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The D-ring, Not the A-ring, Rotates in Synechococcus OS-B' Phytochrome

Original Citation

Song, C., Psakis, Georgios, Kopycki, J., Lang, C., Matysik, J. and Hughes, J. (2014) The D-ring, Not the A-ring, Rotates in Synechococcus OS-B' Phytochrome. *Journal of Biological Chemistry*, 289 (5). pp. 2552-2562. ISSN 0021-9258

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Supplemental Information for

The *D*-ring, not the *A*-ring, rotates in *Synechococcus* OS-B'
phytochrome

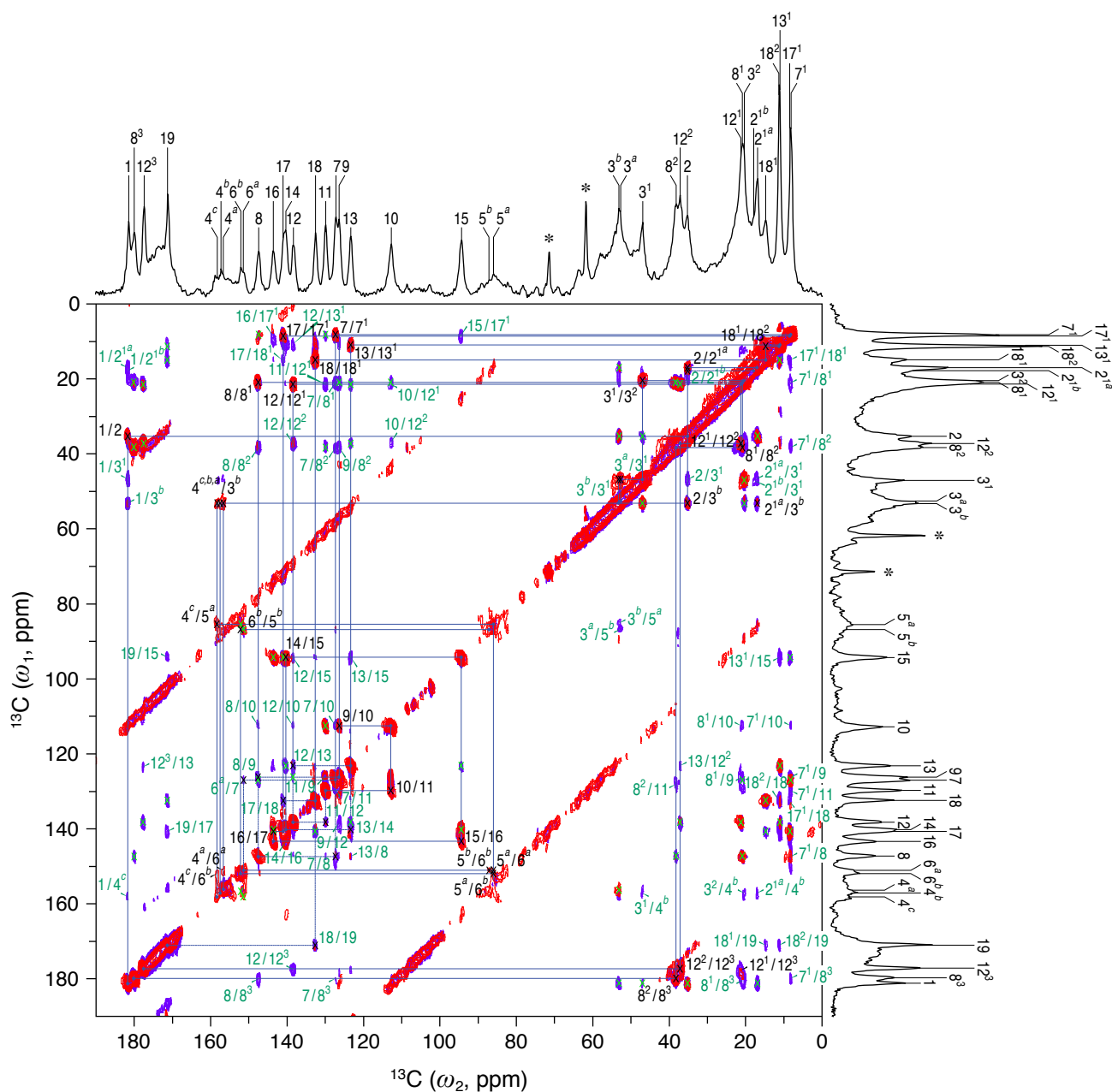
**Chen Song, Georgios Psakis, Jakub Kopycki, Christina Lang,
Jörg Matysik, and Jon Hughes**

