

Glutamatergic cortical neurogenesis By Benedikt Berninger and Abcam

Temporal development of the neocortex

Progenitor domains of developing forebrain Dorsal pallium Cortical hem Ventral pallium Dorsal lateral ganglionic eminence Ventral lateral ganglionic eminence Medial ganglionic eminence The dorsal part of the mouse (E 12.5) forebrain from the medial ganglionic eminence (MGE) of the purple area) is the germinative zone for various ventral forebrain (grey area) from whence they kinds of excitatory neurons of the neocortex (using migrate tangentially into the neocortex. the transmitter glutamate) as well as cortical Mutual negative loops of transcription factors define astrocytes and some oligodendrocytes. the boundary between the domains of the dorsal and n contrast, most, if not all, cortical interneurons ventral forebrain. inhibitory neurons using the transmitter GABA) arise

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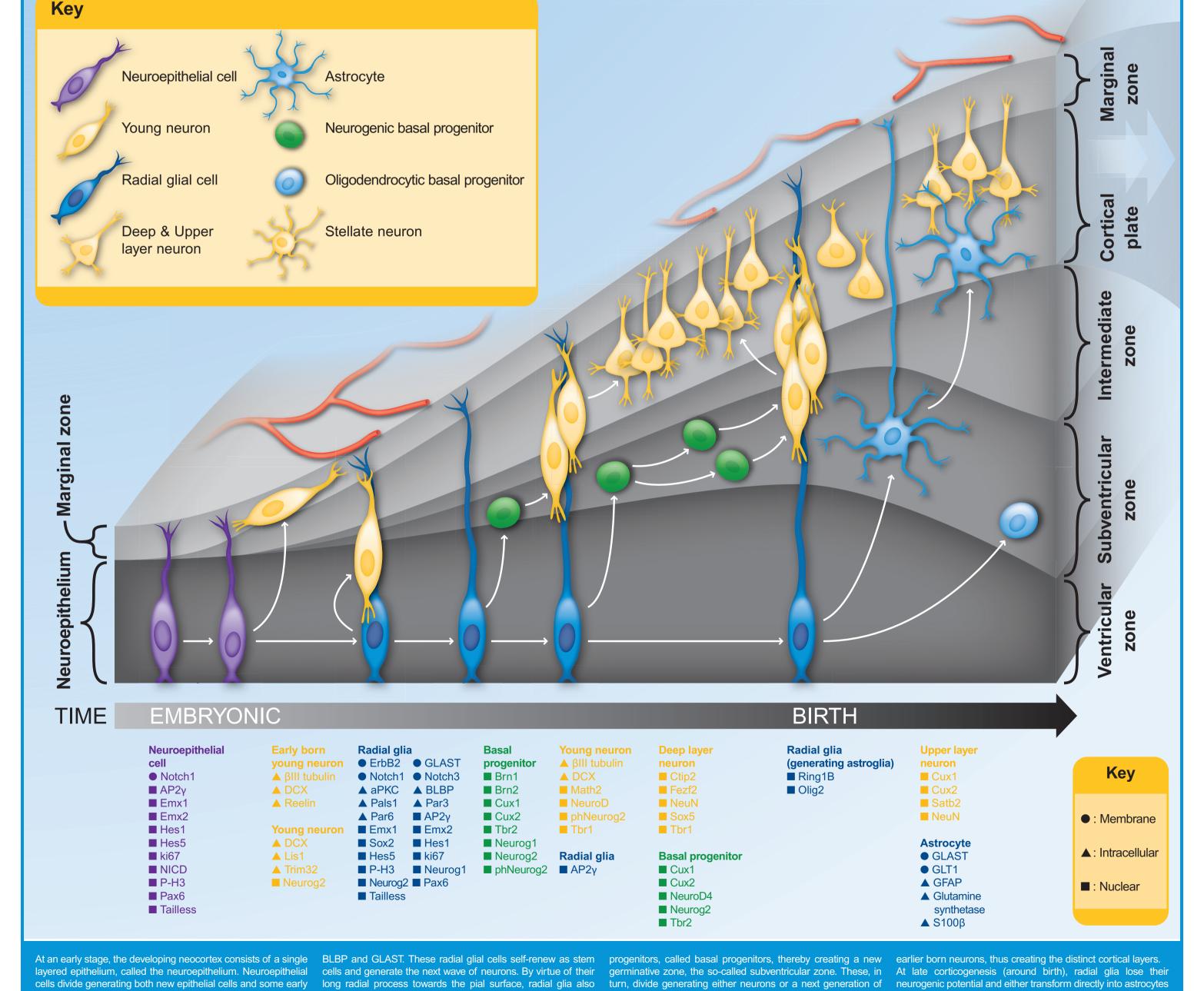
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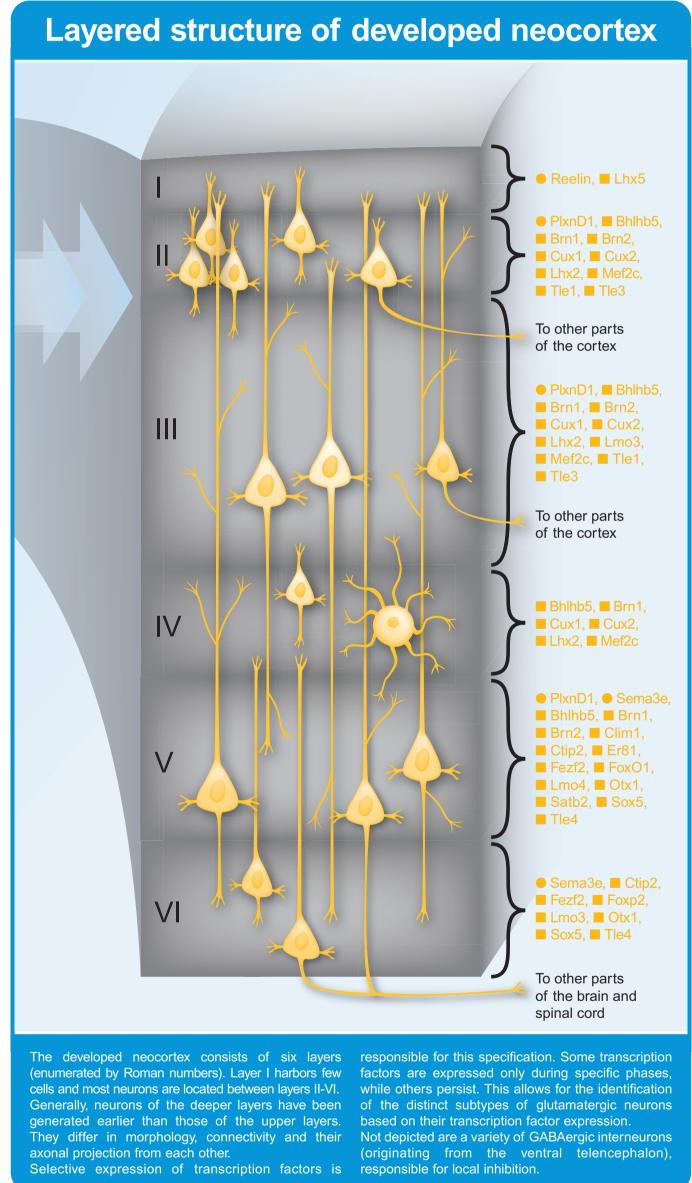
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rocess which involves upregulation of glial markers such as At later stages, radial glia begin to give rise to new types of they settle in an inside-out fashion, i.e. later born neurons pass oligodendrocytes or transform into ependymal cells (not depicted).

neurons (Cajal-Retzius cells) which settle in the marginal zone. serve as a scaffold for the migration of neurons towards the basal progenitors. Subsequently, neuroepithelial cells transform into radial glia, a developing cortical plate.



Neurons continue to migrate towards the cortical plate where Some of the radial glia also generate progenitors for

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