

Accolades

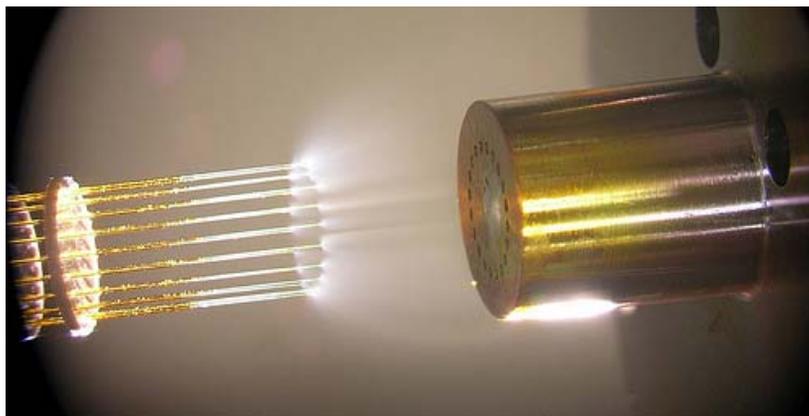
Integrating Resources at EMSL Helps Scientists Win R&D 100 Award

When characterizing small, hard-to-acquire samples, scientists need sensitive instruments that can provide highly accurate data. By integrating a combination of inventions and approaches in the Department of Energy's EMSL, scientists achieved at least a 40-fold increase in the sensitivity of mass spectrometers and earned an R&D 100 Award for their efforts. Known as the Oscars of the research world, R&D magazine presents the awards annually to the 100 most innovative scientific and technical breakthroughs of the year.

The Ultrasensitive Electrospray Ionization-Mass Spectrometry (ESI-MS) Source & Interface was developed by Dick Smith, Ryan Kelly, Jason Page, and Keqi Tang of Pacific Northwest National Laboratory. The ESI-MS can measure amounts of compounds in a sample very precisely, even when very little material is available. This sensitivity is especially important when sample sizes are limited, such as from microbiopsies of human tissue or proteins extracted from small sediment samples.

Scientists at PNNL are using the improved sensitivity in fundamental biological and environmental studies, to develop biomarkers for early disease diagnosis, and to discover drug targets. Further, they are collaborating with a major vendor of mass spectrometry instruments to further explore the benefits of the new ESI-MS system.

For more information, contact EMSL Communications Manager Mary Ann Showalter (509-371-6017).



The Ultrasensitive ESI-MS Source and Interface developed at the Department of Energy's ESML provides at least a 40-fold increase in mass spectrometry sensitivity relative to commercially available instruments. This ultrasensitive instrument can aid in biological and environmental studies, among others.