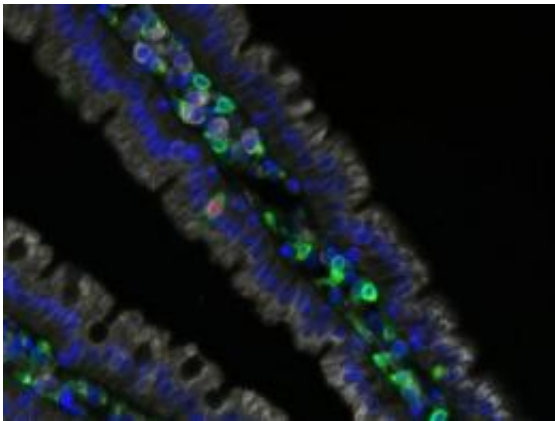


# Researchers define a new type of secretory cell in the intestine

March 7 2011

---



Gerbe et al. define tuft cells as a new secretory lineage in the intestine. These rare cells can be distinguished from the four other main cell types of the intestinal epithelium by their co-expression of SOX9 (red) and COX1 (green). Microtubules are shown in white. Credit: François Gerbe

The intestinal epithelium consists of four main specialized cell lineages: absorptive enterocytes and three secretory cell types known as enteroendocrine, Paneth, and goblet cells. But a rare, fifth type of intestinal cell called tuft cells also exists. Defined by the thick brush of long microvilli that project from their apical surface, tuft cells are seen in several epithelial tissues, yet little is known about their function due to a lack of tuft cell-specific markers.

In the March 7 issue of *The Journal of Cell Biology*, a team of French

researchers led by Philippe Jay identified a unique "signature" of proteins expressed by tuft cells. Like other intestinal cell types, tuft cells turned over rapidly and were replaced by the differentiation of proliferative stem cells' progeny in the intestinal crypts. This differentiation was blocked in the absence of ATOH1—a transcription factor required for the development of all intestinal secretory lineages. Yet tuft cell differentiation didn't require other transcription factors that specify enteroendocrine, Paneth, and goblet cells, suggesting that tuft cells represent a distinct lineage of intestinal secretory cells.

The team found that tuft cells secrete opioids and produce enzymes that synthesize prostaglandins. The latter observation suggests that tuft cells may promote inflammation and tumorigenesis. Indeed, the researchers identified tuft cell–like cells in several early stage intestinal tumors. To really understand tuft cells' function, however, Jay hopes to identify transcription factors uniquely required for their development in order to generate mice that specifically lack tuft cells from their intestinal epithelium.

**More information:** Gerbe, F., et al. 2011. J. Cell Biol.  
[doi:10.1083/jcb.201010127](https://doi.org/10.1083/jcb.201010127)

Provided by Rockefeller University

Citation: Researchers define a new type of secretory cell in the intestine (2011, March 7)  
retrieved 23 April 2024 from <https://phys.org/news/2011-03-secretory-cell-intestine.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.
---