

Agrisera

This product is for research use only (not for diagnostic or therapeutic use)

contact: support@agrisera.com

Agrisera AB | Box 57 | SE-91121 Vännäs | Sweden | +46 (0)935 33 000 | www.agrisera.com

Product no **AS11 1787**
PsbC | CP43 protein of PSII

Product information

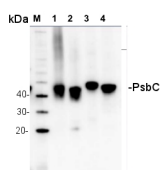
Immunogen	KLH-conjugated synthetic peptide chosen from known sequences of PsbC including <i>Arabidopsis thaliana</i> PsbC, UniProt: P56778 , TAIR: AtCg00280
Host	Rabbit
Clonality	Polyclonal
Purity	Serum
Format	Lyophilized
Quantity	50 µl
Reconstitution	For reconstitution add 50 µl of sterile water.
Storage	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.
Additional information	Contains 0.01% ProClin

Application information

Recommended dilution	1 : 3 000 (WB)
Expected apparent MW	45 43 kDa
Confirmed reactivity	<i>Arabidopsis thaliana</i> , <i>Chlamydomonas reinhardtii</i> , <i>Chlorella sorokiniana</i> , <i>Chlorella vulgaris</i> , <i>Chromochloris zofingiensis</i> , <i>Echinochloa crus-galli</i> , <i>Hordeum vulgare</i> , <i>Oryza sativa</i> , <i>Panax ginseng</i> , <i>Physcomitrella patens</i> , <i>Pisum sativum</i> , <i>Phaseolus vulgaris</i> , <i>Pyropia yezoensis</i> , <i>Synechococcus</i> sp. PCC7002, <i>Synechocystis</i> sp. PCC6803, <i>Triticum aestivum</i> , <i>Triticale</i> , <i>Zea mays</i> , <i>Verbascum lychnitis</i> , <i>Vigna radiata</i>
Predicted reactivity	<i>Asimina parviflora</i> , <i>Borago officinalis</i> , <i>Cannabis sativa</i> , <i>Carthamus persicus</i> , <i>Casimirella guaranitica</i> , <i>Catalpa bungei</i> , <i>Calatola mollis</i> , <i>Citron x limon</i> , <i>Cunninghamia lanceolata</i> , <i>Deeringothamnus rugelii</i> , <i>Gonystylus bancanus</i> , <i>Ipomopsis aggregata</i> , <i>Leretia cordata</i> , <i>Lobatariccardia lobata</i> , <i>Myricaria germanica</i> , <i>Nostoc</i> sp. PCC7120, <i>Nannochloropsis</i> sp., <i>Natsiatum herpeticum</i> , <i>Nothapodytes montana</i> , <i>Nerium oleander</i> , <i>Ottoschulzia rhodoxylon</i> , <i>Oxandra lanceolata</i> , <i>Solanum tuberosum</i> , <i>Oryza sativa</i> , <i>Panax quinquefolius</i> , <i>Prosopidastrum angusticarpum</i> , <i>Prosopis glandulosa</i> , <i>Rollinia mucosa</i> , <i>Rosmarinus officinalis</i> , <i>Saxifraga rivularis</i> , <i>Spinacia oleracea</i> , <i>Zelkova serrata</i> , <i>Zinnia violacea</i> , <i>Vachellia caven</i> , <i>Vitis vinifera</i> , <i>Zosteria marina</i> , <i>Xerocladia viridiramis</i> Species of your interest not listed? Contact us
Not reactive in	diatoms
Additional information	In C4 plants like <i>Echinochloa crus-galli</i> and <i>Zea mays</i> antibody detects 2 bands. For high resolution images, please visit the specific product page at www.agrisera.com
Selected references	Kobayashi et al. (2020) . Relationship Between Glycerolipids and Photosynthetic Components During Recovery of Thylakoid Membranes From Nitrogen Starvation-Induced Attenuation in <i>Synechocystis</i> sp. PCC 6803. <i>Front Plant Sci.</i> 2020 Apr 15;11:432. doi: 10.3389/fpls.2020.00432. eCollection 2020. Trinugroho et al. (2020) . Chlorophyll F Synthesis by a Super-Rogue Photosystem II Complex. <i>Nat Plants</i> , 6 (3), 238-244 Dong et al. (2020) . Plastid ribosomal protein LPE2 is involved in photosynthesis and the response to C/N balance in <i>Arabidopsis thaliana</i> . <i>J Integr Plant Biol.</i> 2020 Jan 15. doi: 10.1111/jipb.12907. Ma et al. (2020) . Zinc toxicity alters the photosynthetic response of red alga <i>Pyropia yezoensis</i> to ocean acidification. <i>Environ Sci Pollut Res Int.</i> 2020 Jan;27(3):3202-3212. doi: 10.1007/s11356-019-06872-7. Sakuraba et al. (2020) . Multilayered regulation of membrane-bound ONAC054 is essential for abscisic acid-induced leaf senescence in rice. <i>Plant Cell.</i> 2020 Jan 6. pii: tpc.00569.2019. doi: 10.1105/tpc.19.00569.

