## conferenceseries.com

7<sup>th</sup> Annual Conference on

## **Stem Cell and Regenerative Medicine**

August 04-05, 2016 Manchester, Uk

## Regulation of hippocampal neural stem cell fate

Verdon Taylor<sup>1</sup>, Chiara Rolando<sup>1</sup>, Andrea Erni<sup>1</sup>, Robert Beattie<sup>1</sup>, Anna Engler<sup>1</sup>, Alice Grison<sup>1</sup>, Paul J Gokhale<sup>2</sup>, Marta Milo<sup>2</sup>, Thomas Wegleiter<sup>3</sup> and Sebastian Jessberger<sup>3</sup>

<sup>2</sup>University of Sheffield, UK <sup>3</sup>University of Zurich, Switzerland

Multi-lineage neuronal, astrocytic and oligodendrocytic potential is a cardinal neural stem cell (NSC) trait. In the neurogenic zones of the adult mouse brain, NSCs in the sub-ventricular zone generate oligodendrocytes as well as neurons and astrocytes. In stark contrast, NSCs in the adult hippocampal dentate gyrus (DG) generate only granule neurons and astrocytes but never oligodendrocytes *in vivo*. It remains unclear how this cell fate restriction is controlled. Interestingly, DG NSCs also fail to generate oligodendrocytes *in vitro* suggesting that they have an intrinsic fate restriction. We have studied this fate restriction of DG NSCs and identified a novel cell intrinsic mechanism controlling NSC maintenance, neurogenesis and gliogenesis in the hippocampus *in vivo* and of DG NSCs *in vitro*. I will discuss our findings about how directed mRNA stability changes DG NSC fate and controls the production of oligodendrocytes. These findings have major implications not only for the cell fate determination of NSCs and potentially other stem and progenitor cells outside the nervous system but also for therapeutic intervention for regulated cell replacement.

## Biography

Verdon Taylor is Professor of Embryology and Stem Cell Biology in the Department of Biomedicine of the University of Basel, Switzerland. His group studies neural stem cell maintenance and differentiation. Using genetic approaches, he addresses the signaling mechanisms that regulate neurogenesis during development and in the adult mammalian brain. In addition; he is interested in the role of endogenous stem and progenitor cells in brain tumor formation and in niche pathways that are potentially hijacked by tumor initiating cells. He has published more than 50 original papers in the area of stem cells.

verdon.taylor@unibas.ch

Notes: