# BIOTINYLATED MONOCLONAL ANTIBODY TO HUMAN CALPROTECTIN (S100A8/A9)

**clone 27E10**

**Catalog no** HM2156BT (lot number and expiry date are indicated on the label)

**Description** The monoclonal antibody 27E10 recognizes an epitope specific for the S100A8/A9 heterocomplex that is not exposed on the individual subunits S100A8 (MRP8, calgranulin-A) or S100A9 (MRP14, calgranulin-B). The calcium-binding migration inhibitory factor-related proteins, MRP-8 (S100A8) and MRP-14 (S100A9) belong to the S100 protein family. The expression of these proteins is largely confined to the cytosol of neutrophils and monocytes. The complex formation of these proteins is a calcium-dependent process. The S100A8/A9 heterocomplex, also called MRP-8/MRP-14 complex or calprotectin, comprises 60% of the cytoplasmic protein fraction of circulating polymorphonuclear granulocytes and is also found in monocytes, macrophages and ileal tissue eosinophils. Peripheral blood monocytes carry the antigen extra- and intracellularly, neutrophils only intracellularly. The S100A8/A9 complex has antibacterial, antifungal, immunomodulating and antiproliferative effects. Besides this it is a potent chemotactic factor for neutrophils. Plasma concentrations are elevated in diseases associated with increased neutrophil activity, like inflammatory bowel disease. Granulocytes terminate their existence after transmigration through the intestinal wall. Therefore calprotectin is also detectable in feces. Elevated levels of calprotectin have been observed in body fluids such as plasma, saliva, gingival crevicular fluid, stools, and synovial fluid during infection and inflammatory conditions.
The monoclonal antibody 27E10 can be used for early detection of inflammatory macrophages, for the characterization of tumorous tissues and the monitoring of peripheral blood cell cultures. The antibody 27E10 does not react with lymphocytes or platelets.

**Aliases** S100A8/A9, MRP-8/MRP-14, calprotectin, calgranulin-A/calgranulin-B, L1-protein

**Immunogen** Human blood monocytes

**Species** Mouse $IgG_1$

**Cross reactivity**

| Cross reactant | Reactivity |
|---|---|
| Mouse | No |
| Rhesus Monkey | Yes (subpopulation of macrophages) |

**Formulation** 0.5 ml (100 µg/ml) 0.2 µm filtered biotinylated antibody solution in PBS, containing 0.1% bovine serum albumin and 0.02% sodium azide

**Application**

| | F[1,3] | FC[1] | FS | IA[4] | IF[1,2,4] | IP[2,4] | P | W |
|---|---|---|---|---|---|---|---|---|
| Yes | ● | ● | | ● | ● | ● | ● | ● |
| No | | | ● | | | | | |
| N.D. | | | | | | | | |

*N.D.= Not Determined; F = Frozen sections; FC = Flow Cytometry; FS = Functional Studies; IA = Immuno Assays; IF = Immuno Fluorescence; IP = Immuno Precipitation; P = Paraffin sections; W = Western blot*
*FC, IA and W are applications tested at Hycult Biotech. P is based on personal communication.*

**Application notes**
W: non-reduced;~22 kDa; doesn't recognize the single proteins S100A8 and S100A9
HPLC: reduced (~17 kDa) and non-reduced(various sizes due to association with other elements (Ref1)
F: acetone fixation; 0.1 % hydrogen peroxide treatment to reduce enogenous peroxidise activity; positive control: inflammatory tissue; negative control: normal human tissue (skin, lung, colon) (Ref1):
FC: Extracelullar expression on monocytes, as negative control HL-60, platelets, lymphocytes can be used.

**References**


1. Zwadlo, G et al; A monoclonal antibody to a subset of human monocytes found only in the peripheral blood and inflammatory tissues. J Immunol 1986, *137*: 512
2. Hessian, P et al; The heterodimeric complex of MRP-8 (S100A8) and MRP-14 (S100A9) – Antibody recognition, epitope definition and the implications for structure. Eur J Biochem 2001, *268*: 353
3. Kuhn, A et al; Upregulation of epidermal surface molecule expression in primary and ultraviolet-induced lesions of lupus erythematosus tumidus. Br J Dermatol 2002, *146*: 801
4. Champaiboon, C et al; Calprotectin S100A9 calcium-binding loops I and II are essential for

keratinocyte resistance to bacterial invasion. J Biol Chem 2009, *284*: 7078

**Use**

For immunohistology, flow cytometry and Western blotting, dilutions to be used depend on detection system applied. It is recommended that users test the reagent and determine their own optimal dilutions. The typical starting working dilution is 1:50.

**Positive control**

Human granulocytes

**Negative control**

Platelets, lymphocytes, HL-60 cells

**Storage and stability**

Product should be stored at 4℃. Under recommended storage conditions, product is stable for one year.

**Precautions**

For research use only. Not for use in or on humans or animals or for diagnostics. It is the responsibility of the user to comply with all local/state and federal rules in the use of this product. Hycult Biotech is not responsible for any patent infringements that might result from the use or derivation of this product.

**Also available**

| | |
|---|---|
| HM2156 | Monoclonal antibody against Human Calprotectin, clone 27E10 |
| HM2156F | FITC conjugated monoclonal antibody against Human Calprotectin, clone 27E10 |
| HM2134 | Monoclonal antibody against Human TfR1, clone 3B8 2A1 |
| HM2158 | Monoclonal antibody against Human Macrophages, clone 25F9 |
| HP9034 | Polyclonal antibody against Human Lactoferrin |
| HP9035 | Polyclonal antibody against Human Lysozyme |
| HK325 | Human Calprotectin ELISA, 2x 96 det. |