

Application Note 06

Throughput Antibody–Antigen Analysis

High Throughput Analysis of an Antibody–Antigen System with Surface Plasmon Resonance (SPR)

The ability to analyze a large number of samples is becoming increasingly important to researchers in academia and industry. XanTec SPR systems utilize a modular, component-based design that provides a high level of user flexibility. Part of this flexibility includes the unique ability to choose an appropriate injector that will suit the application of interest. For higher throughput applications, an autosampler completely automate the injection process. The SR8100 robotic autosampler can inject samples from two 96 or 384 well-plates or two 48 vial trays. Thus, the autosampler can be programmed to automatically inject samples while the researcher does other work or leaves the lab. This Application note presents an antibody–antigen assay, namely bovine serum albumin (BSA) binding to anti-BSA, that includes injections from 96 different samples during a single overnight run.

Experimental

The experimental conditions are summarized in the following table:

- Ligand: BSA
- Analyte: Anti-BSA
- Analyte Concentrations: 10, 5 and 2.5 nM
- Association Time: 3 min
- Dissociation Time: 4 min
- Regeneration Solution 20 mM HCL

Results

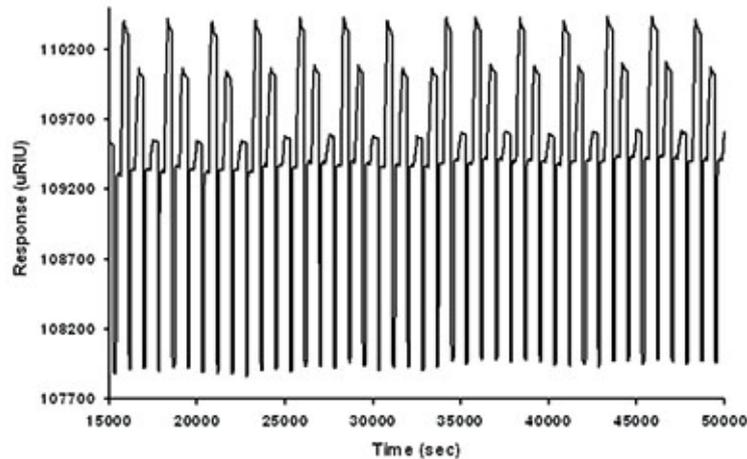


Figure 1 presents a portion of the sensorgrams resulting from the 96-sample anti-BSA/BSA analysis that was programmed for a single overnight run with the robotic autosampler. Anti-BSA is injected over the sensor surface with immobilized BSA at 3 different concentrations and repeated multiple times for a total of 96 separate injections. The surface is regenerated with 20 mM HCl between each anti-BSA injection. The results indicate that the robotic autosampler injected all 96 samples without any mistakes.

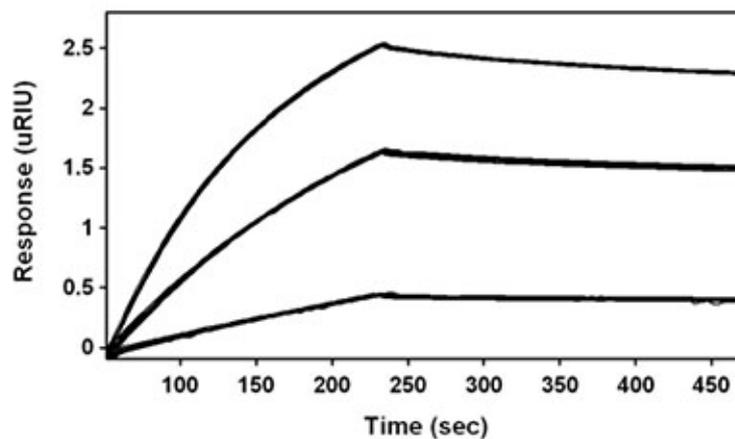


Figure 2 presents 15 overlays of each anti-BSA concentration that was injected over the sensor surface. The results show that the system is very reproducible with minimal injection-to-injection variability. This example shows that the automated SPR systems can be used to analyze a large number of samples in a single programmed run with highly reproducible results.

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