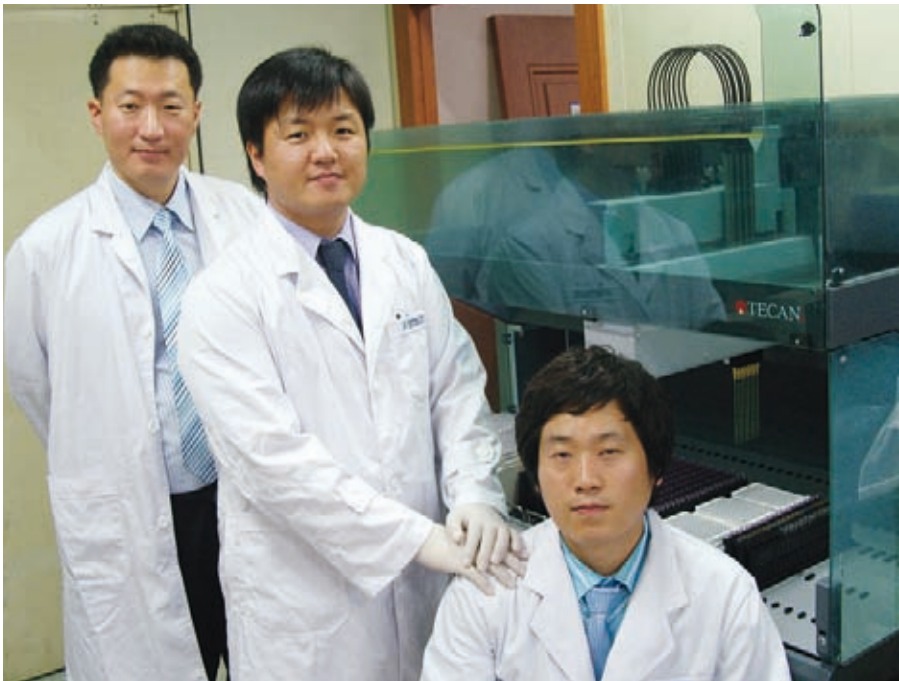


Freedom EVO[®] gives RIA workflows a boost

Shin Jin Medics, Inc., a manufacturer of *in vitro* immunodiagnostic products, has developed a workflow solution for radioimmunoassays (RIAs), the RIA Automated Laboratory System (RALSystem), using Tecan's Freedom EVO platform as a critical component.



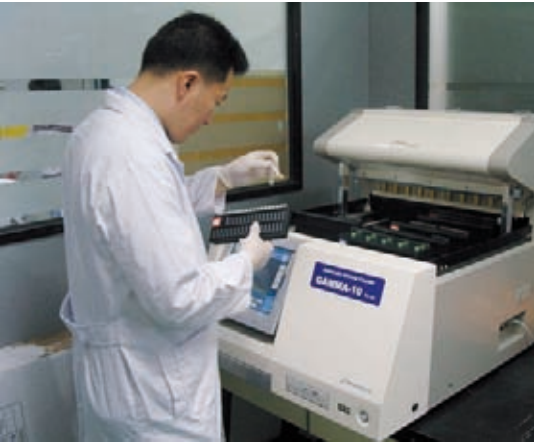
(L to R) Mr Seong-Yun Lee, Seung-Jae Lee and Hyun-Il Kim

Shin Jin Medics, based in Koyang-Si, South Korea, and founded in 1992, develops and provides a range of RIA- and ELISA-based diagnostic kits and instruments. RIA is similar to ELISA as an *in vitro* diagnostic method, but where ELISA uses a reporter enzyme, RIA uses a radioisotope for sensitive and quantitative assay signals, measured using a gamma counter. As an RIA devices manufacturer, Shin Jin Medics is one of only two companies in the world that manufactures gamma counters and has now turned its attention to automating workflows. Until recently, there was only one commercially available automatic instrument for RIA workflows. However, this system had only a single

probe, a very small sample capacity and a long processing time; it was relatively inefficient and, as a result, most assays were still performed manually.

Mr Seung-Jae Lee, manager of diagnostic instrument engineering at Shin Jin Medics, explained the basis of the new automated solution: "The whole system has been designed to be very simple and easy to use, and it is capable of rapidly processing a large number of samples. We started developing the RALSystem last year, consisting of Tecan's Freedom EVO 150 liquid handling workstation combined with our instruments, the gamma counter (Dream Gamma-10), washer (Dream TW-20) and shaker (Dream Shaker). We chose the Freedom EVO for the sample handling of the workflow because of its flexibility and compatibility with our own systems, particularly with the gamma counter."

"The RIA workflow on the RALSystem starts with dispensing samples and reagents on the Freedom EVO platform, which has a large capacity and a fast dispensing speed for efficient processing of samples," continued Mr Lee. "The samples are human serum, and the Freedom EVO takes 10 minutes to distribute 100 samples into 500 reaction tubes. The tubes are incubated on our shaker to react, usually for about 30 minutes to one hour, and washed by our washer, which can wash up to 20 tubes at once. The tubes are then analyzed in our gamma counter, which has 10 detectors to cover a wide energy range of various radioisotopes. The counter has a large capacity, and up to 500 tubes can be put on its deck for analysis."



Mr Seong-Yun Lee

“We have also developed a proprietary tube rack that is compatible with all four devices and carries the total workflow through the system. This is the unique feature of the RALSystem, that it is fully integrated and automated, and this was made possible by the flexibility of the Freedom EVO. It is not necessary for the user to transfer the racks from one instrument to the next, minimizing human error and saving labor and time. The user also benefits from added protection from exposure to radioactivity in this way. The whole process, from sample distribution to results takes about one or two hours, depending on the assay

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kit's protocol. For example, using our RIAKEY® kits, the RALSystem takes less than 80 minutes for five RIA tests (CA19-9, CA125, AFP, CEA, and TSH) with 100 patient samples, compared to several more hours it would take to do these assays manually.”

“We have been using the Freedom EVO routinely in the RALSystem since the beginning of 2008, and everything has worked smoothly, without a problem. We received comprehensive training from Tecan Switzerland for running and maintaining the instruments, as well as application and software support from Dr Yingguang Wu from Tecan Japan, so, even before we started, we understood a lot about the Freedom EVO.”

Mr Lee is also impressed with the Freedom EVO's software. “It was largely thanks to the versatile software that we were able to design and integrate our own racks for the RALSystem. We found the software easy to use, and it was simple to modify it for different types of assays. We also developed our own sample handling program, which the Tecan software fully supports. The

RALSystem workflow handles both sample flow and information flow, so it is possible to apply a worklist fetched from a file saved on the centralized server, and we can also control all of the system data through a central PC. Altogether, I believe that, with the RALSystem, an effective automated RIA system has finally been realized,” he concluded.

The RALSystem was displayed at the 6th International Conference on Isotopes (ICI 2008) at Seoul in May 2008, and was enthusiastically received by visitors and potential customers.

RIAKEY® is a registered trademark of Shin Jin Medics, Inc.

For more information about Tecan's ELISA solutions, visit www.tecan.com/elisa



Mr Seung-Jae Lee