CDB SEMINAR

Austin Smith

Wellcome Trust Centre for Stem Cell Research, University of Cambridge

Wednesday, October 25

10:30~11:30 C1F CDB Auditorium

The Ground State of Pluripotency

Speaker Profile

Professor Smith has now relocated to Cambridge to be Director of the Wellcome Trust Centre for Stem Cell Research.

The goal of his laboratory is to characterise the cellular and molecular mechanisms governing the formation, self-renewal and differentiation of pluripotent and tissue-restricted stem cells. Embryonic stem (ES) cells, which are derived directly from the pluripotential cells of the early mammalian embryo, can be propagated and manipulated in vitro whilst retaining the potential to generate every cell type of the organism. Neural stem (NS) cells can similarly be expanded in vitro but are restricted to generating cell types of the central nervous system. The aim is to identify, characterise and understand the regulatory processes and machinery that govern self-renewal and lineage programming in these two stem cell types. They have shown that ES cell self-renewal is maintained by the interplay of extrinsic growth factor signals, LIF and BMP, and intrinsic transcriptional determinants, Oct4 and Nanog.

Recent Publications

1. Chambers, I. and Smith, A.G. (2004) Self-renewal of teratocarcinoma and embryonic stem cells. Oncogene 23: 7150-7160

2. Conti, L, Pollard, S.M., Gorba, T., Reitano, E., Toselli, M., Biella, G., Sun, Y., Sanzone, S, Ying, Q.-L., Cattaneo, E. and Smith, A.G. (2005) Niche-Independent Symmetrical Self-Renewal of a Mammalian Tissue Stem Cell PLoS Biology 3: 1596-1606

3. Lowell, S., Benchoua, A., Heavy, B. and Smith, A. (2006) Notch coordinates neural lineage entry by pluripotent embryonic stem cells. PLoS Biology 4: e121

4. Silva, J., Chambers, I., Pollard, S. and Smith A. (2006) Nanog promotes transfer of pluripotency after cell fusion. Nature 441: 997-1001

Host:

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