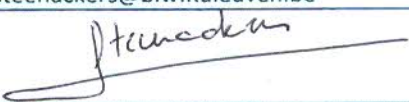
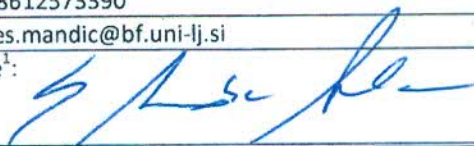


CELSA - Collaborative research project - Application form - COVER PAGE

1. Identification of the principal investigator – co-ordinator
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3. Identification of third and fourth co-investigator(s) (if applicable)	
Expand table if more than four research units are involved.	
Third co-investigator	Fourth co-investigator
Full name:	Full name:
Faculty/Department:	Faculty/Department:
Research unit within Faculty/Department:	Research unit within Faculty/Department:
Address:	Address:
University:	University:
Tel:	Tel:
Fax:	Fax:
email:	email:
Signature ¹ :	Signature ¹ :

¹ Faxed signatures will be accepted.

3. Non confidential and public friendly summary (max. 2000 characters)

Project title: *Bacillus* as potential agent for control of pathogenic foodborne infections by *Salmonella*

Summary:

Due to the intensive use of antibiotics, antibiotic resistance has strongly increased over the last decades. The rise of multi-resistant strains creates an urgent need for new and alternative antimicrobial strategies. One interesting approach is the use of commensal bacteria such as *Bacillus* to treat pathogenic infections. However, recent research at our labs has revealed specific mechanisms that potentially counteract the action of probiotics: (i) bacteria can sense harm caused by competitors through their stress response systems (competition sensing) and induce a protective response that as a side effect also enhances antibiotic resistance and virulence; and (ii) competition can lead to spatial segregation, potentially physically separating the probiotic bacteria from the pathogen and limiting the effectiveness of the treatment. In this project, we will develop a biofilm model system consisting of the commensal bacterium *Bacillus subtilis* and the pathogen *Salmonella* Typhimurium to study how these mechanisms of competition sensing and spatial segregation affect the competition between probiotics and pathogens. Ultimately we will evaluate the potential of interfering with competition sensing and spatial segregation as a way to enhance the antimicrobial activity of *B. subtilis*. This CELSA project is aimed to both establish (i) the scientific basis for the future application for EU funding as well as (ii) the international network of research groups that is required.

4. List 5 key words

- Antibiotic resistance
- Probiotics
- Biofilms
- Bacillus-Salmonella* interactions
- Foodborne infections