

APPLICATION NOTE

ELISA KITS

Which is best for me?

There are important distinctions between Quantikine® and DuoSet® Kits ELISA kits that should be considered so that you can determine the best solution for your specific circumstances.



Quantikine® ELISA Kits

A fully optimized and validated quantitative colorimetric sandwich ELISA kit for measuring molecules in biological fluids.



DuoSet® Kits ELISA Development Kits

Contain the basic components required to develop an immunoassay. When complete kits are not an option, DuoSet® Kits ELISA Development Kits are an economical alternative to buying separate antibodies and protein standards.

Quantikine® ELISA kits

Quantikine ELISA kits have been exhaustively validated and optimized for multiple sample types depending on the kit. Optimised sample types, include serum, plasma (EDTA, heparin, and citrate), and cell culture supernates. The kits contain a specific proprietary assay diluent, which not only pre-wet the plate but also have additional functions relating to shifting the sample matrix for best performance – for instance, they sometimes shift the pH or contain reagents that may change the conformation of proteins to improve sensitivity or specificity. Many kits also include multiple proprietary calibrator diluents that have been formulated to mimic the sample matrix in different sample types without creating any interference in the ELISA. Each Quantikine ELISA

kit contains different assay diluent and calibrator diluent formulations because they are specifically designed for best performance in the individual assay. Other assay conditions such as incubation times, temperatures, whether a shaker is needed, etc, are also empirically determined. The microplate is pre-coated and pre-blocked which prevents technique errors by end users in coating/blocking and generally leads to higher CV's. R&D Systems also perform extensive precision, recovery, linearity, and sample value testing on Quantikine kits and report this data.



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Overall, we advise using Quantikine kits over DuoSet® Kits if any of these are true about the researcher using the kits:

- *They want the best possible assay performance.*
- *They are inexperienced with ELISA.*
- *They are not testing cell culture supernates and do not have the time or interest in optimizing assay conditions.*
- *They are not planning on running more than 2 plates.*

DuoSet® Kits Development Kits

DuoSet® Kits, are ELISA development kits designed for flexibility. They contain only a pair of antibodies, a calibrated standard, and a vial of Streptavidin-HRP. The antibodies are pre-titrated for ELISA so DuoSet® Kits are a solid alternative to building your own ELISA from individual antibodies, but ultimately ELISA performance will vary depending on many factors – the skill of the technician who coats and blocks the plate, the source of the reagents used to complete the assay, the sample type used, and whether any further optimization is performed. R&D Systems perform only very basic validation testing on DuoSet® Kits using cell culture supernates, and we strongly recommend further validation and optimization if using samples with more complex matrices, such as serum, plasma, cell lysates, or tissue homogenates. For sample types like these, researchers often find it necessary to optimize an alternate sample diluent that more closely matches the sample matrix for accurate measurement of the analyte – we also advise performing spike and recovery testing to determine the accuracy of the resulting ELISA and to determine if a sample dilution may be needed.

The basic testing of DuoSet® Kits means that the set of reagents we suggest using would be suitable (though not necessarily optimal) for most cell culture supernates, so researchers who are experienced with ELISAs and are comfortable coating

and blocking their own plates, and who need to run many plates of cell culture supernates often find DuoSet® Kits to be great options. Since the substrate and microplate are not included with the kit, they are also convenient for researchers who would like to use a detection system other than TMB – since the detection antibody is biotinylated instead of HRP conjugated, researchers could optimize the assay for use with a chemiluminescent or fluorescent substrate instead.

Supplemental products are available in a convenient Ancillary Reagent Kit for performing five 96-well assays. The Ancillary Reagent Kit is very highly recommended to reduce issues with reagents which are not optimized for these kits and may interfere with the assay. Components are also available separately in bulk sizes allowing for assay customization.

We would advise using DuoSet® Kits over Quantikine kits if the following is true about the circumstances regarding the assay:

- *The researcher needs to run many plates and cost is the most important factor.*
- *The researcher is experienced in ELISA and does not mind coating, blocking, and optimizing on their own.*
- *The ELISA only needs to be valid and not necessarily of the highest possible quality.*
- *The researcher would like to modify the assay in some way – for instance, changing the substrate, trying a 384-well plate or chip-based or bead-based assay, etc.*

We hope all of these details help you to decide whether DuoSet® Kits® would indeed be a great option for you or if you would prefer to use Quantikine kits for your important research.



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Choose the Right Immunoassay to Get Your Answers!

Whether you need qualitative or quantitative results, have limited or abundant sample, require single or multi-analyte analysis, you will be able to find an optimal solution at R&D Systems.

Proteome Profiler® Arrays	Luminex® Assays	Simple Plex™ Assays	DuoSet® ELISAs	Quantikine® ELISAs
No specialized equipment required, affordable screening tool.	Quantitative multiplex for up to 100 analytes, small sample size.	Multi-analyte parallel immunoassay, small sample size, easy to use, and sensitive.	Flexible, economical solution for single analyte ELISA, over 1,00 available.	The industry gold standard ELISA to confirm results. Over 450 available.