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1: [Cancer Cell](#). 2008 Aug 12;14(2):135-45.

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**Medulloblastoma can be initiated by deletion of Patched in lineage-restricted progenitors or stem cells.**

[Yang ZJ](#), [Ellis T](#), [Markant SL](#), [Read TA](#), [Kessler JD](#), [Bourboulas M](#), [Schüller U](#), [Machold R](#), [Fishell G](#), [Rowitch DH](#), [Wainwright BJ](#), [Wechsler-Reya RJ](#).

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Medulloblastoma is the most common malignant brain tumor in children, but the cells from which it arises remain unclear. Here we examine the origin of medulloblastoma resulting from mutations in the Sonic hedgehog (Shh) pathway. We show that activation of Shh signaling in neuronal progenitors causes medulloblastoma by 3 months of age. Shh pathway activation in stem cells promotes stem cell proliferation but only causes tumors after commitment to-and expansion of-the neuronal lineage. Notably, tumors initiated in stem cells develop more rapidly than those initiated in progenitors, with all animals succumbing by 3-4 weeks. These studies suggest that medulloblastoma can be initiated in progenitors or stem cells but that Shh-induced tumorigenesis is associated with neuronal lineage commitment.

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