

## Background

Integrin  $\alpha$ X $\beta$ 2, also called CD11c/CD18, p150/95 or complement receptor type 4 (CR4), is one of four  $\beta$ 2 integrins. The non-covalent heterodimer of 150 kDa  $\alpha$ X/CD11c and 95 kDa  $\beta$ 2/CD18 integrin subunits is expressed on macrophages, dendritic cells and hairy cell leukemias, with lower amounts on other myeloid cells and activated B, NK and some cytotoxic T cells (1 - 7). Like other integrins,  $\alpha$ X $\beta$ 2 has multiple activation states (3). In the presence of divalent cations and "inside-out" signaling,  $\alpha$ X $\beta$ 2 is fully active and extended. The  $\alpha$ X vWFA or I-domain, which contains the adhesion sites, forms the N-terminal head region with the  $\alpha$ X beta-propeller and the  $\beta$ 2 vWFA domain (1, 8). In the inactive state, the heterodimer flexes in the center at the  $\alpha$ X thigh and calf domains and  $\beta$ 2 I-EGF domains, impeding access to adhesion sites (1). The 1088 aa human  $\alpha$ X/CD11c ECD shares 70 - 76% aa sequence identity with mouse, rat and canine  $\alpha$ X while the 678 aa human  $\beta$ 2/CD18 ECD shares 81 - 83% aa sequence identity with mouse, rat, cow, dog, goat, sheep, and pig  $\beta$ 2. Potential  $\alpha$ X isoforms containing 719 and 725 aa (as compared to full-length 1163 aa  $\alpha$ X) lack the vWFA domain and the N-terminus. Active  $\alpha$ X $\beta$ 2 shares some adhesion partners with  $\alpha$ M $\beta$ 2/CD11b/CD18, including complement opsonin fragment iC3b, ICAMs, vWF and fibrinogen, and is expressed on many of the same cells (4 - 11). However,  $\alpha$ M $\beta$ 2 activity is often constitutive, while  $\alpha$ X $\beta$ 2 activity requires cell activation (4 - 7).  $\alpha$ X $\beta$ 2 also binds osteopontin, Thy-1, plasminogen, heparin, and proteins with abnormally exposed acidic residues (11 - 16). The adhesion events are important for proliferation, degranulation, chemotactic migration, and phagocytosis of complement-opsonized particles (5, 6, 9, 11, 12, 16). Mutations of  $\beta$ 2, especially in the vWFA domain, cause leukocyte adhesion deficiency (LAD-1) and susceptibility to bacterial infections (17).

## References:

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## Description

<b>Source</b>	Chinese Hamster Ovary cell line, CHO-derived		
	Human Integrin $\alpha$ X (Phe20 - Pro1107) Accession # P20702	Acidic Tail	6-His tag
<b>N-terminal Sequence Analysis</b>	Human Integrin $\beta$ 2 (Gln23 - Asn700) Accession # P05107	Basic Tail	
	N-terminus		C-terminus
<b>Predicted Molecular Mass</b>	128.9 kDa ( $\alpha$ X) & 83.1 kDa ( $\beta$ 2)		

## Specifications

<b>SDS-PAGE</b>	149 kDa & 103 kDa, reducing conditions
<b>Activity</b>	Measured by the ability of immobilized protein to support adhesion of J45.01 human acute T lymphoblastic leukemia cells. When 5 x 10 <sup>4</sup> cells are added to rhIntegrin $\alpha$ X $\beta$ 2 coated plates (10 $\mu$ g/mL, 100 $\mu$ L/well), approximately 50% - 80% will adhere after 1 hour at 37 °C.
<b>Endotoxin Level</b>	<1.0 EU per 1 $\mu$ g of the protein by the LAL method.
<b>Purity</b>	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS. See Certificate of Analysis for details.

## Preparation and Storage

<b>Reconstitution</b>	Reconstitute at 200 $\mu$ g/mL in PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <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>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

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NOT FOR USE IN HUMANS.