

**EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]:** State in layman's terms the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California. Do not include proprietary or confidential information. This may be distributed before the funding decision has been finalized.

A grant for \$500,000 has been obtained from the W.M. Keck Foundation for the development of a proteomics center for student training and research at CSULB. These funds, together with supplemental matching institutional funds provided by the College of Natural Sciences and Mathematics have been used to purchase an Applied Biosystems 4800 Matrix Assisted Laser Desorption Ionization, tandem Time of Flight Mass Spectrometer (MALDI-TOF/TOF-MS) with a collision induced dissociation cell for protein and polypeptide analysis, identification and sequencing. As far as we are aware, this is the only double focusing MS/MS with CID and *de novo* sequencing capabilities in the CSU system. This instrument was installed in June 2006 and Dr. Ashraf Elamin, a foundation employee who is not funded by CSUPERB, was hired shortly thereafter as a dedicated instrument technician to manage the facility. Now fully operational, we anticipate that the instrument will become a CSU system-wide resource as part of the Center for Education in Proteomic Analysis (CEPA) associated with the CSUPERB supported core Facility for Elemental Micro-Chemical Analysis (FEMCA) (see [http://www.csulb.edu/programs/iirmes/index\\_files/Page1155.htm](http://www.csulb.edu/programs/iirmes/index_files/Page1155.htm). for current rates).

This proposal seeks CSUPERB funding to offer an introductory, hands-on workshop on Proteomics. In addition to introducing the theory and basic concepts behind conventional 2D-gel electrophoresis, trypsin digestion, MALDI-TOF sample preparation and MS interpretation for protein and metabolite discovery, the proposed workshop will also introduce participants to the use of more refined techniques to quantify protein content and expression and to study post-translational modifications such as glycosylation and phosphorylation. One of the primary aims of the workshop is to increase general awareness of the capabilities of CEPA for CSU research and teaching. Educating faculty and students on the virtues and limitations of this emergent technology in proteomics, metabolomics and clinical biomarker studies will increase both its usage for research and its incorporation within the curriculum. It is anticipated that this workshop will promote curriculum development and the systemic adoption and incorporation of this technology into research projects will introduce new possibilities for faculty, making them more competitive in obtaining external funding and allowing them to diversify into new areas of research within their discipline. Students exposed to this cutting edge technology have been shown to have a distinct competitive advantage over the general workforce in obtaining jobs in the biotechnological areas.