

Application for a:	Outgoing Scheme NEWFELPRO Fellowship for senior researcher
Proposal Acronym:	FluMito
Proposal Title:	Development of new fluorescent cyanine probes for assessment of mitochondrial functionality
Research area(s):	Chemistry CHE
Research sub-disciplines:	CHE Biological chemistry Physical chemistry of biological systems Spectroscopic and spectrometric techniques LIF Molecular and Structural Biology and Biochemistry - Biophysics Cellular and Developmental Biology - Morphology and functional imaging of cells, Apoptosis
Category of research:	basic
Duration in months:	16
Keywords:	mitochondrial membrane potential, mitochondria, fluorescent probe, cyanines, confocal microscopy, flow cytometry, apoptosis, respiration
Abstract:	<p>The integrity of mitochondrial function is fundamental to cell life. In accessing mitochondrial dysfunction within living cells mitochondrial membrane potential provides one of the most valuable indicators of cell fate determination. Research into this area has been enormously facilitated by the development of mitochondrial membrane potential-dependent fluorescent probes. However, the use of these technologies may often be misleading since most of these probes are subjected to artefacts. To circumvent these problems, we intend to incorporate the expertise from the international groups of scientist in the fields of organic chemistry, biochemistry, biophysics and mitochondrial biology to develop a novel improved mitochondria-targeted indicator fluorescent probes for their application in biology and biomedicine. Research scientist can thereof make use of these probes as a research tool to report or to alter mitochondrial function, as a potential therapy or drug carrier.</p>
Does this proposal possess any of the sensitive ethical issues detailed in ethical issues table?	Yes