ABSTRACT

RNA polymerase (RNAP) is the enzyme that catalyzes synthesis of RNA. Mycobacterial RNAP significantly differs from RNAPs from other bacterial species. It requires special transcription factors such as RbpA or CarD. Another difference is the presence of a small RNA (sRNA), Ms1, that binds to mycobacterial RNAP. Ms1 regulates the amount of RNAP in the cell.

In our laboratory we recently discovered MoaB2, a new binding partner of mycobacterial σ^A (encoded by *sigA*), an RNAP subunit, which is essential for recognition of the initial promoter sequence and initiation of transcription. The function of MoaB2 in the regulation of transcription and gene expression is still unknown.

The first aim of this Thesis is contribute to elucidation of the mechanism by which Ms1 affects the amount of RNAP. The experiments revealed that this regulation occurs at the level of transcription; Ms1 affects the activity of promoter(s) that drive the transcription of *rpoB-rpoC* that encode the two catalytic subunits of RNAP.

The second aim of this Thesis is to characterize the interactions of MoaB2 with protein of the transcription apparatus. The results confirmed the interaction of MoaB2 with σ^A and showed that neither RNAP nor transcription factors RbpA and CarD are required for this interaction. Finally, a role of the N-terminal domain of σ^A for the interaction with MoaB2 was not proven.

In summary, this work significantly contributes to our understanding of the mycobacterail transcription machinery.