

# Meninges harbor cells expressing neural precursor markers during development and adulthood

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Brain and skull developments are tightly synchronized allowing the cranial bones to dynamically adapt to the brain shape. Meninges are the stromal tissue that represents the physical interface between brain and skull. Meningeal cells produce trophic signals necessary for normal corticogenesis and bone development. Different cell populations have been described in meninges including cells that can function as endosteum of the cranial vault. Recently, we and other groups described the presence in meninges of a cell population endowed with neural differentiation potential in vitro and, after transplantation, in vivo. However, whether meninges may be a niche for neural progenitor cells during embryonic development to adulthood is not known.

In this work we provide the first description of the distribution of neural precursor markers in rat meninges during development up to adulthood. We describe that meninges share common properties with the classical neural stem cell niche: i) meninges are unexpected highly proliferative tissue; ii) they contain cells expressing neural precursor markers such as nestin, vimentin, SOX2 and DCX and iii) meningeal tissue is enriched with extracellular matrix components (fractones) known to bind and concentrate growth factors.

This study underlines the importance of meninges as a potential niche for endogenous precursor cells during development and in adulthood.