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Product no **AS10 939**

PsaC | PSI-C core subunit of photosystem I

Product information

Background	PsaC is a conserved, chloroplast-encoded, Fe-S binding protein of approximately 10kDa, present in all known Photosystem I complexes. It is located on the stromal side of the thylacoid membranes. PsaC coordinates the Fe-S clusters FA and FB through two cysteine-rich domains.
Immunogen	<u>KLH</u> -conjugated synthetic peptide conserved in all known PsaC proteins including <i>Arabidopsis thaliana</i> Uniprot: <u>P62090</u> TAIR: <u>AtCg01060</u> , <i>Hordeum vulgare</i> UniProt: <u>P69416</u> , <i>Oryza sativa</i> UniProt: <u>P0C360</u> , <i>Chlamydomonas reinhardtii</i> UniProt: <u>Q00914</u> , <i>Synechococcus elongatus</i> UniProt: <u>Q31QV2</u>
Host	Rabbit
Clonality	Polyclonal
Purity	Serum
Format	Lyophilized
Quantity	50 µl
Reconstitution	For reconstitution add 50 µl of sterile water.
Storage	Store lyophilized/reconstituted at -20 °C; once reconstituted make aliquots to avoid repeated freeze-thaw cycles. Please, remember to spin tubes briefly prior to opening them to avoid any losses that might occur from lyophilized material adhering to the cap or sides of the tubes.
Tested applications	Western blot (WB)
Related products	<u>AS04 042P</u> PsaC PSI-C core subunit of photosystem I (PsaC antibody + PsaC protein positive control) <u>AS04 042S</u> PsaC protein standard for quantitation or positive control <u>collection of antibodies to PSI proteins</u> <u>AS05 084</u> Anti-PsbA D1 protein of PSII, C-terminal (rabbit antibody) (thylakoid membrane marker), rabbit antibodies <u>Plant and algal protein extraction buffer</u>
Additional information	Peptide target used to elicit this antibody is well conserved in all photoautotrophs except some cyanobacteria, some red algae and <i>Cyanophora paradoxa</i> , which contain a conserved substitution of a valine to an isoleucine. The performance of the antibodies has been confirmed against taxa containing both the valine and isoleucine variants. Example of a <u>simultaneous western blot detection with RbcL</u>, <u>PsbA</u> and <u>PsaC</u> antibodies. More information about quantitative western blot using PsaC antibody can be found <u>here</u> .

Application information

Recommended dilution	1 : 1000 (WB)
Expected apparent MW	9 kDa
Confirmed reactivity	<i>Arabidopsis thaliana</i> , <i>Chlamydomonas reinhardtii</i> , <i>Cyanophora paradoxa</i> , <i>Dactylis glomerata</i> , <i>Emiliania huxleyi</i> , <i>Euglena gracilis</i> , <i>Gonyaulax polyedra</i> , <i>Hordeum vulgare</i> , <i>Mesembryanthemum</i> sp., <i>Spinacia oleracea</i> , <i>Flaveria</i> sp., <i>Heterosigma akashiwo</i> , <i>Micromonas pusilla</i> , <i>Phaeodactylum tricornutum</i> , <i>Porphyra</i> sp., symbiotic dinoflagellates of <i>Stylophora pistillata</i> and <i>Turbinaria reniformis</i> ; <i>Synechococcus</i> sp. PCC7002, sp. PCC 7942, <i>Synechocystis</i> sp. PCC 6803, <i>Thalassiosira pseudonana</i> , <i>Thalassiosira punctigera</i> , <i>Trichodesmium erythraeum</i> , <i>Triticum aestivum</i>
Predicted reactivity	Algae, <i>Cannabis sativa</i> , <i>Chromera velia</i> , <i>Cyanobacteria</i> , <i>Brassica napus</i> , <i>Glycine max</i> , <i>Manihot esculenta</i> , <i>Nannochloropsis</i> sp., <i>Nicotiana tabacum</i> , <i>Physcomitrella patens</i> , <i>Prochlorococcus</i> sp. (surface and a deep water ecotype), <i>Spinacia oleracea</i> , <i>Synechococcus</i> PCC 8801, <i>Thermosynechococcus elongatus</i> (BP-1) Species of your interest not listed? <u>Contact us</u>

Not reactive in

No confirmed exceptions from predicted reactivity are currently known.

Additional information

In some species minor cross reactions with some larger proteins are seen. These may contain related iron-sulfur binding motifs. Therefore size verification of the reacting band is required. Due to the small size of the protein, care should be taken to differentiate between chemiluminescent signal from Psac and non-specific signals from chlorophylls or lipids if pigment is retained near the bottom of the blot.

For the most optimal results use: thylakoid membranes or PSI particles, solubilized in a SDS sample buffer (final concentrations: 63 mM Tris HCl, 10% glycerol, 2% SDS, 0.0025% bromophenol blue) with 2.5% beta-mercaptoethanol at 85C for 2 minutes. The samples were spun softly, then the supernatant loaded.

This product can be sold containing ProClin if requested.

