



# University of HUDDERSFIELD

## University of Huddersfield Repository

Sineshchekov, Vitaly, Mailliet, Joel, Psakis, Georgios, Feilke, Kathleen, Kopycki, Jakub, Zeidler, Mathias, Essen, Lars-Oliver and Hughes, Jon

Tyrosine 263 in Cyanobacterial Phytochrome Cph1 Optimizes Photochemistry at the prelumi-R → lumi-R Step

### Original Citation

Sineshchekov, Vitaly, Mailliet, Joel, Psakis, Georgios, Feilke, Kathleen, Kopycki, Jakub, Zeidler, Mathias, Essen, Lars-Oliver and Hughes, Jon (2014) Tyrosine 263 in Cyanobacterial Phytochrome Cph1 Optimizes Photochemistry at the prelumi-R → lumi-R Step. *Photochemistry and Photobiology*, 90 (4). pp. 786-795. ISSN 00318655

This version is available at <http://eprints.hud.ac.uk/id/eprint/21421/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

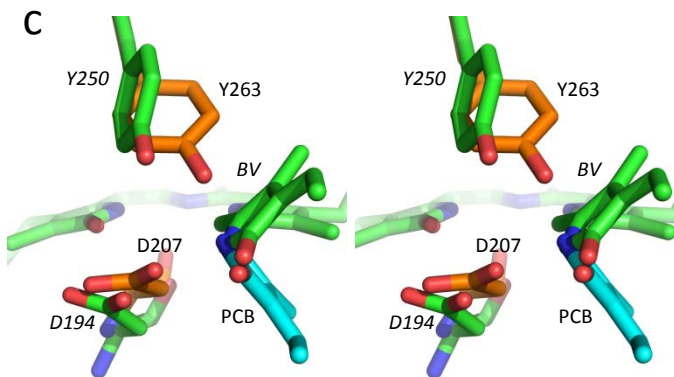
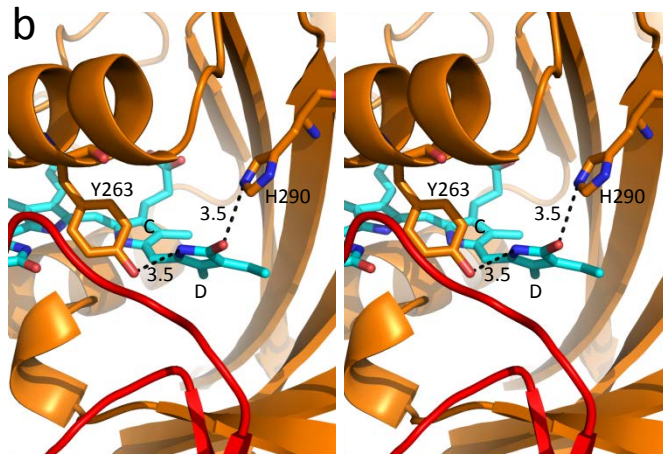
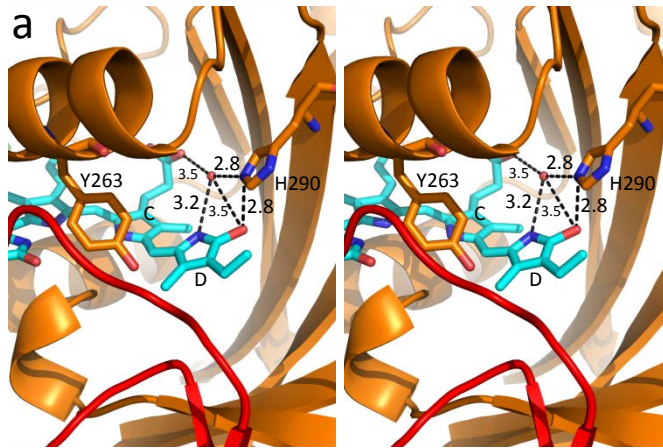
For more information, including our policy and submission procedure, please contact the Repository Team at: [E.mailbox@hud.ac.uk](mailto:E.mailbox@hud.ac.uk).

<http://eprints.hud.ac.uk/>

## **Supplementary Information**

**Tyrosine 263 in cyanobacterial phytochrome Cph1  
optimizes photochemistry at the prelumi-R → lumi-R step**

Sineshchekov *et al.*



**Figure S1.** Stereo pairs of the chromophore D ring environment.

(a) 2VEA structure of Cph1 Pr (Essen *et al.* 2008) showing the interactions of the pyrrole N24 and C19 carboxyl oxygen; (b) hypothetical structure of prelumi-R at C15=C16 isomerization angle of 117°; (c) hypothetical  $\beta_f$  PCB D-ring in Cph1 (cyan) with the  $\alpha_f$  biliverdin D-ring in PaBphP (green) as Pfr. Y263 and D203 in Cph1 Pr (2VEA; (7)) and their homologs Y250 and D194 in PaBphP Pfr (3C2W; (8)) are shown in gold and green, respectively. PyMol molecular images.