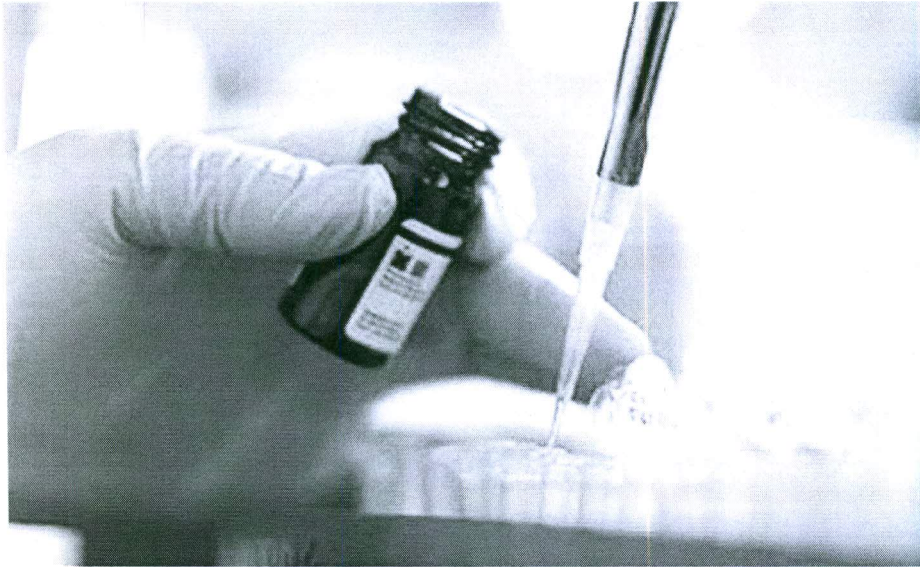




# Scientists Discover Mycobacterial Protein to Fight Tuberculosis

Health | Press Trust of India | Updated: December 04, 2015 00:41 IST



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.

# Business Standard

## CDFD scientists discover protein linked to tuberculosis

IANNS | Hyderabad December 03, 2015 Last Updated at 16:14 IST

Scientists at the Centre for DNA Fingerprinting and Diagnostics (CDFD) have discovered a novel protein which could lead to development of a therapy for tuberculosis.

Rv1988, the mycobacterial protein identified by a team of scientists, modulates the human cell's response to the mycobacterium tuberculosis (Mtb), a breakthrough which can lead to development of a drug or become a potential diagnostic biomarker for active tuberculosis.

The team led by Sanjeev Khosla, group head, Laboratory of Mammalian Genetics, CDFD, conducted the study, which was recently been published in the prestigious journal "Nature Communications".

CDFD director Giriraj R. Chandak said they have filed the patent for the discovery and the centre will now work with clinicians to explore the possibility of developing a drug.

