

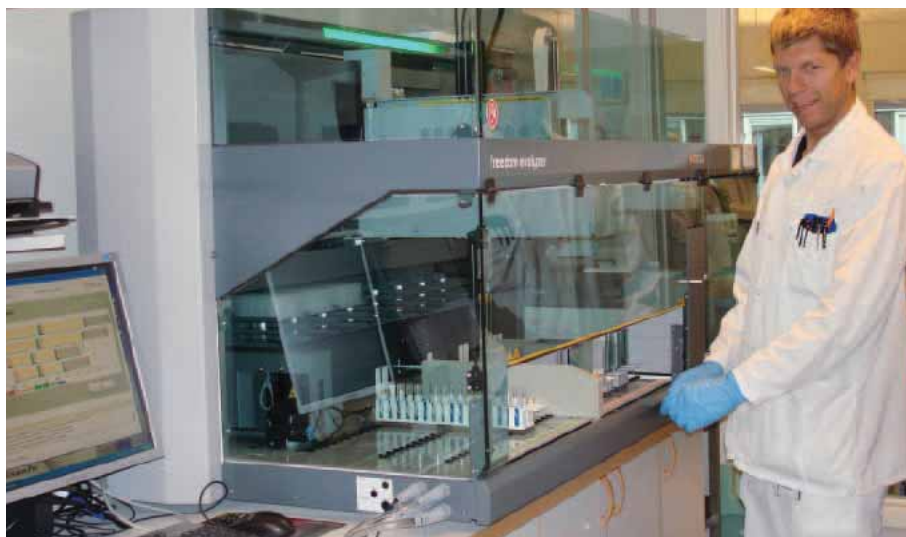
# Reliable and time-saving diagnostic ELISA tests

Automation of nine ELISA-based serological tests for autoimmune and infectious diseases on the Freedom EVOLyzer® platform has saved Unilabs AB, Skövde, Sweden, a lot of labor, releasing valuable time for other activities.

Several manufacturers offer ELISA testing kits for detection of a range of infectious and autoimmune diseases, and markers for brain damage and inflammatory bowel disease. Many hospital and service laboratories are finding that automation is essential to increase their capacity to satisfy the increased demand for ELISA testing, but high throughput automation of ELISAs can be difficult to achieve because each kit has its own requirements for optimal performance.

One such laboratory is Unilabs AB in Skövde, one of the company's three large subsidiaries in Sweden. Unilabs is a pan-European supplier of laboratory and radiology services to public and private healthcare providers, county councils, the public, insurance and pharmaceutical companies and clinical research organizations, across a dozen countries including Norway, Sweden, Switzerland and the UK. The subsidiary in Skövde specializes in ELISA testing of infectious and autoimmune diseases on patient samples for hospitals, clinics and doctors' surgeries across Sweden.

Dr Eva Arkblad, a chemist at Unilabs AB who is responsible for setting up the laboratory analyses and instruments, explained: "We needed to automate our ELISA processing because we handle many samples of different types and volumes, and perform a range of assays using a variety of ELISA testing kits. Manual methods to process these samples take a high degree of concentration and could introduce pipetting errors. We chose the Freedom EVOLyzer equipped with Freedom EVOLution™ 2.0 software from Tecan last



Jimmy Fransson, biologist, with the Freedom EVOLyzer platform at Unilabs AB

year, as this was the only system available on the market that was capable of satisfying our particular throughput needs, that of a varied workload and testing requirements, combined with high reliability."

"Using the Freedom EVOLyzer, we run immunological tests for autoimmune diseases and diagnostic tests for infectious diseases, detecting immune responses against bacteria or viruses by ELISA," Eva continued. "The range of tests includes infectious agents *Helicobacter pylori*, *Borrelia burgdorferi*, *Mycoplasma pneumoniae*, *Chlamydomphila pneumoniae* and tick-borne encephalitis virus, as well as myeloperoxidase, proteinase 3, cyclic citrullinated peptide and cardiolipin, which are molecular markers for autoimmune diseases. We currently perform nine different ELISA tests using nine kits from six manufacturers, with a weekly throughput of about 600 samples from approximately 300 patients, and the platform deals easily with the test kits from different manufacturers."

The Freedom EVOLyzer platform at Unilabs AB has a 150 cm worktable, and is configured with a four-channel liquid handling (LiHa) arm with fixed tips, a 25-37°C incubator with shaking option, a 25°C incubator, a HydroFlex™ microplate washer and a Sunrise™ absorbance reader.

Eva added: "The Freedom EVOLyzer has integrated barcode readers that help to ensure reliable identification of individual samples throughout the workflow. Following centrifugation of the primary tube, the serum is transferred to an identically labeled secondary tube, which is loaded onto the Freedom EVOLyzer for diluting and aliquoting into microplates. The platform is controlled using Freedom EVOLution software, which is connected to the laboratory's LIS database so that importing of diagnostic test orders and exporting of results are all automatic without manual intervention."

"The support from Tecan has been good, and the engineer who visits our laboratory to service our Freedom EVOLyzer is always helpful, giving us the guidance we need. The Freedom EVOLution 2.0 software is highly intuitive and user-friendly, and gives us the high functionality required for programming and changing as many as 15 different tests." Eva concluded: "I feel the advantages of the Freedom EVOLyzer are especially pronounced in laboratories such as ours which have to run many different analyses, and we are planning, in the near future, to add clinical chemistry tests to the range of assays that could be automated on this platform."