

Channelrhodopsin 1 (*Chloromonas augustae*)

Lot # 600435-3023-024

| Product | Catalog No. | Package size |
|--------------------------------|-------------|--------------|
| Channelrhodopsin 1_Ca (100 µg) | 28941 | 1 x 100 µg |

Product Description

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|-----------------------|---|
| Alternative names | ChR1, CaChR1 |
| UniProt number | G8HKA1 |
| Protein class | 7-transmembrane protein |
| Organism | <i>Chloromonas augustae</i> (<i>Chlamydomonas augustae</i>) |
| Sequence | wild-type sequence, N-terminal membrane-spanning domain (362 of 715 aa), 10x His-tag (red) |
| | MDTLAWVARELLSTAHDATPATATPSTDHSTPSTDHGSGETFNVITITIGGGHHGGHAGPVDNS IVIGGIDGWIAIPAGDCYAGWYVSHGSSFEATFAHVCQWSIFAVCILSLLWYAWQYWKATCG WEEVYVCCIELVFCFELYHEFDSPCSLYLSTANIVNWLRYSEWLLCCPVILIHLSNVTGLSDDYG RRTMGLLVSDIATIVFGITAAMLVSWPKIIFYLLGFTMCCYTFYLAACKVLIESFHQVPKGICRHLV KAMAITYYVGWSFFPLIFLFGQSGFKKISPYADVIASSFGDLISKNMFGLLGHFLRVKIHEHILKH GDIRKTTHLRIAGEEKEVETFVEEDED HHHHHHHHHH |
| Affinity tags | His-tag (C-terminus) |
| Size | 362 amino acids 40,661 Da |
| Absorbance | Extinction coefficient at 518 nm: 36,000 M ⁻¹ cm ⁻¹ |
| Function | Photoreceptor protein undergoing a photocycle, Retinal protein, light-driven cation channel |
| Literature references | <ol style="list-style-type: none"> Hou SY, Govorunova EG, Ntefidou M, Lane CE, Spudich EN, Sineshchekov OA, Spudich JL. (2012) Diversity of Chlamydomonas channelrhodopsins. Photochem Photobiol. Jan-Feb;88(1):119-28. doi: 10.1111/j.1751-1097.2011.01027.x. Epub 2011 Nov 29. MudersV, Kerruth S, Lórenz-Fonfría VA, Bamann C, Heberle J, Schlesinger R. (2014) Resonance Raman and FTIR spectroscopic characterization of the closed and open states of channelrhodopsin-1. FEBS Lett. Jun 27;588(14):2301-6. doi: 10.1016/j.febslet.2014.05.019. Epub 2014 May 21. |

Quality Control

| | |
|----------|---|
| Purity | >98% as determined by SDS-PAGE, see Figure 1 |
| Activity | Binding of ligand all-trans retinal, covalently bound to a lysine residue. Evaluation of UV-VIS spectrum: absorbance ratio 280 nm / 518 nm = 2.2, additional vibronic band at 480 nm, see Figure 2 |

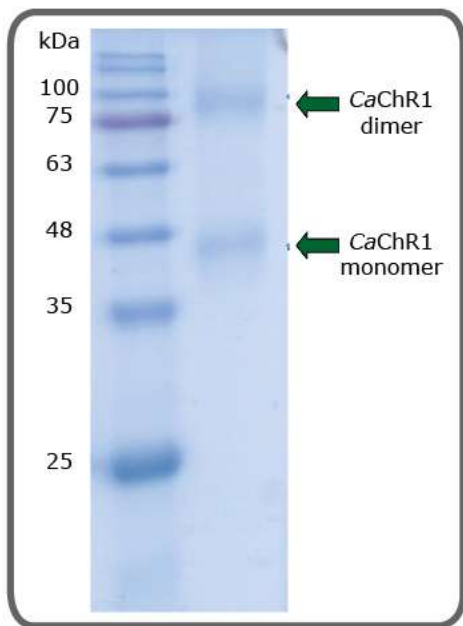


Fig. 1: SDS-PAGE of ChR1 from *C. augustae*.

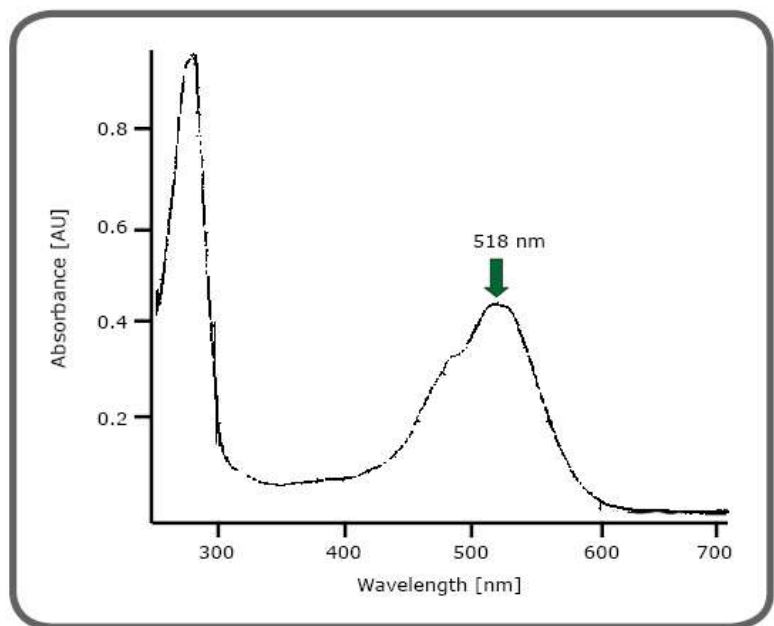


Fig. 2: Absorbance spectrum of ChR1 from *C. augustae*.

Preparation:

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|-------------------|--|
| Expression system | <i>Pichia pastoris</i> (yeast) |
| Purification | PureCube Ni-NTA Agarose, size exclusion chromatography |
| Buffer | 100 mM NaCl, 20 mM MES pH 7.4, 0.03% dodecyl maltoside (DDM) |
| Concentration | 0.5 mg/mL |
| Volume | 205 μ L per 100 μ g aliquot |

Applications

- SDS-PAGE
- Western Blot
- Protein Crystallization
- Biochemical and biophysical analyses

Shipping & Storage

| | |
|---|---------------------------------|
| Shipping conditions | Dry ice |
| Storage conditions | -80°C. Avoid freeze-thaw cycles |
| Important: Channelrhodopsin is light-sensitive and must be stored in the dark. | |

Disclaimer: Our products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

Proteins are our passion.