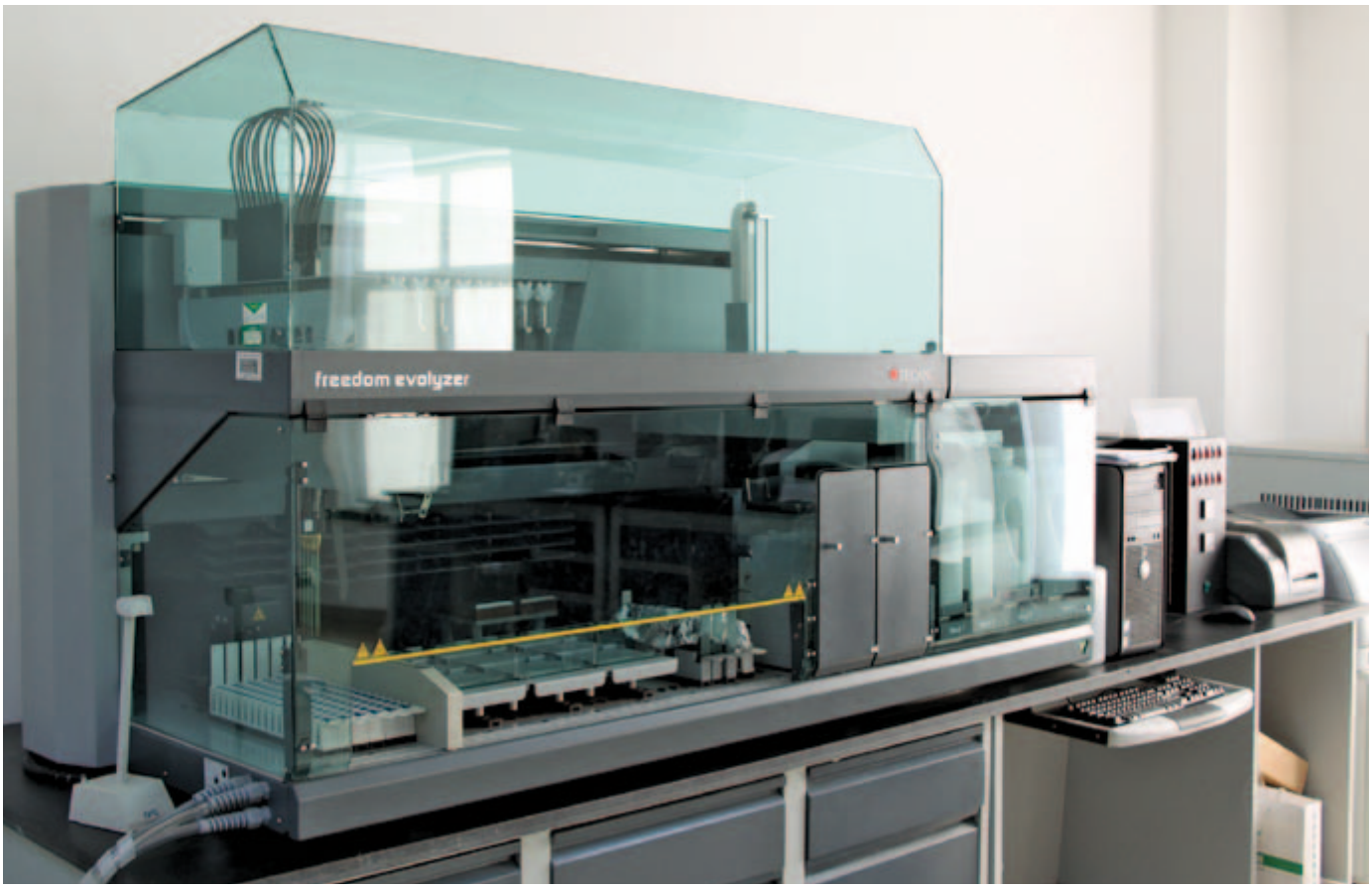
Checking out what's checking in

Scientists at the Animal, Plant and Foodstuffs Inspection Center in Tianjin, China, are using a Freedom EVOlyzer® workstation to help monitor livestock entering the municipality for the presence of infectious diseases.



