

## Background

Carcinoembryonic antigen-related cell adhesion molecule 6 (CEACAM-6), previously called nonspecific crossreacting antigen (NCA) or CD66c, is one of seven human CEACAM family members within the immunoglobulin superfamily (1 - 4). In humans, CEACAMs include type I transmembrane proteins (CEACAM-1, -3, and -4) and GPI-linked molecules (CEACAM-5 through -8) (1). There is no human CEACAM-2. Human CEACAM-6 is a 90 kDa, GPI-linked membrane protein that contains a 34 amino acid (aa) signal sequence, a 286 aa extracellular domain (ECD), and a 24 aa hydrophobic C-terminal propeptide. The GPI membrane anchor is attached at the C-terminus following cleavage of the propeptide. CEACAM-6 contains one N-terminal V-type Ig-like domain (N domain), followed by two C2-type Ig-like domains (2 - 4). It shows considerable glycosylation, including (sialyl) Lewis<sup>x</sup>, which mediates binding to E-selectin, galectins and some bacterial fimbriae (1, 2). Mature human CEACAM-6 shows 84%, 85%, 80%, 87% and 51% aa identity to the equivalent extracellular regions of human CEACAMs 1, 5 (CEA) and 8, rhesus CEACAM-2, and bovine CEACAM-6, respectively. CEACAM-6 is expressed by granulocytes and their precursors. Activation enhances surface expression by mobilizing CEACAM-6 from storage in azurophilic granules (5, 6). It often shows aberrant expression in acute lymphocytic leukemias (10). CEACAM-6 is also expressed in epithelia of various organs and is upregulated in pancreatic and colon adenocarcinomas and hyperplastic polyps (7, 8). Over-expression confers resistance to adhesion-related apoptosis (anoikis) in tumor cells (8, 9). CEACAM-6 is an intercellular adhesion molecule, forming both homotypic, and heterotypic bonds with CEACAM-1, -5 and -8 through interaction of the V-type Ig-like domains (11, 12). Cross-linking of neutrophil CEACAM-6 augments  $\alpha\beta_3$  and  $\beta_2$  integrin-mediated adhesion, apparently by src and caveolin-mediated inside-out integrin activation (8, 13, 14).

## References:

1. Beauchemin, N. *et al.* (1999) *Exp. Cell Res.* **252**:243.
2. Skubitz, K.M. *et al.* (1999) *J. Biol. Regul. Homeost. Agents* **13**:244.
3. Barnett, T. *et al.* (1988) *Genomics* **3**:59.
4. Tawaragi, Y. *et al.* (1988) *Biochem. Biophys. Res. Comm.* **150**:89.
5. Kuroki, M. *et al.* (1995) *Immunol. Invest.* **24**:829.
6. Ducker, T.P. and K.M. Skubitz (1992) *J. Leukoc. Biol.* **52**:11.
7. Scholzel, S. *et al.* (2000) *Am. J. Pathol.* **156**:595.
8. Duxbury, M.S. *et al.* (2004) *J. Biol. Chem.* **279**:23176.
9. Iliantzis, C. *et al.* (2002) *Neoplasia* **4**:151.
10. Kalina, T. *et al.* (2005) *BMC Cancer* **5**:38.
11. Oikawa, S. *et al.* (1992) *Biochem. Biophys. Res. Commun.* **186**:881.
12. Kuroki, M. *et al.* (2001) *J. Leukoc. Biol.* **70**:543.
13. Duxbury, M.S. *et al.* (2004) *Biochem. Biophys. Res. Comm.* **317**:133.
14. Skubitz, K.M. *et al.* (1999) *J. Leukoc. Biol.* **60**:106.

## Description

<b>Source</b>	Murine myeloma cell line, NS0-derived Lys35 - Gly320, with a C-terminal 6-His tag Accession # Q53XP7
<b>N-terminal Sequence Analysis</b>	Lys35
<b>Predicted Molecular Mass</b>	32.0 kDa

## Specifications

<b>SDS-PAGE</b>	57 - 75 kDa, reducing conditions
<b>Activity</b>	Measured by the ability of the immobilized protein to support the adhesion of calcium ionophore treated human neutrophils. When 2 x 10 <sup>5</sup> cells/well are added to CEACAM-6 coated plates (10 µg/mL, 100 µL/well), 35 - 60% of the cells will adhere after 20 minutes at 37° C.
<b>Endotoxin Level</b>	<1.0 EU per 1 µg 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 µm filtered solution in PBS. See Certificate of Analysis for details.

## Preparation and Storage

<b>Reconstitution</b>	Reconstitute at 100 µg/mL in sterile 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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