H2020 MSCA - ITN - 2017 - 766030

CONTRA

Computational Oncology Training Alliance

ESR 11 - Estimation of tumour growth rates from NGS data

Research project	Tumours are expanding population of cells. Understanding the process of tumour growth is fundamental for many aspects of cancer biology. In this ESR project we will develop methods for the estimation of growth rates from single-cell and bulk Next-Generation Sequencing (NGS) tumour data. The main complication foreseen is that different selective regimes and neutral demographics can be easily confounded in particular considering the lack of genetic recombination. We will apply these estimators to individual patients and try to evaluate their potential value as biomarkers for precision medicine.
Supervisor	name David Posada e-mail dposada@uvigo.es website http://darwin.uvigo.es
Host institution	University of Vigo, Spain Biomedical Research Center (CINBIO) (http://cinbio.es)
PhD program	Methodology and Applications in Life Sciences (http://cvida.uvigo.es; in Spanish)
Expected results	1) New methods for the estimation of tumour growth rates 2) Software methods for the estimation of tumour growth rates 3) Potential NGS biomarkers for precision medicine
Planned secondments	1) KLC-CRICK-Cicarelli to learn cancer genomics (2 months) 2) KTH-Lagergren to learn computational methods (2 months) 3) UCAM-Markowetz to learn spatial genomics (2 months) 4) Torusware to learn HPC and Big Data techniques (2 months)
Required profile	The candidate should possess excellent statistical and computational abilities. Knowledge about evolution, genomics and/or cancer is not necessary, as this will be acquired during the PhD.