

Product datasheet for **RR206671**

Spast (NM_001108702) Rat Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Spast (NM_001108702) Rat Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Spast
Synonyms:	Spg4
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin



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ORF Nucleotide Sequence:

>RR206671 representing NM_001108702
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGCATCGCC**

ATGAGTTCCTCGGCCGACGACGAAGAAGAAAGGCTCAGCGCGCGAGCCCCGCGCCCGCCAGGCCTC
 CGCCCCCGCGCGGTCCCCGCCCTGCCGCGCGCCCGCCCTGCGCCCGGCTCGCCGATAAGCGGAA
 CCTGTACTTCTCGTATCCGCTGGTCTGCGCTTCCGCCCTGCTGCGCTGCTGGCCTGCCACCTGGGG
 CTCCTTCTCGTGTGGCTCTGCCAGCGCTTCTCCGCGCCCTCATGGCCGCAAGAGGAGCTCCGGGACCG
 CGCCGGCGCCCGCTCGCCCTCGACTCCAGCCCCGGACCGGTGGCAGGCGGAGAGCGTCCGCGTCTT
 CCACAAGCAGGCCTTTGAGTACATCTCCATTGCCCTGCGCATCGACGAGGAAGAGAAAGGACAGAAGGAA
 CAAGCTGTGGAATGGTATAAGAAAGGCATCGAAGAAGTGAAGAAAGGAATCGCGTTATAGTTACGGGCC
 AAGGTGAACAGTACGAAAGAGCTAGACGCCTTCAAGCCAAAATGATGACGAATTTGGTTATGGCTAAGGA
 CCGTTTACAACCTCTAGAAAGTGGAGCAGTTCCGAAGAAGAAAGACCCCTAACACATGCTAGTAATTCA
 TTGCTCGATCAAAAAGTGTATGAAAAGTGGATCCACAGGGCTCTCCGGTACCCACAGGGCGCCTAGTT
 GCAGTGGTTTATCCATGGTTTCTGGAGCAAGACCGGGATCTGGTCTGCAGCTACCCACACATAAGGGTAC
 TTCAAAACCAAATAGAACCAACAAACCTTCTACACCCACAAGTGCAGTTCGGAAAAAGAAAGACTTGAAA
 AATTTTAGGAATGTGGACAGCAATCTTGCTAACCTTATAATGAATGAAATGTTGACAATGGGACAGCTG
 TTAATTTGATGATATAGCTGGTCAAGAACTGGCAAAACAAGCATTGCAAGAGATTGTCATTCTCCCTTC
 TCTGCGCCTGAGTTGTTACAGGGCTCAGAGCTCCCGCCAGAGGCTTGTACTCTCGTCCACCAGGA
 AACGAAAAACCATGCTGGCTAAAGCAGTAGCTGCAGAATCTAATGCGACTTTTTTCAATATAAGTGCTG
 CAAGTTTAACTTCAAAAATGTAGGAGAGGGAGAGAAAATGGTGAGAGCTTTTTTGTGCTGGCTCGAGA
 ACTTCAACCCTCTATAATTTTTATAGATGAAGTTGATAGTCTTTTGTGTGAGAGAAGAGAAGGGGAGCAC
 GATGCTAGTAGACGACTAAAACTGAATTTTTAATAGAATTTGATGGTGTGCAGTCTGCTGGAGATGACA
 GAGTCTCGTAATGGGTGCAACCAACAGCCCCAAGAGCTGGATGAAGCTGTTCTCAGGCGTTTCATTAA
 ACGGGTGTATGTGCATTACCAATGAGGAGACACGACTACTTCTACTTAAAAACCTGTTATGTAACAA
 GGAAGTCCACTGACCCAAAAAGAACTTGTCAACTGGCGAGAATGACTGATGGATACTCTGGAAGTGATC
 TGACTGCTTTGGCAAAGGATGCAGCACTGGTCTATCCGAGAAGTGAACCAGAGCAGGTGAAGAACAT
 GTCTGCCAGTGAATGAGAAATATCGATTATCTGACTTACAGAATCCTTAAAAAGATCAAACGCAGT
 GTGAGTCTCAGACTTTAGAAGCATACATACGCTGGAACAAGGACTTTGGAGACCCACTGTT

ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

Protein Sequence:

>RR206671 representing NM_001108702
 Red=Cloning site Green=Tags(s)

MSSPAGRKKKGGSGASPAPARPPPPAAVPAPAAGPAPAPGSPHKRNLVYFSYPLVVGFFALLRLLACHLG
 LLFVWLCQRF SRALMAAKRSSGTAPAPASPSTPAPGPGGEAESVRVFKQAFEYISIALRIDEEEKGQKE
 QAVEWYKKGIEELEKGI AIVITGQGEQYERARRLQAKMMTNLVMAKDRLQLLESGAVPKKKDPLTHASNS
 LPRSKTVMKSGSTGLSGHHRAPSCSGLSMVSGARPGSGPAATTHKGT SKPNRTNKPSTPTTAVRKKDKL
 NFRNVDSNLANLIMNEIVDNGTAVKFDIAGQELAKQALQEIVILPSLRPELFTGLRAPARGLLLFGPPG
 NGKTMLAKAVAAESNATFFNISAAASLTSKYVGEKLVRLFAVARELQPSIIFIDEVDSLLCERREGEH
 DASRRLKTEFLIEFDGVQSAGDDRVLVMGATNRPQELDEAVLRRFIKRVYVSLPNEETRLLLKLLCKQ
 GSPLTQKELARMTDGYSGSDLTALAKDAALGP IRELKPEQVKNMSASEMRNIRLSDFTESLKKIKRS
 VSPQTLEAYIRWNKDFGDTTV

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Restriction Sites:

Sgfl-MluI

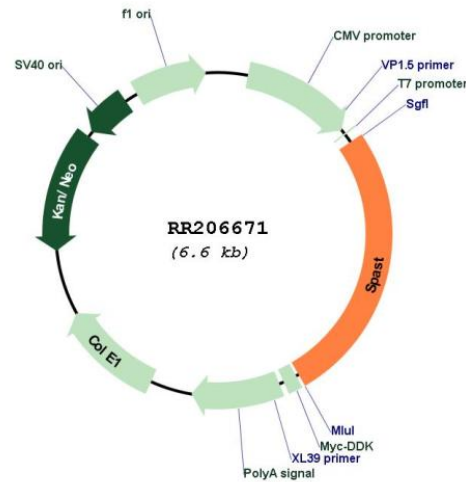
Cloning Scheme:

Cloning sites used for ORF Shuttling:



* The last codon before the Stop codon of the ORF

Plasmid Map:



ACCN: NM_001108702

ORF Size: 1743 bp

OTI Disclaimer:	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:	<ol style="list-style-type: none">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_001108702.2 , NP_001102172.2
RefSeq Size:	4489 bp
RefSeq ORF:	1746 bp
Locus ID:	362700
UniProt ID:	B2RYN7
Cytogenetics:	6q13
MW:	63 kDa

Gene Summary:

ATP-dependent microtubule severing protein that specifically recognizes and cuts microtubules that are polyglutamylated. 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. Severing activity is not dependent on tubulin acetylation or detyrosination. Microtubule severing promotes reorganization of cellular microtubule arrays and the release of microtubules from the centrosome following nucleation. It is critical for the biogenesis and maintenance of complex microtubule arrays in axons, spindles and cilia. SPAST is involved in abscission step of cytokinesis and nuclear envelope reassembly during anaphase in cooperation with the ESCRT-III complex. Recruited at the midbody, probably by IST1, and participates in membrane fission during abscission together with the ESCRT-III complex. Recruited to the nuclear membrane by IST1 and mediates microtubule severing, promoting nuclear envelope sealing and mitotic spindle disassembly during late anaphase. Required for membrane traffic from the endoplasmic reticulum (ER) to the Golgi and endosome recycling. 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]