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[\[PDF \(2570K\)\]](#) [\[References\]](#)**Stem cell factor induces heterotopic accumulation of cells (heterotopia) in the mouse cerebral cortex**[Hitomi Soumiya](#)<sup>1)</sup>, [Hidefumi Fukumitsu](#)<sup>1)</sup> and [Shoei Furukawa](#)<sup>1)</sup>

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**ABSTRACT**

The stem cell factor (SCF)-c-kit signal transduction pathway plays an important role in the proliferation and migration of neural progenitor cells, but little is known about its function during the development of the cerebral cortex. We investigated the effects of SCF by directly administering it into the telencephalic ventricular space of 13.5-day-old mouse embryos. SCF produced the heterotopic accumulation of cortical cells in several distinct area of the cerebral cortex at the postnatal stage, including the subcortical periventricular area, marginal zone, and lateral ventricular space. Additional analysis revealed that the heterotopia included both neurons and astrocytes and that SCF initially increased the number of neural stem cells without affecting that of intermediate progenitors and also disturbed their organization. These results suggest that SCF alters the timing of the genesis and migration of neural stem/progenitor cells, which may lead to formation of the observed heterotopia.

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