For high resolution images, please visit the specific product page at www.agrisera.com

Selected references

- [Levitán](#) et al. (2019). Structural and functional analyses of photosystem II in the marine diatom *Phaeodactylum tricornutum*. *Proc Natl Acad Sci U S A*. 2019 Aug 27;116(35):17316-17322. doi: 10.1073/pnas.1906726116.
- [Zavřetel](#) et al. (2019). Quantitative insights into the cyanobacterial cell economy. *Elife*. 2019 Feb 4;8. pii: e42508. doi: 10.7554/eLife.42508.
- [Zhang](#) et al. (2019). Proteomic responses to ocean acidification of the marine diazotroph *Trichodesmium* under iron-replete and iron-limited conditions. *Photosynth Res*. 2019 May 10. doi: 10.1007/s11120-019-00643-8.
- [Lupette](#) et al. (2019). The architecture of lipid droplets in the diatom *Phaeodactylum tricornutum*. *Algal Research* Volume 38, March 2019, 101415.
- [Lima-Melo](#) et al. (2019). Consequences of photosystem-I damage and repair on photosynthesis and carbon use in *Arabidopsis thaliana*. *Plant J*. 2018 Nov 29. doi: 10.1111/tpj.14177.
- [Steinbeck](#) et al. (2018). Structure of a PSI-LHCI-cyt b6f supercomplex in *Chlamydomonas reinhardtii* promoting cyclic electron flow under anaerobic conditions. *Proc Natl Acad Sci U S A*. 2018 Oct 9;115(41):10517-10522. doi: 10.1073/pnas.1809973115.
- [Gonzaga](#) Heredia-Martinez et al. (2018). Chloroplast damage induced by the inhibition of fatty acid synthesis triggers autophagy in *Chlamydomonas*. *Plant Physiol*, Sept. 2018.
- [Liu](#) et al. (2018). Effects of PSII Manganese-Stabilizing Protein Succinylation on Photosynthesis in the Model Cyanobacterium *Synechococcus* sp. PCC 7002. *Plant Cell Physiol*. 2018 Jul 1;59(7):1466-1482. doi: 10.1093/pcp/pcy080.
- [Du](#) et al. (2018). Galactoglycerolipid Lipase PGD1 Is Involved in Thylakoid Membrane Remodeling in Response to Adverse Environmental Conditions in *Chlamydomonas*. *Plant Cell*. 2018 Feb;30(2):447-465. doi: 10.1105/tpc.17.00446.
- [Cantrell](#) and Peers (2017). A mutant of *Chlamydomonas* without LHCSR maintains high rates of photosynthesis, but has reduced cell division rates in sinusoidal light conditions. *PLoS One*. 2017 Jun 23;12(6):e0179395. doi: 10.1371/journal.pone.0179395.
- [Zang](#) et al. (2017). Characterization of the sulfur-formation (suf) genes in *Synechocystis* sp. PCC 6803 under photoautotrophic and heterotrophic growth conditions. *Planta*. 2017 Jul 14. doi: 10.1007/s00425-017-2738-0.
- [Hu](#) et al. (2017). The SUFBC2 D Complex is Required for the Biogenesis of All Major Classes of Plastid Fe-S Proteins. *Plant J*. 2017 Jan 19. doi: 10.1111/tpj.13483.
- [Yang-Er](#) Chen et al. (2017). Responses of photosystem II and antioxidative systems to high light and high temperature co-stress in wheat. *J. of Exp. Botany*, Volume 135, March 2017, Pages 45–55.
- [Li](#) et al. (2016). A Hard Day's Night: Diatoms Continue Recycling Photosystem II in the Dark. *Front. Mar. Sci.*, 08 November 2016
- [Heinricke](#) et al. (2016). Tetratricopeptide repeat protein protects photosystem I from oxidative disruption during assembly. *Proc Natl Acad Sci U S A*. 2016 Mar 8;113(10):2774-9. doi: 10.1073/pnas.1524040113
- [Rozpadek](#) et al. (2015). The fungal endophyte *Epichloë typhina* improves photosynthesis efficiency of its host orchard grass (*Dactylis glomerata*). *Planta*. 2015 Jun 10.
- [Subramanyam](#) et al. (2014). Structural and functional changes of PSI-LHCI supercomplexes of *Chlamydomonas reinhardtii* cells grown under high salt conditions. *Planta*. 2010 Mar;231(4):913-22.
- [Dang](#) et al. (2014). Combined Increases in Mitochondrial Cooperation and Oxygen Photoreduction Compensate for Deficiency in Cyclic Electron Flow in *Chlamydomonas reinhardtii*. *Plant Cell*. 2014 Jul 2. pii: tpc.114.126375.

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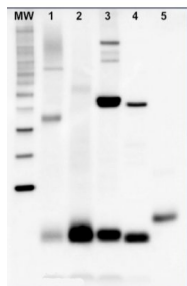
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Application example



5 µg of total protein from samples such as **(1)** *Arabidopsis thaliana* leaf, **(2)** *Hordeum vulgare* leaf, **(3)** *Chlamydomonas reinhardtii* total cell, **(4)** *Synechococcus* sp. 7942 total cell, **(5)** PsaC protein standard ([AS04_042S](#)), total protein from all the samples were extracted with Agrisera Protein Extraction Buffer PEB ([AS08_300](#)). Samples were diluted with 1X sample buffer (NuPAGE LDS sample buffer (Invitrogen) supplemented with 50 mM DTT and heat at 70°C for 5 min and kept on ice before loading. Protein samples were separated on NuPAGE 4-12% Tris-Bis gel (Invitrogen) LDS-PAGE and blotted for 1h to 1.5h on PVDF using tank transfer. Blots were blocked immediately following transfer in 2% blocking reagent for 1h at RT with agitation. Blots were incubated with PsaC antibody at a dilution of 1: 10 000 (in blocking reagent) for 1h at RT with agitation. The antibody solution was decanted and the blot was rinsed briefly twice, and then washed 1x15 min and 3x5 min with TBS-T at RT with agitation. Blots were incubated in secondary antibody (anti-rabbit IgG HRP conjugated, [AS09_602](#)) diluted to 1:50 000 in blocking reagent for 1h at RT with agitation. The blots were washed as above. The blot was developed for 5 min with chemiluminescence detection reagent in mid picogram range. Images of the blots were obtained using a CCD imager (FluorSMax, Bio-Rad) and Quantity One software (Bio-Rad).