

**TECHNOLOGY TRANSFER**

# SHANGHAI SCIENTISTS TRAINED ON SYNTHESIZERS

FOSTER CITY, Calif.—It's expensive to send your service technician to Shanghai. So instead, Applied Biosystems (ABI), the manufacturer of robotic peptide synthesizers, brought Chinese scientists here and trained them to operate and service the two \$100,000 Model 430 peptide synthesizers the Shanghai Institute of Cancer Research and Institute of Biochemistry purchased recently.

The training in advanced peptide synthesis and purification, according to company spokesman Robert Bettendorf, "is the first time an American company has provided instruction in Chinese to Chinese people."

Under the supervision of Hat Lau, one of ABI's international sales and service representatives, the five-day course (held in late January) was taught by Applied's staff, which includes one Chinese post-doc. The training on the machine's software, hardware, and chemistry should "make them more or less self-sufficient," said Lau.

Because the machines are sold through a Chinese government-owned trading company, American

companies have trouble communicating with the machine's users, explained Lau. "The infrastructure for technical and application support in China is very primitive," he added. Fine chemicals, reagents, accessories, and equipment for the machine can take up to six months to arrive.

The three Chinese scientists described their work in Shanghai, with Lau serving as translator. An Qin Ma, an assistant researcher in the Institute of Cancer Research, will return to synthesize the peptide product of an oncogene. The goal is to develop diagnostic tests for the oncogene's product. Ma also works on transforming growth factors, peptide factors that "transform the genes of the cells from good ones to oncogenic."

Guo Ming Zhou from the department of molecular biology in the Institute of Biochemistry said he works in an "open" laboratory. Scientists from any research institute in China may ask his lab to make a peptide. Zhou felt that one of the most important projects he is involved in is synthesizing analogs of luteinizing hormone releasing hormones as part of a

birth control project.

ABI also trained Zhi Hang Fong, from the Institute of Cancer Research, to be its service representative and provide operational and maintenance support. Some points covered in the training included:

- Chemistry related to peptide synthesis. Anita Hong, the post-doc from China, discussed PAM [4-(oxymethyl)-phenylacetamidomethyl] resins and the two major ways to synthesize peptides *vis à vis* tBOC (tert-butyloxycarbonyl)- and Fmoc (fluorenyl methoxycarbonyl)-protected amino acids.
- Hardware maintenance.
- Sequencing peptides bound to resins and amino acid analysis of synthesized peptides.
- Immunological applications of long-chain peptide assembly.
- Hydrogen fluoride (HF) cleavage analysis of peptides that were synthesized in Shanghai.
- Trifluoromethanesulfonic acid (TFMSA) cleavage.
- Methods of purification and a hands-on training in HPLC analysis of peptides. —Harris Brotman

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