Texas A&M AgriLife Research
Invitation To Bid #AG-RSCH-ITB-1444
Bid Specifications

The Agency is currently accepting bids for the following:

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)-MASS SPECTROMETRY ANALYTICAL SYSTEM.

The primary applications of the LC-MS will be for water/wastewater research. We will use the LC-MS system to identify and quantify various organic pollutants at trace concentrations in both clean water and dirty wastewater matrix.

Our planned applications may include (but are not limited to) positive identification and quantitative analyses of:
(1) common organic pollutants in industrial wastewater such as EDTA
(2) various antibiotics in wastewater such as sulfamethoxazole (SMX) and ciprofloxacin (CIP);
(3) common herbicides in fresh water such as atrazine; and
(4) quantifying hydroxyl radicals for advanced oxidation processes in wastewater treatment.

The LC-MS must be equal to or better than a Shimadzu LCMS-2020 with the following specifications:

- The LC system must be equipped with both a conventional UV-Vis absorbance detector and a Mass Spectrometry detector.

- The LC-MS system must be equipped with an auto-sampler that can process dozens of samples in a batch. The autosampler must allow the use of generic sample vials of 1 mL or 2 mL.

- The pump system must be able to draw and mix multiple solvent/eluents and can be operated at pressure over 500 bar. The pump system must have the degassing function.

- Independent temperature zones are required.

- The column oven temperature control range must be from ambient+10 C to 85 C with a precision of 0.1 C.

- The UV-Vis absorbance detector (preferably a Photodiode Array Detector) must cover the typical wavelength range for common analyses, for example, a wavelength of 190-800 nm.

- The Agency's preference is that the Mass Spectrometry detector system use electrospray (ESI) ion source or dual ESI/APCI ion sources. The MS analyzer scan speed can be up to 15000 amu/sec at an increment of 0.1 amu and achieve a sensitivity of higher than S/N>1000:1 (RMS) for 10 pg reserpine. This could be a factor in determining an award.

- Separation columns: Include at least one column that can be used for ethylenediaminetetraacetic acid (EDTA) analyses that will be our immediate use.

- Computer system with LC-MS Software installed.

- This purchase must include on-site installation and adequate training course that help us to understand the hardware and software systems and to operate and maintain the LC-MS system for automatic sample analysis.

- The requested installation is 30 days or less after receipt of purchase order. This could be a factor in determining an award.