東京医学会

東京医学会　第　回集会

日時：平成 24 年 12 月 20 日（木）　16：00〜17：00

場所：医学部二号館（本館）　1 階　小講堂

演者：　Ken W. Cho 博士

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演題：　Mapping and quantitating the spatiotemporal activities of BMP signaling in preimplantaion mouse embryos.

要旨：

本セミナーでは初期発生における骨形成因子(BMP)研究の第一人者である Cho 博士にマウス初期胚における BMP シグナルについてご講演いただきます。

Cells of the mammalian early embryo differentiate to become either the blastocyst's inner cell mass (ICM) or outer trophectoderm (TE) after reaching the 16-cell stage. Transcriptional factors such as Oct4, Nanog, Sox2 and Cdx2 interact closely to maintain sophisticated transcriptional networks to preserve pluripotency while allowing specific lineage selections to take place. While essential roles of these TFs and their regulatory interactions are extensively demonstrated for the specification of ICM and TE lineages, surprisingly little is know about the roles of secreted signaling factors during this process. Using a BMP activity reporter transgene we discovered that differential BMP signaling activities are present within the blastocyst. To identify its function, we inhibited BMP signaling and revealed that BMP signaling affects both cell proliferation and cell fate specification. To precisely determine the differential BMP signaling activities in blastocysts, we quantified p-Smad1 activity in embryos by confocal imaging and applied a 3D segmentation approach. Segmentation of individual cells makes it possible to quantify characteristics such as the shape and volume of the cell and nucleus. Here, I will demonstrate how we map and quantitate the spatiotemporal activities of BMP signaling in a whole embryo, and discuss the function of BMP signaling in preimplantation mouse embryos.

主催：東京医学会

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