



Reducing protein quantification bottlenecks by automating the Octet® HTX with a Hudson PlateCrane

Novartis Institute for Biomedical Research shares their success story.

Introduction

The Hudson Robotics PlateCrane EX microplate handler and the Octet HTX system are well-suited to work together for hands-off protein quantification and reaction kinetics in high-throughput laboratories. Two individuals using this combination are Lena Kikuchi and Mario Cepeda at the Novartis Institute for Biomedical Research. Ms. Kikuchi and Mr. Cepeda are both senior scientists in the Antibody Discovery Group within the Novartis Biologics Center. Ms. Kikuchi oversees a variety of automated systems, including a PlateCrane EX paired with an Octet HTX for high-throughput recombinant antibody development. Mr. Cepeda is a specialist on the Octet. The system combination is used by Novartis for antibody quantification and kinetics.

Positioned at a Bottleneck

The primary expectation Novartis had for the PlateCrane/Octet combination was to speed up antibody screening. In order to do that, Novartis used the combined systems to fix a bottleneck that had been identified at their two-row, 16-head OctetRed 384 system. There, the microplates would stack up because the system was slow to use, and the microplates had to be changed out manually. When their budget allowed, they bought a PlateCrane EX microplate handler and an Octet HTX, intending these systems to work together to alleviate the bottleneck.

Unattended Operation

The manual, 16-head Octet system was not only slow by comparison to the 96-head Octet HTX system, which reads a whole 96-well microplate at once, but required attention from the person running the assay every thirty minutes, which had a deleterious impact on that person's performance of other laboratory duties. "We didn't want to go back every half hour to swap plates," says Ms. Kikuchi.

When they bought and installed the PlateCrane/Octet combination, their microplate reading not only went faster, but the PlateCrane EX exchanged their plates in and out of the Octet system for them. The lab has now read up to 10 microplates unattended, and there's capacity to handle even more microplates in a single run should they wish to do so.



The Hudson Robotics PlateCrane EX microplate handler paired with the Octet HTX system at Novartis.

Assay Accuracy

Before they started using the PlateCrane/Octet combination, the Novartis research group recognized that they did not have the necessary throughput to analyze all of the data that was available from their antibody quantification assays. Instead of measuring every microwell, they would take samples and assume that it was representative of the whole plate. “Now, with the PlateCrane/Octet combination installed, we can quantify every well of every microplate if we need to,” says Mr. Cepeda.

System Selection

Novartis knew they needed a robot arm to make maximum use of the high-throughput Octet system, so they asked the Octet vendor which ones they should investigate. The Octet vendor recommended the PlateCrane microplate handler. The vendor knew that the combination had worked successfully in other laboratories and were comfortable sending their customer to Hudson Robotics.

Support

An Applications Engineer from Hudson Robotics, Chris Toledo, set up the PlateCrane EX for the Novartis group and programmed the microplate handler to work with the Octet system. “We told him what the parameters for handling the microplates were, and he programmed it for us,” said Ms. Kikuchi. “Chris is always on top of things, and his response time is very fast. We can call him up with questions, and he is happy to answer them, and he can access our Hudson systems remotely to set up a new or revised protocol. We were very comfortable going with Hudson Robotics,” she added.



Lena Kikuchi (L); Mario Cepeda (R) of Novartis Institute for Biomedical Research

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