



Nobel Prize Recognizes Research Tying *H. pylori* to Ulcers

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Barry J. Marshall, a gastroenterologist from the University of Western Australia, Nedlands, and a member of ASM, along with J. Robin Warren, a pathologist from Perth, Australia, are sharing the 2005 Nobel Prize in Physiology or Medicine. The two are being recognized for identifying the bacterium *Helicobacter pylori* and determining its role in gastritis and peptic ulcer disease. In determining that *H. pylori* infections are extremely common among humans and thus responsible for many cases of peptic ulcer disease, their findings helped to stimulate the search for microbes that might underlie other chronic medical conditions.

These efforts date to 1979, when Warren spotted small curved bacteria in biopsies from the lower stomach of his patients. In 1982, Marshall joined with Warren in an effort to grow and identify the bacteria. After several failed attempts, Marshall succeeded unattended over a long weekend and found colonies containing the spiralshaped, gram-negative bacteria when he returned.

The pair began studying patients with ulcers and gastritis, inflammation of the stomach leading to ulcers, and found that the organism was present in samples from a majority of such patients. However, skeptics claimed that bacteria could not withstand the harsh, acidic environment of the upper digestive tract. To disprove that criticism, Marshall ingested *H. pylori*, making himself violently ill with severe gastritis—a condition that, he next showed, responds to antibiotic treatments.

H. pylori is now recognized as the cause of 80–90% of ulcers. Although these bacteria infect roughly half the world population—often, at a very young age—only about 10–15% develop ulcers because of host genetic and bacterial strain differences. In some cases, the chronic infections lead to inflammation and eventual ulcers. Such infections appear to predispose some individuals to developing stomach cancer. Chronic inflammation associated with *H. pylori* infection is also considered a risk factor for another cancer that occurs in the stomach, namely mucosa-associated lymphoid tissue lymphoma.

These findings led researchers to reconsider the role of other bacteria in many chronic inflammatory diseases, including Crohn's disease, ulcerative colitis, rheumatoid arthritis, and heart disease (*ASM News*, November 2005, p. 529). These issues are also the focus of a report, "Microbial Triggers of Chronic Human Illness," released earlier this year by the American Academy of Microbiology (AAM) and available on the AAM website (http://www.asm.org/Academy/index.asp?bid_34434) (*ASM News*, July 2005, p. 314).



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J. Robin Warren (left) and Barry J. Marshall, who share the 2005 Nobel Prize in Physiology of Medicine, at a press conference at the University of Western Australia shortly after the prize was announced. (Photo courtesy of the University of Western Australia.)