

Announcement of 2-year Post-Doc position in the field of Cell Biology

Light, Photosynthesis & Metabolism Research Team
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Photosynthetic organisms use light as source of information, perceived by photoreceptor proteins, and as source of energy to perform photosynthesis. However, excess light can cause severe oxidative damage and result in cell death. To avoid this, a sophisticated photo-protective mechanism has been evolved, that dissipates the excess light energy as heat. In the green algae *Chlamydomonas*, this mechanism relies on the protein LHCSR3, a nuclear-encoded chloroplast localized protein, induced by high light (Peers et al, 2009, Nature). The signal transduction process that controls the expression of LHCSR3 is largely unknown. We have previously shown that LHCSR3 induction requires active photosynthetic electron flow and involves calcium signaling events (Petroutsos et al, 2011, Plant Cell). Recently, in collaboration with research groups in Germany and Japan, we have discovered that LHCSR3 in *Chlamydomonas* is under control of a photoreceptor (submitted manuscript).

The successful candidate will work on an innovative collaborative project that combines cell biology, molecular physiology, genetics, structural biology and biophysics to study the unexplored mechanisms that link light perception and photo-protection at the molecular and cellular level.

We are looking for highly motivated candidates with strong expertise in molecular biology. Background in microbial or algae biology will be appreciated.

CONTACT

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TEAM

Light, photosynthesis and metabolism (<http://irtsv.cea.fr/dsv/irtsv/PCV/LPM>)

Our team studies the biological processes that allow photosynthetic organisms to acclimate to changing environmental conditions. We explore the dynamics of these processes from the molecular to the cellular level following a multidisciplinary approach and using different expertise ranging from molecular physiology to in vivo spectroscopy and metabolic modelling. The three main research axes are: (i) Light signaling, utilization and dissipation (ii) Redox regulation of electron flow-Ions in photosynthesis (iii) The role of organelle interaction in optimizing carbon assimilation and downstream metabolism.

Some recent publications:

- Bailleul B et al., 2015. Energetic coupling between plastids and mitochondria drive CO₂ assimilation in diatoms. **Nature**, 524, 366–369.
- Nagy G et al., 2014. Chloroplast remodelling during state transitions in *Chlamydomonas reinhardtii* as revealed by noninvasive techniques in vivo. **PNAS**, 111: 5042-5047.
- Carraretto L et al., 2013. A thylakoid-located two-pore K⁺ channel controls photosynthetic light utilization in plants. **Science**, 342:114-118.
- Petroutsos D et al., 2011. The chloroplast calcium sensor CAS is required for photoacclimation in *Chlamydomonas reinhardtii*. **The Plant Cell**, 23, 2950–2963.