

Background

Kirrel3 (kin of irregular chiasm-1-like 3), also known as Kirre or NEPH2 (nephrin-like 2), is an ~100 kDa type I transmembrane glycoprotein belonging to the NEPH family within the immunoglobulin superfamily (1, 2). The three Kirrel/NEPH proteins share 34 - 44% amino acid (aa) identity, and all interact with nephrin, podocin and the adaptor molecule ZO-1 (1, 4). While all can be found in podocytes of the kidney glomerulus, Kirrel3 has been mainly studied in the brain and bone marrow (2 - 6). Human Kirrel3 cDNA encodes a 778 aa protein that contains a 21 aa signal sequence, a 514 aa extracellular domain with five C2-type Ig-like domains, a 21 aa transmembrane sequence and a 222 aa intracellular domain (7). The extracellular domain of human Kirrel3 shares 98%, 96%, 95% and 99% aa identity with mouse, rat, canine and bovine Kirrel3, respectively. One isoform diverges after the transmembrane domain and is truncated prior to conserved podocin-binding and PDZ cytoplasmic motifs (1 - 4, 7). Metalloproteinase-mediated cleavage can release a soluble form of Kirrel3 from the cell surface (2, 3). In the brain, Kirrel3 is present with nephrin during development of sensory pathways (5, 6). In the adult mouse, Kirrel3 is present in resting olfactory neurons, but downregulated when they are activated (6, 8). In contrast, Kirrel2 is present in olfactory neurons only when they are active. This complementary expression is postulated to help coordinate nerves identifying the same odorant (8). Expression of Kirrel3 on bone marrow stromal cells is identified as a factor that supports maintenance of hematopoietic stem cells in an undifferentiated state (2).

References:

1. Sellin, L. *et al.* (2003) *FASEB J.* **17**:115.
2. Ueno, H. *et al.* (2003) *Nat. Immunol.* **4**:457.
3. Gerke, P. *et al.* (2005) *J. Am. Soc. Nephrol.* **16**:1693.
4. Huber, T.B. *et al.* (2003) *J. Biol. Chem.* **278**:13417.
5. Morikawa, Y. *et al.* (2007) *Neuroscience* **150**:880.
6. Tamura, S. *et al.* (2005) *Neuroscience* **133**:615.
7. Swissprot Accession # Q8IZU9
8. Serizawa, S. *et al.* (2006) *Cell* **127**:1057.

Description

Source	Murine myeloma cell line, NS0-derived Leu29 - Ala535 & Tyr33 - Ala535 & Arg41 - Ala535, all with a C-terminal 6-His tag Accession # Q8IZU9
N-terminal Sequence Analysis	Leu29
Predicted Molecular Mass	56.1 kDa, 55.7 kDa & 54.7 kDa

Specifications

SDS-PAGE	65 - 85 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of MS-1 mouse pancreatic islet endothelial cells (ATCC: CRL-2279). When 5 x 10 ⁴ cells/well are added to rhKirrel3 coated plates (30 µg/mL, 100 µL/well), approximately 40% - 70% will adhere after 90 minutes at 37° C. Optimal dilutions should be determined by each laboratory for each application.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

Preparation and Storage

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

11/28/2009

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