

HBT ELISA TEST KITS FOR HUMAN NEUTROPHIL ELASTASE

The Hbt Human Elastase elisa kit is intended for the quantitative measurement of free and bound natural human neutrophil elastase in cell culture medium or plasma.

Neutrophil elastase, a major serine proteinase in man, is predominantly present in the azurophilic granules of neutrophils. Elastase has a broad range of extracellular matrix substrates including elastin, proteoglycans, collagen and fibronectin. The action of elastase is controlled by serine proteinase inhibitors. Elastase, when released during inflammation, is rapidly bound by its two main inhibitors, alpha1-PI and alpha2-macroglobuline to form elastase-inhibitor complexes. In addition, mucosa secretions may contain the locally secreted elastase inhibitors elafin/SKALP and SLPI.

When secreted at sites of inflammation elastase can cause severe tissue damage. An important role has been suggested for elastase in various inflammatory disorders, including pulmonary emphysema, sepsis, arthritis, nephritis and certain skin diseases. Elastase induces the production of IL-8 in human bronchial epithelial, a process that occurs in part through TLR4.

In plasma of healthy individuals approx. 55 ng/ml (29 - 86 ng/ml) elastase is present.

PRINCIPLE OF THE TEST

The Hbt Human Elastase ELISA test kit is a solid-phase enzyme-linked immunosorbent assay based on the sandwich principle. Samples and standards are incubated in microtiter wells coated with antibodies recognizing human elastase. During this incubation human elastase is captured by solid bound antibody. Unbound material present in the sample is removed by washing. Next biotinylated second antibody (tracer) to human elastase is added to the wells. If elastase was present in the sample, the tracer antibodies will bind to the captured elastase. The excess tracer is removed by washing. Next a streptavidin-peroxidase conjugate is applied to the wells, this conjugate reacts specifically with the biotinylated tracer antibody bound onto the detected elastase. The excess streptavidin-peroxidase conjugate is removed by washing and substrate, tetramethylbenzidine (TMB) is added to the wells. Colour develops proportionally to the amount of human elastase present in the sample. The enzyme reaction is stopped by the addition of citric acid and the absorption at 450 nm is measured with a spectrophotometer. A standard curve is obtained by plotting the absorptions versus the corresponding concentrations of the known standards. The human elastase concentration of samples with unknown concentrations, which are run concurrently with the standards, can be determined from the standard curve.

SPECIAL FEATURES OF THE KIT

- Ready-to-use (i.e. pre-coated microwells).
- High specificity.
- High reproducibility
- High sensitivity. The minimum concentration which can be measured is 400 pg/ml of elastase.
- Large measurable concentration range. Standard curve from 400-25,000 pg/ml.
- Efficient format. Two plates with each twelve 8-well strips allow free choice of batch size for the assay.
- Simple, rapid procedure. Four pipetting steps are required to complete the assay. Working time 3½ hours.

LITERATURE

- Dentener M, et al.; Bacterial/permeability-increasing protein release in whole blood ex vivo: strong induction by lipopolysaccharide and tumor necrosis factor- α ; *J. Infect. Dis.*, 1996; 175: 108-117.
- Hiltermann J, et al.; Ozone-induced inflammation assessed in sputum and bronchial lavage fluid from asthmatics: a new noninvasive tool in epidemiologic studies on air pollution and asthma; *Free Radic. Biol. Med.*, 1999; 27: 1448-1454.

AVAILABILITY

The Hbt Human Elastase test is available in a kit for 2 x 96 determinations.

PRODUCT NUMBER: HK319

Hbt Human Elastase ELISA Kit

For research purposes only.

Caution: Not for use in humans.