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PII: S0005-2728(18)30034-3
DOI: doi:10.1016/j.bbabio.2018.03.001
Reference: BBABIO 47881

To appear in:

Received date: 5 February 2018
Revised date: 1 March 2018
Accepted date: 2 March 2018

Please cite this article as: Yury B. Slonimskiy, Eugene G. Maksimov, Evgeny P. Lukashev, Marcus Moldenhauer, Cy M. Jeffries, Dmitri I. Svergun, Thomas Friedrich, Nikolai N. Sluchanko , Functional interaction of low-homology FRPs from different cyanobacteria with Synechocystis OCP. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Bbabio(2018), doi:10.1016/j.bbabio.2018.03.001

Functional interaction of low-homology FRPs from different cyanobacteria with *Synechocystis* OCP

Yury B. Slonimskiy[a,b*], Eugene G. Maksimov[c*], Evgeny P. Lukashev[c], Marcus Moldenhauer[d], Cy M. Jeffries[e], Dmitri I. Svergun[e], Thomas Friedrich[d], Nikolai N. Sluchanko[a,c*]

[a]*A.N. Bach Institute of Biochemistry, Federal Research Center of Biotechnology of the Russian Academy of Sciences, 119071 Moscow, Russian Federation*

[b]*M.V. Lomonosov Moscow State University, Department of Biochemistry, Faculty of Biology, 119991 Moscow, Russian Federation*

[c]*M.V. Lomonosov Moscow State University, Department of Biophysics, Faculty of Biology, 119991 Moscow, Russian Federation*

[d]*Technical University of Berlin, Institute of Chemistry PC 14, Straße des 17. Juni 135, D-10623 Berlin, Germany*

[e]*European Molecular Biology Laboratory, Hamburg Outstation, Notkestrasse 85, D-22607 Hamburg, Germany*

*- these authors equally contributed to the study.

Correspondent author: Dr. Nikolai N. Sluchanko
A.N.Bach Institute of Biochemistry,
Federal Research Center of Biotechnology of RAS
Moscow 119071, Russian Federation
Tel: +7-495-6603430
E-mail: nikolai.sluchanko@mail.ru

Running title: Universality of the FRP action mechanism

***List of abbreviations*:**

OCP, orange carotenoid protein, holoprotein; OCP^{AA}, OCP with amino acid substitutions Y201A and W288A, holoprotein; NTE, N-terminal extension (comprising the αA helix up to amino acid 20); ΔNTE, OCP with the 12 most N-terminal amino acids deleted, holoprotein; CTD, C-terminal domain; NTD, N-terminal domain; HCP, helical carotenoid protein, NTD homologue of OCP; COCP, CTD of *Synechocystis* OCP (amino acids 165–317), holoprotein; RCP, red carotenoid protein, holoprotein; RCP(apo), NTD of *Synechocystis* OCP (amino acids 1–164), apoprotein; FRP, fluorescence recovery protein; SynFRP, *Synechocystis* FRP; AnaFRP, *Anabaena* FRP; AmaxFRP, *Arthrospira* FRP; *Arthrospira*, *Arthrospira maxima* CS-328; *Anabaena*, *Anabaena variabilis* PCC 7937; *Synechocystis*, *Synechocystis sp.* PCC 6803; CAN, canthaxanthin; ECN, echinenone; hECN, 3'-hydroxyechinenone; AL, actinic light; LED, light-emitting diode; DLS – dynamic light scattering; DTT, dithiothreitol; PB, phycobilisome; QELS, quasi-elastic light scattering; RC, reaction center of photosystem; ROS, reactive oxygen species; SEC, size-exclusion chromatography; SEC-MALLS, SEC with multiangle laser light scattering analysis; SAXS, small-angle X-ray scattering; SDS-PAGE, sodium dodecyl sulfate polyacrylamide gel electrophoresis; MSA, multiple sequence alignment; UV, ultraviolet.