Resource Summary Report

Generated by kravitz2 on Aug 1, 2026

pTriEx-mVenus-PA-Rac1

RRID:Addgene_22007
Type: Plasmid

Proper Citation

RRID:Addgene_22007

Plasmid Information

URL: http://www.addgene.org/22007

Proper Citation: RRID:Addgene_22007

Insert Name: PA-Rac1

Organism: Homo sapiens

Bacterial Resistance: Ampicillin

Defining Citation: PMID:19693014

Vector Backbone Description: Backbone Marker:Novagen; Backbone Size:6000; Vector Backbone:pTriEx; Vector Types:Mammalian Expression, Bacterial Expression, Insect Expression; Bacterial Resistance:Ampicillin

Comments: Protocols for production and use of Hahn lab biosensors and photoactivatable proteins can be found on their web page, at the URL below. If you have suggestions for the protocols or have any questions, please feel free to contact the Hahn lab. Good luck with your experiments! Hahn lab biosensor protocol: http://www.hahnlab.com/tools/index.html Please note, Addgene has not confirmed all the mutations associated with this construct. We suggest sequence verifying this plasmid upon receipt. Further remarks from the Hahn lab regarding some mutations in the fluorescent marker: "the C-S mutation was introduced by us to allow site specific labeling of the protein and we have not detected any effect. The F-L mutation reverts the Venus sequence back to the YFP sequence at this site. It will have a very slight detrimental effect on the maturation speed of the chromophore, but will not affect the stability or wavelength of the chromophore. Neither of these 2 mutations will have any effect on the function of the Lov-Rac construct , and the Venus will still function as it should, i.e. as a reporter for the construct."

Plasmid Name: pTriEx-mVenus-PA-Rac1

Relevant Mutation: LOV(Leu404-Leu546), Rac1 starts at I4 and contains mutations Q61L, E91H and N92H.

Record Creation Time: 20220422T222057+0000

Record Last Update: 20260725T074429+0000

Ratings and Alerts

No rating or validation information has been found for pTriEx-mVenus-PA-Rac1.

No alerts have been found for pTriEx-mVenus-PA-Rac1.

Data and Source Information

Source: Addgene

Usage and Citation Metrics

We found 11 mentions in open access literature.

Listed below are recent publications. The full list is available at kravitz2 .

Inaba H, et al. (2025) Cryo-ET of actin cytoskeleton and membrane structure in lamellipodia formation using optogenetics. iScience, 28(6), 112529.

Lee H, et al. (2025) A Rho GTPase-effector ensemble governs cell migration behavior. Nature communications, 16(1), 9637.

Wu M, et al. (2024) Dopamine pathways mediating affective state transitions after sleep loss. Neuron, 112(1), 141.

Song DA, et al. (2022) A New Monoclonal Antibody Enables BAR Analysis of Subcellular Importin ?1 Interactomes. Molecular & cellular proteomics : MCP, 21(11), 100418.

Hülsemann M, et al. (2020) Optogenetics: Rho GTPases Activated by Light in Living Macrophages. Methods in molecular biology (Clifton, N.J.), 2108, 281.

Sawada M, et al. (2018) PlexinD1 signaling controls morphological changes and migration termination in newborn neurons. The EMBO journal, 37(4).

Kim JM, et al. (2016) Optogenetic toolkit reveals the role of Ca2+ sparklets in coordinated cell migration. Proceedings of the National Academy of Sciences of the United States of America, 113(21), 5952.

Cazaux S, et al. (2016) Synchronizing atomic force microscopy force mode and fluorescence microscopy in real time for immune cell stimulation and activation studies. Ultramicroscopy, 160, 168.

Nguyen TT, et al. (2016) PLEKHG3 enhances polarized cell migration by activating actin filaments at the cell front. Proceedings of the National Academy of Sciences of the United States of America, 113(36), 10091.

Ishii T, et al. (2015) Light generation of intracellular Ca(2+) signals by a genetically encoded protein BACCS. Nature communications, 6, 8021.

Kakumoto T, et al. (2013) Optogenetic control of PIP3: PIP3 is sufficient to induce the actin-based active part of growth cones and is regulated via endocytosis. PloS one, 8(8), e70861.