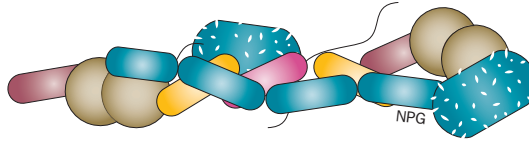


GUT MICROBIOTA

A 'friendly' gut virus?



The beneficial effects of commensal bacteria are well known, and now new evidence shows that some eukaryotic viruses in the gut might be just as 'friendly', supporting intestinal homeostasis and helping to shape gut mucosal immunity in mouse models.

In the new study, Ken Cadwell and colleagues compared the effects of murine norovirus (MNV) to that of commensal bacteria in both germ-free mice and mice treated with antibiotics. They showed that infection with MNV in germ-free mice restored morphological abnormalities of the intestine (such as thin villi) and lymphocyte function without inducing overt inflammation and disease, similar to restoration with commensal bacteria. The same positive benefits of MNV infection were observed in antibiotic-treated adult mice.

The researchers then assessed the potential protective effects of MNV. They

found that antibiotic treatment in mice led to increased sensitivity to dextran sodium sulphate, a chemical that induces intestinal damage. Strikingly, chemical-induced intestinal injury killed more antibiotic-treated mice than controls, yet infection with MNV improved survival of these antibiotic-treated mice.

"Infection by a single animal virus can replace many of the functions performed by an entire community of bacteria," says Cadwell. The researchers plan further work to understand the mechanisms by which MNV induces these beneficial changes in the host, and hope that the importance of the human virome can be fully appreciated in the near future.

Katrina Ray

Original article Kernbauer, E. *et al.* An enteric virus can replace the beneficial function of commensal bacteria. *Nature* doi:10.1038/nature13960