The aim of the project is to investigate how *Pseudomonas aeruginosa* regulates its multiplying processes.
P. aeruginosa is a pathogenic bacterium that is highly dangerous to humans. High risk group includes hospitalized patients undergoing surgical procedures and immunocompromised where it can cause life threatening diseases.

The secret to successful pathogenicity of this bacterium is its extremely good adaptability and resistance to unfavorable conditions including antibiotics. It is able to precisely modulate its vital functions in response to environmental changes. In favorable conditions it increases its cell number intensively multiplying, while when the conditions worsen, it slows down its growth limiting the cell number.

In this project we apply advanced molecular methods to study mechanisms that allow *P. aeruginosa* regulation of the adaptive processes focusing on the crucial element which is the DNA replication. We believe that the knowledge gained through this project will help us develop better strategies to combat these bacteria for instance by production of new antipseudomonal drugs.