



***Mycobacterium tuberculosis* mimic useful in enhancing BCG vaccine efficacy or as stand-alone vaccine.**

**TECHNOLOGY AVAILABLE FOR TRANSFER**

**UNMET NEED AND OPPORTUNITY**

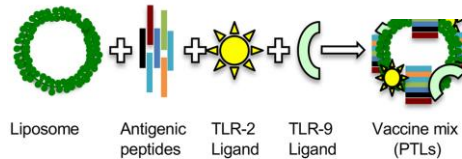
There is limited BCG vaccine efficacy which is mainly attributed to failure of elicitation of central memory T cells (T<sub>cm</sub>), only CD4<sup>+</sup> effector memory T cells are developed. Since there are many lags in BCG immunization and there is global burden of Tuberculosis (TB), therefore it is crucial to develop improved methods of immunoprophylaxis against TB. Since most of the world is vaccinated with BCG, there is a need of alternative therapy to improve the efficacy of BCG in terms of enhancing central memory responses leading to production of polyfunctional cytokine responses at the site of the infection and hence controlling the infection.

**UNIQUE SELLING PROPOSITION**

- The PTLs significantly enriched the CD4<sup>+</sup> and CD8<sup>+</sup> T cells
- Significant increase in the polyfunctional cytokine secretion (IFN-γ+IL-17+TNF-α+IL-2+) in CD4<sup>+</sup> and CD8<sup>+</sup> T cells in the lungs of coimmunized animals as compared with the mice vaccinated with BCG alone.
- Stronger and a potent recall immune response to facilitate enhanced *M.tb* clearance.

**TECHNOLOGY**

In this study, an immunogenic complex has been generated against *Mycobacterium tuberculosis* (M.tb) which consist of promiscuous protective T cell epitopes along with TLR ligands adsorbed on liposomal drug delivery vehicle. These complexes are called peptide-TLR agonist-liposomes (PTL) which are delivered into lungs through intranasal route thereby generating a protective immune response at the site of infection.



**Figure:** Schematic diagram depicts the preparation of PTL

**STAGE OF DEVELOPMENT**

Proof of concept established at laboratory scale and validated by Pre-Clinical studies.

**LICENSING OPPORTUNITY**

BCIL is looking for suitable industrial partner for commercialization of this technology.

**INTELLECTUAL PROPERTY**

Patent filed in India and PCT application filed.

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