**SRSF10 regulates proliferation of neural progenitor cells and affects neurogenesis in developing mouse neocortex**

Junjie Li, Xianhua Chen et al. Iscience. July 21, 2023

Presenter: Chieh-Chih Lin Date/Time: 2024/10/31, 16:10 -17:00

Commentator: Dr. Shang-Hsun Yang Location: Room 601, Med College Building

**Background**:

Proliferation of neural progenitor cells (NPCs) and neurogenesis are two critical processes in the early cortical development. Cortical neurons, including excitatory neurons and inhibitory interneurons, are all originated from NPCs. In short, neuroepithelial cells (NECs) undergo self-amplification and transition into radial glial cells (RGCs). SRSF10, a member of SR protein family, is a splicing factor highly expressed in central nervous system, and plays an important role in maintaining normal brain functions. However, its role in neural development is unclear. Therefore, the authors attempt to explore the role of SRSF10 during the development of embryonic

**Objective:**

Proving SRSF10 is necessary for the formation of a functional brain.

**Results:**

In the study, they found that SRSF10 is expressed in NPCs. After the authors generated Srsf10 flox/flox mice, they observed that the mice had significantly dilated ventricle and significantly thinned cortex. Also, the number of mature neurons decreased significantly in the cortex of knockout mice. The authors also showed SRSF10 was involved in neurogenesis and lack of SRSF10 reduced the proliferation ability of NPCs. Furthermore, the PI3K-AKT signaling pathway, which is associated with cell proliferation, was significantly down-regulated upon SRSF10 knockdown. It suggests that SRSF10 participates in the proliferation process of NPCs by regulating the PI3K-AKT-mTOR-CCND2 signaling pathway.

**Conclusion:**

In this paper, they found that the downregulation of SRSF10 in NPCs of mouse brains leads to abnormal neurogenesis, suggesting SRSF10 expression is important in the formation of a structurally and functionally normal neocortex.