ANA Detection for Autoimmune Diseases

Direct Detection Assay

Antibodies are proteins produced by white blood cells (B cells) as a mean for the immune system to combat infectious organisms. They recognize and attack foreign proteins of the infectious organisms in a series of events call inflammation. In some cases, the antibodies incorrectly recognize and attack normal, naturally occurring proteins as foreign substances. In particular, antinuclear antibodies (ANA) are antibodies that target proteins in the nucleus of a cell. Presence of large amounts of these autoantibodies can indicate an autoimmune disease.

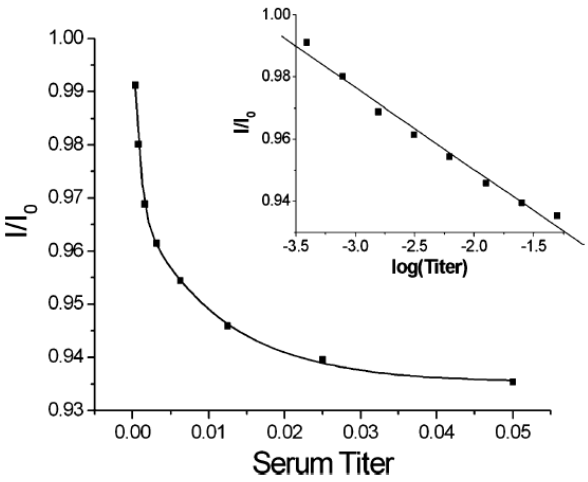

Fig. 1 Standard curves for ANA with FOPPR™ at different titers. Inset: plot of signal ratio as a function of log(titer).

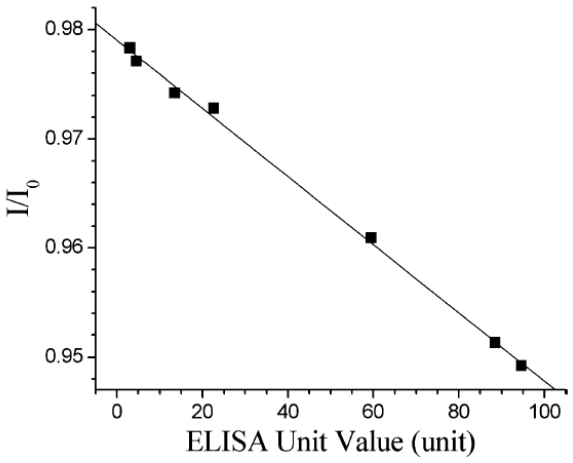

Fig. 2 Correlation between signal ratio measured with FOPPR™ and ELISA unit value.

ANA detection is usually performed and reported in titers and Fig. 1 shows the a standard curve of the sensor response versus serum titer from a dilution range of 1:20 to 1:2560 with the FOPPR™ Direct Detection Assay. Current methods for the detection of ANA include immunofluorescence (IF), immunoblotting (IB), and ELISA. Detection with FOPPR™ results in a limit of detection (LOD) of at least one order lower than the ELISA method while achieving a highly correlated results as shown in Fig. 2 without the need for laborious experimental procedures.

References:
[1] https://www.rheumatology.org/I-Am-A/Patient-Caregiver/Diseases-Conditions/Antinuclear-Antibodies-ANA
[2] Lai et al. *Anal Bioanal Chem* 2007 388, 901–907.

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