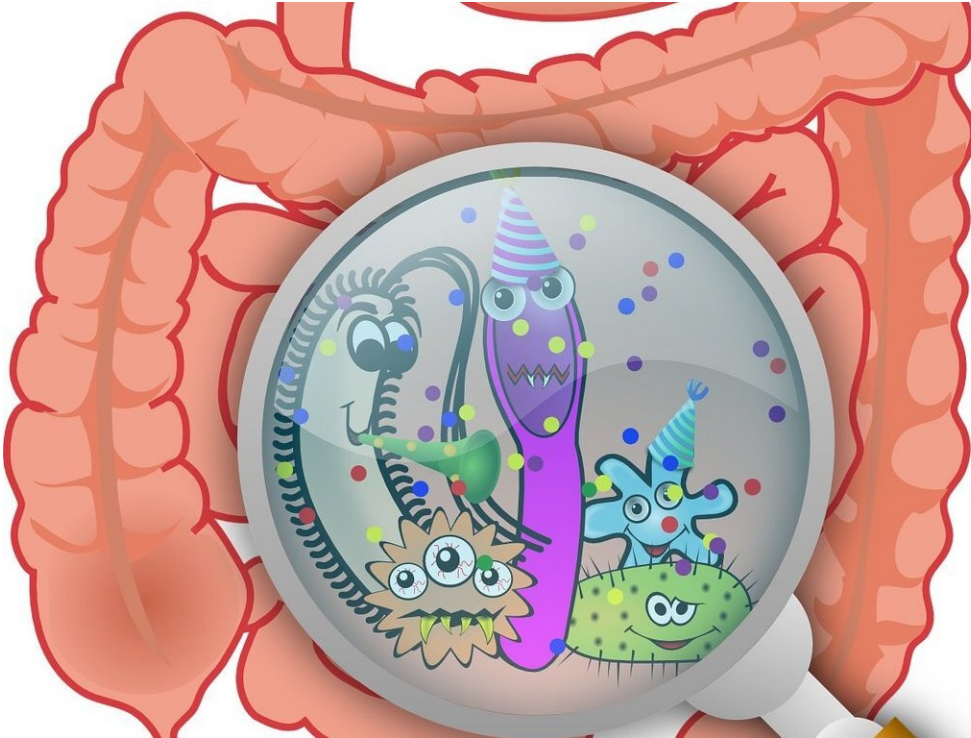


# How microvilli form

September 24 2018, by Sanjay Mishra

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The gut is lined by cells containing brush borders, which are composed of arrays of microvillar protrusions that help in nutrient absorption and provide a barrier against pathogens and toxins. Microbes such as *E. coli* can destroy microvilli with potentially life-threatening results. But how microvilli form has not been well understood.

Using super-resolution microscopy and [live cell imaging](#), Matthew Tyska, Ph.D., and colleagues show that a protein called insulin [receptor tyrosine kinase](#) substrate (IRTKS) promotes microvilli elongation. They previously discovered that IRTKS is the only protein in the intestinal brush border containing an I-BAR domain. I-BAR proteins help form membrane protrusions.

Reporting this month in the journal *Current Biology*, the researchers showed that IRTKS tracks to the distal tips of growing microvilli through the I-BAR domain. These results help explain why IRTKS is targeted by the gut pathogens that disrupt microvilli during infection of the intestinal lining.

**More information:** Meagan M. Postema et al. IRTKS (BAIAP2L1) Elongates Epithelial Microvilli Using EPS8-Dependent and Independent Mechanisms, *Current Biology* (2018). [DOI: 10.1016/j.cub.2018.07.022](https://doi.org/10.1016/j.cub.2018.07.022)

Provided by Vanderbilt University

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