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Research interests

- Functional bowel disease
- The role of the gut flora and lumen-mucosal interactions in irritable bowel syndrome

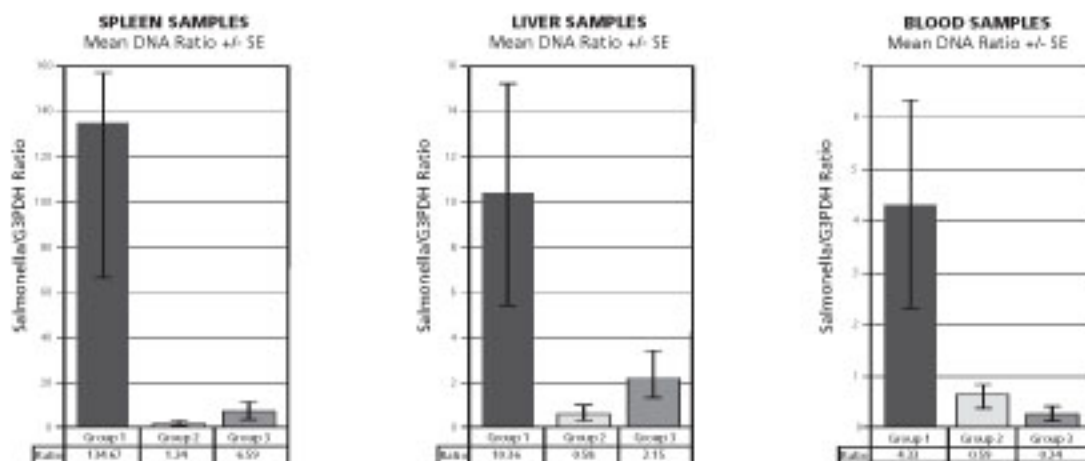
D. Sommerfield J, MacSharry J, O'Mahony D, O'Mahony L, Kiely B, Shanahan F, Quigley EMM
Alimentary Pharmabiotic Centre, Biosciences Institute, U.C.C., Cork, Ireland

Effect of probiotic feeding on *Salmonella* translocation in a mouse model

Aim: To investigate the effect of probiotics on translocation in a mouse model of invasive Salmonellosis.

Materials & Methods: Thirty mature female BALB/c mice were divided into three treatment groups. Group 1, [Control group] and Group 3, [no Bif pre-feeding], were fed with skim milk solution, before infection. Group 2, [Bif pre-Fed], was fed *Bifidobacterium infantis* 35624 for 3 weeks before oral challenge. After 3 weeks, all mice were challenged with 20µl of a 10⁸ CFU/ml solution of *Salmonella typhimurium* UK1 α3761. After challenge, Probiotic feeding was continued for a further six days in groups 2 & 3, with Group 3 receiving their first dose of the Bifidobacterium on the day of oral Salmonella challenge. One week after oral inoculation, the mice were sacrificed. Blood, liver and spleen samples were analysed by molecular methods. Extraction of blood and tissue was performed using the Qiagen DNAeasy Minikit. The DNA in each sample was quantified using Molecular Probes Picogreen dsDNA quantification assay and stored at -20°C until use. Two specific primer pairs were used to amplify and quantify either Salmonella DNA or murine housekeeping gene G3PDH, on a LightCycler, for each sample. The amount of target DNA in each sample was determined using known standards from the LightCycler data. The quantified Salmonella to G3PDH DNA ratio was calculated for each sample.

Results: There was a significant reduction (p<0.05) in Salmonella, detected by LightCycler, in blood, liver and spleen samples from Group 1 compared with Groups 2 and 3.



Conclusion: Using molecular means to detect the presence of salmonella DNA from mouse tissues and blood, it was demonstrated that Probiotic feeding reduces the amount of translocating Salmonella bacteria. Pre-feeding did not offer any additional advantage.