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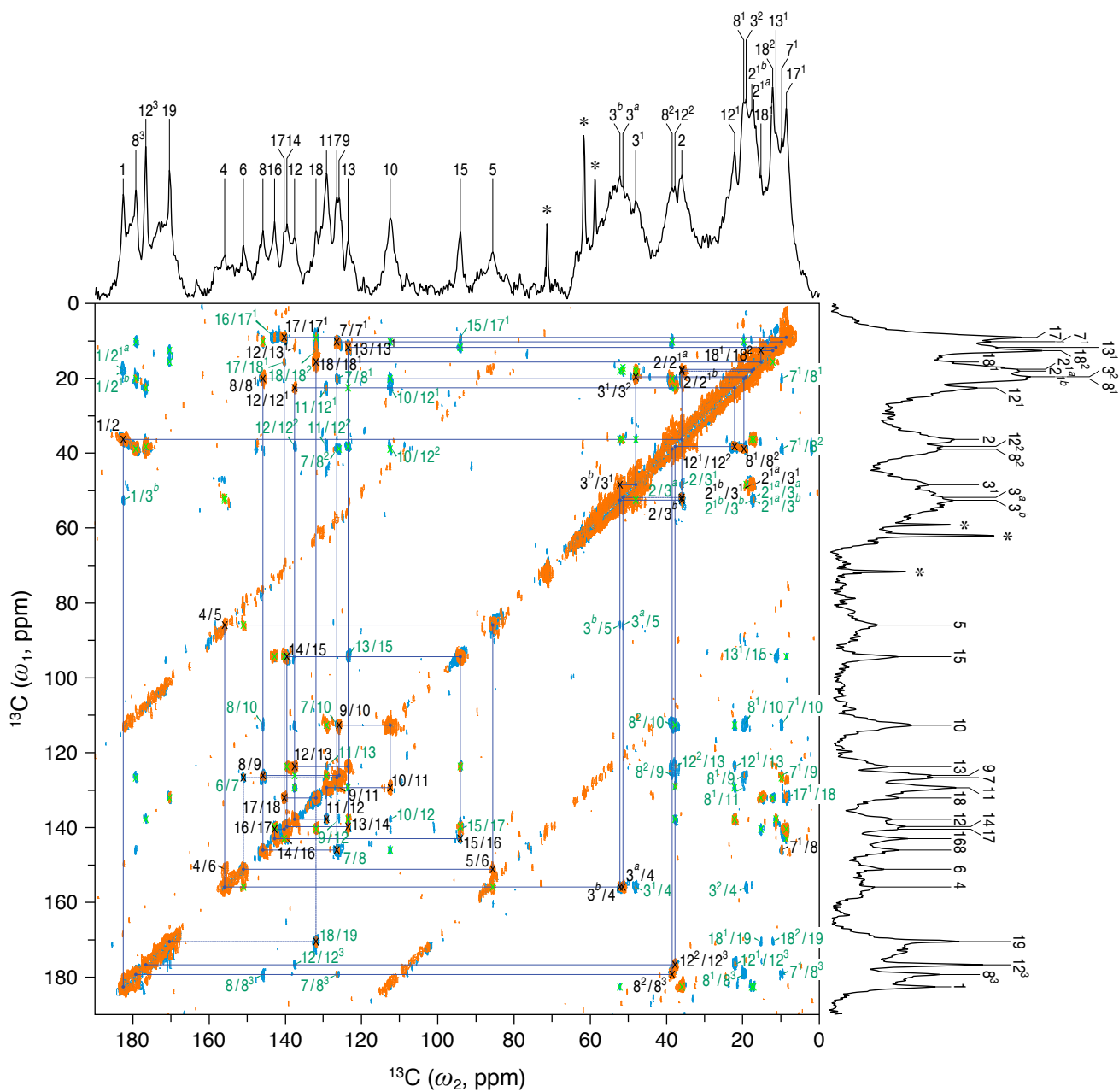
Supplemental Figures S1–S3

