Habimana, O., Meyrand, M., Meylheuc, T., Kulakauskas, S., Briandet, R. (2009)  
**Genetic Features of Resident Biofilms Determine Attachment of Listeria monocytogenes**  
Applied and Environmental Microbiology, 75, 7814-7821

Planktonic Listeria monocytogenes cells in food-processing environments tend most frequently to adhere to solid surfaces. Under these conditions, they are likely to encounter resident biofilms rather than a raw solid surface. Although metabolic interactions between L. monocytogenes and resident microflora have been widely studied, little is known about the biofilm properties that influence the initial fixation of L. monocytogenes to the biofilm interface. To study these properties, we created a set of model resident Lactococcus lactis biofilms with various architectures, types of matrices, and individual cell surface properties. This was achieved using cell wall mutants that affect bacterial chain formation, exopolysaccharide (EPS) synthesis and surface hydrophobicity. The dynamics of the formation of these biofilm structures were analyzed in flow cell chambers using in situ time course confocal laser scanning microscopy imaging. All the L. lactis biofilms tested reduced the initial immobilization of L. monocytogenes compared to the glass substratum of the flow cell. Significant differences were seen in L. monocytogenes settlement as a function of the genetic background of resident lactococcal biofilm cells. In particular, biofilms of the L. lactis chain-forming mutant resulted in a marked increase in L. monocytogenes settlement, while biofilms of the EPS-secreting mutant efficiently prevented pathogen fixation. These results offer new insights into the role of resident biofilms in governing the settlement of pathogens on food chain surfaces and could be of relevance in the field of food safety controls.

**The EFSA Scientific Panel on Biological Hazards first mandate: May 2003-may 2006. Insight into scientific advice on food hygiene and microbiology**  
Trends in Food Science & Technology, 20, 587-594

The principal objective of the European general and specific hygiene rules is to ensure a high level of consumer protection by taking science-based management measures to control hazards. According to the General food law (178/2002) scientific advice should underpin Community legislation on food hygiene and to this the European Food Safety Authority should be consulted. The purpose of this review is to present the main conclusions of the opinions of the Scientific Panel on Biological Hazards of EFSA with regard to the orientation of official control methods to new scientific evidence and requirements, the setting of objectives or the new metrics in food safety such as pathogen reduction targets, performance objectives at any point in the food chain other than at the moment of consumption in order to achieve a food safety objective, or microbiological criteria and the identification of the efficient methods to control biological hazards.

**Lactic acid bacteria - Potential for control of mould growth and mycotoxins: A review**  
Food Control, 21, 370-380

Most data dealing with the biopreservative activity of lactic acid bacteria (LAB) are focused on their antibacterial effects. Food spoilage by mould and the occurrence of their mycotoxins
constitute a potential health hazard. Development of biological control should help improve the safety of products by controlling mycotoxin contamination. Data have actually shown that many LAB can inhibit mould growth and that some of them have the potential to interact with mycotoxins. This review summarizes these findings and demonstrates that LAB are promising biological agents for food safety. (C) 2009 Elsevier Ltd. All rights reserved

Seaman, P. (2010)
Food hygiene training: Introducing the Food Hygiene Training Model
Food Control, 21, 381-387

For many years social cognition models and workplace health education theories have been used to map out the variables and identify determinants of various health-related behaviours, including hand hygiene practice, food handling and the use of food thermometers. Whilst many models and theoretical frameworks identify specific determinants or variables of behaviour and organisational interactions this paper takes a holistic approach to food hygiene training and proposes a new theoretical framework. This framework (The Food Hygiene Training Model) encompasses and utilises various theoretical models and educational theories to recognise the various influences on the training, beliefs, motivations, and conditions required for food handlers to perform safe food handling practices in the workplace. Effective food hygiene training and the enactment of safe food handling practices learnt during training are critical elements in the control of food-borne illnesses throughout the world. Therefore, future food hygiene training strategies, if they are to be effective, should consider the adoption of the Food Hygiene Training Model, to aide overall improvements in food businesses, and thus, an overall reduction of food-borne illnesses. (C) 2009 Elsevier Ltd. All rights reserved

Evaluating food safety perceptions and practices for agricultural food handler
Food Control, 21, 450-455

This study investigates food safety perceptions and agricultural food handling practices, as well as satisfaction with the work performance of such handlers. Data are collected from 333 food handlers at agricultural food processing companies or restaurants. Data is analyzed by SPSS, with statistical analyses including descriptive statistics, t tests and regression analyses. Dimensions pertaining to food safety perception and practices include personal sanitation, pre-handling food preparation, food preparation and after food preparation. The scales of food safety perception during analysis are higher than what are typically found in practice, and some gaps are identified. Analysis results indicate that food preparation and after food preparation dimensions have significantly higher mean values than those associated with per-food handling and personal sanitation. Regression analysis further demonstrates that satisfaction with work performance can accurately predict food safety perception and practice components. Moreover, their handling practices mediate how perception affects satisfaction with work performance of food handlers. (C) 2009 Elsevier Ltd. All rights reserved

New publications in the PathogenCombat PARTNERS database (192-193)

Influence of Sublethal Concentrations of Common Disinfectants on Expression of Virulence Genes in Listeria monocytogenes
Applied and Environmental Microbiology, 76, 303-309

Listeria monocytogenes is a food-borne human pathogen that causes listeriosis, a relatively rare infection with a high fatality rate. The regulation of virulence gene expression is influenced by several environmental factors, and the aim of the present study was to determine how disinfectants used routinely in the food industry affect the expression of different virulence genes
in L. monocytogenes when added at sublethal concentrations. An agar-based assay was
developed to screen the effect of disinfectants on virulence gene promoter expression and was
validated at the transcriptional level by Northern blot analysis. Eleven disinfectants representing
four different groups of active components were evaluated in this study. Disinfectants with the
same active ingredients had a similar effect on gene expression. Peroxy and chlorine compounds
reduced the expression of the virulence genes, and quaternary ammonium compounds (QAC)
induced the expression of the virulence genes. In general, a disinfectant had similar effects on the
expression of all four virulence genes examined. Northern blot analyses confirmed the
downregulation of prfA and inlA expression by Incimaxx DES (a peroxy compound) and their
upregulation by Triquart Super (a QAC) in L. monocytogenes EGD. Hence, sublethal
concentrations of disinfectants routinely used in the food industry affect virulence gene expression
in the human pathogen L. monocytogenes, and the effect depends on the active components of
the disinfectant. From a practical perspective, the study underlines that disinfectants should be
used at the lethal concentrations recommended by the manufacturers. Further studies are needed
to elucidate whether the changes in virulence gene expression induced by the disinfectants have
impact on virulence or other biological properties, such as antibiotic resistance

Rapid Alert System for Food and Feed: The semicarbazide notifications
Veterinarni Medicina, 54, 561-564

The recently instituted and easily accessible Rapid Alert System for Food and Feed (RASFF) has been
tested on the semicarbazid (SEM), the residue of veterinary antibiotic nitrofurazone, using the RASFF
Database Portal launched in July 2009 by the European Commission. The database holds weekly
overviews, published by the EU for 30 years from 1979 and offers a number of other possibilities, such as
searching for subjects of notification, the date of notification, notifying countries and product categories,
countries of product origin and distribution. There is no doubt that the new database portal is an important
contribution of the European Union to food safety and consumer protection