PRODUCT INFORMATION

SPG21 (human, recombinant)

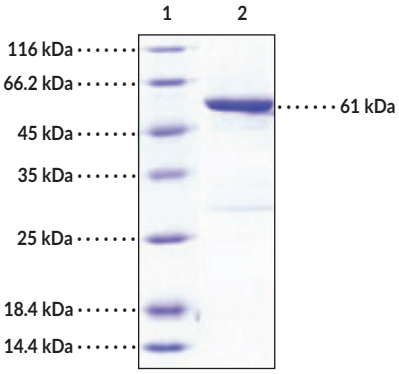
Item No. 44972

Overview and Properties

Synonyms:	Acid Cluster Protein 33, Maspardin, Spastic Paraplegia 21 Autosomal Recessive Mast Syndrome Protein, Spastic Paraplegia 21 Protein, Spastic Paraplegia Type 21
Source:	Recombinant human N-terminal GST-tagged SPG21 expressed in insect cells
Amino Acids:	1-308 (full length)
Uniprot No.:	Q9NZD8
Molecular Weight:	61 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 50 mM Tris, 100 mM sodium chloride, pH 8.0, 10% glycerol
Endotoxin Testing:	<1.0 EU/g, determined by the LAL endotoxin assay

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: SPG21

SDS-PAGE Analysis of SPG21. This protein has a calculated molecular weight of 61 kDa.

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Description

Spastic paraplegia type 21 (SPG21), also known as maspardin, is a member of the α/β hydrolase fold protein superfamily.[1] It is ubiquitously expressed and localizes to the cytoplasm and endolysosomes.[1,2] SPG21 contains N- and C-terminal α-helices but lacks the catalytic triad typical of most α/β hydrolases, indicating it is enzymatically inactive.[1] *Spg21* knockout induces progressive hind limb dysfunction and increased cortical neuron axonal branching in mice.[3] Mutations in *SPG21* are associated with mast syndrome, a complex form of hereditary spastic paraplegia that presents with spastic paraparesis, dementia, and other CNS abnormalities.[4] Cayman's SPG21 (human, recombinant) protein consists of 533 amino acids and has a calculated molecular weight of 61 kDa.

References

1. Kunselman, J.M., Williamson, C.D., Golding, A.E., *et al.* The hereditary spastic paraplegia type 21 (SPG21) protein is a RAB7A effector that promotes noncanonical mTORC1-catalyzed TFEB phosphorylation and cytoplasmic retention. *Mol. Biol. Cell.* **36(10)**, ar123 (2025).
2. Zhou, P., Yao, W., Liu, L., *et al.* SPG21, a potential oncogene targeted by miR-128-3p, amplifies HBx-induced carcinogenesis and chemoresistance via activation of TRPM7-mediated JNK pathway in hepatocellular carcinoma. *Cell. Oncol. (Dordr)* **47(5)**, 1757-1778 (2024).
3. Soderblom, C., Stadler, J., Jupille, H., *et al.* Targeted disruption of the Mast syndrome gene SPG21 in mice impairs hind limb function and alters axon branching in cultured cortical neurons. *Neurogenetics* **11(4)**, 369-378 (2010).
4. Simpson, M.A., Cross, H., Proukakis, C., *et al.* Maspardin is mutated in mast syndrome, a complicated form of hereditary spastic paraplegia associated with dementia. *Am. J. Hum. Genet.* **73(5)**, 1147-1156 (2003).

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