M D T E T W A A A A R P S R D A L I N R I T H Q I R Q S L E
1 ATGGACACCGAAACCTGGGCAGCTGCGGCT CGTCCTTCACGTGATGCTCTGATCAACCGT ATTACCCACCAGATTCGCCAGTCCCTGGAG
L D Q I L R A T V E E V R A F L G T D R V K V Y R F D P E G
91 CTGGACCAAATCCTGCGTGCAACAGTGGAG GAA GTTCGTGCTTTCCTGGGCACAGATCGT GTAAAAGTGTATCGCTTCGACCCGGAGGGC
H G T V V A E A R G G E R L P S L L G L T F P A G D I P E E
181 CATGGCACCGTGGTTGCGGAGGCTCGTGGA GGTGAACGTCTGCCTTCTCTGTAGGCCTG ACATTTCGGCAGGCGACATTCCAGAGGAA
A R R L F R L A Q V R V I V D V E A Q S R S I S Q P E S W G
271 GCTCGTCGCCTGTTCCGCTGGCTCAAGTC CGTGTTATTGTGGATGTTGAGGCACAAAGC CGTTCCTATTAGTCAGCCTGAGTCATGGGGT
L S A R V P L G E P L Q R P V D P C H V H Y L K S M G V A S
361 CTGTCCTGCTCGTGTTCCGCTGGGTGAACCA CTGCAACGTCCTGTGGACCCTTGTCATGTC CACTATCTGAAAAGCATGGGTGTTGCCTCT
S L V V P L M H H Q E L W G L L V S H H A E P R P Y S Q E E
451 AGCCTGGTTGTACCGCTGATGCATCACCAG GAACTGTGGGGCTTACTGTTTCTCATCAC GCTGAACCTCGCCCTTATAGCCAAGAAGAG
L Q V V Q L L A D Q V S I A I A Q A E L S L H H H H H H *
541 CTGCAGGTTGTCCAACCTGTAGCAGATCAG GTGTCTATTGCCATTGCTCAAGCCGAGCTG AGCTTACATCATCATCATCATCATTGA

Supplemental Figure S1 Sequence of SyB.Cph2(GAF):H₆ with optimized codon usage for expression in *E. coli* as used in this work.



Supplemental Figure S2 Enlarged contour plots of the DARR spectra of $u\text{-}[^{13}\text{C}, ^{15}\text{N}]\text{-PCB-SyB.Cph2(GAF) as P630}$ with mixing times of 5 (red) and 50 (purple) ms. Two 1D traces of the 2D spectra along ω_1 - (right) and ω_2 -dimension (top) are shown with the assignments of the ^{13}C peaks. The indirectly bonded $^{13}\text{C}\text{-}^{13}\text{C}$ correlations are indicated by arrows and labeled in green. Resonances of the natural abundance glycerol carbons are indicated by asterisks.



Supplemental Figure S3 Enlarged contour plots of the DARR spectra of *u*-[^{13}C , ^{15}N]-PCB-SyB.Cph2(GAF) as P690 with mixing times of 5 (orange) and 50 (cyan) ms. Two 1D traces of the 2D spectra along ω_1 - (right) and ω_2 -dimension (top) are shown with the assignments of the ^{13}C peaks. The indirectly bonded ^{13}C - ^{13}C correlations are indicated by arrows and labeled in green. Resonances of the natural abundance glycerol carbons are indicated by asterisks.