Recombinant Human Integrin αMβ2
Catalog Number: 4047-AM

DESCRIPTION
Source
Human Integrin αM (Phe17–Asn1105) [Accession # NP_001139280] & No results obtained: Gln23 predicted (Integrin β2)

Human Integrin β2 (Gln23–Asn700) [Accession # P05107]

N-terminal Sequence Analysis
Phe17 (Integrin αM) & No results obtained: Gln23 predicted (Integrin β2)

Predicted Molecular Mass
124.7 kDa (Integrin αM), 79 kDa (Integrin β2)

SPECIFICATIONS
SDS-PAGE
165 kDa and 100 kDa, reducing conditions

Activity
Measured by the ability of the immobilized protein to support the adhesion of CHO Chinese hamster ovary cells transfected with ICAM-1. The ED50 for this effect is 0.25-1.5 μg/mL.

Endotoxin Level
<1.0 EU per 1 μg of the protein by the LAL method.

Purity
>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation
Lyophilized from a 0.2 μm filtered solution in Tris, NaCl and MgCl2. See Certificate of Analysis for details.

PREPARATION AND STORAGE
Reconstitution
Reconstitute at 100 μg/mL in sterile PBS.

Shipping
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage
Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND
Integrin αMβ2, also called MAC-1 or complement receptor type 3 (CR3), is one of three leukocyte β2 integrins. The non-covalent heterodimer of 170 kDa αM/CD11b and 95 kDa β2/CD18 integrin subunits is expressed mainly on myeloid and natural killer cells (1-6). The αM vWFA or I-domain, which contains adhesion sites, forms the N-terminal head region with the β2 I-propeller and the β2 vWFA domain. Unlike most integrins, the calf domain of αM is lectin-like and binds carbohydrates (7). Each subunit has a transmembrane sequence and a short cytoplasmic tail. The 1088 amino acid (aa) human αM/CD11b ECD shares 73-76% aa sequence identity with mouse, rat, bovine, and canine αM, while the 678 aa human β2/CD18 ECD shares 81-83% aa sequence identity with mouse, rat, bovine, canine, goat, sheep, and porcine β2. Like other integrins, αMβ2 has multiple activation states (1-3). In the presence of divalent cations and "inside-out" signaling, αMβ2 is fully active and extended. In the inactive state, the heterodimer flexes in the center at the αM thigh and calf domains and β2 I-EGF domains, impeding access to adhesion sites. Active αMβ2 binds an unusually large number of adhesion partners, including the complement opsonin fragment IC3b, coagulation proteins fibrinogen, plasminogen and factor X, extracellular matrix (ECM) proteins fibronectin, laminin and collagen, and cell surface ICAMs, myelin basic protein and DC-SIGN (3, 4, 7). αMβ2 lectin-like adhesion partners include heparin, bacterial lipopolysaccharides, and GPI-linked glycoproteins such as uPAR and FcγRIIIB (3, 7). Binding of platelet JAM-C links platelets with myeloid and dendritic cell (DC) αMβ2 and recruits these cells to inflamed or injured endothelium, while neutrophil αMβ2 adheres to RAGE on inflamed endothelium; both are atherogenic events (3, 8). However, activation of αMβ2 inhibits alternative activation of macrophages and atherosclerotic foam cell formation (3, 10). αMβ2 can either suppress or allow constitutive neutrophil apoptosis, depending on its ligand and activation state (3, 11, 12). Deletion of mouse αM causes defects in neutrophil adhesion and degranulation, while mutations of human or mouse β2 cause leukocyte adhesion deficiency (LAD-1) and susceptibility to bacterial infections (3, 12, 13).

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