Research Interest

Major objective of my research is to identify and characterize the molecular mechanisms underlying the ecological success of photosyntetic organisms and their capacity for handling different adaptative solutions in order to succeed in a variable environment. In this context, examples of environmental adaptations are the ones that take place in the marine microalgae, which display a suite of sophisticated responses (physiological, biochemical, and behavioral) to optimize their photosynthesis and growth under changing conditions. We are characterizing the molecular mechanisms of nutrient and light acclimation in marine diatoms, prominent microalgae in the contemporary oceans. We are mainly focusing on the pathways of uptake and assimilation of N sources, in particular on the role played by ammonium and nitrate transporters as sensors of the external N conditions.The recent availability of whole genome sequences from representative species of diatoms has revealed distinct features in their genomes, and the study of their biology promise to reveal many novel aspects.

Publications

1. **Rogato A.*,** A. Amato, D. Iudicone, M. Chiurazzi, M. I. Ferrante , M. Ribera d'Alcalà
The diatom molecular toolkit to handle nitrogen uptake
Marine Genomics 2015 Jun . doi: 10.1016/***corresponding author**

2. **Rogato A**, Richard H, Sarazin A, Voss B, Cheminant Navarro S, Champeimont R, Navarro L, Carbone A, Hess WR, Falciatore A.
"The diversity of small non-coding RNAs in the diatom *Phaeodactylum tricornutum*". *BMC Genomics* 2014; 15(1):698. DOI: 10.1186/1471-2164-15-698

3. Lepetit B, Sturm S**, Rogato A**, Gruber A, Sachse M, Falciatore A, Kroth P, Lavaud J
"High light acclimation in the secondary plastids containing diatom *Phaeodactylum tricornutum* is triggered by the redox state of the plastoquinone pool". *Plant Physiol*, 2013 3: p. 853-86511

4. Depauw F, **Rogato A**, Ribera d'Alcalà M and Falciatore A.
"Exploring the molecular basis of response to light in marine diatoms". *Journal of Experimental Botany*, 2012 63(4):1575-91.

5. Bailleul B *****., **Rogato A***., de Martino A., Coesel S., Cardol P., Bowler C., Falciatore A. Finazzi G. "LHCX1 an atypical member of the LHCSR protein family, modulates diatoms response to light" *Proc Natl Acad Sci USA*. 2010 107: 18214-9 ***co-first author in this publication**