Electronic Supplementary Material (ESI) for Photochemical & Photobiological Science

S1D, legenda and color codes employed

Legenda of phyla

F	Firmicutes
Ac	Actinobacteria
P (α)	α-proteobacteria>Caulobacterales
P (α)	α-proteobacteria>Parvularculales
P (α)	α-proteobacteria>Rhizobiales
P (α)	α-proteobacteria>Rhodobacterales
P (α)	α-proteobacteria>Rhodospirillales
P (α)	α-proteobacteria>Sphingomonadales
P (α) U	α-proteobacteria>Uncultured
P (α) poly	α-proteobacteria>Polymorphum
P (β)	β-proteobacteria>Burkholderiales
P (β)	β-proteobacteria>Gallionellales
P (β)	β-proteobacteria>Methylophilales
P (β)	β-proteobacteria>Neisseriales
P (β)	β-proteobacteria>Nitrosomonadales
P (β)	β-proteobacteria>Rhodocyclales
P (β) U	β-proteobacteria>Uncultured
P (γ)	γ-proteobacteria>Acidithiobacillales
P (γ)	γ-proteobacteria>Alteromonadales
P (γ)	γ-proteobacteria>Chromatiales
P(γ)	γ-proteobacteria> Enterobacteriales
P (γ)	γ-proteobacteria>Legionellales
P (γ)	γ-proteobacteria>Methylococcales
P (γ)	γ-proteobacteria>Oceanospirillales
P (γ)	γ-proteobacteria>Pseudomonadales
P(γ)Rei	γ-proteobacteria>Reinekea
P (γ)	γ-proteobacteria>Salinisphaerales
P(γ)	γ-proteobacteria>Thiotrichales
P(γ)U	γ-proteobacteria>Uncultured
P (γ)	γ-proteobacteria>Vibrionales
P (γ)	γ-proteobacteria>Xanthomonadales
P (δ)	δ-proteobacteria
P (ε)	ε-proteobacteria
P (Magn)	Proteobacteria>Magnetococcales
Chl	Chloroflexi
Cya	Cyanobacteria>Chroococcales
Cya	Cyanobacteria>Gloeobacteria
Cya	Cyanobacteria>Nostocales
Cya	Cyanobacteria> Oscillatoriales
Pl	Planctomycetes
Nit	Nitrospirae
Acido	Acidobacteria
Bact/Ch	Bacteroidetes/Chlorobi
DeTh	Deinococcus-Thermus
Lent	Lentisphaerae
Verr	Verrucomicrobia
Spi	Spirochaetes
EuA	Euryarchaeota

Color codes

BphP-like GAF

Cph1-like GAF (Cys259)

Gapped bilin-GAF, Cys259

DXCF GAF-two cysteine (variations of the motifs are indicated

β3-α3 Cys insert, two cysteine

TP1 (trichromatic phytochrome) CysCys motif

Domain abbreviations

Bsy	Cystathionine beta-synthase, core
BLUF	Blue Light sensing Using Flavin domain
CHASE	Cyclases/Histidine kinases Associated Sensory Extracellular
CHEB	CHEB-type response regulator
CHER	CHER-type S-adenosylmethionine-dependent methyltransferase
Cyclase	Adenylyl cyclase class-3/4/guanylyl cyclase
EAL	Diguanylate phosphodiesterase named after conserved amino acids
GAF	cGMP-specific phosphodiesterases, cyanobacterial adenylate cyclase
GAF	in color: bilin binding GAF domains, see above for color codes
GGDEF	Diguanylate cyclase named after conserved amino acids
Hamp	linker domain in Histidine kinases, Adenyl cyclases, Methyl-accept
Hpt	histidine phosphotransfer domain
HtH	Helix turn Helix/DNA binding domain
Kinase	Hitidine kinase domain
LOV	Light Oxygen and Voltage domain, PAS subfamily; here sensors of bl
MASE1	Predicted integral membrane sensory domain found bacterial signali
MCP	Methyl-accepting chemotaxis proteins
PAS	Per Arnt Sim domain
PHY	Phytochrome domain
PYP	Photoactive yellow protein
RR	CheY-type Response regulator, receiver domain
SCHIC	Sensor containing heme instead of cobalamin
SPOIIE	Sporulation stage II, protein E C-terminal/Protein phosphatase 2C-
STAS	Sulphate Transporter and AntiSigma factor antagonist
TETR	Tetracycline transcriptional regulator

s, and formate hydrogen lyase transcription activator FhlA; bilin-binding

ing proteins and Phosphatases

ue light
ng proteins

related