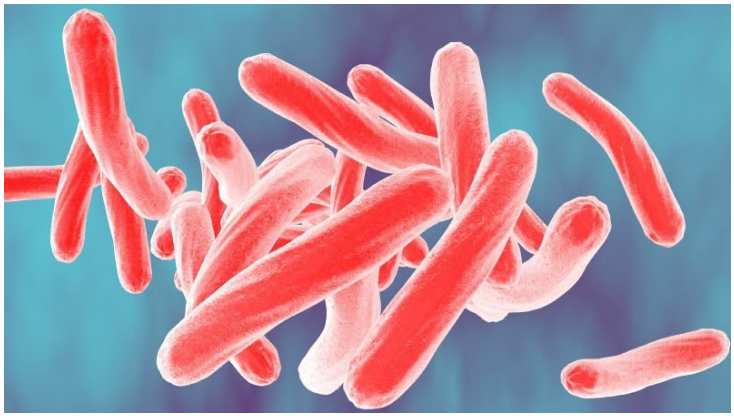
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Scientists in Bengaluru suggest strategy for eradicating persistence of tuberculosis

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Finding new way for battling persistence in TB bacteria



Researchers at the Indian Institute of Science (IISc), in collaboration with the National Centre for Biological Sciences (NCBS) and the Institute for Stem Cell Science and Regenerative Medicine (InStem), have uncovered an important mechanism that allows the tuberculosis (TB) bacterium to persist in the human host for decades. They found that a single gene involved in the production of iron-sulphur clusters could be crucial for the persistence of the TB bacterium.

Iron-sulphur clusters are mainly produced by the SUF operon in *Mycobacterium tuberculosis* (Mtb), a set of genes that get switched on together. However, there is another single gene called IscS that can also produce the clusters.

The researchers observed that the absence of the IscS gene led to severe disease in the infected mice rather than a persistent, chronic infection typically seen in TB patients. This is because, in the absence of the IscS gene, the SUF operon is highly activated – albeit in an unregulated fashion – leading to hypervirulence. Depleting both IscS and the SUF system dramatically reduced the persistence of Mtb in mice. Therefore, the IscS gene keeps the activation of the SUF operon in check, causing persistence in TB.

The researchers also noted that bacteria lacking the IscS gene were more likely to be killed by certain antibiotics. The researchers are hopeful that a better understanding of the IscS and SUF systems in Mtb can eventually pave the way for eradicating persistence of TB.