

## Presence of certain antibodies signals healthier teeth and gums

April 23 2008

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Antibodies present in people with good oral health could become the first tool for dental professionals to assess a patient's probable response to periodontal disease treatments, say researchers at the University of Michigan.

The antibody is to a protein called HtpG, the bug that makes it is *Porphyromonas gingivalis*, an important pathogen in periodontal disease. The antibody also has potential as a vaccine candidate, according to Charles Shelburne, assistant research scientist at the U-M School of Dentistry.

Researchers discovered that the HtpG antibodies were present in much lower amounts in people with periodontal disease, and in much higher concentrations in those with healthier teeth and gums. Typically, antibodies are elevated in people with disease, because they help fight the disease.

"What has been seen in periodontal disease over the last 30-40 years is that patients with periodontal disease have higher levels of antibodies to the bacteria associated with periodontal disease, but what we know is that those antibodies aren't usually protective," said Dennis Lopatin, principal investigator and senior associate dean of the School of Dentistry. "It's like being vaccinated against the wrong strain of the flu. The healthy patient makes high levels of the antibodies but to the right part of the bug."

Not only were the HtpG antibodies present in higher amounts in people with healthier gums, those patients with the antibodies responded better to periodontal treatment, the researchers say.

"We're in a position now where we have a potential tool that gives insight as to how the patient will respond to treatment," Lopatin said. "In the United States we spend \$8 billion to \$12 billion a year caring for people with serious periodontal disease. From a public health standpoint, it's very important to identify those people who not only need therapy but will actually respond to a specific type of therapy."

In the long run, this could lead to early interventional therapy to prevent periodontal disease from advancing, or even starting, he says.

The other part of the question is why people with periodontal disease don't make a good immune response to HtpG, and this could connect back to current thinking that oral health influences general health.

"We want to understand how unique this mechanism is in other types of chronic infections," Lopatin said. "We'd like to think it's not a mechanism unique to just this pathogen, if it is a more common mechanism, it makes it even more interesting."

Source: University of Michigan

Citation: Presence of certain antibodies signals healthier teeth and gums (2008, April 23) retrieved 19 April 2024 from <https://medicalxpress.com/news/2008-04-presence-antibodies-healthier-teeth-gums.html>

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