



LD Biopharma, Inc.
7384 Trade Street, Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Kinase MERTK Extracellular Domain
Catalog Number: hRP-2053
Manufacturer: LD Biopharma, Inc.

Introduction

Human Tyrosine-protein kinase Mer (MERTK) gene is a member of the MER/AXL/TYRO3 receptor kinase family and encodes a transmembrane protein with two fibronectin type-III domains, two Ig-like C2-type (immunoglobulin-like) domains, and one tyrosine kinase domain. MERTK transduces signals from the extracellular matrix into the cytoplasm by binding to several ligands including LGALS3, TUB, TULP1 or GAS6. It regulates many physiological processes including cell survival, migration, differentiation, and phagocytosis of apoptotic cells (efferocytosis). Ligand binding at the cell surface induces autophosphorylation of MERTK on its intracellular domain that provides docking sites for downstream signaling molecules. Following activation by ligand, MERTK interacts with GRB2 or PLCG2 and induces phosphorylation of MAPK1, MAPK2, FAK/PTK2 or RAC1. MERTK signaling plays a role in various processes such as macrophage clearance of apoptotic cells, platelet aggregation, cytoskeleton reorganization and engulfment. Functions in the retinal pigment epithelium (RPE) as a regulator of rod outer segments fragments phagocytosis. It plays also an important role in inhibition of Toll-like receptors (TLRs)-mediated innate immune response by activating STAT1, which selectively induces production of suppressors of cytokine signaling SOCS1 and SOCS3.

Full-length extracellular domain of human kinase MERTK cDNA (21 – 505 aa) was constructed with codon optimization gene synthesis and expressed with a human Alpha Fetal protein N-terminal-His-TEV cleavage site Tag (217aa) fusion at FAP N-terminal. This protein was expressed in E. coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: MERTK (MER)
Accession Number: NP_006334.2
Species: Human
Size: 20 µg / Vial



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Composition: 0.20 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.

Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Bellan M, et al., *The Gas6/TAM System and Multiple Sclerosis*. Int J Mol Sci 17 (11) (2016)

Healy LM, et al., *MerTK Is a Functional Regulator of Myelin Phagocytosis by Human Myeloid Cells* J. Immunol. 196 (8), 3375-3384 (2016)

Ling L, et al., *Identification of the major autophosphorylation sites of Nyk/Mer, an NCAM-related receptor tyrosine kinase*. J. Biol. Chem. 271 (31), 18355-18362 (1996)

Applications

1. May be used for in vitro MERTK mediated signaling pathway regulation study for various cells with this protein either as soluble factor or as coating matrix protein.
2. May be used for protein-protein interaction assay.
3. Potential therapeutic protein, such as blocking Gas6/ MERTK pathway for cancer therapy.
4. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGFAITEAREEAKPYPLFPGPFPGSLQTDHTPLLSLPH
ASGYQPALMFSPTQPGRPHTGNVAIPQVTSVESKPLPPLAFKHTVGHIILSEHKGVKFNCSISV
PNIYQDTTISWWKDGKELLGAHHAITQFYPDDEVTAI IASFSITSVQRSDNGSYICKMKINNEE
IVSDPIYIEVQGLPHFTKQPESMNVTRNTAFNLTCQAVGPPPEPVNIFWVQNSSRVNEQPEKSPS
VLTVPGLTEMAVFSCEAHNDKGLTVSKGVQINIKAI P SP PTEVSIRNSTAHSILISWVPGFDGY
SPFRNCISIQVKEADPLSNGSVMIFNTSALPHLYQIKQLQALANYSIGVSCMNEIGWSAVSPWIL



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ASTTEGAPSVAPLNVTVFLNESSDNVDIRWMPTKQQDGELVGYRISHVWQSAGISKELLEEV
GQNGSRARISVQVHNATCTVRIAAVTRGGVGPFSDPVKIFIPAAGWVDYAPSSTPAPGNADPVL
II