Data Sheet (Cat.No.TMPY-03241)

TargetMol

KIRREL3 Protein, Rat, Recombinant (His)

General Information

Synonyms: kin of IRRE like 3 (Drosophila)

Protein Construction: A DNA sequence encoding the rat KIRREL3 (Q09GS6) (Met1-Ala523) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Leu 22

Species: Rat

Expression Host: HEK293 Cells

Accession: Q09GS6

Molecular Weight: 56.4 kDa (predicted); 60-64 kDa (reducing condition, due to glycosylation)

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 rat KIRREL3 coated plates (15 μg/mL, 100 μL/well), > 20% will adhere specifically after 90 minutes at 37 ℃.

Purity: > 95 % 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

Kin of IRRE-like protein 3 (KIRREL3) also known as nin of irregular chiasm-like protein 3 or nephrin-like protein 2 (NEPH2) is a member of the nephrin-like protein family of transmembrane proteins, which includes NEPH1 (KIRREL) and NEPH3 (KIRREL2). KIRREL3/NEPH2 is expressed in the fetal and adult brain, and also in podocytes of kidney glomeruli. The cytoplasmic domains of KIRREL3/NEPH2 interact with the C-terminus of podocin, also

expressed in the podocytes, cells involved in ensuring size- and charge-selective ultrafiltration. Mutations in KIRREL3/NEPH2 are associated with mental retardation autosomal dominant type 4. KIRREL3/NEPH2 expression is turned on in migrating Nucleogenesis of the pontine nucleus (PN) neurons only after they enter the presumptive nuclear region. KIRREL3/NEPH2 knockdown disrupted the nuclear organization of PN presumably by changing the migratory behavior of PN neurons inside the nuclear region. Moreover, overexpression of the cytoplasmic region of KIRREL3, which can sequester intracellular signaling of endogenous KIRREL3, resulted in similar phenotypes. Overall, these results suggest KIRREL3 is involved in the Nucleogenesis of the PN through the control of neuronal migration inside the nucleus.

Reference

Bhalla K, et al. (2008) Alterations in CDH15 and KIRREL3 in patients with mild to severe intellectual disability. Am J Hum Genet. 83(6): 703-13.

Gerke P, et al. (2005) NEPH2 is located at the glomerular slit diaphragm, interacts with nephrin and is cleaved from podocytes by metalloproteinases. J Am Soc Nephrol. 16(6): 1693-702.

Gerke P, et al. (2006) Neuronal expression and interaction with the synaptic protein CASK suggest a role for Neph1 and Neph2 in synaptogenesis. J Comp Neurol. 498(4): 466-75.

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