

Plastid targeting signals and Biogenesis of thylakoid membranes in a post-endosymbiosis environment.

The origin of plastid targeting sequences, that allows successful import of most chloroplast proteins that are translated in the cytosol of a plant cell, remains unknown. The postdoctoral associate will examine the possible antimicrobial origin of these sequences. To this end, (s)he will use *Chlamydomonas* nuclear transformation to rescue a non phototrophic mutant lacking in a photosynthesis protein subunit, with appropriate constructs comprised of the ORF coding for the missing subunit fused with antimicrobial peptides with suitable modifications for their recognition by the chloroplast import system. In parallel, (s)he will assess the antimicrobial activity of plastid targeting sequences using a series of target prokaryotes. Last, several *Chlamydomonas* mutants with altered contents in either of the two photosystems, will be characterized at the molecular level. Their mutations should target regulators of photosystem accumulation that are distinct from the nuclear factors that control the expression of individual photosystem subunits.