

Resource Summary Report

Generated by [NIF](#) on Sep 9, 2026

pLenti-Synapsin-hChR2(H134R)-EYFP-WPRE

RRID:Addgene_20945

Type: Plasmid

Proper Citation

RRID:Addgene_20945

Plasmid Information

URL: <http://www.addgene.org/20945>

Proper Citation: RRID:Addgene_20945

Insert Name: channelrhodopsin-2

Organism: C. reinhardtii

Bacterial Resistance: Ampicillin

Defining Citation: [PMID:17410168](#)

Vector Backbone Description: Backbone Size:9000; Vector Backbone:pLenti-SynapsinI; Vector Types:Mammalian Expression, Lentiviral; Bacterial Resistance:Ampicillin

Comments: Please see <http://www.optogenetics.org> for additional information. The H134R mutation present in the ChR2 sequence is a gain-of-function mutant that produces larger stationary photocurrents in comparison to the wild-type ChR2 sequence

Plasmid Name: pLenti-Synapsin-hChR2(H134R)-EYFP-WPRE

Relevant Mutation: H134R mutation in ChR2

Record Creation Time: 20220422T222053+0000

Record Last Update: 20260905T075350+0000

Ratings and Alerts

No rating or validation information has been found for pLenti-Synapsin-hChR2(H134R)-EYFP-WPRE.

No alerts have been found for pLenti-Synapsin-hChR2(H134R)-EYFP-WPRE.

Data and Source Information

Source: [Addgene](#)

Usage and Citation Metrics

We found 25 mentions in open access literature.

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

Xue W, et al. (2026) A Cre-dependent lentiviral vector for neuron subtype-specific expression of large proteins. FEBS letters, 600(3), 342.

Throesch BT, et al. (2024) Functional sensory circuits built from neurons of two species. Cell, 187(9), 2143.

Mendonça S, et al. (2023) Massively parallel identification of mRNA localization elements in primary cortical neurons. Nature neuroscience, 26(3), 394.

Bershteyn M, et al. (2023) Human pallial MGE-type GABAergic interneuron cell therapy for chronic focal epilepsy. Cell stem cell, 30(10), 1331.

Zhu Q, et al. (2023) Human cortical interneurons optimized for grafting specifically integrate, abort seizures, and display prolonged efficacy without over-inhibition. Neuron, 111(6), 807.

Loedige I, et al. (2023) mRNA stability and m6A are major determinants of subcellular mRNA localization in neurons. Molecular cell, 83(15), 2709.

Gonzalez-Ramos A, et al. (2021) Human stem cell-derived GABAergic neurons functionally integrate into human neuronal networks. Scientific reports, 11(1), 22050.

Bang Y, et al. (2020) An efficient cell type specific conjugating method for incorporating various nanostructures to genetically encoded AviTag expressed optogenetic opsins. Biochemical and biophysical research communications, 530(3), 581.

Takayama Y, et al. (2020) Selective Induction of Human Autonomic Neurons Enables Precise Control of Cardiomyocyte Beating. Scientific reports, 10(1), 9464.

Bikbaev A, et al. (2020) Auxiliary α_1 and α_3 Subunits of Calcium Channels Drive Excitatory and Inhibitory Neuronal Network Development. The Journal of neuroscience : the official journal of the Society for Neuroscience, 40(25), 4824.

Lin CY, et al. (2019) iPSC-derived functional human neuromuscular junctions model the pathophysiology of neuromuscular diseases. JCI insight, 4(18).

Ni P, et al. (2019) Large-Scale Generation and Characterization of Homogeneous Populations of Migratory Cortical Interneurons from Human Pluripotent Stem Cells. Molecular therapy. Methods & clinical development, 13, 414.

Urban-Ciecko J, et al. (2018) Precisely Timed Nicotinic Activation Drives SST Inhibition in Neocortical Circuits. *Neuron*, 97(3), 611.

Ferrarese L, et al. (2018) Dendrite-Specific Amplification of Weak Synaptic Input during Network Activity In Vivo. *Cell reports*, 24(13), 3455.

Theisen U, et al. (2018) Neurotransmitter-mediated activity spatially controls neuronal migration in the zebrafish cerebellum. *PLoS biology*, 16(1), e2002226.

Chang CW, et al. (2017) Distinct stages of synapse elimination are induced by burst firing of CA1 neurons and differentially require MEF2A/D. *eLife*, 6.

Inagaki S, et al. (2017) Genetically encoded bioluminescent voltage indicator for multi-purpose use in wide range of bioimaging. *Scientific reports*, 7, 42398.

Hay YA, et al. (2016) Nicotinic Transmission onto Layer 6 Cortical Neurons Relies on Synaptic Activation of Non- $\alpha 7$ Receptors. *Cerebral cortex (New York, N.Y. : 1991)*, 26(6), 2549.

Brown A, et al. (2016) PEG-lipid micelles enable cholesterol efflux in Niemann-Pick Type C1 disease-based lysosomal storage disorder. *Scientific reports*, 6, 31750.

Su CT, et al. (2015) An optogenetic approach for assessing formation of neuronal connections in a co-culture system. *Journal of visualized experiments : JoVE*(96), e52408.