

Product no **AS04 051set****Photosynthesis Tool Kit - quantitation****Product information****The kit contains following products:**AS03 037, Rabbit anti-RbcL (Form I) (50 µl)AS10 939, Rabbit anti-PsaC (50 µl)AS05 084, Rabbit anti-PsbA (50 µl)AS01 017S, Rubisco protein standard (100 µl)AS04 042S, PsaC protein standard (100 µl)AS01 016S, PsbA protein standard (100 µl)AS09 602-trial, Goat anti-Rabbit IgG (H&L), HRP conjugated (2 x 10 µl)AS16 ECL-N-10, AgriseraECL Bright (10 ml trial pack)**Immunogen** | KLH-conjugated syntenic peptides for respective antibodies, see product info sheets**Host** | Rabbit, Secondary antibody: Goat,**Clonality** | Polyclonal**Quantity** | 50 µl of respective antibody, 100 µl of each protein standard, 2 x 10 µl of secondary antibody, 10 ml of ECL reagent,**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****Product information - Primary antibodies:**

| Product number: | Product name:                       | Reconstitution:                                  | Recommended dilution:  |
|-----------------|-------------------------------------|--|------------------------|
| <u>AS03 037</u> | Rabbit Anti-RbcL<br>Global antibody | For reconstitution see lable on respective tube. | 1:5000-10 000 with ECL |
| <u>AS10 939</u> | Rabbit Anti-PsaC<br>Global antibody | For reconstitution see lable on respective tube. | 1:1000 with ECL        |
| <u>AS05 084</u> | Rabbit Anti-PsbA<br>Global antibody | For reconstitution see lable on respective tube. | 1:10 000 with ECL      |

\* All primary antibodies in this kit are raised in rabbits.

**Product information - Protein standards:**

| Product number:  | Product name: | Concentration: | Size:                 | Western Blot – Positive Control:   |
|------------------|---------------|----------------|-----------------------|--|
| <u>AS01 016S</u> | PsbA *        | 0.25 pmol/ µl  | 41.5 kDa <sup>#</sup> | To generate a standard curve, 3 loads are suggested (0.5, 2 and 4 µl). For most applications a sample load of 0.2 ug of chlorophyll will give a PsbA signal in this range.<br><br>A 2 ul load is optimal for most chemiluminescent detection systems to use as a positive control. |
| <u>AS01 017S</u> | RbcL *        | 0.15 pmol/ µl  | 52.7 kDa              | To generate a standard curve, 3 loads are suggested (0.5, 2 and 4 µl). For most applications a sample load of 0.2 ug of chlorophyll will give a RbcL signal in this range.<br><br>A 2 ul load is optimal for most chemiluminescent detection systems to use as a positive control. |
| <u>AS04 042S</u> | PsaC *        | 0.15 pmol/µl   | 11.5 kDa <sup>#</sup> | To generate a standard curve, 3 loads are suggested (0.5, 2 and 4 µl). For most applications a sample load of 0.2 µg of chlorophyll will give a PsaC signal in this range.   |

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| A 2 ul load is optimal for most chemiluminescent detection systems as a positive control. |
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\*These proteins are larger than a respective native protein due to the addition of His-tag

\* **For reconstitution of standards see lable on respective tube.**

**Product information - Secondary antibody:**

**AS09 602-trial Goat anti-Rabbit IgG (H&L), HRP conjugated, 20 µl (2x10 µl)**

**Product information - ECLreagent:**

**AS16 ECL-N-10 AgriseraECL Bright (10 ml trial pack)**

**Educational information about Quantitative western blot can be found here:** [detailed method description](#), [video tutorial](#)

## Application information

**Confirmed reactivity** | Algae, Cyanobacteria, Higher plants

**Additional information** | Estimation of PSI to PSII ratio can be done using quantitative western blot technique using anti-PsaC (PSI) and PsbA (PSII) antibodies.

References:

[Brown](#) et al. (2007). Resource dynamics during infection of *Micromonas pusilla* by virus MpV-SP1. *Environmental Microbiology* 9(11): 2720-2727. [Brown](#) et al. (2008). Flux capacities and acclimation costs in *Trichodesmium* from the Gulf of Mexico. *Marine Biology* 154 (3): 413-422.

**Selected references** | [Abramson](#) (2018). CARBON PARTITIONING IN ENGINEERED CYANOBACTERIUM FOR THE STUDY OF FEEDBACK INHIBITION OF PHOTOSYNTHESIS. Michigan State University, ProQuest Dissertations Publishing, 2018. 10826228.

[Morash](#) et al. (2007) Macromolecular dynamics of the photosynthetic system over a seasonal developmental progression in *Spartina alterniflora*. *Can J. of Bot.* 85: 476-483(8)

[Bouchard](#) et al. (2006) UVB effects on the photosystem II-D1 protein of phytoplankton and natural phytoplankton communities. *Photochem and Photobiol* 82: 936-951.

[MacKenzie](#) et al (2005). Large reallocations of carbon, nitrogen and photosynthetic reductant among phycobilisomes, photosystems and Rubisco during light acclimation in *Synechococcus elongatus* are constrained in cells under low environmental inorganic carbon. *Arch of Microbiol.* 183: 190 - 202.