

# Developing microarray-based assays for blood typing and diagnosis of infectious diseases

Scientists at the University of Edinburgh are developing multiplex assays in microarray formats to accelerate routine blood typing and diagnosis of infectious diseases. Their assay development depends on a Tecan LS Reloaded™ laser scanner for automated scanning of both microplates and slides.

Dr Colin Campbell, Research Fellow at the university's Division of Pathway Medicine, leads a research group that focuses on the development of biochips to study interactions between specific biological pathways, within and between cells, and to look at how these pathways change in diseased states. Pathway medicine is a relatively new discipline within systems biology and understanding the interactions between biomolecules and functional systems, such as those controlling cell function and host-pathogen interactions, may provide important clues to the mechanisms underlying disease processes.

Dr Campbell's group is currently applying the research findings to microarray-based diagnostic assays, as he explained: "We are developing microarray technology and assays designed to improve both

the understanding and diagnosis of infectious diseases, especially those caused by herpes viruses or HIV. The assays will allow routine detection of such diseases using tiny volumes of blood and providing results within just 10 minutes or so, with minimal user intervention."

The group has been using a Tecan microarray laser scanner, the LS Reloaded, for about two years for developing the new microarrays. "Our Tecan scanner gives us the level of versatility that we need and that other scanners could not provide," he said. "For example, we can make very sensitive measurements and the scanner allows a high degree of flexibility in choice of materials and chip geometries. This means that we can scan from underneath or above and can use silicon wafers and non-standard chip sizes.



*Colin Campbell and Stuart Ember, protein microarray technician, studies results on the LS Reloaded*

"We recently developed a microarray-based assay for ABO and Rhesus blood group typing, and are now developing this further to bring all the pre-transfusion testing for other blood groups and infectious diseases together on one microarray," Dr Campbell continued. "Our ultimate aim is to develop a single microarray-based test that will include all the critical antigens that must be matched for successful blood transfusion to take place."

*Tecan's LS Reloaded microarray laser scanner is recommended for research use only.*

For more information about Tecan's LS Reloaded laser scanner, visit [www.tecan.com/ls](http://www.tecan.com/ls)

*Alan Ross, senior technical officer, operating the LS Reloaded*

