



# Licensing Opportunity

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## Targeting of Triacylglycerol Synthesis or Metabolism for Tuberculosis Treatment

### Background

Tuberculosis (TB), one of the biggest killers among the infectious diseases, poses a major public health problem mostly in the developing world with 8 million new cases and 2 million deaths a year (World Health Organization; 2005). Mycobacterium tuberculosis, the causative agent of TB, is inhaled by people as an aerosol emanating from active TB patients. Usually, only a small fraction of the people (~5 %) thus infected develop active TB, while the rest carry a latent infection for the rest of their lives until reactivation of the pathogen occurs upon weakening of the immune system. The ability of the pathogen to go into a latent/dormant non-replicating state, with very low metabolic activity and phenotypic resistance to all of the currently available anti-tuberculosis drugs makes TB eradication an extremely difficult challenge.

The inventors have discovered that triacylglycerol can be used as an energy source by *M. tuberculosis* in dormancy, thus its synthesis or metabolism could be an ideal drug target against latent TB. The current invention describes the use of *M. tuberculosis* triacylglycerol synthase or triacylglycerol hydrolase to screen for therapeutic agents useful in the treatment of *M. tuberculosis* infections.

### Invention

The current invention allows for the screening of various anti-TB therapeutic agents based on their ability to bind *M. tuberculosis* triacylglycerol synthase or triacylglycerol hydrolase polypeptides.

### Application

The current invention presents a screening method for identifying novel anti-TB agents useful in treating TB infections. The screening method could identify novel therapeutic agents that will effectively address the problem of multidrug resistant (MDR) strains of bacteria.

### Advantages

- Novel and low cost method to screen possible agents effective against latent/dormant TB

### Lead Inventor

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### Selected References

Sirakova TD, Dubey VS, Deb C, Daniel J, Korotkova TA, Abomoelak B, Kolattukudy PE. 2006; Microbiology. 152(Pt 9): 2717-2725.

Deb C, Daniel J, Sirakova TD, Abomoelak B, Dubey VS, Kolattukudy PE. 2006; J Biol Chem. 281(7): 3866-3875.

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