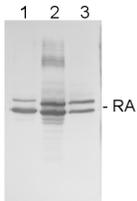


Product no **AS10 700****Anti-RA | Rubisco activase****Product information**

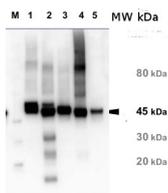
<b>Immunogen</b>	Purified, recombinant Rubisco activase from <i>Gossypium hirsutum</i> <a href="#">Q9AXG1</a>
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Purity</b>	Serum
<b>Format</b>	Lyophilized
<b>Quantity</b>	50 µl
<b>Reconstitution</b>	For reconstitution add 50 µl of sterile water
<b>Storage</b>	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.
<b>Additional information</b>	This product can be sold containing ProClin if requested

**Application information**

<b>Recommended dilution</b>	1 : 5000-1 : 10 000 (WB)
<b>Expected   apparent MW</b>	47 and 42 kDa (maize, tobacco, <i>Chlamydomonas</i> )
<b>Confirmed reactivity</b>	<i>Arabidopsis thaliana</i> , <i>Camelina sativa</i> , <i>Chlamydomonas reinhardtii</i> , <i>Caesalpinia pulcherrima</i> , <i>Hordeum spontaneum</i> , <i>Festuca pratensis</i> , <i>Glycine max</i> , <i>Gossypium hirsutum</i> , <i>Gossypium barbadense</i> , <i>Kalanchoë fedtschenkoi</i> , <i>Lolium perenne</i> , <i>Nannochloropsis oceanica</i> , <i>Nicotiana tabacum</i> , <i>Oryza sativa</i> , <i>Populus balsamifera</i> , <i>Rhoeo discolor</i> , <i>Solanum lycopersicum</i> , <i>Zea mays</i> , <i>Thellungiella salsuginea</i> , red sulfur bacterium <i>Thiodictyon</i> sp. Cad16 (isolated from Lake Cadagno)
<b>Predicted reactivity</b>	<i>Glycine max</i> , <i>Gossypium mexicanum</i> , <i>Hordeum vulgare</i> , <i>Medicago sativa</i> , <i>Olea europea</i> , <i>Picea sitcHensis</i> , <i>Physcomitrium patens</i> , <i>Ricinus communis</i> , <i>Solanum lycopersicum</i> , <i>Spinacia oleracea</i> , <i>Triticum aestivum</i> , <i>Zea mays</i> , <i>Vitis vinifera</i> Species of your interest not listed? <a href="#">Contact us</a>
<b>Not reactive in</b>	marine picocyanobacteria
<b>Additional information</b>	There are two forms of activase (alpha and beta) in some species (for example <i>Arabidopsis</i> , <i>camelina</i> , <i>spinach</i> , <i>rice</i> ) and only one form in other species (tobacco, maize, <i>Chlamydomonas</i> ). Alpha is about 46-47 Kda, beta is about 42 kDa. Species that have only one form have the beta form.  This product can be sold containing ProClin if requested
<b>Selected references</b>	<a href="#">Chao</a> et al. (2024). Molecular characterization and expression pattern of Rubisco activase gene GhRCA 2 in upland cotton ( <i>Gossypium hirsutum</i> L.). <i>Genes Genomics</i> . 2024 Apr;46(4):423-436. doi: 10.1007/s13258-024-01494-x. <a href="#">Fukushi</a> et al. (2024). Overexpression of thioredoxin-like protein ACHT2 leads to negative feedback control of photosynthesis in <i>Arabidopsis thaliana</i> <i>J Plant Res</i> . 2024 Feb 17. doi: 10.1007/s10265-024-01519-2. <a href="#">Amiya</a> et al. (2021) Membrane DnaJ-Like Chaperone with Oxidizing Activity in <i>Chlamydomonas reinhardtii</i> . <i>Int J Mol Sci</i> . 2021 Jan 24;22(3):1136. doi: 10.3390/ijms22031136. PMID: 33498879; PMCID: PMC7865324. <a href="#">Thaun</a> et al. (2022) Non-transgenic Gene Modulation via Spray Delivery of Nucleic Acid/Peptide Complexes into Plant Nuclei and Chloroplasts. <i>ACS Nano</i> . 2022 Mar 22;16(3):3506-3521. doi: 10.1021/acsnano.1c07723. Epub 2022 Feb 23. PMID: 35195009; PMCID: PMC8945396. <a href="#">Cao</a> et al. (2022) Autophagic pathway contributes to low-nitrogen tolerance by optimizing nitrogen uptake and utilization in tomato. <i>Hortic Res</i> . 2022 Mar 23;9:uhac068. doi: 10.1093/hr/uhac068. PMID: 35669705; PMCID: PMC9164271. <a href="#">Oikawa</a> et al. (2021) Mitochondrial movement during its association with chloroplasts in <i>Arabidopsis thaliana</i> . <i>Commun Biol</i> . 2021 Mar 5;4(1):292. doi: 10.1038/s42003-021-01833-8. PMID: 33674706. <a href="#">Wang</a> et al. (2021) Insights Into the Gene Regulation in Jasmonate-Induced Whole-Plant Senescence of Tobacco Under Non-Starvation Condition. <i>Plant Cell Physiol</i> . 2021 Sep 15;pcab140. doi: 10.1093/pcp/pcab140. Epub ahead of print. PMID: 34523687. <a href="#">Trojak</a> et al. (2021) Effects of partial replacement of red by green light in the growth spectrum on photomorphogenesis and photosynthesis in tomato plants. <i>Photosynth Res</i> . 2021 Sep 27. doi: 10.1007/s11120-021-00879-3. Epub ahead of print. PMID: 34580802. <a href="#">Yokochi</a> et al. (2021) Oxidative regulation of chloroplast enzymes by thioredoxin and thioredoxin-like proteins in <i>Arabidopsis thaliana</i> . <i>Proc Natl Acad Sci U S A</i> . 2021 Dec 21;118(51):e2114952118. doi: 10.1073/pnas.2114952118. PMID: 34907017; PMCID: PMC8713810.



