

Goat anti-human α_2 Macroglobulin (α_2 M)
Peroxidase Conjugated Affinity-Purified IgG
0.1 mg

Product #: GAA2M-APHRP
Lot #: XXXX
Expiry date: XXXX

Store at -10 to -20°C

For Research Use Only.
Not for use in diagnostic procedures.

Description of α_2 Macroglobulin (α_2 M)

α_2 Macroglobulin (α_2 M) is a large proteinase inhibitor molecule of 718,000 daltons, consisting of 4 identical subunits of 185,000 each. Produced in hepatocytes and macrophages, plasma concentrations of α_2 M are typically 2 μ M in adults, and as high as 6 μ M in childhood. α_2 M has the ability to inhibit most enzymes from the serine, metallo, cysteine and aspartate subclasses. It is not a member of the SERPIN family of inhibitors but belongs to a class of proteins that include pregnancy zone protein (PZP) and the complement proteins C3, C4 and C5. These proteins contain regions of conserved sequence as well as one or more internal β -cysteinylyl-glutamyl thiolester bonds, which in the case of α_2 M are susceptible to cleavage by enzymes or by nucleophilic compounds such as methylamine or ammonium ions. Although the precise nature of the interactions is as yet unknown, it is generally thought that cleavage of a bait region within the α_2 M molecule by an enzyme leads to a conformational change, which then traps and/or covalently binds the enzyme^{1,2}. The active site of the trapped enzyme is usually still intact and able to cleave small substrates, but is inaccessible to larger natural substrates. The conformational change induced also exposes receptor-binding regions within the molecule, which may be important in the clearance of α_2 M-enzyme complexes from the circulation. It is thought that the main role of α_2 M *in vivo* is that of a "backup" inhibitor and scavenger of proteinases in blood and in tissues^{3,4}, but it has also been reported to participate in other physiological processes, including regulation of immune function^{1,2}.

REFERENCES and REVIEWS

1. Salvesen G, Pizzo SV; Proteinase Inhibitors: α -Macroglobulins, Serpins and Kunins; in **Hemostasis and Thrombosis**, 3rd Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp. 241-258, J.B. Lippincott Co., Philadelphia PA, USA, 1994.
2. Barrett J; α_2 Macroglobulin; *Methods in Enzymology*, 80, pp 737-754, 1981
Larsson LJ, Neuenschwander DE, Strickland DK; Reaction of Proteinases with α_2 Macroglobulin: Evidence for Alternate Reaction Pathways in the Inhibition of Trypsin; *Biochemistry* 28, pp 7636-7643, 1989.
3. Schmidt B, Mitchell L, Ofosu FA, Andrew M; α_2 Macroglobulin is an Important Progressive Inhibitor of Thrombin in Neonatal and Infant Plasma; *Thromb Haemostas* 62, pp 1074-1077, 1989.
4. Hoogendoorn H, Toh CH, Nesheim ME, Giles AR; α_2 Macroglobulin Binds and Inhibits Activated Protein C; *Blood* 78, pp2283-2290, 1991.

Product Specifications

Description:

Vial containing XXXX ml of affinity-purified IgG conjugated to horseradish peroxidase (HRP) through carbohydrate groups. Total protein is 0.1 mg.

Format:

APIgG-HRP conjugate as a clear, slightly red-brown liquid.

Host Animal:

Goat

Immunogen:

Human α_2 macroglobulin purified from plasma.

Concentration:

APIgG-HRP concentration is XXXX mg/ml, determined by absorbance using an extinction coefficient ($E_{280}^{1\%}$) of 14.

Buffer:

A buffered stabilizer solution containing 50% (v/v) glycerol.

Storage:

Store between -10 and -20°C. Product will become viscous but will not freeze. Avoid storage in frost-free freezers. Keep vial tightly capped. Allow product to warm to room-temperature and gently mix before use. Avoid exposure to sodium azide as this is an inhibitor of peroxidase activity.

Specificity:

Prior to conjugation, this antibody was specific for α_2 M as demonstrated by immunoelectrophoresis and ELISA.

Applications:

Suitable as a source of peroxidase-labeled antibodies to α_2 M.

Rz Ratio (Reinheitszahl, A_{403}/A_{280}):

XXXX as determined spectrophotometrically.