

## **Mass Spectrometry Facility Instrumentation and Services**

**Note:** Any UC-affiliated investigator is welcome to include any or all of the following information in grant applications. Investigators are allowed to “pick-and-choose” the particular information to include, but no substantive changes to the available instrumentation or services are allowed without first consulting with the technical director of the facility.

*(The following information is usually the minimum amount required for grant applications)*

The University mass spectrometry facility located in the Department of Chemistry houses an IonSpec 4.7 T ESI-FTMS, Micromass Q-TOF II, Micromass TOF-Spec 2/e, a Kratos MS-25, and a HP 5980 GC/MS. These instruments are available for service-related mass spectrometric analyses, and user fees are charged. The facility is staffed by two Ph.D. level operators and is accessible to our group as necessary for this project.

*(The following information pertains to our protein-related services)*

The University mass spectrometry facility provides the following proteomics-related services. Sample preparation (including enzymatic digestion and purification) is available through a ProteomeWorks MassPrep Robotic Station. Protein identification experiments can be performed using the Micromass TOF-Spec 2/e MALDI-TOFMS or through LC-MS/MS experiments on the Micromass Q-TOF II ESI-MS. Database searching is available locally or using web-based protein database servers.

*(Investigators may wish to include more detailed information on the available instrumentation as necessary)*

At the present time, our facility is equipped with the following instrumentation: Micromass Q-TOF II, IonSpec HiRes ESI-FTICRMS, Micromass TOFSpec 2/e MALDI-TOFMS, HP GC-MS, and PE/Sciex Elan 6000 ICP-MS.

### **Micromass Q-TOF II**

The Q-TOF II is a hybrid quadrupole time-of-flight mass spectrometer. The instrument is equipped with various electrospray and ionspray ionization sources. This instrument is primarily utilized for accurate mass measurements of low molecular weight organic compounds, electrospray analysis of soluble biological compounds, and for on-line LC-MS analysis.

### **IonSpec HiRes ESI-FTICRMS**

The HiRes ESI-FTICRMS has a 4.7 T FTICR magnet and electrospray or microspray ionization sources. This instrument is used for accurate mass measurements of low to moderate organic compounds that are electrospray active. This instrument also allows for tandem MS studies of those same types of compounds. In addition, this instrument can be used for high resolution analysis of mixtures or high accuracy mass measurements of large biomolecules such as intact proteins.

### **Micromass TOFSpec 2/e MALDI-TOFMS**

The TOF Spec 2/e is a reflectron MALDI-TOFMS. This instrument can be used for the rapid analysis of a large variety of samples including peptides, proteins, synthetic polymers, oligonucleotides, and higher molecular weight organic materials. In external calibration mode, the mass accuracy on this instrument is typically about 0.5%. Mass accuracy can be improved to 0.1-0.2% with internal calibration.