# Human $\alpha_2$-Macroglobulin Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF1938

## DESCRIPTION

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

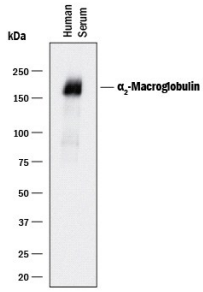
## APPLICATIONS

**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 |
|---|---|---|
| **Western Blot** | 0.5 µg/mL | See Below |
| **Immunocytochemistry** | 5-15 µg/mL | See Below |
| **Immunoprecipitation** | 25 µg/mL | Conditioned cell culture medium spiked with Human $\alpha_2$-Macroglobulin (Catalog # 1938-PI), see our available Western blot detection antibodies |
| **Simple Western** | 1 µg/mL | See Below |

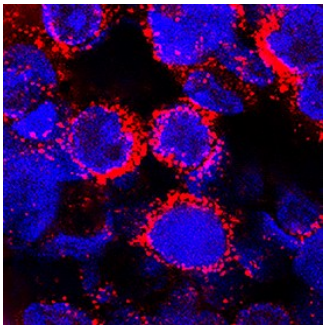
## DATA

### Western Blot



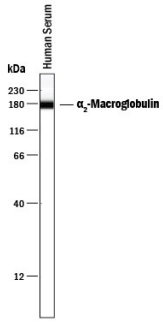

**Detection of Human $\alpha_2$-Macroglobulin by Western Blot.** Western blot shows human serum. PVDF membrane was probed with 0.5 µg/mL of Goat Anti-Human $\alpha_2$-Macroglobulin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1938) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (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 µg/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 µg/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

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| **Reconstitution** | Reconstitute at 0.2 mg/mL in sterile PBS. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.<br>*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 6 months, -20 to -70 °C under sterile conditions after reconstitution. |



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## BACKGROUND

Human $\alpha_2$-macroglobulin (hα2M) is a serum glycoprotein that has sequence similarity to other members of the α2M family including complement components C3, C4 and C5 (1). α2M 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, α2M is able to inhibit all four classes of proteases by a unique trapping mechanism. The bait region of hα2M (residues 690-728) contains specific cleavage sites for different proteases. The cleavage of the bait region by a protease induces a conformation change in α2M, 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.



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