



DISCOVERING TOMORROW'S TREATMENTS

Impact on Discovery

PROGRESS IN THE PIPELINE

A number of advances in the discovery stages of the drug development pipeline took place over the course of 2016. Thanks to ongoing collaboration among our research partners, more drug candidates advanced to IND-enabling studies in 2016 than in the previous five years combined.

This includes two new compounds that advanced into preclinical development: [TBAJ-587](#) (a diarylquinoline), which was discovered in collaboration with Janssen and Auckland Cancer Society Research Center, and [TBI-223](#) (an oxazolidinone), which was discovered with the Institute of Materia Medica. In partnership with Eli Lilly, TB Alliance has also progressed the [TBA-7371](#) compound. All three of these compounds are active against drug resistant strains of TB, and [TBA-7371](#), which inhibits part of TB's cell wall biosynthesis, has a completely novel mode of action against TB.

Additional work on other compounds continued. Collaborations with pharmaceutical partners Sanofi and GlaxoSmithKline are poised to deliver more compounds into the preclinical development phase in 2017.

Over the past year, based on success in the discovery pipeline, TB Alliance expanded its partnership with the [Global Health Innovative Technology Fund](#), an international non-profit organization based in Japan that fosters industry collaboration in global health. A number of "hits," or promising compounds, were identified as a result of natural-product based screens being carried out in collaboration with OP Bio, Daiichi-Sankyo Novare, HyphaGenesis, and Chugai. Funding from the [Indonesia Health Fund](#) has also permitted advancing research into natural products in Indonesia.



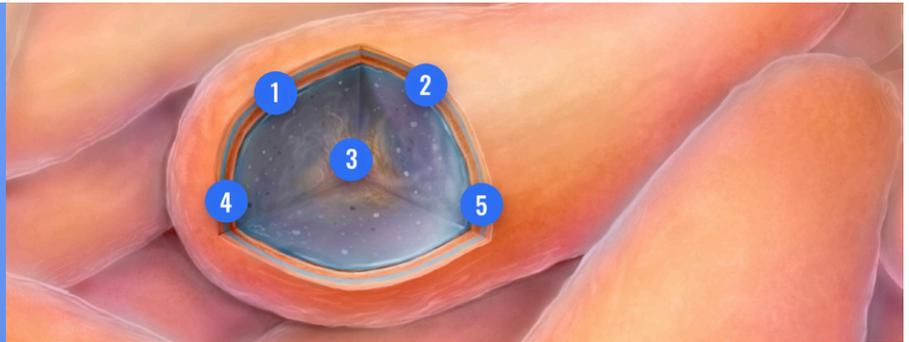
VIEW OUR INTERACTIVE PORTFOLIO

*Learn more about TB Alliance's
drug development pipeline*

HOW WE TARGET TB

FIVE WAYS TO TARGET TB

TB Alliance is pursuing five major approaches to targeting TB cells with drugs. These explanatory graphics provide an overview of how TB drugs work at a cellular level. The novel compounds advanced into preclinical development in 2016 target cell wall disruption, central carbon metabolism, and protein synthesis.

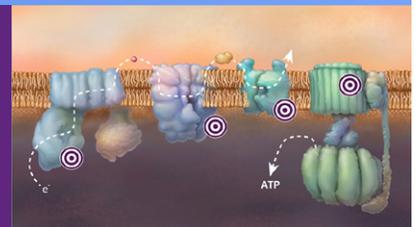


PROVEN PATHWAYS

1

ELECTRON TRANSPORT CHAIN

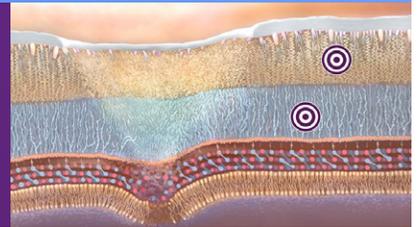
Stop the generation of cell energy so TB bacteria can't grow



2

CELL WALL DISRUPTION

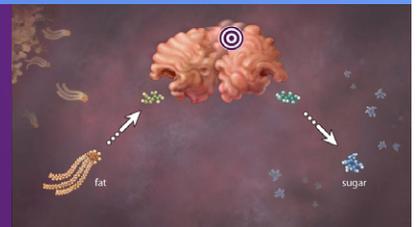
Weaken cell walls and in the process, destroy TB bacteria



3

CENTRAL CARBON METABOLISM

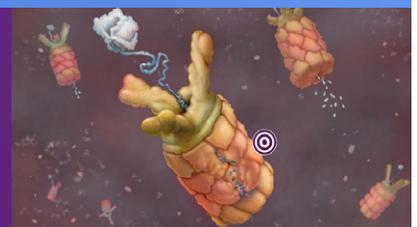
Starve TB bacteria so it can't grow



4

PROTEIN DEGRADATION

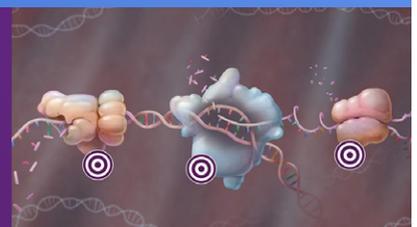
Poison the cell by inhibiting the ability to eliminate waste



5

PROTEIN SYNTHESIS

Block TB's ability to make protein necessary for its survival



ACCELERATING DISCOVERY

TB Alliance continued its work with the [TB Drug Accelerator Program \(TBDA\)](#) in 2016, after joining as a full partner in 2015. This program enables signatory organizations to exchange knowledge and establish working relationships in the interest of discovering new TB drugs and treatment regimens. Founded by the Bill & Melinda Gates Foundation, TBDA's ambitious goals include developing five new pre-clinical drug

candidates over five years, as well as pursuing their ultimate vision of a one-month, three-drug regimen. This past year's partnership with Eli Lilly to progress TBA-7371 through preclinical development, which arose through TBDA interactions, is just one example of the fruitful relationships that develop through work in this consortium.

