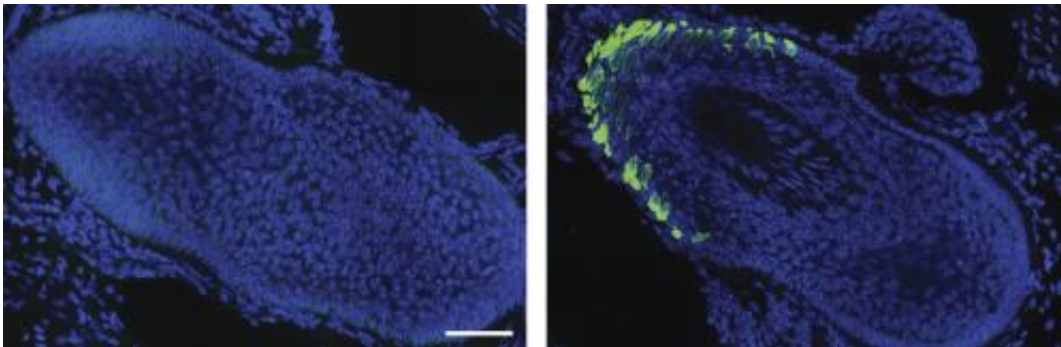


Cells take sole responsibility for Merkel cell maintenance

January 26 2015



After six months, whisker follicles in adult mice lacking Atoh1-expressing progenitor skin cells (left) have a deficiency of Merkel cells (green) compared with a control group (right). Credit: Wright et al., 2015

Researchers have identified a population of "progenitor" cells in the skin that are solely responsible for the generation and maintenance of touch-sensing Merkel cells. The study appears in *The Journal of Cell Biology*.

Merkel cells are unique cells located in the epidermis, the outermost layer of the skin. Through connections to nerve endings, Merkel cells play critical roles in our sense of touch. They are hypothesized to be the cells that undergo cancerous transformation and cause Merkel cell carcinoma, an aggressive form of skin cancer with no effective treatment.

Merkel cells require a transcription factor called *Atoh1* for their specification. But the identity of the progenitor, or [stem cells](#), that give rise to Merkel cells during embryonic development and adulthood is unclear. In the study, Stephen Maricich and colleagues identified a subpopulation of *Atoh1*-expressing cells in hair and whisker follicles within mouse skin that exclusively give rise to Merkel cells during development and adulthood. Removing *Atoh1*-positive skin cells in adult mice led to a permanent reduction in Merkel cell numbers, showing that other stem cell populations are incapable of producing Merkel cells.

Importantly, the findings suggest that, if Merkel cell carcinoma does arise from Merkel cell progenitors, then *Atoh1*-positive Merkel cell precursors could be the cells of origin. This discovery will therefore help researchers dissect the cell-specific events mediating tumorigenesis in the particular case of Merkel cell carcinoma.

More information: Wright, M.C., et al. 2015. *J. Cell Biol.* [DOI: 10.1083/jcb.201407101](https://doi.org/10.1083/jcb.201407101)

Provided by Rockefeller University Press

Citation: Cells take sole responsibility for Merkel cell maintenance (2015, January 26) retrieved 29 April 2024 from <https://phys.org/news/2015-01-cells-sole-responsibility-merkel-cell.html>

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