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Product no AS06 146

PsbD | D2 protein of PSII

Product information

Immunogen	KLH-comjugated synthetic peptide derived from the C-terminal of known PsbD sequences including *Arabidopsis thaliana* P56761, *Hordeum vulgare* P11849, *Chlamydomonas reinhardtii* P06007, *Synechococcus* sp. PCC 7002 P20898
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 the tubes briefly prior to opening them to avoid any losses that might occur from material adhering to the cap or sides of the tube.
Additional information	The peptide used to elicit this antibody has a perfect conservation across all full-length PsbD sequences from higher plants, lower plants, cyanobacteria and unicellular algae except: minor substitutions in some Prochlorococcus & Dinoflagellate sequences, The antibody should still work against these taxa, but it has not been tested yet, This antibody does not detect PsbA protein (D1),This product can be sold containing ProClin if requested

Application information

Recommended dilution	1: 10 000 (CN-PAGE), 1: 5000 - 1 : 50 000 (WB)
Expected | apparent MW	39.4 | 28-30 kDa
Confirmed reactivity	*Arabidopsis thaliana, Anabaena* 7120, *Ditylum brightwellii, Horderum vulgare, Chlamydomonas reinhardtii, Chromochloris zofingiensis, Echinola crus-galli, Emiliania huxleyi, Lotus corniculatus, Nicotiana tabacum, Oryza sativa,* picocyanobacteria, *Pisum sativum, Phaseolus vulgaris, Phaeodactylum tricornutum, Trifolium pratense, Skeletonema costatum (diatom), Sinapsis alba, Synechococcus* sp. PCC 7942, *Synechocystis* sp. PCC6803, *Thalassiosira guillardii, Thalassiosira pseudonana, Triticale, Ulva prolifera, Zea mays*
Predicted reactivity	*Aegilops tauschii, Brassica napus, Cannabis sativa, Capsicum annuum, Centrolepsis monogyna, Chromera velia, Crocosphaera watsonii, Cyanidioschyzon merolae, Fischerella sp., Galdieria sulphuraria,Glycine max, Glycine soja, Leiosporoceros dussii, Cucumis sativa, Manihot esculenta, Marchantia polymorpha, Microcystis aeruginosa, Nannochloropsis, Panax ginseng, Petermannia cirrosa, Pinus thunbergii, Physcomitrium patens, Pinus strobus, Populus trichocarpa, Ricinus communis, Solanum tuberosum, Spinacia oleracea, Solanum lycopersicum. Triticum aestivum, Utricularia alpina, Vitis vinifera, Vitrella brassicaformis* Species of your interest not listed? Contact us
Not reactive in	No confirmed exceptions from predicted reactivity are currently known
Additional information	There is a confirmed cross-reaction with TLA1 protein in *Chlamydomonas reinhardtii*. For samples with a very low PSII content theremight be detection problems independent of the antibody. PSII proteins can vary in level depending upon liquid culture conditions. When the cells are in a stationary phase PSII content can drop to a very low level.
Selected references	Jiang et al. (2023). Toxic effects of lanthanum (III) on photosynthetic performance of rice seedlings: Combined chlorophyll fluorescence, chloroplast structure and thylakoid membrane protein assessment. Ecotoxicol Environ Saf. 2023 Nov 15:267:115627.doi: 10.1016/j.ecoenv.2023.115627. Rredhi et al. (2023). The UV-A Receptor CRY-DASH1 Up- and Downregulates Proteins Involved in Different Plastidial Pathways. J Mol Biol. 2023 Sep 10:168271.doi: 10.1016/j.jmb.2023.168271. Burlacot et al. (2022) Alternative photosynthesis pathways drive the algal CO2-concentrating mechanism. Nature 605, 366–371 (2022). https://doi.org/10.1038/s41586-022-04662-9 Bychkov et al. (2022) The role of PAP4/FSD3 and PAP9/FSD2 in heat stress responses of chloroplast genes. Plant Sci. 2022 Sep;322:111359. doi: 10.1016/j.plantsci.2022.111359. Epub 2022 Jun 20. PMID: 35738478. Mazur et al. (2021) The SnRK2.10 kinase mitigates the adverse effects of salinity by protecting photosynthetic machinery. Plant Physiol. 2021 Dec 4;187(4):2785-2802. doi: 10.1093/plphys/kiab438. PMID: 34632500; PMCID: PMC8644180. von Bismarck et al. (2021) Light acclimation interacts with thylakoid ion transport to govern the dynamics of

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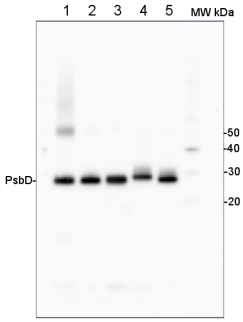
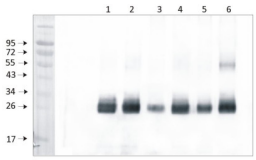
photosynthesis. Research Square; 2021. DOI: 10.21203/rs.3.rs-948381/v1.
Cecchin et al (2021) LPA2 protein is involved in photosystem II assembly in Chlamydomonas reinhardtii. Plant J. 2021 Jul 4. doi: 10.1111/tpj.15405. Epub ahead of print. PMID: 34218480.

Application example

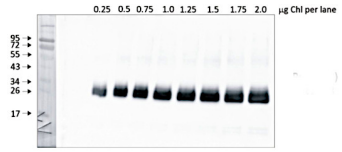


2 µg of total protein from (**1**) *Arabidopsis thaliana* leaf extracted with Agrisera **P**rotein **E**xtraction **B**uffer, PEB (**AS08 300**), (**2**) *Hordeum vulgare* leaf extracted with PEB, (**3**) *Chlamydomonas reinhardtii* total cell extracted with PEB, (**4**) *Synechococcus* sp. 7942 total cell extracted with PEB, (**5**) *Anabaena* sp. total cell extracted with PEB were separated on **4-12%** NuPage (Invitrogen) **LDS-PAGE** and blotted 1h to **PVDF**. Blots were blocked immediately following 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: 50 000 for 1 h/RT 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 1:50 000 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 the manufacturers instructions. Images of the blots were obtained using a CCD imager (FluorSMax, Bio-Rad) and Quantity One software (Bio-Rad).



1 µg of chlorophyll from *Pisum sativum* **(1)**, *Zea mays*, mesophyll **(2)** and bundle sheath **(3)**, *Echinochloa crus-galli*, mesophyll (4) and bundle sheath **(5)**, *Arabidopsis thaliana* **(6)** chloroplasts extracted with 0.4 M sorbitol, 50 mM Hepes NaOH, pH 7.8, 10 mM NaCl, 5 mM MgCl 2 and 2 mM EDTA were loaded to lanes. 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% milk for 2h at room temperature (RT) with agitation. Blot was incubated in the primary antibody Anti-PsbD at a dilution of 1: 5000 in 1% milk in TBS-T overnight at 4°C with agitation. 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 HRP conjugated, from Agrisera, AS09 602) diluted to 1:20 000 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% H 2 O 2 in 0.1 M Tris- HCl, pH 8.5. Exposure time in ChemiDoc System was 14 seconds.

Courtesy of Dr. Wioleta Wasilewska-Dębowska, University of Warsaw, Poland



Quantity control of chlorophyll amount loading onto gel. From 0,25 µg to 2,0 µg of chlorophyll from *Pisum sativum* chloroplasts were loaded to lanes. All steps of experiments were the same as described above.

Courtesy of Dr. Wioleta Wasilewska-Dębowska, University of Warsaw, Poland