

DANDRITE Topical Seminar

Friday 26 May 2017
at 9.00 – 10.00

Building 1170, room 347 (Aud. 6), Aarhus University

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Seminar on “Regulation of neural stem cells by the microenvironment.”

Short resume of research activity: Since 2004, I develop a research activity focused on the mechanisms that control the stem cells of the brain. In this context, we have addressed in mice models, for more than ten years the capacity of molecules locally produced in the brain (ie the microenvironment) to regulate brain stem cells. This led us to discover novel regulators of brain stem cells. Specifically, we identified that the growth factor HGF (hepatocyte growth factor) is produced by brain stem cells and controls their proliferation (Stem Cells, 2009, 27, 408-419). Also, we found that a protein previously known for its role in blood coagulation (a vitamin K dependent protein), is expressed by neural stem cells and controls brain stem cell proliferation and differentiation (Stem Cells, 2012, 30, 719-731). Furthermore, we recently discovered that brain stem cells in addition to their capacity to engender new cells are able of removing the debris of dead cells (Stem Cells 2015, 33, 515-25). This latter is all the more interesting as inefficient removal of dead cells leads to major functional impairments and to pathologies. In the light of these results, we undertook during the last two years to decipher how the brain stem cells are able to integrate all information they receive in order to generate a response. In our ongoing studies, we have identified that some calcium channels are key molecules that integrate the signals arriving to brain stem cells and that they are major actors of the maintenance of brain stem cells.

Host: Group Leader Mark Denham, DANDRITE, Dept. of Biomedicine, Aarhus University