

Playing a Big Role

Partnerships in

Utah State University - Shimadzu Analytical Laboratory



The Shimadzu Analytical Laboratory at Utah State University is a joint venture between the University and Shimadzu to provide state-of-the-art instrumentation for teaching and student research. The laboratory is part of the Chemistry and Biochemistry Departments located in the new Widtsoe Chemistry Building, completed in the spring of 2000 at a cost of \$27 million.

The goals of the joint Shimadzu Utah State University project are

1. To provide students the opportunity to work with sophisticated modern analytical tools.
2. To create a vehicle for future joint research projects between Shimadzu and the University.
3. To establish a "Showcase" technical facility for both the University and Shimadzu in the large geographical area served by the University.

A 112-year History of Educational Excellence.

Founded in 1888, the 400-acre Utah State University campus is in Cache Valley, part of the mountainous northeastern corner of Utah. The student body of over 20,000 draws from every corner of the United States, as well as from over 80 countries. Twenty percent of the students in the School of Science are actively engaged in research projects with the faculty in a variety of theoretical and applied chemistry topics. In addition to providing a quality technical education, the University serves as a focal point for the growing Biotechnology and Material Science industry in the area, and is host of active agricultural and environmental research programs.

A Concept Made Real.

The laboratory is the realization of Dr. Greg Swain's concept. Dr. Swain envisioned a cooperative synergy between industry and academia to provide technically current resources for teaching the analytical sciences. He approached Shimadzu through a long time acquaintance, Dr. Ueda Shimadzu, HPLC Manager in Japan. The request was then forwarded to Shimadzu Scientific Instruments

in the U.S., where an initial visit was made by Dr. Masayuki Nishimura and Steven Wishnies of the Shimadzu Strategic Marketing Group, along with Larry Evanicky and Don Thompson of the Western Regional Office of Shimadzu Scientific Instruments. After meeting with Dean Jim MacMahon, Department Chair Dr. Vernon Parker and Development Director Jerome Davis, it was clear that the project had sufficient merit to proceed. The president of Shimadzu Scientific Instruments, Mr. Takimoto and Mr. Chris Gaylor, VP of Sales and Marketing for Shimadzu Scientific Instruments, saw the value of the project and authorized its completion.

Preparing Today to Help Produce the Researchers of Tomorrow.

The rapid growth in the sophistication of current analytical technologies has challenged many academic institutions striving to provide an education in the sciences. Hyphenated technologies (GC/MS & LC/MS) were once exclusive tools used only for graduate research. They are now routinely used as teaching tools for undergraduate research and instrumental analysis course work. In many instances, the best way to

Education



Biochemistry coursework can now easily include advanced kinetic experiments by using modern digital spectrophotometers.



Working with state-of-the-art analytical instrumentation, like the QP-5000 pictured here, students are prepared for careers in academic and industrial research.

provide these instruments for student use is to form strategic alliances with leading instrument companies. Based on an agreement between the University and Shimadzu, brand-new instruments including complete GC/MS system, Gradient HPLC system, and UV-VIS Spectrophotometers were installed in the USU-Shimadzu Analytical Laboratory.

The QP-5000 used in the lab has greatly extended the capability of the Chemistry and Biochemistry departments to pursue advanced research projects by both faculty and student researchers. The Automated LC-10ADvp HPLC system equipped with an SPD-M10Avp Photo Diode Array Detector and CLASS-VP software has provided analytical capabilities that have not been available

to the departments before in a single unified package. The suite of Shimadzu analytical instruments is in almost constant use, creating a waiting list, at times, as long as three weeks.

The UV-1200 series UV-Vis spectrophotometers placed in the lab have been used extensively in the Biochemistry course work. This enables students to conduct more sophisticated and elaborate experiments in enzymatic kinetics than they could using the older analog instruments available to them before the partnership with Shimadzu. The instrumental analysis class uses the spectrophotometers to teach classical quantitative analytical concepts using Beer's Law for both organic and inorganic analytes.

Looking to the Future.

In addition to helping provide better-trained scientists, we are helping to secure Shimadzu's place in the market. The students who use Shimadzu instruments in their university classes generally tend to specify Shimadzu instrumentation when they move on to other universities or industrial laboratories.

With the departure of Dr. Swain for a position at Michigan State University, the primary responsi-

bility of the lab's operation now rests with Dr. Robert Brown of the Chemistry department. In addition to being active in the operation and scheduling of the Shimadzu Analytical Laboratory, Dr. Brown is very active in research involving the use of infrared lasers as ionization sources for MALDI-TOF mass spectrometers in biochemical applications. He presented two research papers on the topic at the recent American Society of Mass Spectroscopy meeting and is Co-Chair for the upcoming Desorption 2002 meeting to be held in the United States. The partnership between Shimadzu and Utah State University provides for an ongoing synergy of development in quality science education.

Reported by Don Thompson, Regional Manager of the Western Region of Shimadzu Scientific Instruments, Inc. The northeastern portion of Utah around Salt Lake City is becoming a regional center for biotechnology ventures and nutraceutical companies. Mr. Thompson believes the USU-Shimadzu Analytical Laboratory demonstrates our commitment to the regional market and will serve both industrial and academic customers, as well as benefit the local community.