

Resource Summary Report

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

pAAV-Ef1a-DIO hChR2(C128S/D156A)-EYFP

RRID:Addgene_35503

Type: Plasmid

Proper Citation

RRID:Addgene_35503

Plasmid Information

URL: <http://www.addgene.org/35503>

Proper Citation: RRID:Addgene_35503

Insert Name: hChR2(C128S/D156A)-EYFP

Organism: Chlamydomonas reinhardtii

Bacterial Resistance: Ampicillin

Defining Citation: [PMID:21796121](#)

Vector Backbone Description: Backbone Marker:Stratagene; Backbone Size:5605; Vector Backbone:pAAV; Vector Types:Mammalian Expression, AAV; Bacterial Resistance:Ampicillin

Comments: ChR2 variant harboring two amino acid substitutions which act to stabilize the conducting state of the channel to deactivate with a time constant of nearly 30 minutes following a brief pulse of activating blue light. Like previously published step function opsins, this stabilized step function opsin (SSFO) may be deactivated using yellow light (590nm). The stabilized open state of the channel allows for both lower power activation, meaning in some circumstances the light delivery system need not penetrate the brain, as well as for behavior in the absence of a tethered laser or other light delivery system.

Plasmid Name: pAAV-Ef1a-DIO hChR2(C128S/D156A)-EYFP

Relevant Mutation: C128S and D156A

Record Creation Time: 20220422T222151+0000

Record Last Update: 20260815T081401+0000

Ratings and Alerts

No rating or validation information has been found for pAAV-Ef1a-DIO hChR2(C128S/D156A)-EYFP.

No alerts have been found for pAAV-Ef1a-DIO hChR2(C128S/D156A)-EYFP.

Data and Source Information

Source: [Addgene](#)

Usage and Citation Metrics

We found 5 mentions in open access literature.

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

Cheng M, et al. (2025) Brainstem catecholaminergic neurons induce torpor during fasting by orchestrating cardiovascular and thermoregulation changes. Nature communications, 16(1), 5954.

Seo J, et al. (2025) Temporal dynamics of Purkinje cell-intrinsic excitability governs cerebellar systems consolidation. iScience, 28(11), 113760.

Prakash M, et al. (2022) Selective control of synaptically-connected circuit elements by all-optical synapses. Communications biology, 5(1), 33.

Matar??se BFE, et al. (2019) Sub-millisecond Control of Neuronal Firing by Organic Light-Emitting Diodes. Frontiers in bioengineering and biotechnology, 7, 278.

Kitanishi T, et al. (2017) Organization of the Claustrum-to-Entorhinal Cortical Connection in Mice. The Journal of neuroscience : the official journal of the Society for Neuroscience, 37(2), 269.