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Neural stem cells: balancing self-renewal with differentiation.

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Stem cells are captivating because they have the potential to make multiple cell types yet maintain their undifferentiated state. Recent studies of *Drosophila* and mammalian neural stem cells have shed light on how stem cells regulate self-renewal versus differentiation and have revealed the proteins, processes and pathways that all converge to regulate neural progenitor self-renewal. If we can better understand how stem cells balance self-renewal versus differentiation, we will significantly advance our knowledge of embryogenesis, cancer biology and brain evolution, as well as the use of stem cells for therapeutic purposes.

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