CRBM external seminar
BIOLuM
Thursday October 23th, 11:00 am Salle Marcel Dorée

Cell type-specific timing and the robustness of development

Michael DORRITY, PhD, Group leader

Group leader Team Environmental response at the single-cell level , EMBL Heidelberg, Germany

Michael DORRITY
PhD in Biology, 2018, University of Washington, Seattle, USA.
Postdoctoral research in the Department of Genome Sciences, University of Washington, Seattle, USA.
NSF Predoctoral Fellow, 2014–2017.
Group leader at EMBL from January 2022.

Abstract

Michael DORRITY's group's research focuses on understanding how environmentally induced variability propagates across scales. They use single-cell genomics as a phenotyping tool to capture cell- and organism-level processes alongside molecular phenotypes in different fish species, capturing multiscale phenotyping data for hundreds to thousands of individuals to build an average "embryo trajectory" and to quantify reproducibility in development. Using computational and statistical approaches to partition variability at different levels (molecular, cellular, and organismal), we define sources of environmental sensitivity and uncover mechanisms of adaptation. We then validate and explore these mechanisms experimentally using classical developmental genetics, gene editing and time-resolved imaging..

Selected publications

Bourn, J. J., Dorrity, M. W. (2024). Degrees of freedom: temperature's influence on developmental rate. *Current Opinion in Genetics & Development,* 85, 102155

Dorrity, M. W., Saunders, L. M., Duran, M., Srivatsan, S. R., Barkan, E., Jackson, D. L., … & Trapnell, C. (2023). Proteostasis governs differential temperature sensitivity across embryonic cell types. *Cell*, 186(23), 5015-5027.

Saunders, L. M., Srivatsan, S. R., Duran, M., Dorrity, M. W., Ewing, B., Linbo, T. H., … & Trapnell, C. (2023). Embryo-scale reverse genetics at single-cell resolution. *Nature*, 1-10.