The ADDL relies on the Freedom EVOlyzer to meet its high throughput demands.

The Entry-Exit Inspection and Quarantine Bureau (CIQ) for Tianjin, China, is responsible for monitoring import and export of commodities, foodstuffs, plants and animals throughout the municipal area of the city of Tianjin. Founded in 2001, the CIQ's Animal, Plant and Foodstuffs Inspection Center conducts a broad range of Entry-Exit monitoring activities, from pesticide residue detection in crops to pre- and post-quarantine testing for large animals. The Center's Animal Disease Detection Laboratory (ADDL) is one of seven laboratories which carry out this screening, testing animals entering or leaving China via the municipality's ports for the presence of infectious diseases. This includes a wide variety of livestock – from chickens and ducks, to pigs and cattle – and results in a workload of almost 50,000 tests a year.

In 2008, the ADDL decided to purchase an automated ELISA processing workstation to help meet its increasing demand for testing, as Mrs Wang Yulin, Vice Section Chief, explained: "We have a limited number of staff, and so purchasing a fully automated ELISA platform was a logical step. To help increase the laboratory's throughput capacity, we were looking for a reliable instrument with the longest possible walkaway time, however we still needed it to be consistent and accurate, due to the stringent testing requirements of our panel of ELISA assays. The variable nature of our work means that high throughput and flexibility were also very important considerations, and we evaluated systems from a number of manufacturers before choosing Tecan's Freedom EVOlyzer platform."

The ADDL has a Freedom EVOlyzer 150 workstation equipped with an eight-channel LiHa pipetting arm, using washable

The Freedom EVOlyzer offers long walkaway times, allowing staff to concentrate on other tasks.

fixed tips, and a RoMa arm for plate transportation. The platform also has both heated and room temperature incubators, a PosID™ barcode scanner, a HydroFlex™ plate washer and an integrated microplate reader, all controlled by Tecan's Freedom EVOlution® software. The worktable is divided into sample loading, ELISA preparation and reagent storage areas, allowing up to 96 samples to be loaded at a time. Fresh or frozen serum samples are received in the laboratory in barcoded sample tubes, and can be loaded straight onto the platform. Samples are identified by the PosID scanner, then pipetted directly onto microplates in the ELISA processing area. The platform can handle up to nine reaction plates at a time, and can access nine different reagents and decontamination solutions during a single run, as required.

The ADDL's Freedom EVOlyzer is used to completely automate up to 30,000 tests a year – over half of the laboratory's total testing workload – and staff hope to extend this capacity as new ELISA assays become available. The workstation is currently configured to perform a single ELISA test for all the samples in a run, processing around 440 samples per day with visually-guided continuous loading. However, this strategy requires serum samples to be kept in refrigerated storage between assays, until all the required tests have been completed. "Our existing automated protocol is based on the laboratory's standard operating procedure (SOP) for manual testing, only performing a single ELISA test for every sample in a run," continued Mrs Wang. "However, each animal sample requires five or six different tests on average, and so we are considering developing a new protocol to allow multiple tests per sample per run. This would permit us to carry out all the necessary tests for a given sample in a single run, significantly reducing our need for refrigerated sample storage. It would also increase our overall throughput, due to the parallel sample distribution capabilities of the Freedom EVOlyzer."

"Overall we are very happy with the Freedom EVOlyzer," Mrs Wang's colleague, Miss Xiao Yan, concluded. "It is very reliable, and the results are excellent. It saves us significant time, and gives us more confidence in the results we obtain. We are also happy with the service and support we have received since purchasing the system. An engineer is always available when needed, although we don't need them frequently."

To find out more about Tecan's Freedom EVOlyzer, visit **www.tecan.com/freedomevolyzer**