

Automation of a Homogeneous Proximity Assay for Immunogenicity Testing of Biological Drug Products

Primary function of application note	Comparison of two common methods for detection of anti-drug antibodies to antibody drug therapeutics as a tool for the assessment of immunogenicity during biological drug development.
BioTek products cited	Synergy™ Neo, Precision™, MultiFlo™, ELx50™
Other products cited	AlphaLISA (Perkin Elmer), ChromaLink reagents (Solulink)
Application	Biotherapeutics, Automation & Liquid Handling
Detection mode	Lum, Alpha
Target market	Biotherapeutic drug discovery
Keywords	Immunogenicity, antibody, biotherapeutics, biological, Bridging Assay, AlphaLISA, ADA

CONTEXT/BACKGROUND/HIGHLIGHTS

The generation of antibodies to foreign substances is the basis for fighting off disease and infection in the human body as part of the common immune response. It follows that the addition of a drug that is seen as foreign to the body will also come under such attack. The recent development of antibodies as drugs falls in this realm and can thus come under attack rendering its use ineffective. While all foreign substances will elicit some immune response understanding the severity of that response forms the basis for this type assay. The stronger the response in the general population the less effective a treatment based on the use of the drug being tested will be.

TIPS & TRICKS

The assay relies on several components that will be specific for the target drug antibody. Preparation of drug conjugates should be done in batches large enough to complete all experiments required for the validation study. Preparing reagents in batches will prevent additional steps needed for quantification and validation of conjugates.

As most of the validation experiments are typically performed by two or more operators, on two or more occasions, the individual human serum lots should be aliquoted and stored frozen in sealed master plates to prevent the need to freeze-thaw samples. The same can be said for antibodies/drug antibodies that may require storage under frozen conditions.

SAMPLE FILES

Gen5 2.01.13

120926 Alpha Drug Tol.xpt – AlphaLISA drug tolerance assay, 384-well format

120724 Sens and Pro-neo.xpt-Solution ELISA sensitivity and prozone effect assay, 96-well format