

ESR 12 – NOVEL MICROFLUIDICS FOR THE STUDY OF PREVIOUSLY UNCULTURED MICROEUKARYOTES

Research project	Microbial communities in the oceans are changing. The sea ice is melting and the polar seas are freshening resulting in the cells that make up microbial communities getting smaller. We do not know how these changes are effecting community composition and dynamics. This project will develop novel microfluidic technologies for the compartmentalization of single cells sampled from natural environments allowing us to dissect the diversity of microbes that make up a community in a natural environment. Using this sampling approach we will then explore community composition using DNA sequencing methods combined with microscopy. We will then use this approach to explore the changing diversity in natural marine environments.
Supervisor	<u>Name:</u> Stefano Pagliara <u>Email:</u> s.pagliara@exeter.ac.uk <u>Website:</u> https://projects.exeter.ac.uk/biomicrofluidics/
Host institution	University of Exeter (UNEXE) Exeter, UK
PhD program	Biosciences, University of Exeter
Expected results	A novel system for sampling single cells from natural communities resulting in an understanding of how diversity profiles are affected by environmental.
Planned secondments	FGT - Month 18 (3 m) - Microfluidic isolation of single microeukaryotes for culturing and microscopy UU - Month 26 (3 m) - Exchange of method developments and building compatible microfluidic devices CSIC-ICM - Month 36 (3 m) - Implementing single cell microscopy and culturing to biodiversity studies
Required profile	Graduate in Physics, Nanoscience, Engineering or Biotechnology