

Anti-typhoid gene found, may improve vaccines

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Typhoid is a health burden to lower income countries

Scientists said Monday they had found a variant of a gene that confers a near five-fold protection against typhoid fever, which kills millions of people each year.

The discovery, that came from screening the genomes of hundreds of infected people and healthy controls in Vietnam and Nepal, may aid the development of better vaccines for typhoid and other [bacterial diseases](#),

said the authors of a study published in *Nature Genetics*.

"We found that carrying a particular form of the HLA-DRB1 gene provides natural resistance against typhoid fever," study co-author Sarah Dunstan of the University of Melbourne said in a statement.

According to the World Health Organization (WHO), about 21 million people are infected with [typhoid fever](#) every year, and an estimated 216,000 to 600,000 die.

It is caused by the *Salmonella typhi* or *Paratyphi* bacteria carried in contaminated food or water, said the study authors.

The gene they found protects against infection by recognising proteins from invading bacteria, thus stimulating an immune response.

Vaccines against *S. typhi* do exist, but are not always effective and are not suitable for young children—the group most at risk, according to the study authors.

"Consequently, these vaccines are not widely deployed in the populations with the greatest need," they wrote.

"Notably, there is currently no licensed vaccine against enteric fever caused by *S. Paratyphi* pathovars, potentially constituting a huge problem as the incidence of *S. Paratyphi* A infection is increasing in many countries across Asia."

The team said their discovery may lead to "improvements in the rational design of vaccines" for this and other bacterial infections.

More information: *Nature Genetics*, [dx.doi.org/10.1038/ng.3143](https://doi.org/10.1038/ng.3143)

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