

## Product datasheet for **MG221924**

### Syt7 (NM\_173068) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Syt7 (NM_173068) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Syt7
Synonyms:	AI851541; B230112P13Rik
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>MG221924 representing NM\_173068  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGTACCGGGACCCGGAGCGGCCAGCCAGGGGCACCTACCCGCGATGTCTGCTGGTCTCTGCAATCA  
 TCACCGTCAGCCTTAGCGTCACTATCGTCTCTGCGGCCGTGCCACTGGTGTGTCAGCGCAAACCTGGGCAA  
 ACGCTACAAGAATTCCTTGGAGACGGTGGGCACGCCAGACTCGGGGCGTGGGCGCGGTGAGAAGAAAGCC  
 ATCAATTCGAGGACTCCACCCTGTCCACGGCCACTACCCCTGAGTCTATCCCCAGCTCCGCGGGAGAGC  
 CGAAATGCCAGCGACCCCGCACACTGATGCGGCAGCAGAGCCTGCAGCAGCCGCTGAGCCAGAACCAGCA  
 GGGCCGGCAGCCAGTCAGCCACCACCAGCCAGAGCCTGGGCCAGCTGCAGGCCACCGCGGCCCTCGGCA  
 CCGGGCTCCAACCCCGGGCCTATGGTCGGGGTCAAGCTCGGCAGGGCACCTCGGCCGGCTCCAAGTACC  
 GGGCAGCTGGGGCCGACCGCTCCAACCCAGGCAGCTGGGACCAGTGGTGGGGCAGATTGAAACCCG  
 AGGCTTGGACATGAAATCCTTCTGGAAGGCCGGATGGTGGTGTATCCCTGGTATTAGGGCTTTCGGAA  
 CAGGATGACTTTGCCAATATCCCTGACCTGCAAAACCCAGGAACCCAGCAGAACCAGAACGCTCAGGGGG  
 ACAAGAGGTTGCCTGCAGGAGGGAAGGCTGTGAATACAGCCCCAGTGCCCGGCCAGACGCCACACAGTGA  
 GTCTGACCGCAGAACGGAGACCCGTTCTCTGTCTCGGACCTCGTCAACTCCCTTACCAGCGAGATGCTC  
 ATGCTCTCCCGGGTCTGAGGAGGATGAGGCCACGAGGGTGCAGCCGAGAGAACCTGGGCCGAATCC  
 AGTTCAGTGTGGCTACAACCTCAAGAGTCCACACTCACCGTGAAGGTGATGAAGGCCAAGAGCTGCC  
 AGCCAAGGACTTCAGCGGTAAGTACCCCTTGTCAAGATCTACCTGCTACCCGACAAGAAGCACAAA  
 CTGGAGACCAAGGTGAAGCGGAAGAATCTAAACCCGACTGGAATGAGACCTTTCTATTTGAAGGGTTTC  
 CTTAGCAGAAAAGTGGTGCAGAGGGTCTCTACCTCCAGTCTGGATTATGACCGTTTCAGCCGCAATGA  
 CCCATTGGGGAGGTGTCCATCCCTCTGAACAAGGTGGACCTGACCCAGATGCAGACCTTCTGGAAGGAT  
 CTGAAGCCATGCAGCGATGGGAGTGGGAGCCGAGGGGAGCTGCTCTTGTCCCTCTGCTACAAACCCCTCTG  
 CCAACTCCATCATCGTGAACATCATCAAAGCTCGAAACCTCAAAGCCATGGACATCGGGGCGACATCAGA  
 CCCCTATGTGAAGGTGTGGCTGATGTATAAAGACAAGCGGGTAGAGAAAAAGAAGACCGTGACAAAGAAG  
 AGGAACCTGAACCCATCTTCAATGAGTCTTTCGCTTCGACATACCCACGGAGAAGCTGAGGGAGACCA  
 CGATCATCATCACTGTGACAAAGACAAGCTCAGCCGCAACGACGTCATCGCAAGATCTACCTGTC  
 CTGGAAGAGCGGACAGGTGAAGTGAACACTGGAAGGACATGATCGCTCGTCCCGGCAGCCTGTGGCC  
 CAGTGGCACAGCTGAAAGCC

**ACGCGT**ACGCGGCCGCTCGAG - GFP Tag - GTTTAA

**Protein Sequence:**

>MG221924 representing NM\_173068  
 Red=Cloning site Green=Tags(s)

