

# Cell skeleton and the brush border

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The epithelial cells lining organs like the intestines and kidneys build a special surface called the "brush border," which consists of a dense array of finger-like protrusions.

Irina Kaverina, Ph.D., Matthew Tyska, Ph.D., and colleagues in Argentina explored the role of microtubules—part of the cellular "skeleton"—in building the [border](#), which is critical for healthy organ function.

The investigators used a cell model of individual intestinal cell polarization (the establishment of "sidedness") and found that disruption of microtubules prevented brush border formation. They confirmed the findings in cultured kidney [cells](#).

They demonstrated that the microtubules essential for brush border development derived from the centrosome, not the Golgi, and that overexpression of a protein associated with microtubule plus ends facilitated brush border formation.

The findings, reported in the February issue of the *Journal of Cellular Physiology*, reveal a role for microtubules in the organization of the brush border and a novel mechanism of [microtubule](#) regulation of epithelial polarity.

**More information:** Facundo M. Tonucci et al. Microtubules regulate brush border formation, *Journal of Cellular Physiology* (2017). [DOI: 10.1002/jcp.26033](https://doi.org/10.1002/jcp.26033)

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