Data Sheet (Cat.No.TMPY-01015)

TargetMol

KIRREL Protein, Mouse, Recombinant (His)

General Information

Synonyms:	6720469N11Rik;Kirrel1;kin of IRRE like (Drosophila);Neph1
Protein Construction:	A DNA sequence encoding the extracellular domain of mouse KIRREL1 (NP_570937.2) (Met 1-Leu 525) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Leu 48
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	Q80W68-1
Molecular Weight:	53.8 kDa (predicted); 65-70 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 98 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

NEPH1 (KIRREL1) belongs to a family of three closely related transmembrane proteins of the Ig superfamily with a structure similar to that of nephrin. All three Neph proteins share a conserved podocin-binding motif; mutation of a centrally located tyrosine residue dramatically lowers the affinity of Neph1 for podocin. Neph1 triggers AP-1 activation similarly to nephrin but requires the presence of Tec family kinases for efficient transactivation. Neph1 consists of a signal peptide, five Ig-like C2-type domains with the middle domain overlapping with a PKD-like

domain, an RGD sequence, a transmembrane domain, and a cytoplasmic tail, which is expressed in slit diaphragm domains of podocytes and vertebrate and invertebrate nervous systems. Neph1 is abundantly expressed in the kidney, specifically expressed in podocytes of kidney glomeruli, and plays a significant role in the normal development and function of the glomerular permeability. Neph1 interacts with nephrin in vitro and in vivo, and able to stimulate transcriptional activation in a model system, such as the activation of the transcription factor AP-1 via the stimulation of a MAPK module. Neph1 is crucial for the integrity of the slit diaphragm, as Neph1 gene knockout mice result in effacement of glomerular podocytes, heavy proteinuria, and early postnatal death.

Reference

Sellin L,et al.(2003) NEPH1 defines a novel family of podocin interacting proteins. FASEB J. 17(1): 115-7.
Kim EY,et al.(2009) Neph1 regulates steady-state surface expression of Slo1 Ca(2+)-activated K(+) channels: different effects in embryonic neurons and podocytes. Am J Physiol Cell Physiol. 297(6): C1379-88.