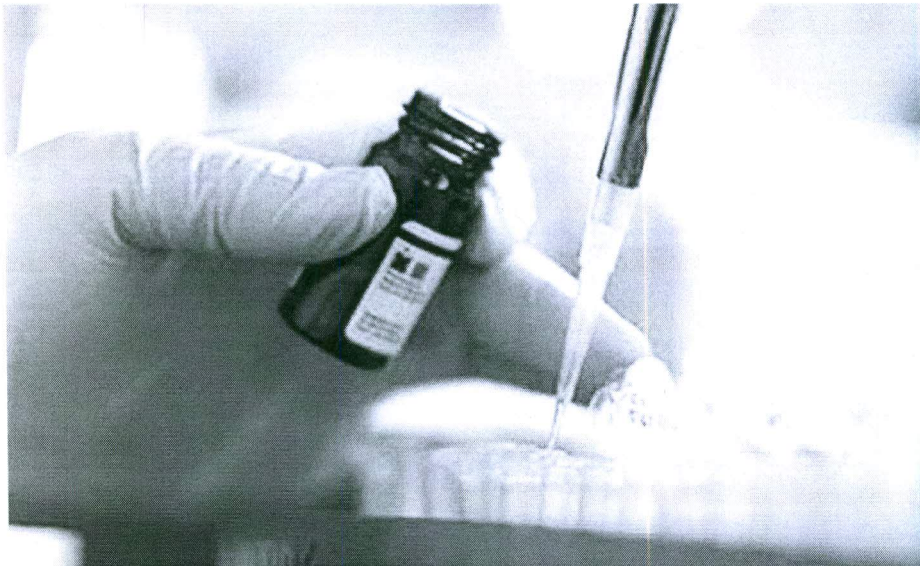




Scientists Discover Mycobacterial Protein to Fight Tuberculosis

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Representational Image

Hyderabad: A team of scientists from city-based Centre for DNA Fingerprinting and Diagnostics (CDFD) have discovered a mycobacterial protein that promises to fight tuberculosis in a novel way.

In the study, the team led by Sanjeev Khosla used the knowledge of epigenetics to open a new frontier in the research on host-*Mycobacterium tuberculosis* interaction.

Epigenetics defines the process by which the same DNA in different cells of an organism perform different functions. The team has identified a novel mycobacterial protein Rv1988, which is secreted out of the mycobacterium into the host upon infection and localises to the chromatin (DNA-histone complex) in the nucleus of the human cell.

"Around six years ago, the team started this research work and further observed that Rv1988 is a methyltransferase enzyme that methylates the histone H3 protein at an arginine amino acid. This methylation epigenetically modulates the transcription of genes, which would have otherwise mounted an immune response against the infecting pathogen," CDFD Director GR Chandak told reporters.

Identification of Rv1988 as an important mycobacterial virulence factor, augurs well not only for it to be a potential target for therapy against mycobacterial infections but also for developing a new biomarker for identification of M-tuberculosis infection in humans, he said.

Rv1988 is important for the pathogen as its deletion in *Mycobacterium tuberculosis* reduced bacterial survival.

These observations have been confirmed by Rv1988 expression in a non-pathogenic *Mycobacterium smegmatis* that negatively affected the health of infected mice. This study has recently been published in the prestigious journal 'Nature Communications', Mr Khosla said.

Since arginine amino acid at 42nd position in Rv1988 is normally not known to be methylated by human methyltransferases, methylation of this amino acid can be used as a sensitive marker of mycobacterial infection, he explained.

