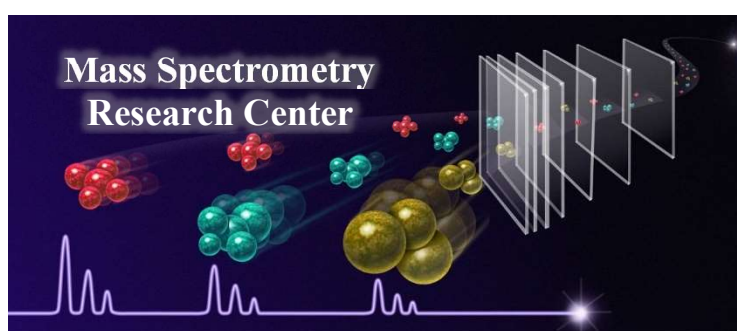


MSRC FOCUS

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The Mass Spectrometry Research Center (MSRC) is composed of two unique groups: the [Research Labs](#) and the [MS Core Labs](#). The MS Core Labs, directed by Kevin L. Schey, are made up of three shared-resource facilities briefly described below that are available to the Vanderbilt community on a fee-for-service basis. This issue of the newsletter highlights the new Bruker sponsored Mass Spectrometry Center of Excellence.

The Core Labs

Mass Spectrometry Center of Excellence

The Mass Spectrometry Research Center and Bruker Scientific have agreed to establish a strategic partnership by creating a Mass Spectrometry Center of Excellence encompassing the MSRC Cores at Vanderbilt. This is the first Center of its kind in the world to be established by Bruker and will focus on providing world-class mass spectrometry service within Vanderbilt. This agreement will result in the immediate acquisition of four new state-of-the-art mass spectrometers: two for the Proteomics Core, one for the MS (small molecule, metabolomics, and lipidomics) Core, and one for the Imaging MS Core. The installation of these instruments began on June 12, 2023, and all four will be operational by the end of June or early July. The agreement includes an extended warranty on each instrument, a service engineer located in Nashville and a stock of common parts, and free instrument upgrades for two years. In addition, MSRC personnel will be able to see and test advanced technologies early and have access to new software programs. This will ensure that the Core instrumentation will remain state-of-the-art for many years to come.

The total cost spread out over two years is \$3.7 million. This was made possible by the support of the Medical School Dean for Basic Sciences John Kuriyan, former Dean Larry Marnett, and Provost Cybele Raver. Faculty support has been overwhelmingly positive with over \$1.3 million pledged from departments and centers in the Medical School of Basic Sciences, School of Arts and Sciences, the Medical Center, and the Provost.

Mass Spectrometry over the past five to six years has undergone incredible innovation to provide capabilities not even thought possible just a few years ago. This fast-moving technology brings phenomenal capabilities that Vanderbilt must have to support the groundbreaking scientific exploration in the many grants that have been awarded to faculty. It is critical in this 'omics' era that Vanderbilt maintains its worldwide leadership for innovative advances in mass spectrometry.



Image of the Bruker timsTOF instrument, four of which will be installed in the MSRC Core labs as part of the Bruker Mass Spectrometry Center of Excellence. This instrument is highly versatile, with both electrospray and MALDI ionization sources, ion mobility capabilities, and for high throughput and high sensitivity acquisitions.

MSRC Core Laboratories

The MSRC Core Laboratories consist of three shared-resource facilities that are open to the Vanderbilt community on a fee-for-service basis. Anyone interested in a consultation or more information about the scope of Core services is encouraged to contact one of the Associate Directors listed below.

Proteomics Core: **Kristie Rose** (kristie.rose@vanderbilt.edu)

Hayes McDonald (hayes.mcdonald@vanderbilt.edu)

The Proteomics Core offers a wide variety of analytical services using state-of-the-art instrumentation, including basic protein identification, differential expression discovery proteomics, targeted protein quantitation, post-translational modification identification and characterization, and analysis of cross-linked proteins.

MS (Low Molecular Weight) Core: **Wade Calcutt** (wade.calcutt@vanderbilt.edu)

The low molecular weight MS Core is operated as an open-access core where users run their own samples on Core instruments. This Core facilitates research in identification and structural analysis of low molecular weight biological molecules and qualitative and quantitative analysis of drugs and metabolites in physiologic fluids.

Imaging Mass Spectrometry Core: **Michelle Reyzer** (m.reyzer@vanderbilt.edu)

The IMS Core provides imaging mass spectrometry technology for proteins, peptides, lipids, metabolites, and drugs. These molecules are typically mapped in tissue sections at a 10 – 25 micron spatial resolution, allowing the distribution of any molecule recorded to be mapped as a two-dimensional image. This unique spatial information can provide biological insights for many comparative morphological experiments.

Promotions

- Dr. Angela Kruse (Spraggins lab) has been promoted to Research Instructor
- Dr. Jeff Spraggins has been promoted to Associate Professor of Cell and Developmental Biology

Congratulations!

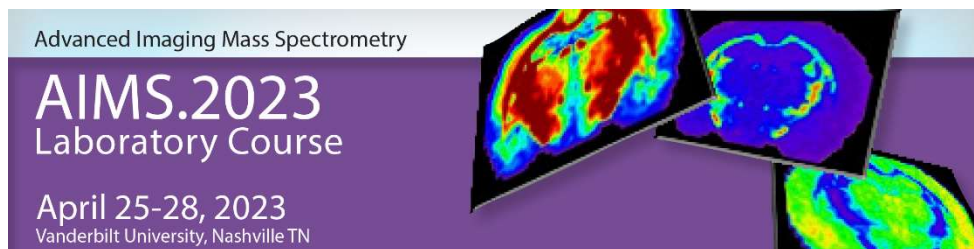
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AIMS.2023 was a huge success!



Our annual workshop on Advanced Imaging Mass Spectrometry (AIMS.2023) was held on April 25-28, 2023. We hosted 30 attendees from 12 states and three countries (the Netherlands, Poland, and the United Kingdom), and 13 vendor representatives from nine vendor sponsors in the MSRC for a week of lectures and workshops. Everyone worked hard, learned a lot, and made friends and connections throughout the week!

