

Accepted Manuscript

Involvement of the Lhc_x protein Fcp6 of the diatom *Cyclotella meneghiniana* in the macro-organization and structural flexibility of thylakoid membranes

Artur Ghazaryan, Parveen Akhtar, Győző Garab, Petar H. Lambrev, Claudia Büchel

PII: S0005-2728(16)30387-5
DOI: doi: [10.1016/j.bbabi.2016.04.288](https://doi.org/10.1016/j.bbabi.2016.04.288)
Reference: BBABIO 47685

To appear in: *BBA - Bioenergetics*

Received date: 15 March 2016
Revised date: 18 April 2016
Accepted date: 26 April 2016



Please cite this article as: Artur Ghazaryan, Parveen Akhtar, Győző Garab, Petar H. Lambrev, Claudia Büchel, Involvement of the Lhc_x protein Fcp6 of the diatom *Cyclotella meneghiniana* in the macro-organization and structural flexibility of thylakoid membranes, *BBA - Bioenergetics* (2016), doi: [10.1016/j.bbabi.2016.04.288](https://doi.org/10.1016/j.bbabi.2016.04.288)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Involvement of the Lhcx protein Fcp6 of the diatom *Cyclotella meneghiniana* in the macro-organization and structural flexibility of thylakoid membranes

Artur Ghazaryan^a, Parveen Akhtar^b, Győző Garab^b, Petar H. Lambrev^b, Claudia Büchel^{a,*}

^aInstitute of Molecular Biosciences, Goethe University Frankfurt, Max von Laue Str. 9, 60438 Frankfurt, Germany

^bHungarian Academy of Sciences, Biological Research Centre, Temesvári krt. 62, 6726 Szeged, Hungary

* Corresponding author at: Institute of Molecular Biosciences, Goethe University Frankfurt, Max von Laue Str. 9, 60438 Frankfurt, Germany.

E-Mail address: C.Buechel@bio.uni-frankfurt.de (C. Büchel).

Abstract

Diatoms possess special light-harvesting proteins involved in the photoprotection mechanism called non-photochemical quenching (NPQ). These Lhcx proteins were shown to be subunits of trimeric fucoxanthin-chlorophyll complexes (FCPa) in centric diatoms, but their mode of action is still unclear. Here we investigated the influence of Fcp6, an orthologue to Lhcx1 of *Thalassiosira pseudonana* in the diatom *Cyclotella meneghiniana*, by reducing its amount using an antisense approach. Whereas the pigment interactions inside FCPa were not influenced by the presence or absence of Fcp6, as demonstrated by unaltered spectra of circular dichroism, changes could be observed on the level of thylakoids and cells in the mutants compared to WT. This fits to recent models of NPQ in diatoms, where FCP aggregation or supramolecular reorganisation is thought to be a major feature. Thus, Fcp6 (Lhcx1) appears to alter pigment-pigment interactions inside the aggregates, but not inside (un-aggregated) FCPa itself.

Keywords

anisotropic circular dichroism, FCPa, LHCSR, Lhcx1, non-photochemical quenching

Download English Version:

<https://daneshyari.com/en/article/10795228>

Download Persian Version:

<https://daneshyari.com/article/10795228>

[Daneshyari.com](https://daneshyari.com)