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This product is **for research use only** (not for diagnostic or therapeutic use) **contact: support@agrisera.com**

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Product no AS10 700

RA | Rubisco activase

Product information

Immunogen	Purified, recombinant Rubisco activase from *Gossypium hirsutum* Q9AXG1
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	This product can be sold containing ProClin if requested

Application information

Recommended dilution	1 : 5000-1 : 10 000 (WB)
Expected | apparent MW	47 and 42 kDa (maize, tobacco, *Chlamydomonas*)
Confirmed reactivity	*Arabidopsis thaliana, Camelina sativa, Chlamydomonas reinhardtii, Caesalpinia pulcherrima, Hordeum spontaneum, Festuca pratensis, Glycine max, Gossypium hirsutum, Gossypium barbadense, Kalanchoë fedtschenkoi, Lolium perenne, Nannochloropsis oceanica, Nicotiana tabacum, Oryza sativa, Populus balsamifera, Rhoeo discolor, Solanum lycopersicum, Zea mays, Thellungiella salsuginea,* red sulfur bacterium *Thiodictyon* sp. Cad16 (isolated from Lake Cadagno)
Predicted reactivity	*Glycine max, Gossypium mexicanum, Hordeum vulgare, Medicago sativa, Olea europea, Picea sitcHensis, Physcomitrium patens, Ricinus communis, Solanum lycopersicum, Spinacia oleracea, Triticum aestivum, Zea mays, Vitis vinifera* Species of your interest not listed? Contact us
Not reactive in	marine picocyanobacteria
Additional information	There are two forms of activase (alpha and beta) in some species (for example Arabidopsis, camelina, spinach, rice) and only one form in other species (tobacco, maize, *Chlamydomonas*). 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
Selected references	Fukushi et al. (2024). Overexpression of thioredoxin-like protein ACHT2 leads to negative feedback control of photosynthesis in Arabidopsis thaliana J Plant Res. 2024 Feb 17.doi: 10.1007/s10265-024-01519-2. Amiya et al. (2021) Membrane DnaJ-Like Chaperone with Oxidizing Activity in Chlamydomonas reinhardtii. Int J Mol Sci. 2021 Jan 24;22(3):1136. doi: 10.3390/ijms22031136. PMID: 33498879; PMCID: PMC7865324. Oikawa et al. (2021) Mitochondrial movement during its association with chloroplasts in Arabidopsis thaliana. Commun Biol. 2021 Mar 5;4(1):292. doi: 10.1038/s42003-021-01833-8. PMID: 33674706. Wang et al. (2021) Insights Into the Gene Regulation in Jasmonate-Induced Whole-Plant Senescence of Tobacco Under Non-Starvation Condition. Plant Cell Physiol. 2021 Sep 15:pcab140. doi: 10.1093/pcp/pcab140. Epub ahead of print. PMID: 34523687. Trojak et al. (2021) Effects of partial replacement of red by green light in the growth spectrum on photomorphogenesis and photosynthesis in tomato plants. Photosynth Res. 2021 Sep 27. doi: 10.1007/s11120-021-00879-3. Epub ahead of print. PMID: 34580802. Yokochi et al.(2021) Oxidative regulation of chloroplast enzymes by thioredoxin and thioredoxin-like proteins in Arabidopsis thaliana. Proc Natl Acad Sci U S A. 2021 Dec 21;118(51):e2114952118. doi: 10.1073/pnas.2114952118. PMID: 34907017; PMCID: PMC8713810.

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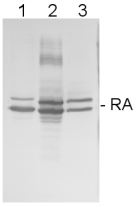
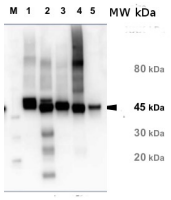
Application example



3, 5 and 11 µg of total soluble protein from *Arabidopsis thaliana* **(1),** *Oryza sativ*a **(2)** and *Camelina sativa* **(3)** extracted with 50 mM Tricine-NaOH, pH 8, 10 mM EDTA, 1% PVP-40, 20 mM -mercaptoethanol, 1 mM PMSF and 10 µM 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 H_2O, 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 µg 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 keept 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 the manufacturers 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.