In the news

BLAST FROM THE PAST

Protection against tuberculosis may depend on which strain of the *Mycobacterium bovis* bacillus Calmette–Guérin (BCG) vaccine you receive. New research published in the *Proceedings of the National Academy of Sciences of the USA* reveals that the bacteria used for almost nine decades in tuberculosis vaccines may have evolved to a point where it has lost effectiveness.

The current BCG vaccine protects children from disseminated tuberculosis, but provides inconsistent protection in adults. The researchers say that this could be because of inadvertent selection of less reactive strains (NewScientist.com, 12 March 2007).

To assess this, the group led by Stewart Cole of the Pasteur Institute in Paris, France, compared the genomes of ten strains of the BCG vaccine used between 1924 and 1989. Their results indicate that BCG strains have been steadily evolving, mainly to adapt to the glycerol broth they are routinely grown in. The BCG strains differed both in genetic composition and in gene expression, and could be grouped into 'early' strains (such as the Japanese strain) and the more divergent 'late' strains (such as the Pasteur strain). The late strains had alterations in several of the genes that confer virulence and immunogenicity. "According to our observations, the earlier strains of BCG should impart better protection than the late strains", said Roland Brosch, an author of the study (Institut Pasteur press release, 12 March 2007).

While acknowledging that Cole's study is an important illustration of how vaccines can change over time, Marcus Horwitz, an immunologist at the University of California, Los Angeles, USA, said that: "it's unlikely that strain differences would have a major impact on efficacy." He insists that more animal and clinical studies are needed before we revert to the use of the Japanese strain for widespread vaccination (*Nature News*, 12 March 2007).

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