

EFSA Partnering Grants – ListeriaPredict: A case study in capacity building at EU level in predictive microbiology

Main author: Francis Butler (University College Dublin)

Co-authors: Ursula Gonzales-Barron, Vasco Cadavez, Luigi Iannetti, Antonio Valero Díaz, Grainne Redmond, Kevin Hunt

INTRODUCTION

Listeria monocytogenes continues to be a major hazard of concern in the broad ready-to-eat food sector, both at EU level and globally. Its ability to grow at refrigerated temperatures causes particular food safety concerns for ready-to-eat foods. There has been substantial activity within the European Union to provide guidance on how to conduct laboratory shelf-life studies on Listeria monocytogenes in ready-to-eat foods to ensure product safety. Predictive microbiology has a critical role in interpreting the results of experimental challenge tests and extending their application under varying environmental conditions. There is a pressing need to complement recent developments in official guidance documents on how to conduct shelf-life studies on Listeria monocytogenes with the development of advanced predictive microbiology techniques to best leverage laboratory data. This EFSA-funded partnering project works to substantially enhance capacity in four partner institutions across Europe in applying predictive microbiology techniques to shelf-life studies on Listeria monocytogenes in ready-to-eat foods. The project will also disseminate this expertise to a wider stakeholder audience.

METHODOLOGY

In total, there are four partners in the ListeriaPredict consortium, University College Dublin (UCD) (Coordinator); the Polytechnic Institute of Bragança (IPB); Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale' (IZSAM), and the University of Córdoba (UCO). All four institutions have considerable experience in either predictive microbiology techniques or the application of shelf-life studies on Listeria monocytogenes. The focus of this proposal is to promote capacity building between four organisations across the EU in the critical area of applying advanced predictive microbiological techniques to shelf-life studies on Listeria monocytogenes in ready-to-eat foods. This is being achieved through the transfer or exchange of knowledge, skills, competencies and abilities between the partner organisations. The project combines knowledge transfer between 'knowledge provider' and 'knowledge recipient' organisations and knowledge exchange between 'knowledge sharing'

organisations through the development of additional risk assessment capacity in specific scientific domains.

RESULTS

The objective of this partnering proposal is to enhance capacity across Europe in applying predictive microbiology techniques to shelf-life studies on *Listeria monocytogenes* in ready-to-eat foods. The project is organising several workshops on modern predictive microbiology modelling techniques, including specific actions on microbial competition modelling, dynamic predictive microbiology modelling, basic bioinformatics skills relating to genotypic/phenotypic behaviour in *Listeria monocytogenes*, and shelf life simulation modelling. The workshops are being complemented by a series of online webinars delivered to a wide audience. The project also serves as learning material for an online teaching module on Predictive Microbiology Modelling and Simulation.

DISCUSSION

This project directly aligns with the specific objectives of EFSA to promote the building of risk assessment capacity within university and research organisations across Europe. This project 'showcases' how focused small-scale projects can deliver a significant impact that contributes to the overall goals and objectives of EFSA. The project demonstrates how building and sharing of capacity at organisational level can be achieved through the strategic selection of project partners across Europe that each have individual expertise within key elements of predictive microbiology. A novel and important component of the partnering consortium is the 'spin out' of knowledge from within the partnership to other EU member states by means of hosting an end-of-project international workshop and the creation of online E-learning resources.