

## DESCRIPTION

|                           |   |
|---------------------------|---|
| <b>Species Reactivity</b> | Human   |
| <b>Specificity</b>        | Detects human CD72 in direct ELISAs.  |
| <b>Source</b>             | Monoclonal Mouse IgG <sub>2A</sub> Clone # 982405   |
| <b>Purification</b>       | Protein A or G purified from hybridoma culture supernatant  |
| <b>Immunogen</b>          | Chinese hamster ovary cell line CHO-derived recombinant human CD72<br>Arg117-Asp359<br>Accession # P21854   |
| <b>Conjugate</b>          | Alexa Fluor 405<br>Excitation Wavelength: 405 nm<br>Emission Wavelength: 421 nm   |
| <b>Formulation</b>        | Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

|                       | <b>Recommended Concentration</b> | <b>Sample</b>                            |
|-----------------------|----------------------------------|--|
| <b>Flow Cytometry</b> | 0.25-1 µg/10 <sup>6</sup> cells  | Ramos Human Burkitt's Lymphoma Cell Line |

## PREPARATION AND STORAGE

|                                |  |
|--------------------------------|--|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.                                  |
| <b>Stability &amp; Storage</b> | <b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, 2 to 8 °C as supplied.</li> </ul> |

## BACKGROUND

CD72, also known as Lyb-2, is a 40-45 kDa type II transmembrane glycoprotein that plays a role in immune system regulation (1). Mature human CD72 consists of a 95 amino acid (aa) cytoplasmic domain with two immunoreceptor tyrosine-based inhibitory motifs (ITIMs), a 21 aa transmembrane segment, and a 243 aa extracellular domain with a coiled-coil domain and a C-type lectin domain (2). Within the ECD, human CD72 shares 48% and 44% aa sequence identity with mouse and rat CD72, respectively. CD72 is expressed on B lineage cells, NK cells, monocytes, dendritic cells, and mast cells (2-6). CD72 binds to CD5 with mouse/human cross-reactivity and to Semaphorin 4D/CD100 (5, 7-9). It associates with CD79A in the B cell antigen receptor (BCR) complex following antigen stimulation and dampens BCR signaling through interactions with the phosphatase SHP-1 (10). CD72 ligation with antibodies or with Semaphorin 4D induces tyrosine dephosphorylation of the CD72 cytoplasmic domain and its dissociation from SHP-1, leading to B cell proliferation (5, 9). Both CD72 and Semaphorin 4D are required for the maintenance of B cell energy and the regulation of peripheral B cell tolerance as shown by the development of autoimmunity in mice that lack either molecule (10, 11). In addition to its negative regulation of BCR signaling, CD72 can induce positive signaling in B cells independent of the BCR (12). CD72 binding to Semaphorin 4D induces cytokine production by monocytes and dendritic cells, inhibits SCF R/c-kit induced mast cell proliferation and activation, and inhibits the cytolytic activity of NK cells (4-6). Semaphorin 4D is expressed on activated NK cells and contributes to the adhesive interaction between NK and CD72<sup>+</sup> target cells leading to a more efficient killing and enhanced IFN-γ secretion (13).

### References:

1. Nykimbeng-Takwi, E. and S.P. Chapoval (2011) *Immunol. Res.* **50**:10.
2. Von Hoegen, I. *et al.* (1990) *J. Immunol.* **144**:4870.
3. Nakayama, E. *et al.* (1989) *Proc. Natl. Acad. Sci.* **86**:1352.
4. Alcon, V.L. *et al.* (2009) *Eur. J. Immunol.* **39**:826.
5. Ishida, I. *et al.* (2003) *Int. Immunol.* **15**:1027.
6. Kataoka, T.R. *et al.* (2010) *J. Immunol.* **184**:2468.
7. Van de Velde, H. *et al.* (1991) *Nature* **351**:662.
8. Luo, W. *et al.* (1992) *J. Immunol.* **148**:1630.
9. Kumanogoh, A. *et al.* (2000) *Immunity* **13**:621.
10. Kumanogoh, A. *et al.* (2005) *Int. Immunol.* **17**:1277.
11. Li, D. H.-H. *et al.* (2008) *Arthritis Rheum.* **58**:3192.
12. Wu, H.-J. *et al.* (2001) *J. Immunol.* **167**:1263.
13. Mizrahi, S. *et al.* (2007) *PLoS ONE* **9**:e818.

## PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.