Ferran Cardoso Rodriguez

Curriculum Vitae

SELECTED OUTPUTS

PUBLICATION	**Cardoso Rodriguez & Qin et al., 2023** A SINGLE-CELL PERTURBATION LANDSCAPE OF COLONIC STEM CELL POLARISATION *DOI: BioRxiv*
SOFTWARE	**TAPE-Lab/CyGNAL** CYTOF SIGNALLING ANALYSIS (CYGNAL) PIPELINE *DOI: Zenodo*

RELEVANT EXPERIENCE

SEPTEMBER 2019 – PRESENT

UCL, PhD Thesis

Single-cell Organoid Analysis –*(Misc.)*

Using novel computational approaches to study CRC tumour microenvironment organoids through single-cell technologies.

CyGNAL –(Python/R) — Analysis Pipeline

Pipeline for analysing and visualising CyTOF datasets through PTM signalling networks and cell-state classification via ensemble methods. Project repository
Publication: Sufi Qin et al., 2021

VRland –(Python) — Method Development

Valley-Ridge score and single-cell Waddington-like landscapes. Project repository
Publication: Cardoso Rodriguez & Qin et al., 2023

MSc computational projects

Imperial, MSc Project 3 — Jun. – Sept. 2019
AnnoRE pipeline –(Python/R)
Bioinformatics pipeline for downstream annotation of genetic variants and metabolomics high-throughput data to study complex trait diseases. Project repository

Imperial, MSc Project 2 — Apr. – Jun. 2019
scRNAseq data analysis –(R)
Analysis of single-cell transcriptomic datasets to characterise cardiac development. Web report

Imperial, MSc Project 1 — Jan. – Apr. 2019
FBA app back-end –(Python)
Group project developing MetEOr, an online tool for visualising and performing Flux Balance Analysis on whole-organism metabolic models. Project repository

BSc wet-lab placements

UB-QMUL, BSc Thesis (Erasmus) — Feb. – Sept. 2018
BSc Thesis on inflammation and craniopharyngiomas at Dr. Gaston-Massuet's group.

UB-IBEC, visiting student — Jun. – Sept. 2017
Contributed to Dr. Montserrat's group investigating iPSCs for organ regeneration.

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EDUCATION

2019 – PRESENT	**Bioinformatics PhD Student** UNIVERSITY COLLEGE LONDON *4 year PhD programme at Dr. Chris Tape's Cell Communication Lab (UCL Cancer Institute).*
2018 – 2019	**MSc in Bioinformatics and Theoretical Systems Biology** IMPERIAL COLLEGE LONDON *Multi-project programme.*
2014 – 2018	**BSc in Biotechnology** UNIVERSITAT DE BARCELONA *Erasmus at WHRI (QMUL).*

COMMUNICATION SKILLS

ENGLISH	**Cambridge English: Proficiency** *CEFR Level C2 (2016)*
FRENCH	**DELF: B1** *CEFR Level B1 (2012)*
CATALAN	**Native speaker**
SPANISH	**Native speaker**

TECHNICAL SKILLS

GENERAL	Python and R for general coding, data analysis, and visualisation. Remote computing through bash in HPCs. Experience with LaTeX, (R)Markdown, HTML and JavaScript libraries.
DATA ANALYSIS	Pipelines for BCL to FASTQ generation, custom transcriptome reference generation, and FASTQ alignment. Dimensionality Reduction and Clustering. Dif. Expression and Abundance. Cell-cell Communication. Cellular dynamics. Ensemble ML for classification, Deep Learning.
DEVELOPMENT	Version control and collaboration through *git*. Multi-language tool design, implementation, and deployment through Docker. Reports as static HTML, Notebooks, bokeh, and shinyApps. *nbdev* for notebook-centric tool development and deployment. *netflow* pipelines.