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# Elucidation of light-induced structural changes of aureochrome and its recovery kinetics by small-angle X-ray scattering

*Tuesday 18 September 2018 12:00 (15 minutes)*

Aureochromes function as blue-light-regulated transcription factors in algae. Their basic region leucine zipper (bZIP) effector domain binds DNA specifically while a light-, oxygen-, or voltage-sensitive (LOV) domain acts as the sensor. Due to the inversed arrangement of sensor and effector, aureochromes are interesting for studying their mechanism and for the engineering of new optogenetic tools.
By applying small-angle X-ray scattering (SAXS) we pursue two main targets, namely the elucidation of light-induced structural changes of the receptor in solution and the analysis of the recovery kinetics from its light state back to its dark state. However, SAXS on photoreceptors is challenging. First, dark conditions need to be absolutely strict to avoid conversion of the highly sensitive receptor. Second, the analysis under illumination needs to ensure full conversion. Therefore we have established SAXS experiments under rigorous control of light. Here, we reveal light-induced structural changes of the photoreceptor and its recovery kinetics.
Banerjee, A., Herman, E., Serif, M., Maestre-Reyna, M., Hepp, S., Pokorny, R., Kroth, P. G., Essen, L.-O., Kottke, T. (2016), *Nucleic Acids Res.* **44**(12), 5957-5970.

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