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journal homepage: www.elsevier.com/locate/semcdb

Review

Early patterns of activity in the developing cortex: Focus on the sensorimotor system

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ARTICLE INFO

Article history:

Received 10 May 2017

Received in revised form 7 September 2017

Accepted 8 September 2017

Available online xxx

Keywords:

Neonate

Electroencelegraphy

Neuronal networks

Development

Fetal movements

Sensorimotor cortex

ABSTRACT

Early development of somatotopic cortical maps occurs during the fetal period in humans and during the postnatal period in rodents. During this period, the sensorimotor cortex expresses transient patterns of correlated neuronal activity including delta waves, gamma- and spindle-burst oscillations. These early activity patterns are largely driven by the thalamus and triggered, in a topographic manner, by sensory feedback resulting from spontaneous movements. Early cortical activities are instrumental for competitive interactions between sensory inputs for the cortical territories, they prevent cortical neurons from apoptosis and their alteration may lead to disturbances in cortical network development in a number of neurodevelopmental diseases.

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<http://dx.doi.org/10.1016/j.semcdb.2017.09.014>

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