Editorial

Among the micro-organisms discovered by Escherich, he intensively investigated the “Bacterium coli commune”, which 8 years after his death in 1911, was named for the first time “*Escherichia coli*”. This posthumous honour made Escherich worldwide known in the medical profession. The importance of *Escherichia coli* among commensal in the gut and as pathogenic bacteria in the gut and at other mucosae is immense. Additionally, since the birth of molecular cloning, *E. coli* has been used as a host for introduced DNA sequences and today, it still is used in labs worldwide as a host for foreign DNA sequences and their protein products.

The first meeting on *E. coli* and the mucosal immune system (ECMIS) was organized in the beautiful city of Ghent at the Faculty of Bioscience Engineering exactly 100 years after Escherich’s death. Four years later Eric Cox, Bert Devriendt and Herman Favoreel (Laboratory of Immunology, UGent) organized a second meeting in cooperation with their colleagues Daisy Vanrompay (Bioscience Engineering, UGent), Henri De Greve (VIB lab of structural and Molecular Biology, Free University of Brussels), Bruno Goddeeris (Faculty of Bioscience Engineering, KULeuven) and Jacques Mainil (Departement of Infectious Diseases, Université de Liège). The location was now “het Pand”, a beautiful old Dominican monastery located in the heart of the city on the banks of the river Leie, which has become the culture and congress centre of Ghent University.

The meeting aimed to bring together basic scientists and clinicians working on *Escherichia coli* and the mucosal immune system in particular focusing on the interaction of these intriguing microorganisms with the mucosal epithelium, on the mechanisms they use to modulate the host immune response and on progress in prevention and vaccination strategies for humans and animals. Fourteen international specialists with outstanding reputation in their fields were invited to present their newest data. Furthermore, 24 submitted abstracts were selected for oral presentations and 20 additional posters were displayed.

In this special edition of Veterinary Microbiology, several of the great presentations during the symposium can be found, starting with the keynote lectures by Harry Dawson, one of the pioneers in comparing the genome and transcriptome of different species. In his paper he gives an in-depth comparison of porcine, murine and human inflammasome and links this with *E. coli*. Four of the papers in this issue deal with a group of *E. coli* that uses the type III secretion system and intimin to interact with intestinal epithelial cells (Shiga toxin producing *E. coli* STEC/ enterohaemorrhagic *E. coli* (EHEC)/enteropathogenic *E. coli* (EPEC)): one paper describes the virulotypes of enterohaemolysin-producing *E. coli*, serotyped positive isolates and compared human and calf isolates (Fakih et al.); three papers deal with the effects of lactoferrin, a natural antimicrobial, on *E. coli* O157:H7 (Rybarczyk et al.; Kieckens et al., Rybarczyk et al.). A subsequent paper describes the role of different phagocytes in the war against attaching-and-effacing bacterial pathogens using *Citrobacter rodentium* in mice as a model for EPEC /EHEC (Poulin and Chamaillard). Then six papers have enterotoxigenic *E. coli* (ETEC) as central theme. Nguyen et al. describe the prevalence of genetic susceptibility for F4 fimbria and for F18 fimbriae producing *E. coli* in the Flemish pig population. Roubos-Van den Hil et al. optimized an F4ac infection model in pigs taking into account the *MUC4* polymorphism. Coddens et al. show that cranberry extract is effective against colonization of the porcine small intestinal mucosa with F4 and F18+ *E. coli*. Cranberry is known for its beneficial effect on infections with uropathogenic *E. coli* but an effect on enterotoxigenic *E. coli*

had not been described yet. Even though several molecules can interfere with colonisation, one of the main goals in the battle against ETEC and STEC infections remains the development of effective vaccines. One of the hurdles to be taken towards an ETEC vaccine is the poor immune response against the heat-stable enterotoxins (ST) of ETEC. Zhu C *et al.* engineered a live attenuated vaccine vector of *E. coli* that produces an LT-ST fusion protein that could increase immunogenicity. Rausch *et al.* choose for a different strategy. They constructed a toxoid multiepitope fusion antigen that could induce neutralizing antibodies against STa, STb, LT enterotoxins but also against the Shiga toxin 2e (Stx2e) produced in pigs by some F18ab+ *E. coli*. Zhang *et al.* analysed immunisation of mice with CS21 pili or its major subunit LngA and demonstrated inhibition of gut colonization of infection in one of the rare ETEC mouse models. CS21 is one of the most prevalent coli surface antigens of human ETEC.

We hope you will read this special edition of Veterinary Microbiology with highlights out of one of the most trilling recent symposiums on pathogenic *E. coli* in humans, calves, pigs and mice, with as much pleasure as we attended the ECMIS meeting and we hope to see you back on one of our next meetings.

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