CDB SEMINAR

Speaker: Toru Kondo

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http://www.brc.cam.ac.uk/ToruKondo.htm

Title: " Oligodendrocyte precursor cells, neural stem cells, and cancer stem cells "

Date: Monday, November 1

Time: 16:00 P.M.～17:00 P.M.

Place: 7th floor Conference Room of Building A, CDB

Summary

OPCs are the best-characterized precursor cells in the central nervous system (CNS). Purified OPCs can differentiate into either oligodendrocytes or a special type of astrocyte called the type2 astrocyte (2A), although there is no convincing evidence that OPCs normally develop into 2As *in vivo*. We have shown that OPCs can also revert to multipotent neural stem-like cells (NSLCs), which can self-renew and produce neurons and type1 astrocytes, as well as oligodendrocytes and 2As. Recently we have found that *sox2* expression is reactivated during the process of OPC reversion and that its expression is regulated by the Brahma (Brm)-containing SWI/SNF chromatin remodeling complex and histone modification, suggesting that epigenetic modification in the *sox2* gene is crucial for the reversion process. Moreover, we have shown that C6 glioma cell line, which was thought to derive from either neural stem cells (NSCs) or some glial cells that can convert to NSLCs, contains a small side population (SP), which is enriched for stem cells in many tissues, and that such C6 SP cells self-renew in culture and dominantly form metastatic tumors when transplanted in vivo, suggesting that the SP cells (cancer stem cells) might be crucial target for curable cancer therapy. Thus, detail analysis of OPC reversion might provide new methods for CNS regenerative medicine and for glioma therapy.

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