MYRDPEAASPGAPTRDVLVLSAIIIVSLSVTIVLCLCHWCQRKLGKRYKNSLETVGTDPDSGRGRGEKKA  
 INFEDSTLSTATTLESIPSSAGEPKCQRPRTLMRQSLQQPLSQNQGRQPSQPTTSQSLGQLQAHAASA  
 PGSNPRAYGRQARQGTSAAGSKYRAAGGRSRNPGSWDHVVGQIRNRGLDMKSFLEGRMVVLSLVLGLSE  
 QDDFANIPDLQNPQTQQNQNAQGDKRLPAGGKAVNTAPVPGQTPHDESDRRRETSSVSDLVNSL TSEML  
 MLSPGSEEDAHEGCSRENLRGRIQFVSVGNFQESTLTVKVMKAQELPAKDFSGTSDPFVKIYLLPDKKHK  
 LETKVKRKNLNPWNFLFEGFPYKVVQVRLYLQVLDYDRFSRNDPIGEVSIPLNKVDLTQMOTFWKD  
 LKPCSDGSGSRGELLLSLCYNPSANSIIIVNIIKARNLKAMDIGGTSDPYVKVWLMYKDKRVEKKKTVTKK  
 RNLNPIFNESFAFDIPTEKLRRETTIIITVMDKDKLSRNDVIGKIYLSWKS GPGEVKHWKDMIARPRQVVA  
 QWHQLKA

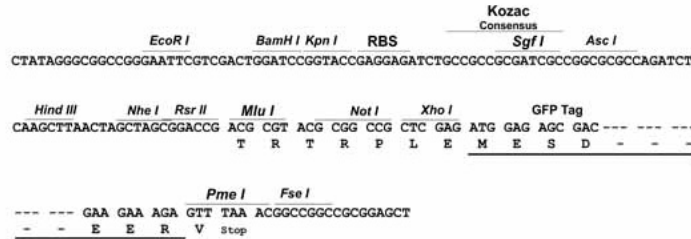
**TRTRPLE** - GFP Tag - V

**Restriction Sites:**

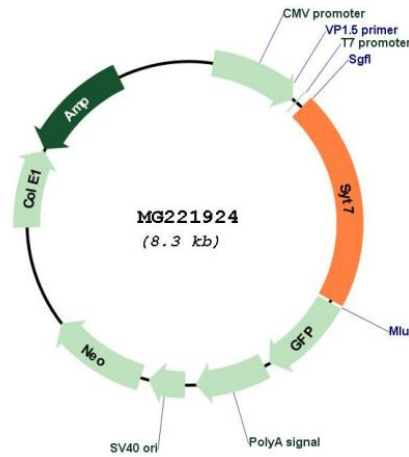
Sgfl-MluI

Cloning Scheme:

Cloning sites used for ORF Shutting:



Plasmid Map:



ACCN: NM\_173068  
 ORF Size: 1701 bp

<b>OTI Disclaimer:</b>	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. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	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).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>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.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_173068.2</a> , <a href="#">NP_775091.2</a>
<b>RefSeq Size:</b>	6834 bp
<b>RefSeq ORF:</b>	1704 bp
<b>Locus ID:</b>	54525
<b>UniProt ID:</b>	<a href="#">Q9R0N7</a>
<b>Cytogenetics:</b>	19 A

**Gene Summary:**

Ca(2+) sensor involved in Ca(2+)-dependent exocytosis of secretory and synaptic vesicles through Ca(2+) and phospholipid binding to the C2 domain. Ca(2+) induces binding of the C2-domains to phospholipid membranes and to assembled SNARE-complexes; both actions contribute to triggering exocytosis. SYT7 binds Ca(2+) with high affinity and slow kinetics compared to other synaptotagmins (PubMed:26738595). Involved in Ca(2+)-triggered lysosomal exocytosis, a major component of the plasma membrane repair (By similarity). Ca(2+)-regulated delivery of lysosomal membranes to the cell surface is also involved in the phagocytic uptake of particles by macrophages (PubMed:16982801, PubMed:21041449). Ca(2+)-triggered lysosomal exocytosis also plays a role in bone remodeling by regulating secretory pathways in osteoclasts and osteoblasts (PubMed:18539119). Involved in cholesterol transport from lysosome to peroxisome by promoting membrane contacts between lysosomes and peroxisomes: probably acts by promoting vesicle fusion by binding phosphatidylinositol-4,5-bisphosphate on peroxisomal membranes (PubMed:25860611). Acts as a key mediator of synaptic facilitation, a process also named short-term synaptic potentiation: synaptic facilitation takes place at synapses with a low initial release probability and is caused by influx of Ca(2+) into the axon terminal after spike generation, increasing the release probability of neurotransmitters (PubMed:24569478, PubMed:26738595). Probably mediates synaptic facilitation by directly increasing the probability of release (PubMed:26738595). May also contribute to synaptic facilitation by regulating synaptic vesicle replenishment, a process required to ensure that synaptic vesicles are ready for the arrival of the next action potential: SYT7 is required for synaptic vesicle replenishment by acting as a sensor for Ca(2+) and by forming a complex with calmodulin (PubMed:24569478). Also acts as a regulator of Ca(2+)-dependent insulin and glucagon secretion in beta-cells (PubMed:18308938, PubMed:19171650). Triggers exocytosis by promoting fusion pore opening and fusion pore expansion in chromaffin cells (PubMed:20956309). Also regulates the secretion of some non-synaptic secretory granules of specialized cells (By similarity). [UniProtKB/Swiss-Prot Function]