

Aptamer and Nanotechnology based approaches for active targeted drug delivery of anti- TB drugs

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Scientific Rationale & Objectives

- Challenges in TB treatment and other PRD
 - Poor bioavailability of drugs
 - Patient non-compliance
 - Long treatment time
 - High dose and dose frequency
- Objectives
 - Improve bioavailability
 - Reduce dose and dose frequency
 - Target drugs to TB infected macrophages
 - Reduce treatment time



Key Findings & Achievements

- The results obtained are as follows:
 - 1. Sustained drug release
 - No toxicity, cross biological barriers
 - 2. Synthesised aptamers against the MMR (TB infected cells)
- The conclusions drawn:
 - 1. Shorten treatment and maintain MIC
 - 2. Target TB infected cells
 - Reduce cost and improve compliance



Challenges & How Resolved

TECHNICAL

- High loading efficiency of anti-TB drugs
- Selection of the method to make aptamers
 - Optimisation

NON-TECHNICAL

- Access to animal facility (National challenge)
 - In discussions with DST
- Access to substantial funding
- Access to trained manpower
- Regulatory approval

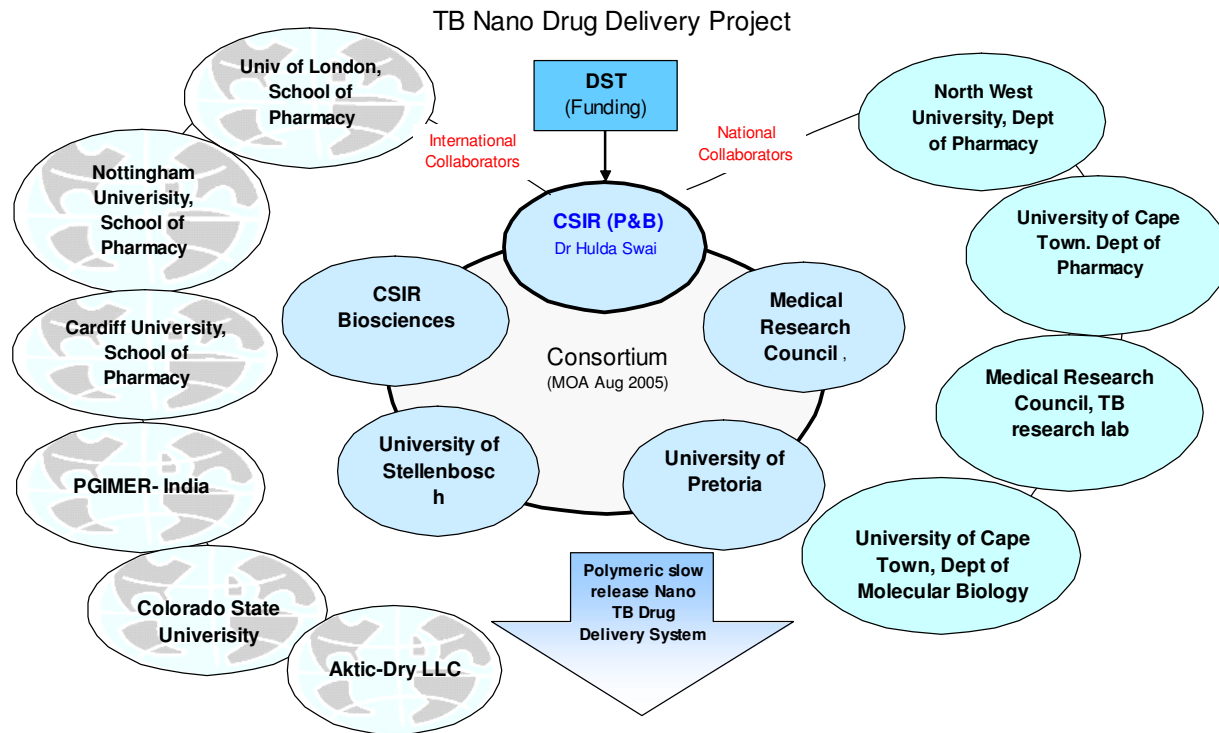


Future Directions & How ANDI Can Contribute

- Suggestions as to further work
 - Optimise targeted drug delivery systems
 - Pre-clinical trials in mice (PK and efficacy)
 - Pre-clinical trials in non-human primates
 - Research into other PRDs
- Suggestions for ANDI's role
 - Foster South-South Collaborations
 - Assist in joint access to international funds
 - Capacity building
 - Foster South-South student exchange programmes



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