

## *Transitioning from proliferation to a post-mitotic state in development.*



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Cells in multicellular organisms frequently enter long-term non-mitotic or quiescent states. Quiescent states may be reversible, as in the case of resting stem cells, but may also be permanent, as is the case for many terminally differentiated cells such as mature neurons, differentiated epithelia or muscle. How are these quiescent states controlled and why are some reversible while others are not? Our studies use genetic tools in *Drosophila* and mammalian cells to address these questions by investigating how terminal differentiation signals impinge on the cell cycle machinery to induce and maintain a stable post-mitotic state.