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Press Release

Whooping cough: bacterial monitoring for better prevention

Researchers from the Institut Pasteur in Paris and the Institut Pasteur in Lille have analyzed the consequences of intensive vaccination of young children against whooping cough on the bacterium agent of the disease. Their observations highlight the importance of continuing bacterial evolution in order to adapt vaccine strategies.

The team from the Molecular Prevention and Therapy of Human Diseases Unit (Institut Pasteur/URA-CNRS 3012), headed by Nicole Guiso, has worked in collaboration with the Public Health Platform at the Institut Pasteur in Paris and a team from the Institut Pasteur in Lille, and has recently published the results of researches on the consequences of intensive vaccination of young children against whooping cough on the genome of *Bordetella pertussis* – the bacterium agent of the disease.

Extensive genome analysis was conducted on clinical isolates collected on four continents, in areas where vaccine coverage of young children is high

The results show that the bacteria targeted by the vaccine have been controlled by widespread child vaccination. This observation confirms the success of vaccine campaigns conducted in these countries, and particularly in France, since the 1960s.

Analysis of bacterial genomes shows that current cases of whooping cough are caused by *B. pertussis* strains that are different from the vaccine strains. Researchers have therefore underlined the importance of adapting vaccine strategies, as recommended by the French health authorities, by using new vaccines for adolescents and adults that no longer target specific bacteria but the virulence factors of circulating bacteria. This type of vaccine has been used in France since 1998.

Scientists have finally observed that some bacterial genetic sequences likely to be involved in bacterial virulence are particularly unstable. They could therefore be gradually eliminated from the bacterial genome. High vaccine coverage, based on these new vaccines which target virulence, could therefore speed up control of whooping cough. Monitoring of the disease in children, adults and senior citizens will enable this scenario to be confirmed.

Source:

“Genomic Content of *Bordetella pertussis* Clinical Isolates Circulating in Areas of Intensive Children Vaccination”, **PLoS One**, June 18, 2008.

<http://www.plosone.org/article/info:doi%2F10.1371%2Fjournal.pone.0002437>

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