

## KIRREL1 Protein, Human, Recombinant (His)

### General Information

Protein Construction:	A DNA sequence encoding the human KIRREL (NP_060710.3) (Met1-Ala499) was expressed with a polyhistidine tag at the C-terminus.
Species:	Human
Expression Host:	HEK293 Cells
Accession:	Q96J84-1
Molecular Weight:	53.5 kDa (predicted)

### QC Testing

Biological Activity:	Measured by the ability of the immobilized protein to support the adhesion of MS1 mouse pancreatic islet endothelial cells. When cells are added to KIRREL coated plates (15 µg/mL, 100 µL/well), > 20% will adhere specifically after 90 minutes at 37 °C
Purity:	> 95% as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from sterile PBS, pH 7.4. Please contact us for any concerns or special requirements. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.

### Preparation and Storage

#### Reconstitution:

Please refer to the lot-specific COA.

#### 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

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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. Nephrin 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. Nephrin interacts with nephrin in vitro and in vivo, and is 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. Nephrin is crucial for the integrity of the slit diaphragm, as Nephrin gene knockout mice result in effacement of glomerular podocytes, heavy proteinuria, and early postnatal death.

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