Researchers validate preclinical effectiveness of TB drug target

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In research at SRI International, scientists evaluating new drug targets against tuberculosis (TB) recently validated the preclinical effectiveness of a target that could rapidly eliminate infections and potentially shorten treatment time. The new drug target is a protein called DNA gyrase B, found in bacteria that cause TB infections.

DNA gyrase is an enzyme consisting of two subunits: gyrase A and gyrase B. Although gyrase A is often the target of antibiotics, such as ciprofloxacin, there currently is no antibiotic on the market that targets gyrase B. In laboratory experiments, SRI researchers found that by targeting gyrase B, TB bacteria are killed whether they are replicating or dormant. Further studies will be conducted toward the development of a TB drug against gyrase B.

"One of the greatest needs in infectious disease treatment is a drug that allows a shorter length of treatment," said Peter Madrid, Ph.D., program director in the Center for Infectious Disease and Biodefense Research, SRI Biosciences Division. "Though our program is still in the preclinical phase of research, with a number of years of required testing ahead, our goal is to develop a drug that will improve the treatment process for TB patients."

TB patients currently undergo treatment for six months and take a combination of at least four different drugs. There are often challenges to treatment effectiveness because of the long treatment time, including low patient treatment compliance and high rates of drug resistance. Tuberculosis that is resistant to multiple drugs takes even longer to treat, usually 18 to 24 months.

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