

Resource Summary Report

Generated by [RRID](#) on Aug 17, 2026

CMV::SypHy A4

RRID:Addgene_24478

Type: Plasmid

Proper Citation

RRID:Addgene_24478

Plasmid Information

URL: <http://www.addgene.org/24478>

Proper Citation: RRID:Addgene_24478

Insert Name: SypHy

Organism: Rattus norvegicus

Bacterial Resistance: Kanamycin

Defining Citation: [PMID:16982422](#)

Vector Backbone Description: Backbone Marker:Clontech; Backbone Size:3952; Vector Backbone:pEGFP-C1; Vector Types:Mammalian Expression; Bacterial Resistance:Kanamycin

Comments: The depositing lab notes that the Xba1 and Bcl1 unique restriction digestion sites could be methylated and blocked if the plasmid is grown or maintained in dam⁺ bacteria. Also note that in the Addgene-generated map below, the feature listed as "GFP(12-708)" is actually pH sensitive pHluorin. There is a mutation S446T in Synaptophysin ORF. This change does not have any effect in localizing the construct to the synaptic vesicle and may be a result of a SNP.

Plasmid Name: CMV::SypHy A4

Record Creation Time: 20220422T222109+0000

Record Last Update: 20260815T081232+0000

Ratings and Alerts

No rating or validation information has been found for CMV::SypHy A4.

No alerts have been found for CMV::SypHy A4.

Data and Source Information

Source: [Addgene](#)

Usage and Citation Metrics

We found 16 mentions in open access literature.

Listed below are recent publications. The full list is available at [RRID](#) .

Jeans AF, et al. (2025) CaV2.1 mediates presynaptic dysfunction induced by amyloid ? oligomers. Cell reports, 44(4), 115451.

Duan J, et al. (2024) Spontaneous and evoked synaptic vesicle release arises from a single releasable pool. Cell reports, 43(7), 114461.

Blumrich EM, et al. (2023) Phosphatidylinositol 4-kinase II? is a glycogen synthase kinase 3-regulated interaction hub for activity-dependent bulk endocytosis. Cell reports, 42(6), 112633.

Hao Y, et al. (2023) Targeted sensors for glutamatergic neurotransmission. eLife, 12.

Dentoni G, et al. (2022) Mitochondria-Endoplasmic Reticulum Interplay Regulates Exo-Cytosis in Human Neuroblastoma Cells. Cells, 11(3).

Bodz?ta A, et al. (2022) Subsynaptic mobility of presynaptic mGluR types is differentially regulated by intra- and extracellular interactions. Molecular biology of the cell, 33(8), ar66.

Dagar S, et al. (2021) Transsynaptic N-Cadherin Adhesion Complexes Control Presynaptic Vesicle and Bulk Endocytosis at Physiological Temperature. Frontiers in cellular neuroscience, 15, 713693.

Jiang ZJ, et al. (2021) TRPM7 is critical for short-term synaptic depression by regulating synaptic vesicle endocytosis. eLife, 10.

Yong XLH, et al. (2020) PICK1 Controls Activity-Dependent Synaptic Vesicle Cargo Retrieval. Cell reports, 33(4), 108312.

Hughes AN, et al. (2019) Oligodendrocytes express synaptic proteins that modulate myelin sheath formation. Nature communications, 10(1), 4125.

Yao CK, et al. (2017) A Ca²⁺ channel differentially regulates Clathrin-mediated and activity-dependent bulk endocytosis. PLoS biology, 15(4), e2000931.

Jackson RE, et al. (2016) Visualizing Presynaptic Calcium Dynamics and Vesicle Fusion with a Single Genetically Encoded Reporter at Individual Synapses. Frontiers in synaptic neuroscience, 8, 21.

Rost BR, et al. (2015) Optogenetic acidification of synaptic vesicles and lysosomes. Nature neuroscience, 18(12), 1845.

Kawaguchi SY, et al. (2015) Control of inhibitory synaptic outputs by low excitability of axon terminals revealed by direct recording. *Neuron*, 85(6), 1273.

Herman MA, et al. (2014) Vesicular glutamate transporter expression level affects synaptic vesicle release probability at hippocampal synapses in culture. *The Journal of neuroscience : the official journal of the Society for Neuroscience*, 34(35), 11781.

Nakazawa H, et al. (2012) Rab33a mediates anterograde vesicular transport for membrane exocytosis and axon outgrowth. *The Journal of neuroscience : the official journal of the Society for Neuroscience*, 32(37), 12712.