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Singapore explores two classes of potential candidates against drug resistant-TB

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Scientists from NTU and EDDC collaborated and discovered inhibitors that could potentially be developed into drugs to fight drug-resistant bacteria



Scientists from the Experimental Drug Development Centre (EDDC), the national platform for drug discovery and development hosted by A*STAR; Nanyang Technological University (NTU) and Lee Kong Chian School of Medicine (LKC Medicine) in Singapore have teamed up to develop two classes of potential drug candidates against drug resistant tuberculosis (DR-TB).

Applying their extensive knowledge on the structure and function of key mycobacterial enzymes involved in oxidative phosphorylation, researchers have identified two viable drug targets for the initiation of drug discovery campaigns.

In one project, the team tested over 115,000 compounds against one of the targets (cytochrome bd oxidase) in a rapid, automated fashion to identify and shortlist those that would bind well and were effective at blocking the target's function.

In another project, researchers further optimised a previously discovered inhibitor of a second target (F1FO-ATP synthase) through repeated cycles of biological testing and re-design. Likewise, this project led to the development of a lead series of compounds. A patent has been filed for the inhibitors developed for this target, with licensing discussions underway with a pharmaceutical company.

As other superbugs loom large in our environment, the researchers are currently in discussion to expand their successful collaboration and develop therapies to tackle more superbugs.