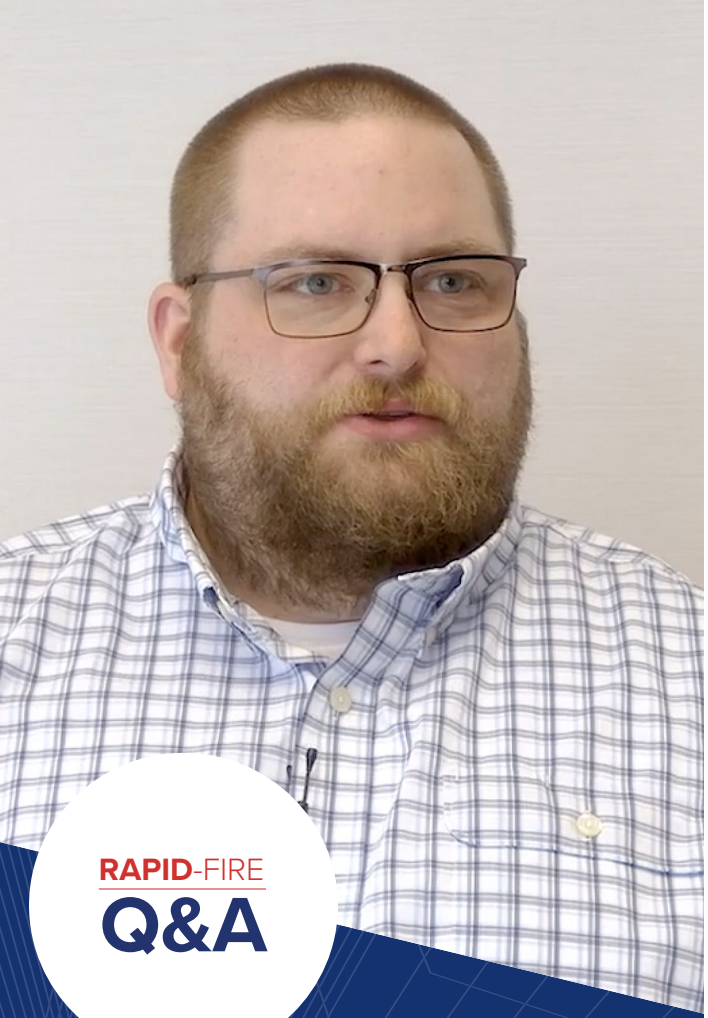

RAPID-FIRE
Q&A

Let's talk CyTOF with

CHAD STEVENS, MS

STANDARD BIOTOOLS™

Chad Stevens, MS, Senior Scientist and CyTOF Operator at a large pharmaceutical company, works on quantitative bioanalysis of multiple targets on circulating cell types to support drug discovery and development. He recently gave us his thoughts on how CyTOF® flow cytometry can empower researchers to ask broader questions.

Using CyTOF technology for drug development

Using CyTOF, we ask broader questions. One of the biggest questions we ask is if there are non-targeted effects occurring. This gives us insight into efficacy outputs, as well as the ability to perform translational modeling and simulation to determine if our target is direct or is being taken up by non-targeted cell populations.

It allows us to ask very quantitative questions. I think the quantitative analysis field has benefited from CyTOF because we can look at things like receptor quantification, receptor occupancy, and still be able to do the deep phenotyping on complex biological systems that we generally work with.

Getting more data with CyTOF flow cytometry

Initially, we had to convince people that CyTOF has the same output as fluorescence flow cytometry but we can generate more data. We also had to develop validated panels that were translatable to assays that were already in place.

By generating proof of concept data on stimulated vs. non-stimulated samples with our markers of interest and performing in-house conjugations early on, we were able to alleviate rumors that CyTOF is difficult to use or more expensive, when in reality it's about the same but just with more data.

Expanded data to better inform a project

We've really benefited from adopting CyTOF because it's allowed us to better inform project teams on target burden and functional markers of expression in their system, as well as generate extra data on top of what they've already asked us for. This additional information empowers teams to expand the questions that they can ask.

Multiplexing for more information

Suspension cytometry with CyTOF has really expanded our research because it's allowed us to multiplex not just target distribution but also to look at functional markers within a broader global immune landscape. With this, we can multiplex our actual outputs and co-detect stimulation states of cells within different immune subsets instead of just looking at cell receptor quantification.

Impact of emerging technologies

Emerging technologies are exciting in terms of being able to multiplex both suspension cells as well as the promising field of tissues for imaging, and most recently the co-detection of RNA and protein. These

techniques could accelerate our ability to do more, such as target expression, translational modeling and delivering therapeutics faster.

Advice for first-time users

I tell people that when they get started with CyTOF, first of all, don't be afraid to try new things with this tool. There are many suggested uses, but there are also a lot of uses for CyTOF that have yet to be discovered, so don't be afraid to think outside of the box. That's how we've been able to really push the barriers of our projects using CyTOF.

Learn more from Chad Stevens and his research focus:

standardbio.com/chad-stevens-2023

Unleashing tools to accelerate breakthroughs in human health™