

## Product datasheet for **MG225751**

### Spast (NM\_001162870) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Spast (NM_001162870) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Spast
Synonyms:	mKIAA1083; Spg4
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>MG225751 representing NM\_001162870  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGAGTTCCTCGGCCGGACGACGGAAGAAGAAAGGCTCGGGCGGCGAGCCCGGCCGCCAGGCCTC  
 CGCCCCCGCCGGTCCCCGCCCTGCCGCCGGCCCGCCCTGCGGCCGGCTCGCCGCTAAGCGGAA  
 CCCGTCTTCTTTCTCGTCCCCGCTGGTCTGCGGCTTCGCCCTGCTGCGCTGCTGGCCTGCCACCTGGG  
 CTCTCTTCGCGTGGCTCTGCCAGCGCTTCTCCCGCGCCCTCATGGCCGCAAGAGGAGCTCCGGGACCG  
 CGCCGGCGCCCGCTCGCCCTCGCCCCAGCGCCCGGACCGGGTGGCAGGCGGAGAGCGTCCGCGTCTT  
 CCACAAGCAGGCCTTCGAGTACATCTCCATTGCCCTGCGCATCGACGAGGAAGAGAAAGGACAGAAGGAA  
 CAAGCTGTGGAATGGTATAAGAAAGGTATCGAAGAAGTGGAAAAAGGAATCGCTGTTATAGTTACGGGCC  
 AAGGTGAACAGTATGAAAGAGCTAGACGCTTCAAGCCAAAATGATGACTAATTTAGTTATGGCCAAGGA  
 CCGTTTACAACCTCTAGAGAAGCTGCAACCAGTTTTCGCAATTTTCAAGTACAGACGGAGCTCTATAAC  
 GAGAGTACTAACCTGACATGCCGCAATGGACATCTCCAGTCAGAAAGTGGAGCAGTTCGAAGAGGAAAG  
 ACCCCTTAACACATGCTAGTAATTCATTGCCTCGATCAAAAAGTGTCTGAAAAGTGGCTCCGCAGGGCT  
 CTCCGGTACCCACAGGGCGCCTAGTTGCAGTGGTTTGCCATGGTTTCTGGAGCAAGACCGGGACCTGGT  
 CCTGCAGTACCACACATAAGGGTACTCCAAAACCAATAGAACCAACAACTTCTACTCCCAACTG  
 CAGTTCGGAAAAAGAAAGACTTGAAAAATTTAGGAATGTGGACAGCAATCTTGTAACCTTATAATGAA  
 TGAAATGTTGACAAATGGGACAGCTGTTAAGTTGATGACATAGCCGGCAGGAGCTGGCAAAGCAAGCG  
 CTGCAGGAGATTGTCATCCTTCTCTGCGGCTGAGTTGTTACAGGGCTCAGAGCTCCTGCTAGAG  
 GCTTGTTACTCTCGGTCGCGCAGGAAACGAAAAACAATGCTGGCTAAAGCAGTACTGTCAGAGTCTAA  
 TGCAACTTTTTTCAACATAAGTCTGCCAGTTTAACTTCAAATATGTGGGAGAAGGAGAGAAATGGTG  
 AGAGCTCTCTTTGCTGTGGCTCGAGAAGTCAACCATCTATAATTTTTATAGATGAAGTTGACAGCTTTT  
 TGTGTGAGAGACGGGAAGGGGAGCAGCAGCTAGCAGACGGCTAAAGACGGAATTTTTAATAGAATTCGA  
 CGGGGTGCAATCTGCTGGAGATGACAGAGTACTTGAATGGGTGCAACTAACAGGCCCAAGAGCTTGAT  
 GAAGCTGTTCTCAGGCGTTTCATTAACGGGTATATGTGTCTTACCAATGAGGAGACAAGACTCCTTC  
 TGCTTAAAAACCTGTTGTGTAACAAGGAAGTCCACTGACCCAAAAGAACTCGCACAGCTTGCTAGAAT  
 GACCGATGGATACTCTGGAAGTATCTGACCGCTTTGGCCAAGGATGCAGCCCTGGTCTATCCGAGAA  
 CTGAAGCCAGAGCAGGTGAAGAATATGTCTGCCAGTGGAGTGAAGAAATTCGATTATCTGACTTCACAG  
 AATCCTTAAAAAAGATAAACCGCAGTGTGAGTCTCAGACCTTAGAAGCATACATACGCTGGAACAAGGA  
 CTTTGGAGACACCACTGTT

