

PRODUCT INFORMATION



SPG21 (human, recombinant)

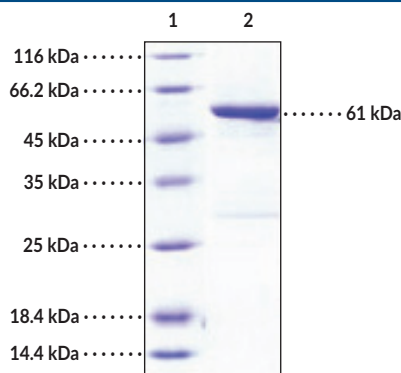
Item No. 44972

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.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM

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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).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
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WWW.CAYMANCHEM.COM