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## "Lab-on-a-Chip": New Technology a Boost for Traditional Chinese Medicine

A team of researchers at Hong Kong University of Science and Technology (HKUST) has successfully integrated into a single silicon chip the micro processes of amplification and analysis of genetic material (DNA), and demonstrated that the technology could be applied in the genotyping of Chinese medicinal plants.

HKUST is the only research institution in Hong Kong employing silicon chip in the development of genechip-based technology for the identification of traditional Chinese medicines. The research combines the most advanced aspects of molecular biology and microfabrication.

The team's novel approach of combining the polymerase chain reaction (PCR) amplification of genetic material with consecutive analysis is a further step toward the creation of a "lab-on-a-chip" technology.

The research achievement was published in the July 1 issue of the renowned journal, *Analytical Chemistry*, published by the American Chemical Society. The work, led by Dr Nikolaus Sucher, Assistant Professor of Biology and member of the Biotechnology Research Institute at HKUST, has been supported by grants from the Innovation and Technology Commission and the Hong Kong Jockey Club.

Methods that are currently in use in sample preparation for analysis of genetic material are relatively slow and require manual liquid transfer, which proves to be difficult when conducted in small volume.

"The integration of sample preparation with analysis in a single silicon-based device is of great value, both scientifically and commercially, because the technology enables rapid identification of genetic materials in products such as traditional Chinese medicine," said Dr Sucher.

The technology also has the advantage of obtaining sequence data for identification and analysis, thus providing genotyping capabilities.