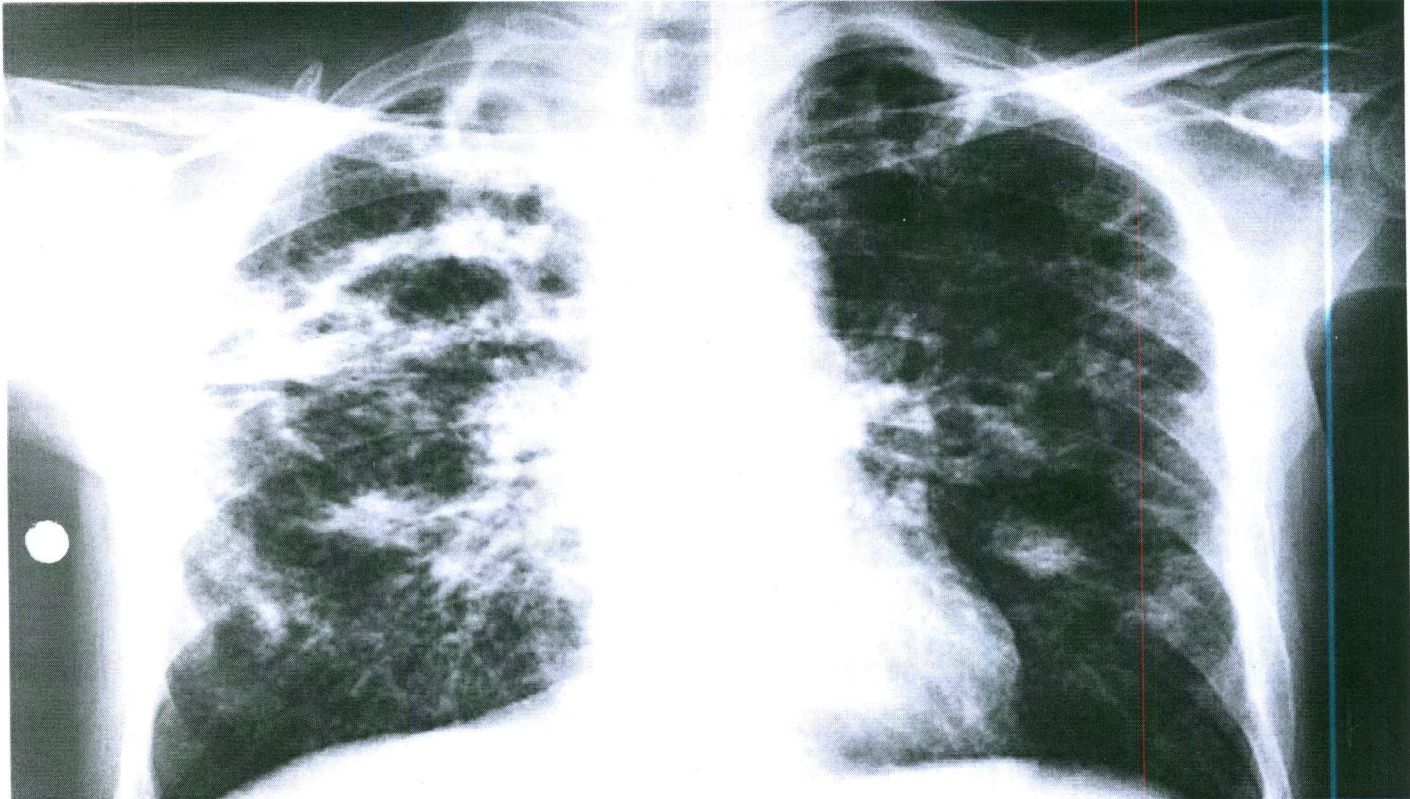
"We will now talk to clinicians and private partners like pharma companies or who have complete know how in drug development," he said, adding the the task before them was to find how to inhibit this protein or bind an enzyme which can reverse what this protein does.

"This is an important discovery because we have come to know what this organism does. It's a double whammy here. It not only causes toxicity but also releases a protein which reduces your capability to respond to that infection," he said.

The pathogenic organism produces protein which enters nucleus of host cell, binds two specific sequences in a gene and regulate some expressions of specific gene product which are related to immune function.

During the five month long study, the team tried to understand the interaction between the pathogenic mycobacteria with the human cell during infection.

## CDFD scientists discover protein linked to tuberculosis



Hyderabad: Scientists at the Centre for DNA (/tags/dna.html-1) Fingerprinting and Diagnostics (CDFD) have discovered a novel protein which could lead to development of a therapy for tuberculosis.

An advertisement for American Swan. On the left, there is a logo with 'AS' and 'AMERICAN SWAN'. Below it, the text reads 'STUPENDOUS SPORTS' with a star and horizontal lines. Further down, it says 'BUY 1 GET 1 FREE' and 'Code: B1G1'. At the bottom left is a black button with 'SHOP NOW &gt;'. On the right side of the ad is a photograph of a woman with long dark hair, wearing a white t-shirt and grey pants, carrying a black bag over her shoulder.

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