CDB SEMINAR

Tilo Kunath

MRC Centre for Regenerative Medicine, UK

Tuesday, June 2, 2009

15:00~16:00 C1F Auditorium

Towards generation of visceral endoderm from XEN cells

The establishment of extraembryonic endoderm (XEN) cell lines from mouse blastocysts and embryonic stem (ES) cells has provided a promising tool to model early developmental events. In the current culture conditions XEN cells closely resemble parietal endoderm. To improve the utility of this cell culture model we have been investigating ways to generate visceral endoderm and its various subtypes. Visceral endoderm is known to directly influence epiblast development through several inductive (and anti-inductive) events. The parietal endoderm is important for early nutritive support of the embryo, but it does not possess any known patterning properties. It is known that primitive and visceral endoderm are E-cadherin-positive while parietal endoderm is E-cadherin-negative. We have used this cell surface adhesion molecule to quantitatively assess the levels of visceral versus parietal endoderm in different conditions. We have found that (i) cell density, (ii) TGFbeta superfamily signalling, and (iii) type of extracellular matrix significantly influence the presence of E-cadherin-positive visceral endoderm within XEN cell cultures. We also suggest that parietal endoderm is not a terminally differentiated cell type, and that parietal endoderm can directly differentiate into visceral endoderm. The generation of all extraembryonic endoderm subtypes from XEN cells will be a significant step towards modeling early developmental events ex vivo.

Host:
Hitoshi Niwa
Pluripotent Cell Studies, CDB
niwa@cdb.riken.jp
Tel:078-306-1930 (ext:1461)