Instituto de Agroquímica y Tecnología de Alimentos

RESEARCH GROUP

Lactic Acid Bacteria and Probiotics

The group is open to discuss any kind of collaboration with industry and academia related to these topics.

The group studies the physiology, genetics and ecology of lactic bacteria in foods and in the gut. The main objectives of the group are to study these microorganisms and to find applications for human health, industrial processes and food quality, including prebiotics, probiotics and enzymes of industrial interests.

FIELD OF EXPERTISE

Lactic acid bacteria are recognised probiotic strains, live microorganisms used as food supplements to benefit health by modifying the gut microbiome. The health effects range from the regulation of bowel activity to the antagonistic effect on the gastroenteric pathogens or to their role on food metabolism.

The group uses high-end techniques such as global gene expression analysis, comparative genomics, differential expression in bacteria and tissues, nutrigenomics and metabolic engineering. They study, amongst others, the regulation of metabolism, the mechanisms related to the probiotic activity or the response of bacteria to stress with the aim of producing novel pre- and probiotics and bioactive metabolites or the identification of key enzymes with potential industrial applications.

MAIN APPLICATIONS AND SERVICES

- Development of novel recombinant strains of L. casei with novel probiotic properties.
- Development of novel recombinant strains of L. casei with improved biotechnological properties.
- Discovery of new bioactive metabolites.
- Development of novel enzymes for food industry applications such as synthesis of prebiotics.
- Adaptation of bacteria to industrial production conditions.
- Discovery of new enzymes for biotechnological applications.

FURTHER INFORMATION

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