BioMed Research International

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Special Issue on

Structure and Function of Bacterial Photoreceptors

CALL FOR PAPERS

Sunlight delivers vital radiant energy that provides spatial and temporal information for organisms across all kingdoms. Light-induced reactions allow prokaryotes and eukaryotes to adapt to different environmental factors. Biological photoreceptors are typically light-sensing proteins distributed among animals, plants, algae, fungi, and prokaryotes whose three-dimensional structures undergo key modifications upon absorption of specific wavelengths of light. Their major families comprise rhodopsins, phytochromes, xanthopsins, cryptochromes, LOV (Light-Oxygen-Voltage), and BLUF (sensor of Blue-Light Using FAD) proteins. Despite the vast structural information reported on photoreceptors, their dynamic protein structures pose a challenging matter in structural photobiology, where several questions still have to be addressed.

For a long time, there had been no evidences for photoreceptors being functional in prokaryotes. Nevertheless, over the last decade, several studies have shown that these proteins play many important roles in bacteria. Bacterial photoreceptors are mainly involved in signal-transduction cascades for specific cellular processes; however, many of their structural mechanisms remain unknown, leaving a gap between structure and signal transmission pathways.

We invite researchers to submit original articles as well as review articles describing new structures and novel light-transducing structural determinants in this kind of protein to contribute to the understanding of the light-induced structural changes in bacterial photoreceptor signaling. Original, high-quality contributions that have not previously been published or that are not currently under review by other journals are welcome.

Potential topics include but are not limited to the following:

- Structural characterization
- Functions and structural mechanisms
- Signaling networks
- Structural changes upon different light excitations
- Recent discoveries on their roles
- Protein-protein interactions
- Light-induced changes in chromophore configurations
- X-ray crystallography
- Nuclear magnetic resonance spectroscopy
- Cryoelectron microscopy
- Resonance *Raman spectroscopy*
- UV-visible spectroscopy
- Quantum mechanics/molecular mechanics calculations
- Bioinformatics methods
- Isothermal microcalorimetry
- Circular dichroism spectroscopy
- Limited proteolysis
- Size exclusion chromatography
- Static-light scattering

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/bmri/structural.biology/sfbp/.

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