- [Furukawa](#) et al. (2019). Formation of a PSI–PSII megacomplex containing LHCSR and PsbS in the moss *Physcomitrella patens*. *J Plant Res* <https://doi.org/10.1007/s10265-019-01138-2>.
- [Tian](#) et al. (2019). pH dependence, kinetics and light-harvesting regulation of nonphotochemical quenching in *Chlamydomonas*. *Proc Natl Acad Sci U S A*. 2019 Apr 23;116(17):8320-8325. doi: 10.1073/pnas.
- [Li](#) et al. (2019). A genome-wide algal mutant library and functional screen identifies genes required for eukaryotic photosynthesis. *Nat Genet*. 2019 Apr;51(4):627-635. doi: 10.1038/s41588-019-0370-6.
- [Rogowski](#) et al. (2019). Photosynthesis and organization of maize mesophyll and bundle sheath thylakoids of plants grown in various light intensities. *Environmental and Experimental Botany Volume 162*, June 2019, Pages 72-86.
- [Roth](#) et al. (2019). Regulation of Oxygenic Photosynthesis during Trophic Transitions in the Green Alga *Chromochloris zofingiensis*. *Plant Cell*. 2019 Feb 20. pii: tpc.00742.2018. doi: 10.1105/tpc.18.00742.
- [Schmid](#) et al. (2018). PUMPkin, the sole Plastid UMP Kinase, Associates with Group II Introns and Alters Their Metabolism. *Plant Physiol*. 2018 Nov 8. pii: pp.00687.2018. doi: 10.1104/pp.18.00687.
- [Mao](#) et al. (2018). Comparison on Photosynthesis and Antioxidant Defense Systems in Wheat with Different Ploidy Levels and Octoploid Triticale. *Int J Mol Sci*. 2018 Oct 2;19(10). pii: E3006. doi: 10.3390/ijms19103006.
- [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.
- [Giovanardi](#) et al. (2018). In pea stipules a functional photosynthetic electron flow occurs despite a reduced dynamicity of LHCII association with photosystems. *Biochim Biophys Acta*. 2018 May 24. pii: S0005-2728(18)30129-4. doi: 10.1016/j.bbabi.2018.05.013.
- [Myouga](#) et al. (2018). Stable accumulation of photosystem II requires ONE-HELIX PROTEIN1 (OHP1) of the light harvesting-like family. *Plant Physiol*. 2018 Feb 1. pii: pp.01782.2017. doi: 10.1104/pp.17.01782.
- [Kurkela](#) et al. (2017). Acclimation to High CO₂ Requires the $\bar{\Gamma}$ Subunit of the RNA Polymerase in *Synechocystis*. *Plant Physiol*. 2017 May;174(1):172-184. doi: 10.1104/pp.16.01953. Epub 2017 Mar 28.
- [Chen](#) et al. (2017). Comparison of Photosynthetic Characteristics and Antioxidant Systems in Different Wheat Strains. *J Plant Growth Regul*.
- [Gandini](#) et al. (2017). The transporter SynPAM71 is located in the plasma membrane and thylakoids, and mediates manganese tolerance in *Synechocystis* PCC6803. *New Phytol*. 2017 Mar 20. doi: 10.1111/nph.14526.
- [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.
- [Yoshida](#) et al. (2016). Hisabori T1. Two distinct redox cascades cooperatively regulate chloroplast functions and sustain plant viability. *Proc Natl Acad Sci U S A*. 2016 Jul 5;113(27):E3967-76. doi: 10.1073/pnas.1604101113. Epub 2016 Jun 22.
- [Mazur](#) et al. (2016). Overlapping toxic effect of long term thallium exposure on white mustard (*Sinapis alba* L.) photosynthetic activity. *BMC Plant Biol*. 2016 Sep 2;16(1):191. doi: 10.1186/s12870-016-0883-4.
- [Kowalewska](#) et al. (2016). Three-dimensional visualization of the internal plastid membrane network during runner bean chloroplast biogenesis. Dynamic model of the tubular-lamellar transformation. *The Plant Cell* March 21, 2016 tpc.01053.2015.
- [Chen](#) et al. (2016). Expression of holo-proteorhodopsin in *Synechocystis* sp. PCC 6803. *Metab Eng*. 2016 Feb 8;35:83-94. doi: 10.1016/j.ymben.2016.02.001.
- [Liu](#) and Last (2015). A land plant-specific thylakoid membrane protein contributes to photosystem II maintenance in *Arabidopsis thaliana*. *Plant J*. 2015 Jun;82(5):731-43. doi: 10.1111/tjp.12845. Epub 2015 Apr 29.
- [Yokono](#) et al. (2015). A megacomplex composed of both photosystem reaction centres in higher plants. *Nat Commun*. 2015 Mar 26;6:6675. doi: 10.1038/ncomms7675.
- [Calderon](#) et al. (2013). A Conserved Rubredoxin is Necessary for Photosystem II Accumulation in Diverse Oxygenic Photoautotrophs. *J Biol Chem*. July 30. (reference for reactivity in *Chlamydomonas reinhardtii*)
- [Sakuraba](#) et al. (2013). The green leaf locus encodes protochlorophyllide oxidoreductase B and is essential for chlorophyll synthesis under high light conditions. *Plant J*.
- [Wientjes](#) et al (2013). LHCII is an antenna of both photosystems after long-term acclimation. *BBA*, Jan 6.

