### Abstract

The pathogenic bacterium *Mycobacterium tuberculosis* (*Mt*) is the causative agent of tuberculosis, a widespread and fatal infectious disease. Today, treatment against tuberculosis involves a combination of drugs, which need to be taken for at least six months and which often causes severe side effects. Therefore, new drugs that are more effective and that give fewer side effects are needed. A characteristic feature of the *Mt* bacterium is its very complex and thick cell wall, which prevents many potential drug molecules from penetrating it. Inhibiting any one of the enzymes that are involved in its biosynthesis would therefore seem to be a good strategy for eliminating the *Mt* bacteria. The aim of this study was to characterize four enzymes involved in *Mt* cell wall biosynthesis. In order to do that, they were produced recombinantly in *E. coli* and purified. Crystallization experiments were set up in order to produce diffracting crystals, with the aim of structure determination and drug design.

### Keywords

*Mycobacterium tuberculosis*, structure-based drug design, enzymes, cloning, expression, purification, crystallization

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