DANDRITE
Danish Research Institute of Translational Neuroscience
Nordic EMBL Partnership for Molecular Medicine

DANDRITE Topical Seminar

by postdoctoral candidate Bhavin Shah

Monday 25 January 2016
From 11:15 – 12:00

Room 240, building 1170, 2nd floor
Aarhus University, Dept. Biomedicine,
Ole Worm's Allé 3, 8000 Aarhus C

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The role of Rap1 GTPases during neuronal polarization and cortical development

During the development of the mammalian neocortex, the generation of neurons by neural progenitors and their migration to the final position are closely coordinated. The highly polarized radial glial cells (RGCs) serve both as progenitor cells to generate neurons and as support for the migration of these neurons. After their generation, neurons transiently assume a multipolar morphology before they polarize and begin their migration along the RGCs.
Here,we show that Rap1 GTPases perform essential functions for cortical organization as master regulators of cell polarity.
Conditional deletion of Rap1 GTPases leads to a complete loss of cortical lamination. In RGCs, Rap1 GTPases are required to maintain their polarized organization. In newborn neurons, the loss of Rap1 GTPases prevents the formation of axons and leading processes and thereby interferes with radial migration.
Taken together, the loss of RGC and neuronal polarity results in the disruption of cortical organization.

Host:
Group Leader Keisuke Yonehara, DANDRITE, Dept. Biomedicine, Aarhus University