

Adaptation to an extreme environment

The biological role of a potassium channel in a pathogen that colonizes the stomach is characterized in a study to be published online this week in *The EMBO Journal*.

Potassium is the most abundant ion inside all living cells and is essential for many bacterial processes including growth and protein biosynthesis. Kerstin Stingl and colleagues studied *Helicobacter pylori*, an unusual bacterium in that it lacks all known potassium uptake systems, but instead has one putative potassium channel, HpKchA. They show for the first time that this channel is essential for potassium uptake into *H. pylori* at low external concentrations, and for colonization of the mucus lining of the stomach. The role of HpKchA as a bulk potassium uptake system represents an adaptation to the hostile but competitor-free gastric environment.

These findings follow recent reports that *H. pylori* is involved in several gastric pathologies, including chronic gastritis, gastric and duodenal ulcers, and gastric cancer. They not only underline the role of HpKchA as a unique potassium uptake system for *H. pylori*, but suggest the importance of the channel for the survival of *H. pylori* in the gastric environment. The authors therefore propose that their results may have implications for drug development to treat *H. pylori*-associated gastric diseases.

Channel-mediated potassium uptake in *Helicobacter pylori* is essential for gastric colonization

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10.1038/sj.emboj.7601471

<http://www.nature.com/emboj/journal/vaop/ncurrent/abs/7601471a.html>

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