

Application for a:	Outgoing Scheme NEWFELPRO Fellowship for senior researcher
Proposal Acronym:	MARSUPIAL
Proposal Title:	Mollusk larval shell ultrastructure and proteomics: integrating analytical tools
Research area(s):	Chemistry CHE
Research sub-disciplines:	Environmental chemistry; Biological chemistry; Protein chemistry Ecology; Environmental and marine biology Protein synthesis – modification and turnover; Structural biology Developmental genetics –embryology in animals Ecology; Environmental and marine biology Physical chemistry of biological systems
Category of research:	developmental
Duration in months:	36
Keywords:	Mollusks, embryos development, shell matrix, proteomics, starting biominerals, larval shell, ultrastructure
Abstract:	<p>In mollusks shell mineralization is a highly controlled process at different scale lengths. The aim of this proposal is to explore and describe the fabrication of the shell during the larval development, in selected marine and terrestrial mollusks. To this aim, two approaches will be used: ultrastructural and molecular. For the first, larval shells will be analyzed according to sophisticated analytical techniques including Infra Red and Raman spectroscopy, X-ray diffraction, scanning and transmission electron microscopy. The molecular aspects will be tackled, by using proteomics and immunohistological techniques, in order to identify the protein assemblage required for early shell mineralization. Particular attention will be emphasized on enzymatic markers. Besides a deepened understanding of the larval shell formation process, this project provides a platform for using molecular markers to study the impact of environmental changes (e.g. Ocean Acidification) on shell biomineralization.</p>
Does this proposal possess any of the sensitive ethical issues detailed in ethical issues table?	No