Alabama at Birmingham Birmingham, AL, USA
16:00	PET	H. Charles Manning, Ph.D. MD Anderson Cancer Center Houston, TX, USA
16:25	Multi-Nuclear Imaging	Evita Wiegers, Ph.D. University Medical Center Utrecht Utrecht, Netherlands
16:50	Break & Speaker Upload Available	
17:20	Surface-Enhanced Raman Spectroscopy: A Potential Tool for Metabolomics Research	Jian Ye, Ph.D. Shanghai Jiao Tong University Shanghai, China
17:45	Hyperpolarization	Kayvan Rahimi-Keshari, Ph.D. Memorial Sloan-Kettering Cancer Center New York, NY, USA
18:10	Spectroscopic Probing of Bacterial Metabolism at Single-Cell Level	Howbeer Muhamad Ali, Ph.D. University of Liverpool Liverpool, UK
18:35	Adjourn	
19:00	Networking Dinner	

Day 3: Saturday, 18 October 2025

08:30 Registration & Speaker Upload Available

Session 5: AI & ML Multi-omics

Moderator: Xinyuan Bi, Ph.D.

9:00	Overview: AI, ML Multi-omics	Xiaohong Joe Zhou, Ph.D. University of Illinois College of Medicine Chicago, IL, USA
9:15	Keynote: AI, ML Multi-omics	Hui Mao, Ph.D. Emory University School of Medicine Atlanta, GA, USA
10:00	Omics	Ian Lewis, Ph.D. University of Calgary Calgary, AB, Canada
10:25	Break & Speaker Upload Available	
10:55	AI & ML	Timothy Ebbels, Ph.D. Imperial College London London, England, UK
11:20	AI/ML & Metabolomics on Cancer	TBA

Proffered Papers - Oral Session		
11:45	<i>Evaluating Dimensionality Reduction for Brain MR Spectroscopy Data Acquired in Adolescents</i>	Anjali Balaganesh, Undergraduate Georgia Institute of Technology Atlanta, GA, USA
12:00	<i>Blood-Derived Metabolomic Signatures for Glaucoma Classification Using Explainable AI with SHAP</i>	Justin Veerasami, M.Sc. New York University, Vilcek Institute of Graduate Sciences New York, NY, USA
12:15	Lunch & Speaker Upload Available	
Session 6: Future of MMI		
Moderator: Leo Cheng, Ph.D.		
14:00	<i>Overview: Future of MMI</i>	Fan Lam, Ph.D. University of Illinois Urbana-Champaign Urbana, IL, USA
14:35	Keynote: Can We Predict the Future of Metabolomics & Metabolic Imaging in Medicine?	Daniel Raftery, Ph.D. University of Washington Seattle, WA, USA
15:30	Break & Speaker Upload Available	
16:00	Panel Discussion	TBA
17:10	Closing Remarks	Leo Cheng, Ph.D. & Candace Fleischer, Ph.D.
17:30	Adjourn	
19:00	Networking Dinner	