**ACGCGTACGCGGCCGCTCGAG** – GFP Tag – GTTTAA

**Protein Sequence:**

>MG225751 representing NM\_001162870  
 Red=Cloning site Green=Tags(s)

MSSPAGRKKKSGGASPARPPPPAAVPAAGPAPAAGSPPKRNPSFSSPLVVGFAALLRLLACHLG  
 LLFAWLCQRFSRALMAKRSSGTAPAPASPSPAPGPGGEAESVRVFKQAFEYISIALRIDEEEKQKE  
 QAVEWYKKGIEELEKGIIVITVGGQEYERARRLQAKMMTNLVMKDRQLLEKLPVLFQSKSQTDVYN  
 ESTNLTNRNHLQSESGAVPKRKDPLTHASNLSRKTVLKSGSAGLSGHHRAPSCSGLSMVSGARPGG  
 PAATTHKGTGPKNRTNKPSTPTTAVRKKKDLKNFRNVDSNLANLIMNEIVDNGTAVKFDIAGQELAKQA  
 LQEIIVILPSLRPELFTGLRAPARGLLLFGPPGNGKTMLAKAVAAESNATFFNISAAALTSKYVGEKLV  
 RALFAVARELQPSIIFIDEVDSLLCERREGEHDASRRLKTEFLIEFDGVQSAGDDRVLVMGATNRPQELD  
 EAVLRRFIKRVYVSLPNEETRLLLKNLLCKQGSPLTQKELAQRLARMTDGYSGSDLTALAKDAALGP  
 IRE LKPEQVKNMSASEMRNIRLSDFTESLKKIKRSVSPQTLEAYIRWNKDFGDTTV

**TRTRPLE** – GFP Tag – V

**Restriction Sites:**

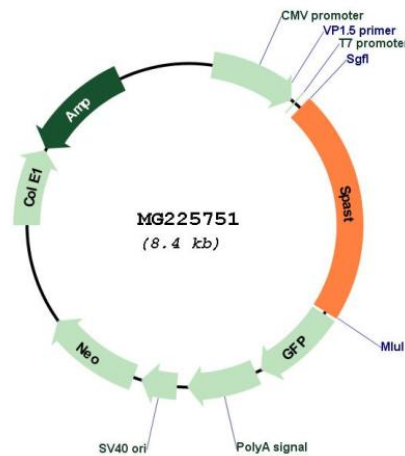
SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shutting:



Plasmid Map:



ACCN: NM\_001162870  
 ORF Size: 1842 bp

**OTI Disclaimer:** Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at [custsupport@origene.com](mailto:custsupport@origene.com) or by calling 301.340.3188 option 3 for pricing and delivery.

The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

**OTI Annotation:** This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

**Components:** The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

**Reconstitution Method:**

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

**RefSeq:** [NM\\_001162870.1](#), [NP\\_001156342.1](#)

**RefSeq Size:** 4696 bp

**RefSeq ORF:** 1845 bp

**Locus ID:** 50850

**UniProt ID:** [Q9QYY8](#)

**Cytogenetics:** 17 E2

**Gene Summary:**

ATP-dependent microtubule severing protein that specifically recognizes and cuts microtubules that are polyglutamylated (PubMed:19141076 PubMed:20530212). Preferentially recognizes and acts on microtubules decorated with short polyglutamate tails: severing activity increases as the number of glutamates per tubulin rises from one to eight, but decreases beyond this glutamylation threshold (By similarity). Severing activity is not dependent on tubulin acetylation or detyrosination (By similarity). Microtubule severing promotes reorganization of cellular microtubule arrays and the release of microtubules from the centrosome following nucleation (By similarity). It is critical for the biogenesis and maintenance of complex microtubule arrays in axons, spindles and cilia (By similarity). SPAST is involved in abscission step of cytokinesis and nuclear envelope reassembly during anaphase in cooperation with the ESCRT-III complex (By similarity). Recruited at the midbody, probably by IST1, and participates in membrane fission during abscission together with the ESCRT-III complex (By similarity). Recruited to the nuclear membrane by IST1 and mediates microtubule severing, promoting nuclear envelope sealing and mitotic spindle disassembly during late anaphase (By similarity). Required for membrane traffic from the endoplasmic reticulum (ER) to the Golgi and endosome recycling (By similarity). Recruited by IST1 to endosomes and regulates early endosomal tubulation and recycling by mediating microtubule severing (By similarity). Probably plays a role in axon growth and the formation of axonal branches (PubMed:18234839).[UniProtKB/Swiss-Prot Function]