Application example



5 μ g of total protein from (1) *Arabidopsis thaliana* leaf extracted with **Protein Extraction Buffer, PEB (AS08 300)**, (2) *Hordeum vulgare* leaf extracted with PEB, (3) *Chlamydomonas reinhardtii* total cell extracted with PEB, (4) *Synechococcus* sp. 7942 total cell extracted with PEB, extracted with PEB were separated on **4-12% NuPage (Invitrogen) LDS-PAGE** and blotted 1h to **PVDF**. Blots were blocked immediately following

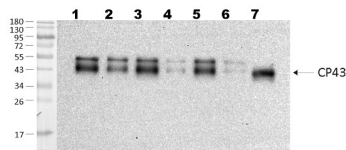
Agrisera

This product is **for research use only** (not for diagnostic or therapeutic use)

contact: support@agrisera.com

Agrisera AB | Box 57 | SE-91121 Vännäs | Sweden | +46 (0)935 33 000 | www.agrisera.com

transfer in 2% blocking reagent in 20 mM Tris, 137 mM sodium chloride pH 7.6 with 0.1% (v/v) Tween-20 (TBS-T) for 1h at room temperature with agitation. Blots were incubated in the primary antibody at a dilution of 1: 10 000 for 1h at room temperature with agitation. The antibody solution was decanted and the blot was rinsed briefly twice, then washed once for 15 min and 3 times for 5 min in TBS-T at room temperature with agitation. Blots were incubated in secondary antibody (anti-rabbit IgG horse radish peroxidase conjugated, recommended secondary antibody [AS09 602](#)) diluted to 1:25 000 in 2% blocking solution for 1h at room temperature with agitation. The blots were washed as above and developed for 5 min with chemiluminescent detection reagent according to the manufacturers instructions. Images of the blots were obtained using a CCD imager (FluorSMax, Bio-Rad) and Quantity One software (Bio-Rad). Exposure time was 75 seconds.



1.5 µg of chlorophyll from thylakoids of various treatments of *Echinochloa crus-galli* (1-2), *Zea mays* (3-5), *Pisum sativum* (6-7), extracted with 0.4 M sorbitol, 50 mM Hepes NaOH, pH 7.8, 10 mM NaCl, 5 mM MgCl₂ and 2 mM EDTA. Samples were denatured with Laemmli buffer at 75 °C for 5 min and were separated on 12% SDS-PAGE and blotted 30 min to PVDF using wet transfer. Blot was blocked with 5% fatty acid free milk for 1h at room temperature (RT) with agitation. Blot was incubated in the primary antibody at a dilution of 1: 3 000 overnight at 4 °C with agitation in 1% milk in TBS-T. The antibody solution was decanted and the blot was washed 4 times for 5 min in TBS-T at RT with agitation. Blot was incubated in secondary antibody (anti-rabbit IgG horse radish peroxidase conjugated, [AS09 602](#), Agrisera) diluted to 1:25 000 in 1 % milk in TBS-T for 1h at RT with agitation. The blot was washed 5 times for 5 min in TBS-T and 2 times for 5 min in TBS, and developed for 1 min with 1.25 mM luminol, 0.198 mM coumaric acid and 0.009% H₂O₂ in 0.1 M Tris- HCl, pH 8.5. Exposure time in ChemiDoc System was 240 seconds.

Courtesy of Dr. Wiola Wasilewska, Warsaw University, Poland