**The Mechanism of Action for GerA Receptor**

Marta Hubisz

supervisor: prof. Michał Obuchowski

Department of Medical Biotechnology; Laboratory of Molecular Bacteriology

Intercolegiate Faculty of Biotechnology UG and MUG

Bacterial endospores are specific structures which develop from vegetative cells exposed to harsh environmental conditions. Thanks to those dormant forms bacteria can survive hard conditions, without a harm to their basic metabolic functions. Apart from high resistance to different environmental conditions, endospores are able to monitor the environment constantly. It is done via germination receptors which can trigger spore transformation into a vegetative cell. One of receptors is GerA protein. It is activated by amino acids – L-alanine and L-valine. However, the mechanism of action for this process remains unknown.

This projects tries to unravel the molecular bases for germination initiation of *Bacillus subtilis* endospores via GerA receptor. With the use of molecular biology techniques and molecular modelling we will try to propose the structure of the whole receptor and the functions of its separate subunits in the course of germination initiation in the spore. As a result we will propose the mechanism of action for GerA.