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Product no AS01 006

Lhca2 | PSI type II chloropyll a/b-binding protein

Product information

Background	The light-harvesting protein **Lhca2** 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. Lhca2 is imported as a precursor from the cytosol into the chloroplast. Upon integration in the thylakoid membrane Lhca2 forms a heterodimer (LHCI-680) with Lhca3 that associates with the PSI core close to PsaF and PsaK. 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 Lhca2 protein of *Arabidopsis thaliana* UniProt: Q9SYW8, Q8LCQ4, TAIR: At3g61470. This sequence is highly conserved in Lhca2 proteins of angiosperms (monocots and dicots) and gymnosperms as well as in At1g19150. This gene codes for the very low expressed Lhca6 protein which also has been denoted as Lhca2*1.
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 (rabbit antibodies) AS01 011 Chlamydomonas | A set of anti-Lhc antibodies for *Chlamydmonas* (rabbit antibodies) Available antibodies against pigment-binding proteins- LHC 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.

Application information

Recommended dilution	1 : 2000-1 : 5000 (WB)
Expected | apparent MW	27.7 | 24 kDa for *Arabidopsis thaliana*
Confirmed reactivity	*Arabidopsis thaliana, Arachis hypogaea, Bryopsis corticulans, Colobanthus quitensis* Kunt Bartl*, Chlamydomonas reinhardti (one Lhca-type), Citrus reticulata, Chromochloris zofingiensis, Cytisus cantabricus* (Wilk.) Rchb. F.*, Hieracium pilosella* L*, Hordeum vulgare, Lasallia hispanica, Nicotiana tabacum, Oryza sativa, Pisum sativum, Phaseolus vulgaris, Physcomitrella patens, Pinus banksiana* (the higher of the two bands detected at 24 and 30 kDa is not considered to be specific to any Lhc protein), *Posidonia oceanica, Prasinoderma* sp., *Pyramimonas* sp. *Spinacia oleracea, Syntrichia muralis* (Hedw.) Raab*, Triticum aestivum, Triticale, Zea mays*
Predicted reactivity	Dicots, Gymnosperms
Not reactive in	No confirmed exceptions from predicted reactivity are currently known.

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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.
Their et al. (2020). VIPP2 interacts with VIPP1 and HSP22E/F at chloroplast membranes and modulates a retrograde signal for HSP22E/F gene expression. Plant Cell Environ. 2020 Jan 29. doi: 10.1111/pce.13732.
Vojta and Fulgosi (2019). Topology of TROL protein in thylakoid membranes of Arabidopsis thaliana. Physiol Plant. 2019 Jan 20. doi: 10.1111/ppl.12927.
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.
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.
Kim et al. (2018). The rice zebra3 (z3) mutation disrupts citrate distribution and produces transverse dark-green/green variegation in mature leaves. Rice (N Y). 2018 Jan 5;11(1):1. doi: 10.1186/s12284-017-0196-8.
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.
Chen et al. (2017). Comparison of Photosynthetic Characteristics and Antioxidant Systems in Different Wheat Strains. J Plant Growth Regul.
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.
Míguez et al. (2017). Diversity of winter photoinhibitory responses: A case study in co-occurring lichens, mosses, herbs and woody plants from subalpine environments. Physiol Plant. 2017 Feb 14. doi: 10.1111/ppl.12551.
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.
Kunugi et al. (2016). Evolution of Green Plants Accompanied Changes in Light-Harvesting Systems. Plant Cell Physiol. 2016 Jun;57(6):1231-43. doi: 10.1093/pcp/pcw071. Epub 2016 Apr 6.
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.

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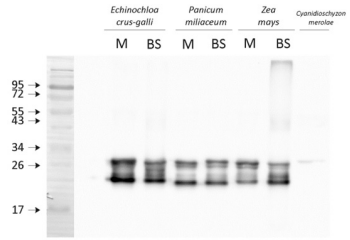
Application example



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