Background:

Helicobacter spp. are microaerobic, curved to spiral bacterial rods with a variable number of flagella. The prototypical species is *H. pylori* which causes chronic gastritis, ulcers, and gastric cancer disease in humans, however gastric disease is not a feature in rodent *Helicobacter* infections. A wide variety of animals are affected by various *Helicobacter* species which tend to show narrow host ranges, although are not necessarily species specific. The most common infections in mice appear to be caused by *H. hepaticus*, *H. bilis*, *H. typhlonius*, and *H. rodentium*.

Transmission occurs via the fecal-oral route and the bacteria is easily spread by contaminated bedding. Clinical affects vary widely and depend mostly on the immune competency of the mouse strain. A/J, SCID, BALB/c, C3H and SJL mice may be more susceptible, while B6 mice are more resistant. Pathology can include hepatitis, hepatic tumors, typhlocolitis, and proctitis. Infections are persistent with long-term shedding and, although most vendor programs have eliminated *Helicobacter*, it continues to be endemic in most research colonies.

Helicobacter is diagnosed in most cases by PCR testing of fecal samples, other methods such as culture are much more time-consuming. Treatment of this bacteria is often unrewarding and labor-intensive. Diets containing multiple antibiotics are being investigated as a more efficient method and may allow for eradication of Helicobacter with 8-12 weeks of treatment.

Research Effects:

Although *Helicobacter* has been considered a pathogen of little concern for the majority of mice, there is still much that is unknown about how it could affect certain types of research and/or strains, especially those involving the immune system, liver, or tumor formation. Ongoing studies with this bacteria will allow for a better understanding of its physiological effects and scientists should be aware that future recommendations regarding this organism may change.

Prevention/Control:

Every attempt is made to only acquire animals from approved vendors with documented histories of *Helicobacter*-free mice. However, it is endemic in CSU animal facilities and to date, there has not been an investigator driven need for eradication. Therefore, we will accept *Helicobacter*-positive mice from other institutions.

There are currently no special containment procedures being used to control *Helicobacter*. If you have concerns about possible effects on your research mice, please do not hesitate to contact us.

References:

Percy DH, Barthold SW. *Pathology of Laboratory Rodents and Rabbits.* Ames: Iowa State University Press; 2007.

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Whary MT, Fox JG. 2004. Overview: Natural and Experimental *Helicobacter* Infections. Comp Med 54: 128-158.