25th Stem Cell Club Meeting

(Organised by the Stem Cells Research Singapore Website Committee http://www.stemcell.edu.sg)

Date: July, 12th, 2007 (**Thursday!**)
Time: 5:30 pm
Venue: Aspiration, Level 2M, Matrix

Host: Sai Kiang Lim

Time	Title	Speakers
5:30-6:00	**Regulation of embryonic stem cell pluripotency and self-renewal by the transcriptional regulation of *Oct4* and multiple lineage pathways**	**Tam Wai Leong** *GIS, Singapore*
6:00-6:45	**Tracing Cell Lineages in Human Tissues: Stem Cell Behaviour Unearthed**	**Malcolm Alison** *Imperial College, London*

7:00 - Wine and Cheese
(at Invitrogen facilities, 4th floor, Chromos)

Regulation of embryonic stem cell pluripotency and self-renewal by the transcriptional regulation of *Oct4* and multiple lineage pathways

Tam Wai Leong, GIS, Singapore

Several essential regulators are involved in maintaining the fine balance between self-renewal and differentiation in embryonic stem cells (ESCs). While Oct4 and Nanog are essential for keeping mouse ESCs in an undifferentiated state, up-regulation of Oct4 drives ESCs into the endoderm lineage, whereas elevation of Nanog blocks their ability to differentiate. Here, we report that T-cell factor 3, Tcf3, acts as a repressor of *Oct4* transcription and depletion of Tcf3 limits the ability of mouse ESCs to differentiate *in vitro* and *in vivo*. Chromatin immunoprecipitation (ChIP) analysis revealed that Tcf3 binds to the *Oct4* promoter, and the repressive effect requires both the Groucho and CtBP interacting domains of Tcf3. Genome-wide analyses of Tcf3 occupancy in ESCs further revealed that Tcf3 regulates many other genes important for maintaining pluripotency and also those required for lineage commitment. These data demonstrate an important role for Tcf3 in modulating the appropriate level of gene transcription in ESCs.

Tracing Cell Lineages in Human Tissues: Stem Cell Behaviour Unearthed

Malcolm Alison

To be added