

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived
Gln56-Leu215, with an N-terminal HA-tag (YPYDVPDYA)
Accession # NP_034675

N-terminal Sequence Analysis Tyr

Predicted Molecular Mass 19.4 kDa

SPECIFICATIONS

SDS-PAGE 26-40 kDa, reducing conditions

Activity Measured by the ability of the immobilized protein to support the adhesion of HeLa human cervical epithelial carcinoma cells. When 5×10^4 cells per well are added to Recombinant Mouse CD74 coated plates, cell adhesion is enhanced in a dose dependent manner. The ED_{50} for this effect is 0.3-1.5 μ g/mL.
Optimal dilutions should be determined by each laboratory for each application.

Endotoxin Level <0.10 EU per 1 μ g of the protein by the LAL method.

Purity >95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 μ m filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 μ g/mL in 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

CD74, also known as Invariant chain (Ii) and p33, is a type 2 transmembrane glycoprotein that plays an important role in adaptive immunity, inflammation, and cancer (1). Mature mouse CD74 consists of a 29 amino acid (aa) cytoplasmic domain, a 29 aa transmembrane segment, and a 224 aa extracellular domain (ECD) that contains one thyroglobulin type 1 domain (2). Alternate splicing generates a short isoform that lacks the thyroglobulin domain (2). Within the ECD, mouse CD74 shares 75% and 88% aa sequence identity with human and rat CD74, respectively. CD74 functions as a chaperone for MHC class II molecules on antigen presenting cells and undergoes progressive proteolysis during class II trafficking and antigenic peptide loading (3). Full length CD74 assembles into trimers which then associate with class II molecules in nonameric complexes on the cell surface (4, 5). CD74 also associates with CD44 and binds with high affinity to the cytokine MIF, leading to inflammatory leukocyte responses, protection from tissue fibrosis, B cell proliferative and survival signaling, and the up-regulation of angiogenic factors in endometrial stromal cells (6-11). MIF binding notably induces the proteolytic cleavage of the CD74 intracellular domain which then promotes B cell differentiation (10). CD74 is up-regulated on non-immune cells at sites of inflammation including amyloid beta plaques and atherosclerotic plaques (12, 13). It is also up-regulated in a variety of cancers and enhances tumorigenicity, tumor angiogenesis, and metastasis (1, 14).

References:

1. Beswick, E.J. and V.E. Reyes (2009) World J. Gastroenterol. **15**:2855.
2. Koch, N. *et al.* (1987) EMBO J. **6**:1677.
3. Riberdy, J.M. *et al.* (1992) Nature **360**:474.
4. Koch, N. *et al.* (1991) J. Immunol. **147**:2643.
5. Roche, P.A. *et al.* (1991) Nature **354**:392.
6. Leng, L. *et al.* (2003) J. Exp. Med. **197**:1467.
7. Takahashi, K. *et al.* (2009) Respir. Res. **10**:33.
8. Heinrichs, D. *et al.* (2011) Proc. Natl. Acad. Sci. **104**:17444.
9. Shi, X. *et al.* (2006) Immunity **25**:595.
10. Gore, Y. *et al.* (2008) J. Biol. Chem. **283**:2784.
11. Veillat, V. *et al.* (2010) J. Clin. Endocrinol. Metab. **95**:E403.
12. Bryan, K.J. *et al.* (2008) Mol. Neurodegen. **3**:13.
13. Martin-Ventura, J.L. *et al.* (2009) Cardiovasc. Res. **83**:586.
14. Liu, Y.-H. *et al.* (2008) J. Immunol. **181**:6584.