



**UNIVERSITÉ  
DE GENÈVE**

**FACULTÉ DES SCIENCES**

Section de biologie

## ERC Grants projects' summaries

### **Prof. Michel Milinkovitch**

The EVOMORPHYS project aims at identifying the drivers of Life's morphological complexity and diversity. It will investigate how Evolution explores the phase space of possible interactions between physical (mechanics, reaction-diffusion) and biological (cell signalling, proliferation, migration) processes and generates configurations that compute functional phenotypes. In particular, our project will combine experiments in biology and physics, as well as mathematical models and Artificial-Life numerical simulations.

### **Prof. Robbie Loewith**

The Target Of Rapamycin (TOR) is a highly conserved protein kinase that regulates cell growth. TOR assembles into two larger protein complexes known as TORC1 and TORC2, which reside on the vacuolar and plasma membranes, respectively. We recently demonstrated that TORC2 functions in a homeostatic feedback loop to maintain the line tension of the plasma membrane. Now, our primary aim is to deploy state-of-the-art chemical biology and biophysical tools to determine if and how TORC1 similarly regulates the line tension of internal membranes. Moreover, as TORC1 is a validated drug target in cancer and immunosuppression, we hope that our studies will inform on how to better manipulate TORC1 activity for therapeutic gain.

March 2019