ProAxsis

ProteaseTags™

Smart tools to detect active protease biomarkers of disease

Cross platform capabilities

proaxsis.com

Active Neutrophil Elastase Immunoassay

Neutrophil Elastase

Neutrophil elastase (NE) is a biomarker of infection and inflammation which has been shown to correlate with the severity of several respiratory diseases such as cystic fibrosis, COPD and bronchiectasis. NE has long been used as an endpoint in clinical studies aimed at evaluating the efficacy of new anti-elastase inhibitors or other anti-inflammatory therapies.

The Problem

Assessing active protease levels, particularly in complex biological samples such as sputum or bronchoalveolar lavage samples are problematic due to a lack of reliable and robust methodologies, which result in data with high variability and limited reproducibility.

Other commercially available antibody-based assays measure total protease levels that are composites of the amounts of latent, active, and inhibitor-enzyme complexes, which may have limited value in correlations with disease severity. Fluorogenic or chromogenic substrates can be hydrolysed by multiple activities within a biological sample and therefore are not suitable for biomarker analysis utilising complex fluids.

The Solution

ProteaseTag™ Active NE Immunoassay meets the need for a robust assay to assist in the measurement of the active biomarker. Using our patented NE-Tag™, we have developed an activity-dependent assay which is the only one that can detect active proteases without utilising chromogenic or fluorogenic substrates.

ProteaseTag™ Active NE is available in 2 formats – standard and lateral flow, providing NE detection limits ranging from 1000 – 7.2 ng/ml.

ML-00-00741 Rev02

The Technology

ProteaseTag™ Active NE captures NE activity using NE-Tag™ and the subsequent antibody step provides additional signal amplification with increased sensitivity and results in less than 3 hours.

Detection with NE-Tag™ is quantitative and discriminatory. The majority of commercially available ELISA-based systems fail to discern between active NE and NE complexed with natural inhibitors e.g. alpha1 antitrypsin. ProteaseTag™ Active NE only targets the active biomarker therefore removes any risk of signal contamination by inhibited/AAT-complexed NE or other proteolytic species within biologically complex clinical samples.

### Key benefits of ProteaseTag™ Active Neutrophil Elastase Immunoassay

- Detects active NE specifically and with high affinity
- Reduced assay time and number of system components
- Distinguishes between active and latent enzyme compared to standard antibody-based approaches

- Suitable for use with most biological samples
- Significantly correlates with other activity-based NE assays
- Easy to use and not dependent on kinetic readout
- Precise and reproducible
- 2 formats available – standard 96-well and lateral flow, which ensures that each test is specific for your sample and time requirements.

Assay Characteristics

- Sensitive – limit of assay detection from 7.2 ng/ml
- Reproducible – inter-assay cv 2.6; intra-assay cv 10.6
- Validated on sputum sol, BAL and wound exudate
- Ready to use reagents
- Highly specific – will only target the active form of NE.
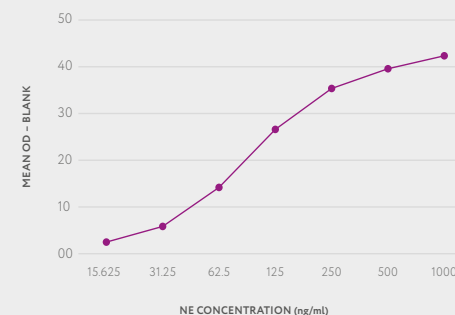
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