

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human $\alpha_2$ -Macroglobulin in direct ELISAs and Western blots. In direct ELISAs, less than 2% cross-reactivity with recombinant human $\alpha_2$ -Macroglobulin-like 1 is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Human plasma-derived $\alpha_2$ -Macroglobulin
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 $\mu$ m filtered solution in PBS.

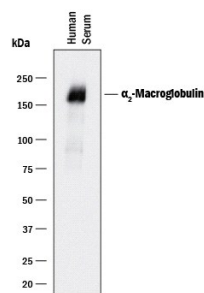
## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	0.5 $\mu$ g/mL	See Below
<b>Immunocytochemistry</b>	5-15 $\mu$ g/mL	See Below
<b>Immunoprecipitation</b>	25 $\mu$ g/mL	Conditioned cell culture medium spiked with Human $\alpha_2$ -Macroglobulin (Catalog # 1938-PI), see our available <a href="#">Western blot detection antibodies</a>
<b>Simple Western</b>	1 $\mu$ g/mL	See Below

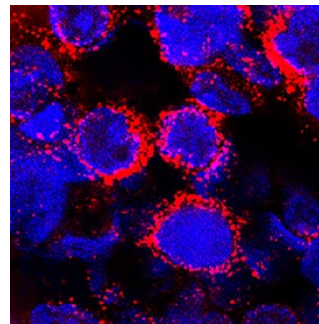
## DATA

### Western Blot



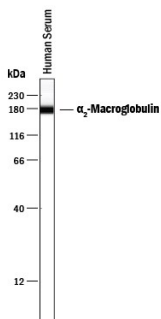
**Detection of Human  $\alpha_2$ -Macroglobulin by Western Blot.** Western blot shows human serum. PVDF membrane was probed with 0.5  $\mu$ g/mL of Goat Anti-Human  $\alpha_2$ -Macroglobulin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1938) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for  $\alpha_2$ -Macroglobulin at approximately 180 kDa (as indicated). This experiment was conducted under reducing conditions and using *Immunoblot Buffer Group 1*.

### Immunocytochemistry



**$\alpha_2$ -Macroglobulin in human PBMCs.**  $\alpha_2$ -Macroglobulin was detected in immersion fixed human peripheral blood mononuclear cells (PBMCs) using Goat Anti-Human  $\alpha_2$ -Macroglobulin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1938) at 15  $\mu$ g/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

### Simple Western



**Detection of Human  $\alpha_2$ -Macroglobulin by Simple Western™.** Simple Western lane view shows human serum, loaded at 0.2 mg/mL. A specific band was detected for  $\alpha_2$ -Macroglobulin at approximately 178 kDa (as indicated) using 1  $\mu$ g/mL of Goat Anti-Human  $\alpha_2$ -Macroglobulin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1938) followed by 1:50 dilution of HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF109). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.



## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

Human  $\alpha_2$ -macroglobulin (h $\alpha_2$ M) is a serum glycoprotein that has sequence similarity to other members of the  $\alpha_2$ M family including complement components C3, C4 and C5 (1).  $\alpha_2$ M is synthesized as a polypeptide of 1474 amino acids with a signal peptide (23 residues) (2). The mature protein is a tetramer (720 kDa) of 4 identical subunits (180 kDa), which form two disulfide bond-linked dimers. As a general and irreversible protease inhibitor implicated in many processes,  $\alpha_2$ M is able to inhibit all four classes of proteases by a unique trapping mechanism. The bait region of h $\alpha_2$ M (residues 690-728) contains specific cleavage sites for different proteases. The cleavage of the bait region by a protease induces a conformation change in  $\alpha_2$ M, which then traps and forms a covalent bond with the protease. The trapped protease remains active against small peptide substrates but loses its ability to interact with large protein substrates or inhibitors.

## References:

1. Sottrup-Jensen, L. *et al.* (1985) Proc. Natl. Acad. Sci. USA **82**:9.
2. Kan, C.C. *et al.* (1985) Proc. Natl. Acad. Sci. USA **82**:2282.