



LD Biopharma, Inc.
7384 Trade Street, Suite B
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Tyro3 Protein
Catalog Number: hRP-2052
Manufacturer: LD Biopharma, Inc.

Introduction

Human Tyrosine protein kinase receptor (Tyro3) gene encodes a receptor tyrosine kinase that transduces signals from the extracellular matrix into the cytoplasm by binding to several ligands including TULP1 or GAS6. It regulates many physiological processes including cell survival, migration and differentiation. Ligand binding at the cell surface induces dimerization and auto-phosphorylation of TYRO3 on its intracellular domain that provides docking sites for downstream signaling molecules. Following activation by ligand, Tyro3 interacts with PIK3R1 and thereby enhances PI3-kinase activity. It activates the AKT survival pathway, including nuclear translocation of NF-kappa-B and up-regulation of transcription of NF-kappa-B-regulated genes. TYRO3 signaling plays a role in various processes such as neuron protection from excitotoxic injury, platelet aggregation and cytoskeleton reorganization. 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. Tyro3 also acts as a receptor for lassa virus and lymphocytic choriomeningitis virus, possibly through GAS6 binding to phosphatidyl-serine at the surface of virion envelope . It also acts as a receptor for ebolavirus, possibly through GAS6 binding to phosphatidyl-serine at the surface of virion envelope.

Full-length extracellular domain of human Tyro3 cDNA (41 – 429aa, derived from BC051756) was constructed with codon optimization gene synthesis and expressed with a human N-terminalT7-His-TEV cleavage site Tag (29aa) fusion. 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: Tyro3 (BYK; DTK; RSE; SKY; TIF)
Accession Number: NP_006284
Species: Human
Size: 20 µg / Vial
Composition: 0.2 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.



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

Key References

Ochodnický P, et al., *Increased Circulating and Urinary Levels of Soluble TAM Receptors in Diabetic Nephropathy*. Am. J. Pathol. 187 (9), 1971-1983 (2017)

Chien CW, et al., *Targeting TYRO3 inhibits epithelial-mesenchymal transition and increases drug sensitivity in colon cancer*. Oncogene 35 (45), 5872-5881 (2016)

Bellan M, et al., *The Gas6/TAM System and Multiple Sclerosis*. Int J Mol Sci 17 (11), E1807 (2016)

Chan PY, et al., *The TAM family receptor tyrosine kinase TYRO3 is a negative regulator of type 2 immunity*. Science 352 (6281), 99-103 (2016)

Applications

1. May be used for in vitro Tyro3 mediated signal pathway regulation study for various cell survival, migration and differentiation 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, may be used as GAS6 pathway specific inhibitor for various cancer therapies.
4. As native immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFAGLKLKMGAPVKLTVSQQQPVKLNCSVEGMEEPDIQ
WVKDGAVVQNLQDQLYIPVSEQHWIGFLSLKSVERSDAGRYWCQVEDGGETEISQPVWLTVEGVP
FFTVEPKDLAVPPNAPFQLSCEAVGPPPEPVTIVWWRGTTKIGGPAPSPSVLNVGTQSTMFSC
EAHNLKGLASSRTATVHLQALPAAPFNI TVTKLSSNASVAWMPGADGRALLQSCTVQVTQAPG
GWEVLAVVVPVPPFTCLLRDLVPATNYS LRVRCANALGSPYADWVPFQTKGLAPASAPQNLHA
IRTDSEGLILEWEEVIPEAPLEGPLGPKLSWVQDNGTQDELTVEGTRANLTGWDPQKDLIVRVC
VSNVAVGCGPWSQPLVVSSHDRAGQQGPPHSRTSW