PhD thesis: proposed topic, Prof. Aba Losi

**Structure, function, evolution and biophysical applications of novel photoreceptor proteins**

Novel photoreceptors proteins of bacterial origin have opened during the last decade unexpected research opportunities. The proposed project requires a multidisciplinary approach to investigate the functionality of these light-activable and light-switchable “nanomachines” *in vitro* and *in vivo*, their evolutionary patterns (*in silico*) and their various applications in biophysics, e.g. in super resolution microscopy. Our labs are fully equipped to explore spectral properties and energetics profiles of the studied proteins, with **steady-state and time-resolved approaches** (1).

Collaborations with international labs ensures samples, in native form and mutagenized (2).

Collaborations with Italian laboratories ensures the possibility to test biophysical applications of these novel photoreceptors (3).

Furthermore collaborations with plant physiologists in our University and in Argentina allow to explore the relevance of bacterial light photoreceptors during infections of agronomically important plants (Citrus, Tomato) (4). We are also engaged in exploring the evolutionary patterns of photoreceptors modules, by means of bioinformatics (5).

A major field is represented by photoreceptors for blue-light, but also multicolored photo-sensing proteins from cyanobacteria are being explored (6).


See also:

http://www.fis.unipr.it/home/aba.losi/
http://www.fis.unipr.it/home/aba.losi/Publications.htm
http://www2.difest.unipr.it/?q=node/57
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