

RESEARCH

Researchers at the CBTBR and their international colleagues have demonstrated that the DinB homologues from *M. tuberculosis* differ fundamentally from their counterparts in other bacteria

In a paper to be published in the April 2010 issue of the *Journal of Bacteriology*, team member, Bavesh Kana, together with Wits node colleagues and collaborators from the UK and USA described the results of a comprehensive study on the function of two Y-family DNA polymerase homologues in *Mycobacterium tuberculosis*, namely, DinB1 and DinB2. The complements and expression levels of the *dinB1* and/or *dinB2* genes encoding specialized DNA polymerases of the Y-family in *M. tuberculosis* were altered using a combination of targeted gene knockout and conditional gene expression techniques. The resulting *M. tuberculosis* strains were subjected to a battery of tests that probed the impact of these changes on mutagenesis, sensitivity to certain types of DNA-damaging agents, intracellular growth and survival, and virulence in a mouse model of infection. Contrary to expectation, the changes had no significant effect on the physiology of *M. tuberculosis* under conditions that were predicted to be phenotypically revealing based on the canonical function of DinB-type Y-family polymerases inferred from studies in other organisms. These results demonstrate that the DinB homologues from *M. tuberculosis* differ fundamentally from their counterparts in other bacteria.