# PRODUCT INFORMATION

## SMN tudor domain (human recombinant)

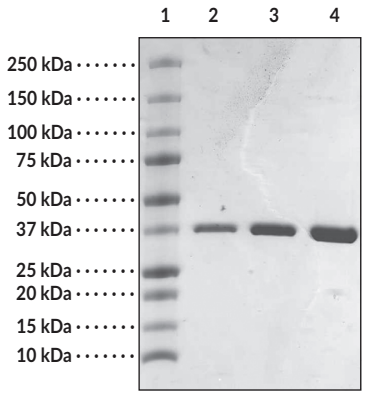
*Item No. 14136*

### Overview and Properties

| | |
|---|---|
| **Synonyms:** | Component of Gems 1, Gemin-1, Survival Motor Neuron Protein |
| **Source:** | Recombinant N-terminal GST-tagged protein expressed in *E. coli* |
| **Amino Acids:** | 73-173 of Uniprot No. Q16637 fused to an N-terminal GST-tag and linker |
| **Uniprot No.:** | Q16637 |
| **Molecular Weight:** | 37.9 kDa |
| **Storage:** | -80°C (as supplied) |
| **Stability:** | ≥6 months |
| **Purity:** | ≥90% estimated by SDS-PAGE |
| **Supplied in:** | 50 mM Tris-HCl, with 150 mM sodium chloride, pH 8.0, containing 20% glycerol |
| **Protein Concentration:** | ***batch specific*** mg/ml |

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

### Image




**Lane 1:** MW Markers
**Lane 2:** SMN (2 µg)
**Lane 3:** SMN (4 µg)
**Lane 4:** SMN (8 µg)

***Representative gel image shown; actual purity may vary between each batch.***



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

# PRODUCT INFORMATION

## Description

Tudor domains are small protein structural motifs of ~50 amino acids related to the "Royal family" of methyl readers, which also includes chromo, MBT, PWWP, and Agenet-like domains.[1,2] Tudor domains occur either alone, in tandem, or with other domains and are found in many proteins that are involved in RNA metabolism, germ cell development, transposon silencing, DNA damage response, histone modification and chromatin remodeling.[3] The tudor domains recognize symmetric methylated arginine or methylated lysine residues.[4-7]

The Survival of Motor Neurons (SMN) protein participates in RNA splicing. The Tudor domain of SMN recognizes and binds methylated Sm proteins, which bind small nuclear RNA.[8] SMN is encoded in humans by two separate genes, SMN1 and SMN2, which differ by one base in exon 7. In motor neuron cells, approximately 90% of the SMN2 transcripts are spliced to exclude exon 7.[9] The SMN2 transcripts without exon 7 are less stable than SMN1 transcripts.[10] Consequently, defects in human SMN1 result in the death of motor neuron cells and spinal muscular atrophy, which is the leading genetic cause of infantile death. This protein product contains the tudor domain region of SMN. The sequence of this region is identical in both the SMN1 and the SMN2 genes.

## References


1. Maurer-Stroh, S., Dickens, N.J., Hughes-Davies, L., *et al.* The Tudor domain 'Royal Family': Tudor, plant Agenet, Chromo, PWWP and MBT domains. *Trends Biochem. Sci.* **28(2)**, 69-74 (2003).
2. Lasko, P. *Tudor domain. Curr. Biol.* **20(16)**, R666-R667 (2010).
3. Chen, C., Nott, T.J., Jin, J., *et al.* Deciphering arginine methylation: Tudor tells the tale. *Nat. Rev. Mol. Cell Biol.* **12(10)**, 629-642 (2011).
4. Kim, J., Daniel, J., Espejo, A., *et al.* Tudor, MBT and chromo domains gauge the degree of lysine methylation. *EMBO Rep.* **7(4)**, 397-403 (2006).
5. Huang, Y., Fang, J., Bedford, M.T., *et al.* Recognition of histone H3 lysine-4 methylation by the double tudor domain of JMJD2A. *Science* **312(5774)**, 748-751 (2006).
6. Lee, J., Thompson, J.R., Botuyan, M.V., *et al.* Distinct binding modes specify the recognition of methylated histones H3K4 and H4K20 by JMJD2A-tudor. *Nat. Struct. Mol. Biol.* **15(1)**, 109-111 (2008).
7. Sprangers, R., Groves, M.R., Sinning, I., *et al.* High-resolution X-ray and NMR structures of the SMN tudor domain: Conformational variation in the binding site for symmetrically dimethylated arginine residues. *J. Mol. Biol.* **327(2)**, 507-520 (2003).
8. Burghes, A.H.M. and Beattie, C.E. Distinct binding modes specify the recognition of methylated histones H3K4 and H4K20 by JMJD2A-tudor. *Nat. Rev. Neurosci.* **10(8)**, 597-609 (2009).
9. Ruggiu, M., McGovern, V.L., Lotti, F., *et al.* A role for SMN exon 7 splicing in the selective vulnerability of motor neurons in spinal muscular atrophy. *Mol. Cell Biol.* **32(1)**, 126-138 (2012).
10. Cobb, M.S., Rose, F.F., Rindt, H., *et al.* Development and characterization of an SMN2-based intermediate mouse model of spinal muscular atrophy. *Hum. Mol. Genet.* **22(9)**, 1843-1855 (2013).



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