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Oxygen controlled bioprocessing of pluripotent stem cells

Farlan Veraitch

University College London, UK

Stem cells can self-renew *in vitro* whilst retaining their ability to differentiate into multiple adult cell types. These properties suggest that stem cells will have a number of potential applications including the generation of adult tissue for regenerative medicine, drug discovery, drug development and whole cell delivery of gene therapies. One of the major technical challenges will be the development of scalable, cost effective, reproducible and safe whole bioprocesses. Farlan Veraitch's talk will focus on his research group's work the use of oxygen tension for the control of both the expansion and differentiation of pluripotent stem cells. In particular the talk will focus on recent findings showing how controlling oxygen tension during the expansion step can "prime" pluripotent stem cells to differentiated into specific lineages.

Biography

Farlan Veraitch gained his PhD from the University of Birmingham where his research focused on the optimisation of mammalian cell culture processes. He then moved to UCL where he worked as a Post Doctoral Research Assistant on the automation of embryonic stem cell processing. Since gaining his Lectureship, and subsequent Senior Lectureship, Farlan has helped to establish the UCL's Cell Therapy Bioprocessing programme which has been applying ultra scale-down, bioprocess modelling and a 'whole bioprocess' vision to the development of robust stem cell production processes.

f.veraitch@ucl.ac.uk