Goat anti-human α₂Macroglobulin (α₂M)
Peroxidase Conjugated Affinity-Purified IgG

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 α₂Macroglobulin (α₂M)

α₂Macroglobulin (α₂M) 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 α₂M are typically 2 µM in adults, and as high as 6 µM in childhood. α₂M 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-cysteinylγ-glutamyl thiolester bonds, which in the case of α₂M 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 α₂M molecule by an enzyme leads to a conformational change, which then traps and/or covalently binds the enzyme. 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 α₂M-enzyme complexes from the circulation. It is thought that the main role of α₂M in vivo is that of a “backup” inhibitor and scavenger of proteinases in blood and in tissues, but it has also been reported to participate in other physiological processes, including regulation of immune function.

REFERENCES and REVIEWS

Larsson LJ, Neuenschwander DE, Strickland DK; Reaction of Proteinases with α₂Macroglobulin: Evidence for Alternate Reaction Pathways in the Inhibition of Trypsin; Biochemistry 28, pp 7636-7643, 1989.