abcam

Product datasheet

# Human Calprotectin ELISA kit (S100A8/S100A9) ab267628

2 References 1 Image

## Overview

**Product name** Human Calprotectin ELISA kit (S100A8/S100A9)

**Detection method** Colorimetric

**Precision**

Intra-assay

| Sample | n | Mean | SD | CV% |
|---|---|---|---|---|
| Overall | | | | < 10% |

Inter-assay

| Sample | n | Mean | SD | CV% |
|---|---|---|---|---|
| Overall | | | | < 12% |

**Sample type** Cell culture supernatant, Serum, Plasma

**Assay type** Sandwich (quantitative)

**Sensitivity** 35 pg/ml

**Range** 32.77 pg/ml - 8000 pg/ml

**Recovery**

Sample specific recovery

| Sample type | Average % | Range |
|---|---|---|
| Serum | 112.8 | 107% - 117% |
| Plasma | 97.34 | 88% - 107% |
| Cell culture media | 114.4 | 106% - 124% |

**Assay duration** Multiple steps standard assay

**Species reactivity** **Reacts with:** Human

**Product overview** Human Calprotectin ELISA Kit is designed for the quantitative determination of Calprotectin in cell culture supernatants, plasma and serum samples.

This assay employs an antibody specific for human Calprotectin coated on a 96-well plate. Standards and samples are pipetted into the wells and Calprotectin present in a sample is bound to the wells by the immobilized antibody. The wells are washed and biotinylated anti-human Calprotectin antibody is added. After washing away unbound biotinylated antibody, HRP-conjugated streptavidin is pipetted to the wells. The wells are again washed, a TMB substrate solution is added to the wells and color develops in proportion to the amount of Calprotectin bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm.

**Platform** Pre-coated microplate (12 x 8 well strips)

## Properties

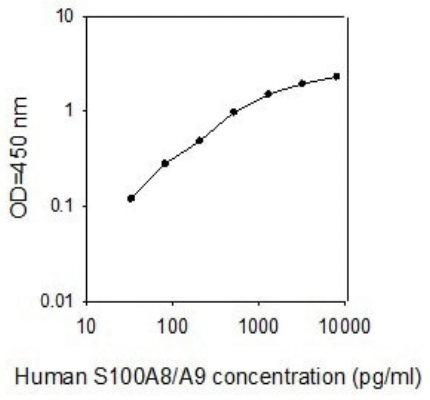
**Storage instructions** Store at -20°C. Please refer to protocols.

| Components | 1 x 96 tests |
|---|---|
| 20X Wash Buffer | 1 x 25ml |
| 5X Assay Diluent | 1 x 15ml |
| 900X HRP-Streptavidin Concentrate | 1 x 200µl |
| Anti-Human Calprotectin coated Microplate (12 x 8 wells) | 1 unit |
| Biotinylated Anti-Human Calprotectin Detection Antibody | 2 vials |
| Human Calprotectin Standard (Lyophilized) | 2 vials |
| Stop Solution | 1 x 8ml |
| TMB Substrate Solution | 1 x 12ml |

**Function** S100A9 is a calcium- and zinc-binding protein which plays a prominent role in the regulation of inflammatory processes and immune response. It can induce neutrophil chemotaxis, adhesion, can increase the bactericidal activity of neutrophils by promoting phagocytosis via activation of SYK, PI3K/AKT, and ERK1/2 and can induce degranulation of neutrophils by a MAPK-dependent mechanism. Predominantly found as calprotectin (S100A8/A9) which has a wide plethora of intra- and extracellular functions. The intracellular functions include: facilitating leukocyte arachidonic acid trafficking and metabolism, modulation of the tubulin-dependent cytoskeleton during migration of phagocytes and activation of the neutrophilic NADPH-oxidase. Activates NADPH-oxidase by facilitating the enzyme complex assembly at the cell membrane, transfering arachidonic acid, an essential cofactor, to the enzyme complex and S100A8 contributes to the enzyme assembly by directly binding to NCF2/P67PHOX. The extracellular functions involve proinfammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities. Its proinflammatory activity includes recruitment of leukocytes, promotion of cytokine and chemokine production, and regulation of leukocyte adhesion and migration. Acts as an alarmin or a danger associated molecular pattern (DAMP) molecule and stimulates innate immune cells via binding to pattern recognition receptors such as Toll-like receptor 4 (TLR4) and receptor for advanced glycation endproducts (AGER). Binding to TLR4 and AGER activates the MAP-kinase and NF-kappa-B signaling pathways resulting in the amplification of the proinflammatory cascade. Has antimicrobial activity towards bacteria and fungi and exerts its antimicrobial activity probably via

| | |
|---|---|
| | chelation of Zn(2+) which is essential for microbial growth. Can induce cell death via autophagy and apoptosis and this occurs through the cross-talk of mitochondria and lysosomes via reactive oxygen species (ROS) and the process involves BNIP3. Can regulate neutrophil number and apoptosis by an anti-apoptotic effect; regulates cell survival via ITGAM/ITGB and TLR4 and a signaling mechanism involving MEK-ERK. Its role as an oxidant scavenger has a protective role in preventing exaggerated tissue damage by scavenging oxidants. Can act as a potent amplifier of inflammation in autoimmunity as well as in cancer development and tumor spread. |
| **Tissue specificity** | Calprotectin (S100A8/9) is predominantly expressed in myeloid cells. Except for inflammatory conditions, the expression is restricted to a specific stage of myeloid differentiation since both proteins are expressed in circulating neutrophils and monocytes but are absent in normal tissue macrophages and lymphocytes. Under chronic inflammatory conditions, such as psoriasis and malignant disorders, also expressed in the epidermis. Found in high concentrations at local sites of inflammation or in the serum of patients with inflammatory diseases such as rheumatoid, cystic fibrosis, inflammatory bowel disease, Crohn's disease, giant cell arteritis, cystic fibrosis, Sjogren's syndrome, systemic lupus erythematosus, and progressive systemic sclerosis. Involved in the formation and deposition of amyloids in the aging prostate known as corpora amylacea inclusions. Strongly up-regulated in many tumors, including gastric, esophageal, colon, pancreatic, bladder, ovarian, thyroid, breast and skin cancers. |
| **Sequence similarities** | Belongs to the S-100 family.<br>Contains 2 EF-hand domains. |
| **Post-translational modifications** | Phosphorylated. Phosphorylation inhibits activation of tubulin polymerization. |
| **Cellular localization** | Secreted. Cytoplasm. Cytoplasm > cytoskeleton. Cell membrane. Predominantly localized in the cytoplasm. Upon elevation of the intracellular calcium level, translocated from the cytoplasm to the cytoskeleton and the cell membrane. Upon neutrophil activation or endothelial adhesion of monocytes, is secreted via a microtubule-mediated, alternative pathway. |

## Images




Example data

This standard curve is for demonstration only. A standard curve must be run with each assay.

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