



## The power of custom multiplex immunoassays for therapeutic development

The analysis of selected proteins is key for researchers seeking to develop safe and effective therapeutics—whether you're characterizing the toxicity of your therapeutic antibody on cells *in vitro* or the immune response in research samples such as plasma or serum. Since immunoassays (e.g., ELISAs) can noninvasively detect and quantify individual proteins with high specificity and sensitivity, they are an essential tool for generating the proofs of mechanism and principle and response predictions biotechs need to hit their funding milestones.

While singleplex immunoassays such as ELISAs are common in research, the sheer number of cytokines, chemokines, and other growth and differentiation factors—and the urgency with which biotechs operate in order to develop life-saving therapeutics—make it necessary to evaluate them in groups rather than individually. Furthermore, the levels of cytokines or chemokines that act together in a certain immune response are often more relevant than a measure of their presence or absence alone. These factors make commercially available multiplex immunoassays particularly appealing for biotechs looking to get their novel therapeutic to market ahead of the competition.



[Click here to read a white paper on the power of multiplexing >](#)

There's no question that fully validated, commercially available solutions can meet the needs of researchers when it comes to consistency, reliability, and time-to-results. But off-the-shelf multiplex immunoassays can contain targets that the project

does not require, wasting precious materials, time, and money. A custom multiplex panel is a no-extra-cost solution that can include precisely the right target or targets for the work, saving money and increasing productivity, and ultimately helping to get a novel therapeutic to market faster.

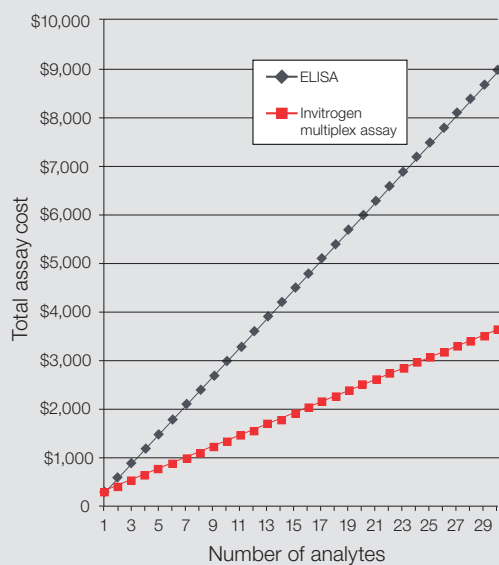
**Beside the ability to include only the relevant targets, building a custom multiplex immunoassay for a therapeutic development workflow confers the following benefits:**

- **Easy to scale**—a custom multiplex panel can contain as few as two targets, or more than 50 (depending on the manufacturer), while maintaining target-specific protein detection
- **More data from a single assay**—by measuring a group of relevant analytes in a single experiment, a custom multiplex panel can provide a snapshot of complex cell or patient responses
- **Cost effective**—by reducing hands-on time and eliminating waste due to irrelevant markers, custom multiplex assays are more cost effective than their singleplex or off-the-shelf counterparts, respectively

Taken altogether, these benefits maximize efficiency and help get novel therapeutics into the clinic faster.

## Benefits of multiplex assay kits vs. ELISAs

- **Time savings**—in the same time it takes to set up one ELISA, multiple analytes can be measured, significantly reducing labor time
- **Smaller sample volume**—depending on the expression levels, assays require 50  $\mu$ L of sample or less for multiplex assays while still obtaining accurate results for all analytes
- **Broader concentration range**—reliably detect proteins across a dynamic range of 3–4.5 logs
- **High throughput**—read up to 96 or 384 samples from a conventional microtiter plate. Combined with the ability to read multiple analytes per sample, this provides a high-throughput path to data collection.



Cost and time savings for Invitrogen multiplex assay kits vs. ELISAs. The x-axis shows the number of analytes tested, and the y-axis the total assay cost. The cost advantage of Invitrogen multiplexing assays becomes more and more significant as the number of analytes is increased.

## Count on connections to deliver an assay that works for all your analytes

Designing an assay that works for all analytes can be challenging. When your work requires specialized, reliable, high-quality solutions, count on our staff of experts to help ensure the best workflow options for your research goals. Invitrogen™ ProcartaPlex™ immunoassays are antibody-coated magnetic bead reagent kits and panels for multiplex protein quantitation using the Luminex® instrument platform.

ProcartaPlex assays provide the ultimate flexibility; you can select your own simplex assays and mix them yourself, or design the panel of your choice with our online Invitrogen™ ProcartaPlex™ Panel Configurator and Selection Tool. Our panels use antibody-coated beads qualified for an individual analyte, and we work hard to ensure that cross-reactivity does not impact assay performance regardless of whether your panel is designed to detect 2 or 65 targets.



**Click here to use the ProcartaPlex Panel Configurator and Selection Tool to select a species, panel type, and any number of available targets today, and we will build an assay for you.**



**Click here to learn more more about our end-to-end solutions for therapeutic development: [thermofisher.com/biotechtherapeutics](https://thermofisher.com/biotechtherapeutics)**

**Not sure where to start? Contact us.**