

## Datasheet: MCA5706

|                      |                                         |
|----------------------|-----------------------------------------|
| <b>Description:</b>  | HAMSTER ANTI MOUSE DELTA-LIKE PROTEIN 4 |
| <b>Specificity:</b>  | DELTA-LIKE PROTEIN 4                    |
| <b>Other names:</b>  | DLL4                                    |
| <b>Format:</b>       | Purified                                |
| <b>Product Type:</b> | Monoclonal Antibody                     |
| <b>Clone:</b>        | HMD4-2                                  |
| <b>Isotype:</b>      | IgG                                     |
| <b>Quantity:</b>     | 0.25 mg                                 |

## Product Details

### Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit [www.bio-rad-antibodies.com/protocols](http://www.bio-rad-antibodies.com/protocols).

|                                | Yes | No | Not Determined | Suggested Dilution |
|--------------------------------|-----|----|----------------|--------------------|
| Flow Cytometry                 | ■   |    |                |                    |
| Immunohistology - Frozen       | ■   |    |                |                    |
| Immunohistology - Paraffin (1) | ■   |    |                |                    |
| ELISA                          |     |    | ■              |                    |
| Immunoprecipitation            |     |    | ■              |                    |
| Western Blotting               |     |    | ■              |                    |
| Functional Assays              | ■   |    |                |                    |

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using appropriate negative/positive controls.

**(1) This product requires antigen retrieval using heat treatment prior to staining of paraffin sections. Sodium citrate buffer pH 6.0 is recommended for this purpose.**

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|---------------------------------------|---------------------------------------------------------------|
| <b>Target Species</b>                 | Mouse                                                         |
| <b>Product Form</b>                   | Purified IgG - liquid                                         |
| <b>Preparation</b>                    | Purified IgG prepared by affinity chromatography on Protein A |
| <b>Buffer Solution</b>                | Phosphate buffered saline                                     |
| <b>Preservative Stabilisers</b>       | 0.09% Sodium Azide (NaN <sub>3</sub> )                        |
| <b>Carrier Free</b>                   | Yes                                                           |
| <b>Approx. Protein Concentrations</b> | IgG concentration 1.0mg/ml                                    |

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|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Immunogen</b>                         | Recombinant mouse DLL4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>External Database Links</b>           | <p><b>UniProt:</b><br/> <a href="#">Q9JI71</a>   <a href="#">Related reagents</a></p> <p><b>Entrez Gene:</b><br/> <a href="#">54485</a>   DLL4   <a href="#">Related reagents</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Fusion Partners</b>                   | Spleen cells from immunised Armenian hamsters were fused with cells of the P3U1 myeloma cell line.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Specificity</b>                       | <p><b>Hamster anti Mouse Delta-Like Protein 4 antibody, clone HMD4-2</b> recognizes mouse Delta-like protein 4 (DLL4), one of the five major ligands of the Notch signalling pathway, which is activated through the binding of specific ligands to the Notch receptors Notch 1-4.</p> <p>The Notch signalling pathway is an evolutionarily conserved pathway in multi-cellular organisms, which is vital for cell-cell communication, important during fundamental developmental and physiological processes, including regulation of cell fate decisions during neuronal, cardiac and endocrine development, stem cell haematopoiesis, thymic T-cell development, and both tumour progression and suppression.</p> <p>Ligation of Notch receptors by their specific ligands, Jagged1 (CD339), Jagged2, Delta like-1 (DLL1), DLL3 and DLL4, on physically adjacent signal receiving cells, induces proteolysis of the receptors by ADAM-family metalloproteases and gamma-secretase complex, within the transmembrane domain, releasing the Notch intracellular domain (NICD) to translocate to the nucleus. Subsequent signal transduction then occurs through either the CSL-NICD-Mastermind complex cascade (canonical pathway), or NF-kappaB-NICD and CSL-NICD-Deltex complex signalling cascades (non-canonical pathway). The canonical pathway inhibits the differentiation of stem cells or progenitor cells, whilst the non-canonical pathway promotes differentiation.</p> <p>DLL4 is expressed by vascular endothelium, and plays a vital role in embryonic vascular development. DLL4 signalling has been shown to play a role in the angiogenesis of clear-cell renal tumours, and pancreatic, bladder and colonic cancer. Studies have shown that DLL4 expression in endothelium cells, can be up-regulated by vascular endothelial growth factor (VEGF) and basic-FGF, and by HIF1 alpha, and that blockade of DLL4 inhibits tumour growth by promoting non-productive angiogenesis.</p> |
| <b>Flow Cytometry</b>                    | Use 10ul of the suggested working dilution to label $1 \times 10^6$ cells in 100ul.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Histology Positive Control Tissue</b> | Mouse spleen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>References</b>                        | <ol style="list-style-type: none"> <li>1. Moriyama, Y. <i>et al.</i> (2008) Delta-like 1 is essential for the maintenance of marginal zone B cells in normal mice but not in autoimmune mice. <a href="#">Int Immunol. 20 (6): 763-73.</a></li> <li>2. Sekine, C. <i>et al.</i> (2009) Differential regulation of splenic CD8- dendritic cells and marginal zone B cells by Notch ligands. <a href="#">Int Immunol. 21 (3): 295-301.</a></li> <li>3. Yamanda, S. <i>et al.</i> (2009) Role of ephrinB2 in nonproductive angiogenesis induced by Delta-like 4 blockade. <a href="#">Blood. 113 (15): 3631-9.</a></li> <li>4. Sekine, C. <i>et al.</i> (2012) Differential regulation of osteoclastogenesis by Notch2/Delta-like 1 and Notch1/Jagged1 axes. <a href="#">Arthritis Res Ther. 14: R45.</a></li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Further Reading</b>                   | 1. Bray, S.J. (2006) Notch signalling: a simple pathway becomes complex. <a href="#">Nat Rev Mol Cell Biol. 7</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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2. Iso, T. *et al.* (2003) Notch signaling in vascular development. [Arterioscler Thromb Vasc Biol. 23 \(4\): 543-53.](#)

3. Hu, X. *et al.* (2008) Integrated regulation of Toll-like receptor responses by Notch and interferon-gamma pathways. [Immunity. 29 \(5\): 691-703.](#)

4. Hoyne, G.F. *et al.* (2001) Notch signalling in the regulation of peripheral immunity. [Immunol Rev. 182: 215-27.](#)

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| <b>Storage</b>                       | Store at +4°C or at -20°C if preferred.<br>Storage in frost-free freezers is not recommended.<br>This product should be stored undiluted. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use. |
| <b>Shelf Life</b>                    | 18 months from date of despatch.                                                                                                                                                                                                                                                                        |
| <b>Health And Safety Information</b> | Material Safety Datasheet documentation #10040 available at:<br>10040: <a href="https://www.bio-rad-antibodies.com/uploads/MSDS/10040.pdf">https://www.bio-rad-antibodies.com/uploads/MSDS/10040.pdf</a>                                                                                                |
| <b>Regulatory</b>                    | For research purposes only                                                                                                                                                                                                                                                                              |

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## Related Products

### Recommended Secondary Antibodies

Goat Anti Hamster IgG (STAR104...) [DyLight®549](#), [DyLight®649](#), [DyLight®800](#),  
[FITC](#)

Goat Anti Hamster IgG (STAR79...) [Biotin](#), [FITC](#), [HRP](#)

### Recommended Negative Controls

[HAMSTER \(ARMENIAN\) IgG NEGATIVE CONTROL \(MCA2356\)](#)

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