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Product no AS09 461

PsaD | PSI-D subunit of photosystem I

Product information

Immunogen	KLH-conjugated synthetic peptide 100% conserved in all known plant PsaD sequences including *Arabidopsis thaliana* PSI-D1 UniProt:Q9S7H1 , TAIR: At4g02770 and PSI-D2 UniProt: Q9SA56 , TAIR At1g03130 as well as *Physcomitrella patens*. The conservation in *Chlamydomonas reinhardtii* is high (14 of 16 aminoacids are identical).
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	PsaD has frequently been used as a marker for intact PSI reaction centers. This product can be sold containing proclin if requested.

Application information

Recommended dilution	1: 10 000 (CN-PAGE), 1 : 1000 - 1: 5 000 (WB)
Expected | apparent MW	17.9 | 20 (for *Arabidopsis thaliana*)
Confirmed reactivity	*Arabidopsis thaliana, Chlamydomonas reinhardtii, Dioxoniella giordanoi* (red alga), *Hordeum vulgare, Lactuca sativa, Nicotiana tabacum, Oryza sativa, Physcomitrium patens, Picea glauca, Pinus strobus, Oryza sativa, Physcomitrium patens, Spinacia oleracea, Synechocystis PCC 6803, Triticum aestivum, Triticale, Zea mays*
Predicted reactivity	Alge, Dicots, *Catalpa bungei*, *Cucumis melo,* Conifers, *Cyanidioschyzon merolae, Bigelowiella natans, Nannochloropsis* sp. *, Phaeodactylum tricornutum, Phyla dulcis, Zosteria marina* Species of your interest not listed? Contact us
Not reactive in	*Synechococcus elongatus* sp. PCC 7942
Additional information	This antibody is a replacement for former product, anti-PsaD AS04 046 **Contains 0.1% ProClin.**
Selected references	Okegawa et al. (2023). x- and y-type thioredoxins maintain redox homeostasis on photosystem I acceptor side under fluctuating light. Plant Physiol. 2023 Nov 22;193(4):2498-2512.doi: 10.1093/plphys/kiad466. Hao and Malnoë (2023). A Simple Sonication Method to Isolate the Chloroplast Lumen in Arabidopsis thaliana.Bio Protoc. 2023 Aug 5; 13(15): e4756. Ivanov et al. (2022) The decreased PG content of pgp1 inhibits PSI photochemistry and limits reaction center and light-harvesting polypeptide accumulation in response to cold acclimation. Planta 255, 36 (2022). https://doi.org/10.1007/s00425-022-03819-0 Fukura et al. (2021) Enrichment of chlorophyll catabolic enzymes in grana margins and their cooperation in catabolic reactions. J Plant Physiol. 2021 Nov;266:153535. doi: 10.1016/j.jplph.2021.153535. Epub 2021 Sep 25. PMID: 34607178. Fattore et al. (2021). Acclimation of photosynthetic apparatus in the mesophilic red alga Dixoniella giordanoi. Physiol Plant. 2021 Nov;173(3):805-817. doi: 10.1111/ppl.13489. Epub 2021 Jul 5. PMID: 34171145; PMCID: PMC8596783. Chen et al. (2021)Degradation of the photosystem II core complex is independent of chlorophyll degradation mediated by Stay-Green Mg2+ dechelatase in Arabidopsis,Plant Science,Volume 307,2021,110902,ISSN 0168-9452,https://doi.org/10.1016/j.plantsci.2021.110902. Pipitone et al. (2021). A multifaceted analysis reveals two distinct phases of chloroplast biogenesis during de-etiolation in Arabidopsis. Elife. 2021 Feb 25;10:e62709. doi: 10.7554/eLife.62709. PMID: 33629953; PMCID: PMC7906606. Lang et al. (2011).Simultaneous isolation of pure and intact chloroplasts and mitochondria from moss as the basis for sub-cellular proteomics. Plant Cell Rep. 2011 Feb;30(2):205-15.doi: 10.1007/s00299-010-0935-4.

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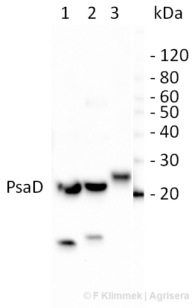
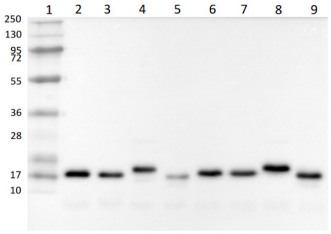
Application example



10 µg of **total leaf protein** extracted with PEB (**AS08 300**) from (**1**) *Zea mays*, (**2**) *Chlamydomonas reinhardtii*, and (**3**) *Spinacia oleracea* were separated on **4-12%** NuPage (Invitrogen) **LDS-PAGE** and blotted 80 min (30V) to **nitrocellulose**. Filter was blocked 1h with 2% **low-fat milk powder** in TBS-T (0.1% TWEEN 20) and probed with **anti-PsaD** (AS09 461, **1:1000**, 1h) and secondary anti-rabbit (**1:40000**, 1h) antibody (HRP conjugated) in TBS-T containing 2% low fat milk powder. Antibody incubations were followed by washings in TBS-T (15, +5, +5, +5 min). All steps were performed at RT with agitation. Signal was detected with **chemiluminescent detection reagent** using a GenoPlex Chemi CCD (accumulated signal 10 x 30s exposure, bin 2x2).



Total cellular (lanes 2 – 5) and membrane proteins (lanes 6 – 9) from various environmental isolated of *Chlamydomonas reinhardtii* were extracted with a buffer containing 62.5mM Tris-HCl pH 6.8, 10% glycerol, 2% SDS, 50mM DTT, 10mM NaF and 1% protease inhibitors (P9599, Sigma Aldrich) and denatured at 65°C for 5 min. Samples (0.25 µg of chlorophyll per lane) were separated on 12% SDS-PAGE containing 6M urea and blotted 1h to PVDF using tank transfer. Blots were blocked with 5% skim milk powder in TBS-T for 1h at room temperature (RT) with agitation. Blots were incubated in the primary antibody at a dilution of 1:5000 overnight at 4°C. The antibody solution was decanted and the blots were rinsed briefly once, then washed 3 times for 10 min in TBS-T at RT with agitation. Blots were incubated in secondary antibody (anti-rabbit IgG HRP-conjugated, Agrisera AS09 602) diluted to 1:20 000 for 1h at RT with agitation. The blots were washed as above, developed for 5 min with chemiluminescent detection reagent and then imaged using a ChemiDoc MP imaging system and Image Lab software (Bio-Rad Laboratories). Exposure time was 10 seconds.

Courtesy of Kenneth Wilson, University of Saskatchewan, Canada