

Accepted Manuscript

Title: Single cells get together: high-resolution approaches to study the dynamics of early mouse development

Author: Néstor Saiz Berenika Plusa Anna-Katerina Hadjantonakis



PII: S1084-9521(15)00123-8
DOI: <http://dx.doi.org/doi:10.1016/j.semcdb.2015.06.004>
Reference: YSCDB 1777

To appear in: *Seminars in Cell & Developmental Biology*

Received date: 4-3-2015
Revised date: 17-6-2015
Accepted date: 19-6-2015

Please cite this article as: Saiz N, Plusa B, Hadjantonakis A-K, Single cells get together: high-resolution approaches to study the dynamics of early mouse development, *Seminars in Cell and Developmental Biology* (2015), <http://dx.doi.org/10.1016/j.semcdb.2015.06.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Single cells get together: high-resolution approaches to study the dynamics of early mouse development

Néstor Saiz¹, Berenika Plusa² and Anna-Katerina Hadjantonakis¹

¹Developmental Biology Program, Sloan Kettering Institute, New York, NY 10065, USA

²Faculty of Life Sciences, The University of Manchester, Oxford Road, Manchester M13 9PT, UK

Abstract

Embryonic development is a complex and highly dynamic process during which individual cells interact with one another, adopt different identities and organize themselves in three-dimensional space to generate an entire organism. Recent technical developments in genomics and high-resolution quantitative imaging are making it possible to study cellular populations at single-cell resolution and begin to integrate different inputs, for example genetic, physical and chemical factors, that affect cell differentiation over spatial and temporal scales. The preimplantation mouse embryo allows the analysis of cell fate decisions *in vivo* with high spatiotemporal resolution. In this review we highlight how the application of live imaging and single-cell resolution analysis pipelines is providing an unprecedented level of insight on the processes that shape the earliest stages of mammalian development.

Keywords: Systems biology, quantitative high-resolution imaging, genomics, single-cell analysis, mouse embryo, lineage specification.

Download English Version:

<https://daneshyari.com/en/article/8480273>

Download Persian Version:

<https://daneshyari.com/article/8480273>

[Daneshyari.com](https://daneshyari.com)