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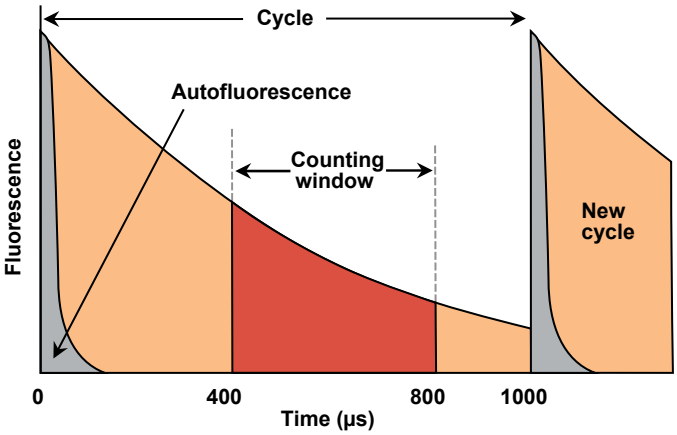
Time-resolved fluorometry (TRF)

Lanthanide-based labels have found numerous applications in various fields of biomolecular and medical research. This is due to the unique properties of the luminescent lanthanide chelates, including their large Stokes' shift (difference between excitation and emission wavelengths) and exceptionally long decay times that allow the use of time-resolution to minimize the background interferences in immunoassays.

In the measurement of lanthanide label signal using TRF, a short excitation pulse is first applied to the sample. After this there is a delay of typically some hundred microseconds during which the autofluorescence from the plasticware and any biological components fades out. The emission from the label is then measured and the cycle is repeated several hundred to thousand times.

Benefits

- the reduction of autofluorescent background leading to improved assay sensitivity
- lanthanide-based labels have structured emission and no self-quenching or photobleching
- the large Stokes' shift and the narrow emission peaks further improve signal-to-noise ratios



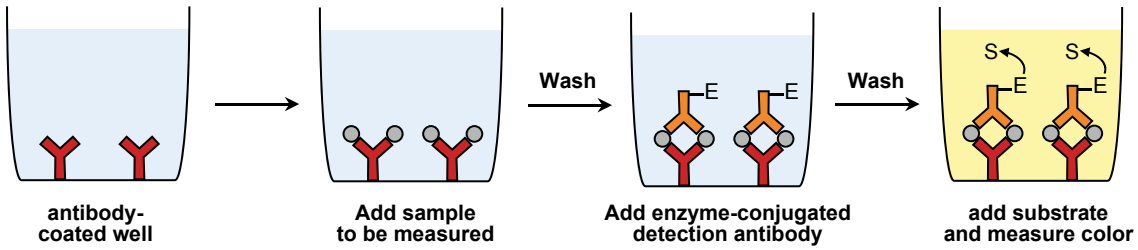
Principle of TRF measurement. After an excitation pulse, the signal from the label is measured following a short delay that allows the autofluorescence to fade out.

Enzyme linked immunosorbent assay (ELISA)

Enzyme linked immunosorbent assay (ELISA) is a very sensitive immunochemical technique which is used to detect the presence of a specific protein (antigen or antibody) in the given sample and allow it's quantification. It is also called solid-phase enzyme immunoassay as it employs an enzyme linked antigen or antibody as a marker for the detection of a specific protein. An enzyme conjugated with an antibody reacts with a colorless substrate to generate a colored reaction product. A number of enzymes have been employed for ELISA, including alkaline phosphatase, horseradish peroxidase, and B-galactosidase.

Benefits

- the signal amplification and washing of unbound material allows for high-sensitivity assays
- simple and quick assay format
- reagents are widely available and relatively cost effective



Principle of Sandwich ELISA. First the sample is added to an antibody coated microplate. Excess components are washed away after incubation and detection antibody conjugated to enzyme is added. Finally the wells are washed, substrate producing color is added and the wells are measured.

Assay components and services for TRF and ELISA from Kaivogen

Kaivogen´s KaiSA96 streptavidin coated microplates are used routinely in ELISA kits. Kaivogen offers streptavidin-coated microplates also in several other 96-well formats and with different properties giving you the option to select the best alternative for your ELISA or TRF application. In addition to streptavidin plates, Kaivogen also offers anti-mouse coated microplates as a catalogue item. If your assay demands a special surface for optimal performance, Kaivogen runs a custom coating service to fulfil your needs.

For TRF applications, Kaivogen provides a labelling service for antibodies and other proteins. The proteins can be labelled with several different chelates having different properties according to your needs. Also reporter molecules suitable for ELISA are available through our custom labelling service, as well as proteins labelled with traditional fluorescent dyes or biotin.

Kaivogen also offers controlled production facilities for preparation of buffers and other laboratory liquids. For those lanthanide chelates that are not intrinsically fluorescent, Kaivogen provides Europium Fluorescence Intesifier solution (EFI) used for the necessary signal intensification step.

All needed assay components with customer-oriented and reliable service

- streptavidin and anti-mouse coated microplates
- custom microplate coating service
- proteins labelled with intrinsically fluorescent lanthanide chelates for TR-FRET
- proteins labelled with intrinsically non-fluorescent lanthanide chelates for ultra-sensitive immunoassays and intensifier solution
- conjugation service for attaching ELISA reporters, fluorophores or biotin to biomolecules
- buffers and other laboratory liquid

Instruments and services for TRF and ELISA from Labrox

For diagnostic use the standard configuration reader includes 4 detection modes (ABS, LUM, FI, TRF). Customized options are available. Features include:

- Top & Bottom reading with PMT detection
- Shaking & temperature control
- Measurable plate formats up to 1536 well plate
- Capacity for 32 optical filters and 5 dichroic mirrors
- Convenient size (202 x 268 x 495mm/ 13 kg)
- Dispenser option available

The readers' preloaded user interface program can be accessed by a computer with an internet browser. Delivery does not include PC.

KAIVOGEN

Kaivogen Oy, Tykistökatu 4 D 2nd floor
FIN-20520 Turku, Finland, Tel. +358 44 584 5062
www.kaivogen.com, info@kaivogen.com

Labrox

Labrox Oy, Vajossuonkatu 5
FIN-20360, Turku, Finland, Tel. +358 50 372 3080
www.labrox.fi, support@labrox.fi