

Hycult biotechnology

PR3, Clone WGM2, Human mAb

Catalog No. HM2171 **Quantity:** 100 µg

Description: Monoclonal antibody WGM2 reacts with human proteinase 3 (PR3), a 30 kDa protein. PR3 is a major antigen recognized by autoantibodies directed against cytoplasmic proteins of neutrophilic granulocytes and monocytes (so called anti-neutrophil cytoplasmic autoantibodies (ANCA)). ANCA are able to activate primed neutrophils to produce oxygen radicals and release lytic enzymes, including PR3. Proteinase 3 (PR3) was identified as the target antigen of ANCA in Wegener's granulomatosis (WG). ANCA directed against PR3 (PR3-ANCA) can interfere with the binding of PR3 to its physiological inhibitor alpha1-antitrypsin (alpha1-AT) and with the proteolytic activity of PR3. At the site of inflammation PR3 can cleave the complex between these inhibiting ANCA and PR3 itself, leaving active PR3. Autoantibodies to PR3 are potent activators of the 5-lipoxygenase pathway in primed human neutrophils. Extracellular free arachidonic acid, as present at an inflammatory focus, synergizes with such autoantibodies to evoke full-blown lipid mediator generation, granule secretion and respiratory burst. Proteinase 3 (PR3) is a neutral serine proteinase, which is localized in the azurophilic granules of neutrophils and in granules of monocytes and can be detected in the membrane of secretory vesicles. PR3 degrades a number of extracellular matrix proteins such as elastin and inactivates human C1 inhibitor. Membrane-associated PR3 is also able to activate caspase-3 without triggering apoptosis of neutrophils, which is possibly a neutrophil survival mechanism. In addition, PR3 is involved in myeloid differentiation and is, therefore, also called myeloblastin. Monoclonal antibody WGM2 blocks the PR3 activity and partially inhibits the binding of human PR3-ANCA to PR3.

Concentration: 100 µg/ml

Specificity: Human PR3

Host: Mouse

Isotype: IgG₁

Clone: WGM2

Formulation: 1 ml (100 µg/ml) 0.2 µm filtered antibody solution in PBS, containing 0.1% bovine serum albumin.

Applications The monoclonal antibody WGM2 can be used for flow cytometry, Western blotting and immunohistology on both frozen and paraffin embedded sections. Furthermore the antibody WGM2 can be used in immuno assays, for inhibition of biological PR3 activity and induction of monocytes and neutrophils activation. For flow cytometry, Western blotting and immunohistology 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 1:10. For inhibition of biological activity of PR3 dilutions have to be made according to the amounts



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of proteinase 3 to be inactivated.

Storage & Stability:

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

References:

1. Csernok, E et al; Ultrastructural localization of proteinase 3, the target antigen of anti-cytoplasmic antibodies circulating in Wegener's granulomatosis. *Am.J.Pathol.* 1990, *137*: 1113.
2. Grimminger, F et al; Neutrophil activation by anti-proteinase 3 antibodies in Wegener's granulomatosis: role of exogenous arachidonic acid and leukotriene B4 generation. *J Exp Med* 1996, *184*: 1567
3. Geld van der, Y et al; Characterization of monoclonal antibodies to proteinase 3 (PR3) as candidate tools for epitope mapping of human anti-PR3 autoantibodies. *Clin Exp Immunol* 1999, *118*: 487
4. Csernok, E et al; A critical evaluation of commercial immunoassays for antineutrophil cytoplasmic antibodies directed against proteinase 3 and myeloperoxidase in Wegener's granulomatosis and microscopic polyangiitis. *Rheumatology* 2002, *41*: 1313
5. Braun, M et al; Proteinase 3, the target antigen of anticytoplasmic antibodies circulating in Wegener's granulomatosis. Immunolocalization in normal and pathologic tissues. *Am J Pathol* 1991, *139*: 831
6. Braun, M et al; Monoclonal antibody WGM1 directed against proteinase 3: an immunohistochemical marker for naphtol ASD chloroacetate. *Hematolo Oncol* 1996, *14*: 83
7. Pederzoli, M et al: Proteinase-3 induces procaspase-3 activation in the absence of apoptosis: potential role of this compartmentalized activation of membrane-associated procaspase-3 in neutrophils. *J Immunol* 2005, *174*: 6381

Also available:

HM2164: Monoclonal antibody against human MPO, clone 266-6K1
HM2172: Monoclonal antibody against human Proteinase 3 (PR3), clone PR3-G2
HM2173: Monoclonal antibody against human Lactoferrin, clone 265-1K1
HM2174: Monoclonal antibody against human Elastase, clone 265-3K1
HM2193: Monoclonal antibody against human nGal (lipocalin), clone 697

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