Posters

POSTER	TITLE	AUTHOR
1	<i>On the Origin of the Brain HOD Deuterium MR Signal Following Administration of Deuterated Metabolic Substrate</i>	Joseph Ackerman, Ph.D. Washington University in St. Louis St. Louis, MO, USA
2	<i>Integrating Choline-Pathway Metabolomics with Imaging Biomarkers to Characterize Insulin Resistance & Type 2 Diabetes in Non-Obese Individuals</i>	Haya Alsulaiti, Ph.D. Qatar University Doha, Qatar
3	<i>Evaluating Dimensionality Reduction for Brain MR Spectroscopy Data Acquired in Adolescents</i>	Anjali Balaganesh, Undergraduate Georgia Institute of Technology Atlanta, GA, USA
4	<i>Molecule-Resolvable SERSome for Metabolic Profiling</i>	Xinyuan Bi, Ph.D. Shanghai Jiao Tong University Shanghai, China
5	<i>AI-Assisted Super-Resolution in Metabolite MRI</i>	Erin Bjørkeli, Ph.D. Akershus University Hospital Nordbyhagen, Norway
6	<i>¹H NMRS Metabolic Profiling of Human Synovial Fluid in Progressive Osteoarthritis</i>	Andrei Damyanovich, Ph.D., CCPM University Health Network & University of Toronto Toronto, ON, Canada
7	<i>Integrated LC-MS Profiling of Aqueous Humor Reveals Proteo-Metabolomic Signatures of Glaucoma Progression</i>	Muneeb Faiq, Ph.D. New York University Grossman School of Medicine New York, NY, USA
8	<i>Metabolomic Relationships Between Lung Cancer & Alzheimer's Disease Using Serum Nuclear Magnetic Resonance Spectroscopy</i>	Rajshree Ghosh Biswas, Ph.D. Massachusetts General Hospital & Harvard Medical School Charlestown, MA, USA
9	<i>Differences in Brain Metabolite Quantification Between Spectra Acquired with 3T & 7T MR Field Strengths</i>	Rachel Goldberg, B.Sc. Emory University Atlanta, GA, USA
10	<i>K-Space Reconstruction of MRSI Data Using Deep Complex Pseudo-3D Residual Networks</i>	Chia-Chen Hsieh, M.Sc. National Sun Yat-sen University Kaohsiung, Taiwan
11	<i>Chemical Exchange Saturation Transfer (CEST) Imaging in Prostate Cancer</i>	Hahnsung Kim, Ph.D. Emory University Atlanta, GA, USA
12	<i>Whole Brain MR Spectroscopic Imaging Reveals Distinct Metabolic Signatures of Intracranial Germ Cell Tumors</i>	Yanong Li, M.D., Ph.D. Capital Medical University Beijing, China
13	<i>Spatial Metabolomics of Canine Mammary Carcinomas Using Ion Mobility-Enabled Imaging Mass Spectrometry</i>	Robin Moore, M.Sc. University of Helsinki Helsinki, Finland
14	<i>Untargeted Metabolomics & Transcriptomics Integration Identifies a Putative Precursor of Embelin in Embelia Drupacea (Dennst.) M.R. & S.M.</i>	Shubhangi Subhash Raskar, Ph.D. Savitribai Phule Pune University Karegaon, India
15	<i>Scalable & Reproducible ¹³C Metabolic Imaging: Multicenter Evaluation of the POLARIS PHIP Hyperpolarizer for Preclinical MRI</i>	Galen Reed, Ph.D. NVision Ulm, Germany
16	<i>Relationship Between Gut Microbiota, Cardiac Muscle Metabolomics, Systemic Inflammation & Survival in a Murine Model of Diet-Induced Ischemic Coronary Disease</i>	Katherine Rivera, Ph.D. Candidate Pontificia Universidad Catolica de Chile Santiago, Chile
17	Withdrawn	
18	<i>Metabolomic Imaging & Hyperpolarized Flux Identifies Ornithine Derived Proline Synthesis as a Biomarker of Prostate Cancer Progression</i>	Nancy Santiappillai, Ph.D. Memorial Sloan-Kettering Cancer Center New York, NY, USA
19	<i>Time-Resolved Mapping of Glucose Oxidative Metabolism in Rats by Indirect Deuterium Detection with ¹H-FID-MRSI at 9.4T</i>	Alessio Siviglia, M.Sc. Swiss Federal Institute of Technology - CIBM Center for Biomedical Imaging Bussigny, Switzerland

POSTER	TITLE	AUTHOR
20	<i>The Metabolomic Elucidation of Intracellular Pressure (Pi); Pi Control of Cellular Glucose/Neurotransmitter Influx & Aquaporin Water Efflux</i>	Charles Springer, Jr., Ph.D. Oregon Health & Science University Portland, OR, USA
21	<i>Multimodal Metabolic Imaging Reveals Age- & Sex-Specific Bioenergetic Impairments in a Mouse Model of Alzheimer's Disease</i>	Tamara Vasilkovska, M.D., Ph.D. University of California, San Francisco San Francisco, CA, USA
22	<i>Differential Vulnerability of Oxidative & Glycolytic Metabolism in ApoE & APP Mouse Models of Alzheimer's Disease</i>	Tamara Vasilkovska, M.D., Ph.D. University of California, San Francisco San Francisco, CA, USA
23	<i>Blood-Derived Metabolomic Signatures for Glaucoma Classification Using Explainable AI with SHAP</i>	Justin Veerasami, M.Sc. New York University, Vilcek Institute of Graduate Sciences New York, NY, USA
24	<i>Association of Brain Metabolites & Local Temperature After Sports-Related Concussion</i>	Taylor Zuleger, Ph.D. Emory University Atlanta, GA, USA

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