
THE 2018



EDMOND DE ROTHSCHILD CHAIR

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Date : Tuesday, March 20, 2018 at 11 a.m
Place: « Bibliothèque Edmond de Rothschild » at IBPC

Title : A Window into the Evolution of Photosynthetic Organelles

According to the endosymbiont theory of organelle evolution, a β cyanobacterium that was engulfed by a unicellular protist (primary endosymbiosis) evolved into the chloroplasts that are currently present in algae and plants. This successful evolutionary event was thought to have occurred once (monophyletic), about a billion years ago. The long time span separating the initial acquisition of the endosymbiont by its host and its current state as a photosynthetic organelle makes it difficult to reconstruct the evolutionary history of primary plastids. However, recently it was shown that the thecate protist *Paulinella chromatophora* has a photosynthetic organelle called a chromatophore that was acquired approximately 100 million years ago. Analyses of this organelle are providing us with the opportunity to deduce events that occur during early stages in organellogenesis. Overall, our studies have demonstrated that the chromatophore is a *bona fide* photosynthetic organelle with a reduced genome size relative to the initial endosymbiont, and it contains numerous proteins that are routed from the cytoplasm of the protist (encoded on the protist nuclear genome) to various compartments within the chromatophore (where the proteins function). I will discuss potential mechanisms of the trafficking of proteins in *P. chromatophora* and what this system has revealed about evolutionary events and physiological features critical to successful organellogenesis.

THIS LECTURE WILL BE FOLLOWED BY A
COCKTAIL IN THE IBPC HALL