3, 5 and 11  $\mu\text{g}$  of total soluble protein from *Arabidopsis thaliana* (1), *Oryza sativa* (2) and *Camelina sativa* (3) extracted with 50 mM Tricine-NaOH, pH 8, 10 mM EDTA, 1% PVP-40, 20 mM  $\beta$ -mercaptoethanol, 1 mM PMSF and 10  $\mu\text{M}$  leupeptin were separated on 12 % SDS-PAGE and blotted 1h to PVDF. Blots were blocked with 4% non-fat milk in TBS for 1h at room temperature (RT) with agitation. Blot was incubated in the primary antibody at a dilution of 1: 10 000 for over night with agitation. The antibody solution was decanted and the blot was rinsed briefly with  $\text{H}_2\text{O}$ , then washed six times for 15 min in TBS-T at RT with agitation. Blot was incubated in secondary antibody (anti-rabbit IgG alkaline phosphatase conjugated) diluted to 1:3000 in 0.5% non-fat milk in TBS for 2h at RT with agitation. The blot was washed with four changes of TBS-T and developed for 5 min with NBT/BCIP according to the manufacturer's instructions (Promega). There are two forms of activase (alpha and beta). Alpha is about 46-47 kDa, beta is about 42 kDa what is shown on the blot above.



5  $\mu\text{g}$  of total protein from samples such as *Arabidopsis thaliana* leaf (1), *Hordeum vulgare* leaf (2), *Zea mays* leaf (3), *Nicotiana tabacum* (4), *Chlamydomonas reinhardtii* total cell (5), were extracted with Protein Extraction Buffer PEB (AS08 300). Samples were diluted with 1X sample buffer (NuPAGE LDS sample buffer (Invitrogen) supplemented with 50 mM DTT and heat at 70°C for 5 min and kept on ice before loading. Protein samples were separated on 4-12% Bolt Plus gels, LDS-PAGE and blotted for 70 minutes to PVDF using tank transfer. Blots were blocked immediately following transfer in 2% blocking reagent or 5% non-fat milk dissolved 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 (in blocking reagent) for 1h at room temperature with agitation. The antibody solution was decanted and the blot was rinsed briefly twice, and then washed 1x15 min and 3x5 min with TBS-T at room temperature with agitation. Blots were incubated in secondary antibody (anti-rabbit IgG horse radish peroxidase conjugated, recommended secondary antibody AS10 1489, Agrisera) diluted to 1:25 000 in blocking reagent for 1h at room temperature with agitation. The blots were washed as above. The blot was developed for 5 min with chemiluminescent detection reagent according to the manufacturer's instructions. Images of the blots were obtained using a CCD imager (VersaDoc MP 4000) and Quantity One software (Bio-Rad). Exposure time was 30 seconds.