CellViewer

Project ID: 686637
Funded under: H2020-EU.1.2.1. - FET Open

CellViewer: super-resolution systems microscopy to assess pluripotency and differentiation of stem cells at single cell level

From 2016-02-01 to 2020-01-31, ongoing project | CellViewer Website

Project details

| Total cost: | EUR 3 988 752,50 |
| Topic(s): | FETOPEN-1-2014 - FET-Open research projects |
| EU contribution: | EUR 3 988 752,50 |
| Call for proposal: | H2020-FETOPEN-2014-2015-RIA |
| Coordinated in: | Spain |
| Funding scheme: | RIA - Research and Innovation action |

Objective

In this ambitious and multi-disciplinary proposal, we aim to develop new technologies that will allow us to visualize in single cells, in parallel and at the systems level, DNA, mRNAs and proteins with nanoscale resolution. We will refer to these novel technologies as the 'CellViewer': a unique cutting-edge high-throughput super-resolution (SR) microscopy approach (including new hardware and software development) to collect at high-resolution a large amount of spatial and dynamic information in single cells. 'CellViewer' will allow us to study the mechanisms of mouse embryonic stem cell (mESC) self-renewal and differentiation upon application of specific stimuli, as a specific test case. We will analyse in single cells with high throughput, DNA remodelling at multiple specific gene loci and their corresponding production, distribution and kinetics of mRNA and protein products. We will collect a large amount of dynamic and nanoscale spatial information that will lead us to build predictive models of the phenotypic output from specific input stimuli. In turn, we will be able to develop a mechanistic understanding of how mESCs maintain their stemness or commit to differentiation. The partners of CellViewer are internationally recognized experts from academia and industry in the fields of stem cell and chromatin biology, super-resolution microscopy, quantitative modelling of biological systems, and hardware and software development. This team as a whole is uniquely suited to bring Systems Biology into the era of single cell analysis, which will be a paradigm shift in the way cellular systems will be studied.

Related information

| Report Summaries | Periodic Reporting for period 1 - CellViewer (CellViewer: super-resolution systems microscopy to assess pluripotency and differentiation of stem cells at single cell level) |
Coordinator

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EU contribution: EUR 2,086,668.26

Activity type: Research Organisations
Contact the organisation

Participants

FUNDACIO INSTITUT DE CIENCIES FOTONIQUES
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EU contribution: EUR 293,334.24

Activity type: Research Organisations
Contact the organisation

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EU contribution: EUR 0

Activity type: Research Organisations
Contact the organisation

THE HEBREW UNIVERSITY OF JERUSALEM
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EU contribution: EUR 792,500

Activity type: Higher or Secondary Education Establishments
Contact the organisation

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EU contribution: EUR 128,750

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Contact the organisation