Magdalena Götz
Professor and Chair of Physiological Genomics
Institute of Stem Cell Research, Helmholtz Center Munich, Germany.
Biomedical Center, University of Munich, Germany

TITLE: Reactivation of neurogenesis after brain injury- from mechanisms to functional integration

ABSTRACT
The gold standard of understanding a process is to be able to elicit it when it normally does not occur. Direct reprogramming showed that this works in principle, but much is still to be learnt in terms of the mechanisms of reprogramming especially in vivo. I will talk first about the mechanisms of neurogenesis and evoking it in cells that normally do not generate neurons in vitro. I discuss in particular unpublished data addressing the molecular events when turning e.g. glial cells into different types of neurons allowing to answer basic principles of establishing cell (in this case neuronal) diversity. I will then move to discuss fundamental aspects of the process of direct conversion of glia or fibroblasts into functional neurons that lead us into the metabolic constraints of this fate conversion. Key factors beyond the classic neurogenic transcription factors shed not only new light on the reprogramming process but also prove to be especially critical in the environment of invasive brain injury in vivo. This will then bring us to the key question of functional integration of such new neurons into preexisting neuronal circuits for repair.

RECENT PUBLICATIONS


-Dimou L and Götz M. (2014) Glial cells as progenitors and stem cells: new roles in the healthy and diseased brain. Physiol Rev. 94:709-37


