CONFÉRENCE

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Bryophytes provide new perspectives on a photosynthesis enhancing organelle

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Pavillon Charles-Eugène-Marchand, salle Hydro-Québec (1210)

Abstract:

Rubisco, the enzyme responsible for carbon fixation, has a relatively low turnover rate and is competitively inhibited by atmospheric oxygen, causing it to perform poorly in environments where CO_2 is scarce. Some photosynthetic organisms have overcome these limitations through CO_2-concentrating mechanisms (CCMs), which enhance photosynthesis by increasing the concentration of CO_2 around Rubisco. In certain algae and hornworts, the CCM is organized around a membraneless organelle, the pyrenoid, where Rubisco is concentrated. While pyrenoids in the green alga Chlamydomonas have been studied extensively, much less is known about the pyrenoids of hornworts, the only land plants to possess these organelles. In this seminar, I will present my work identifying candidate CCM-related proteins in hornworts and demonstrate their cellular localization using confocal microscopy. I will also discuss the biophysical properties of hornwort pyrenoids and ongoing efforts to uncover the mechanisms underlying pyrenoid biogenesis.

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