

In the news

A FRAGILE BALANCE IN TUBERCULOSIS

The relative expression of type I interferons (IFNs) and IFN γ might determine whether individuals infected with *Mycobacterium leprae* or the closely related *M. tuberculosis* will develop severe pathogenesis, according to a study published in *Science* (*Science*, 28 Feb 2013).

By analysing gene expression profiles in lesions from patients with a self-healing or a disseminated form of leprosy, researchers at the University of California Los Angeles (UCLA), USA, found that type I IFN-associated gene expression is prevalent in the disseminated form. By contrast, the less severe form of bacterial infection correlated with the expression of IFN γ and downstream genes that are linked to vitamin D synthesis. Moreover, type I IFNs suppressed the IFN γ - and vitamin D-mediated expression of antimicrobial peptides (*Science*, 28 Feb 2013). A similar pattern was observed in patients with latent versus pulmonary tuberculosis (TB), and Prof. Robert Modlin, lead author of the study, suggests that “therapeutic interventions to block or enhance specific interferon responses may be an effective strategy to alter the balance in favour of protection against bacterial diseases” (*BBC News*, 28 Feb 2013).

As viral infections induce type I IFNs, the UCLA researchers point out that the increased incidence of viral infections during winter might underlie the observed peak in TB infections in the following spring (*BBC News*, 28 Feb 2013). “The timing fits, but that remains to be proven”, commented Prof. Ajit Lalvani, Director of the Tuberculosis Research Unit at Imperial College London, UK (*BBC News*, 28 Feb 2013). So, according to Prof. Modlin, viral infections in combination with low vitamin D levels and housing in shelters might explain the outbreaks of TB in homeless people in Los Angeles. “With TB on the rise, this scenario could play out not only in cities in the United States but all over the world”, said Prof. Modlin (*BBC News*, 28 Feb 2013).

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