

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human CD9 in direct ELISAs.
Source	Monoclonal Mouse IgG _{2B} Clone # 1021007
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese Hamster Ovary cell line, CHO-derived human CD9 Ser112-Ile195 Accession # P21926
Conjugate	Alexa Fluor 350 Excitation Wavelength: 346 nm Emission Wavelength: 442 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *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.

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10 ⁶ cells	Human platelets

PREPARATION AND STORAGE

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

BACKGROUND

CD9, also known as Tspan29, is a 24-27 kDa cell surface protein belonging to the tetraspanin family (1). Common to other tetraspanins, CD9 is composed of four transmembrane domains, short N- and C-terminal cytoplasmic domains, and two extracellular loops. The larger extracellular loop, referred to as the LEL or EC2, contains highly conserved CCG and PXSC motifs (2, 3). The LEL mediates noncovalent protein-protein interactions, allowing tetraspanins to associate with each other as well as signaling molecules, structural proteins, and G-protein coupled receptors (4-6). Human CD9 is expressed in multiple cell and tissue types and has been identified in diverse biological roles due to its involvement in the formation of tetraspanin-enriched microdomains (TEMs). TEMs are associated with numerous processes ranging from cell adhesion and fusion, membrane trafficking, and endocytosis to leukocyte adherence and motility (4-7). These tetraspanin-enriched microdomains (TEMs) are associated with a wide range of functions from cell adhesion and fusion, membrane trafficking and endocytosis, and leukocyte adherence and motility. The LEL of human CD9 shares 77% and 84% amino acid sequence identity with mouse and rat CD9, respectively. CD9 can form homodimers or interact with other proteins including CD117, CD29, CD46, CD49c, CD81, CD315, Tspan4, TGF- α , and HBEGF (1, 4, 8-13). Increased expression of CD9 has been shown to enhance transmembrane TGF- α -induced EGFR stimulation (1), and injection of human CD9 mRNA into CD9 knock-out mouse oocytes restored sperm-egg fusion (14). CD9-LEL may also be involved in the inhibition of multinucleated giant cell formation (3) as well as possess anti-adhesive effects against bacteria trying to invade mammalian cells (6, 15). CD9 interacts with integrins to regulate cell adhesion and motility (16-18). CD9 has been implicated in platelet activation and aggregation (17, 19). It may act as the terminal signal of myelination in the peripheral nervous system and can regulate the formation of paranodal junctions (20). Also, it has been suggested CD9 plays an important role both in the self-antigen and recall antigen-induced T cell activation (21).

References:

1. Shi, W. *et al.* (2000) *J. Cell Biol.* **148**:591.
2. Hemler, M. (2003) *Annu Rev Cell Biol.* **19**:397.
3. Hulme, R. *et al.* (2014) *PLoS One* **9**:e116289.
4. Stipp, C. *et al.* (2003) *Trends Biochem Sci.* **28**:106.
5. Barreiro, O. *et al.* (2005) *Blood* **105**:2852.
6. Ventress, J. *et al.* (2016) *PLoS One* **11**:e0160387.
7. Rubinstein, E. (2011) *Biochem Soc Trans.* **39**:501.
8. Anzai, N. *et al.* (2002) *Blood* **99**:4413.
9. Radford, K. *et al.* (1996) *Biochem. Biophys. Res. Commun.* **222**:13.
10. Lozahic, S. *et al.* (2000) *Eur. J. Immunol.* **30**:900.
11. Park, K. *et al.* (2000) *Mol. Hum. Reprod.* **6**:252.
12. Charrin, S. *et al.* (2001) *J. Biol. Chem.* **276**:14329.
13. Tachibana, I. *et al.* (1997) *J. Biol. Chem.* **272**:29181.
14. Zhu, G. *et al.* (2002) *Development* **129**:1995.
15. Green, L. *et al.* (2011) *Infect Immun.* **79**:2241.
16. Powner, D. *et al.* (2011) *Biochem. Soc. Trans.* **39**:563.
17. Detchokul, S. *et al.* (2014) *British Journal of Pharmacology* **171**:5462.
18. Reyes, R. *et al.* (2018) *Front. Immunol.* **9**:863.
19. Slupsky, J. *et al.* (1989) *J Biol chem.* **264**:12289.
20. Ishibashi, T. *et al.* (2004) *J. Neuroscience* **24**:96.
21. Kobayashi, H. *et al.* (2004) *Clin Exp Immunol.* **137**:101.

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.