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Product no AS01 005

Lhca1 | PSI type I chlorophyll a/b-binding protein

Product information

Background

The light-harvesting protein **Lhca1** is one of the four main and highly conserved types of chlorophyll a/b-binding proteins (Lhca1-4) of the light harvesting antenna (LHCI) of plant photosystem I. Lhca1 is imported as a precursor from the cytosol into the chloroplast. Upon insertion into the thylakoid membrane Lhca1 forms a heterodimer (LHCI-730) with Lhca4 that associates with the PSI core close to PsaG and PsaF.
A biochemical characterization of the plant LHCI antenna can be found in Klimmek et al. (2005) The structure of the higher plant light harvesting complex I: in vivo characterization and structural interdependence of the Lhca proteins. Biochemistry 44: 3065–3073

Immunogen

BSA-conjugated synthetic peptide derived from the Lhca1 protein of *Arabidopsis thaliana* UniProt: Q01667, TAIR: At3g54890. This sequence is highly conserved in Lhca1 proteins of angiosperms (monocots and dicots) and gymnosperms.

Host

Rabbit

Clonality

Polyclonal

Purity

Total IgG

Format

Lyophilized in PBS pH 7.4.

Quantity

0.5 mg

Reconstitution

For reconstitution add 100 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

AS01 011 | A set of 10 plant anti-Lhca and anti-Lhcb antibodies

AS01 011 Chlamydomonas | A set of anti-Lhc antibodies for *Chlamydmonas*

Available antibodies against pigment-binding proteins- LHC

recommended secondary antibody

Plant protein extraction buffer

Additional information

Antibody format is a total IgG fraction, which means that it is a pool of polyclonal antibodies obtained by purification of serum on Protein G, not on a specific antigen column.

This product can be sold containing ProClin if requested.

Application information

Recommended dilution

1 : 2000-1 : 5000 (WB)

Expected | apparent MW

25.99 | 22 kDa for *Arabidopsis thaliana*

Confirmed reactivity

Arabidopsis thaliana, Arachis hypogaea, Bryopsis corticulans, Citrus retuculata, Colobanthus quitensis Kunt Bartl, Echinochloa crus-galli, Fortunella margarita Swingle*, Guzmania hybrid, Hordeum vulgare, Lycopersicon esculentum (Solanum lycopersicum), Nicotiana tabacum, Oryza sativa, Panicum miliaceum, Physcomitrella patens, Pinus strobus, Pisum sativum, Phaseolus vulgaris, Posidonia oceanica, Solanum lycopresicum, Spinacia oleracea, Triticale, Triticum aestivum, Zea mays*

Predicted reactivity

Dicots, Gymnosperms

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Not reactive in

No confirmed exceptions from predicted reactivity are currently known.

Additional information

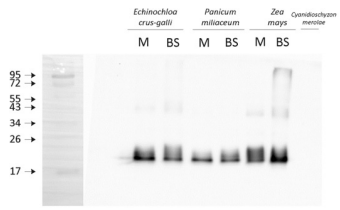
Protein is processed into mature form (Jansson 1999).For high resolution images, please visit the specific product page at www.agrisera.com

Selected references

Zhu et al. (2020). A NAC transcription factor and its interaction protein hinder abscisic acid biosynthesis by synergistically repressing NCED5 in Citrus reticulata. J Exp Bot. 2020 Jun 22;71(12):3613-3625.doi: 10.1093/jxb/eraa118.
Forlani et al. (2020. HEBE, a novel positive regulator of senescence in Solanum lycopersicum. Sci Rep. 2020 Jul 3;10(1):11021.doi: 10.1038/s41598-020-67937-z.
Wang et al. (2020). Post-translational coordination of chlorophyll biosynthesis and breakdown by BCMs maintains chlorophyll homeostasis during leaf development. Nat Commun. 2020; 11: 1254.
Chen et al. (2019). Effects of Stripe Rust Infection on the Levels of Redox Balance and Photosynthetic Capacities in Wheat. Int J Mol Sci. 2019 Dec 31;21(1). pii: E268. doi: 10.3390/ijms21010268.
Krupinska et al. (2019). The nucleoid-associated protein WHIRLY1 is required for the coordinate assembly of plastid and nucleus-encoded proteins during chloroplast development. Planta. 2019 Jan 11. doi: 10.1007/s00425-018-03085-z.
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.
Yoshida et al. (2018). Thioredoxin-like2/2-Cys peroxiredoxin redox cascade supports oxidative thiol modulation in chloroplasts. Proc Natl Acad Sci U S A. 2018 Aug 13. pii: 201808284. doi: 10.1073/pnas.1808284115.
Li et al. (2018). Modulating plant growth-metabolism coordination for sustainable agriculture. Nature. 2018 Aug 15. doi: 10.1038/s41586-018-0415-5.
Zhu et al. (2018). A comprehensive proteomic analysis of elaioplasts from citrus fruits reveals insights into elaioplast biogenesis and function. Hortic Res. 2018 Feb 7;5:6. doi: 10.1038/s41438-017-0014-x.
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.
Schöttler et al. (2017). The plastid-encoded PsaI subunit stabilizes photosystem I during leaf senescence in tobacco. J Exp Bot. 2017 Feb 1;68(5):1137-1155. doi: 10.1093/jxb/erx009.
Yang et al. (2017). Tetratricopeptide repeat protein Pyg7 is essential for photosystem I assembly by interacting with PsaC in Arabidopsis. Plant J. 2017 Jun 21. doi: 10.1111/tpj.13618.
Tyuereva et al. (2017). The absence of chlorophyll b affects lateral mobility of photosynthetic complexes and lipids in grana membranes of Arabidopsis and barley chlorina mutants. Photosynth Res. 2017 Apr 5. doi: 10.1007/s11120-017-0376-9. (Hordeum vulgare, western blot)
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.
Heinnickel 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
Fristedt et al. (2015). The thylakoid membrane protein CGL160 supports CF1CF0 ATP synthase accumulation in Arabidopsis thaliana. PLoS One. 2015 Apr 2;10(4):e0121658. doi: 10.1371/journal.pone.0121658.
Qin et al. (2014). Isolation and characterization of a PSI-LHCI super-complex and its sub-complexes from a siphonaceous marine green alga, Bryopsis Corticulans. Photosynth Res. 2014 Sep 12.
Saito et al. (2014). Fe deficiency induces phosphorylation and translocation of Lhcb1 in barley thylakoid membranes. FEBS Lett. 2014 May 8. pii: S0014-5793(14)00317-2. doi: 10.1016/j.febslet.2014.04.031.

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

Application example



1.0 µg of chlorophyll from mesophyll (M) and bundle sheath (BS) thylakoids of various C4 plants (*Echinochloa crus-galli, Panicum miliaceum, Zea mays*) 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 0C 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 1h at room temperature (RT) with agitation. Blot was incubated in the primary antibody at a dilution of 1: 2000 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, from Agrisera, AS09 602, Lot 1702) 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% H_2O_2 in 0.1 M Tris-HCl, pH 8.5. Exposure time in ChemiDoc System was 15

seconds.

Courtesy of Dr. Wioleta Wasilewska, Warsaw University, Poland