STUDY OF THE INTERACTION OF TWO DIVISION PROTEINS, FtsZ AND ZapA, IN *Bacillus subtilis*

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During bacterial division, FtsZ self-associates into a ring structure (Z ring) that establishes the place where division will occur. The Z ring represents a scaffold to which other division proteins will associate to create the new septum. The objective of this work was to elucidate how FtsZ interacts with ZapA, a modulator of Z-ring formation. Previous work in *E. coli* showed that other FtsZ-binding proteins interact with a stretch of aminoacids located at the C-terminus.of FtsZ., To test whether this C-terminal peptide (CTP) was also involved in the interaction with ZapA, we studied the ability of *E. coli* ZapA ($ZapA^{EC}$) to associate with *B. subtilis* FtsZ ($FtsZ^{BS}$) in live cells. Since the CTPs of *E. coli* and *B. subtilis* FtsZ are conserved, ZapAEC would be expected to associate with $FtsZ^{BS}$ if the interaction were mediated by the CTP. In contrast, we found that $ZapA^{EC}$ fails to associate with $FtsZ^{BS}$, suggesting that the CTP is not involved in the interaction. This was confirmed by in vitro experiments which showed that a mutant of $FtsZ^{BS}$ lacking its CTP was still capable of interacting with *B. subtilis* ZapA. Thus, ZapA does not interact with the C-terminal region of FtsZ. At the moment our laboratory is setting up a genetic screen designed to select FtsZ mutants that lose their capacity to interact with ZapA. These mutants should define the ZapA-binding surface of FtsZ.

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