**The Bacterial Species Campylobacter jejuni Induce Diverse Innate Immune Responses in Human and Avian Intestinal Epithelial Cells**

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**Abstract:**

*Campylobacter* remain the major cause of human gastroenteritis in the Developed World causing a significant burden to health services. *Campylobacter* are pathogens in humans and chickens, although differences in mechanistic understanding are incomplete, in part because phenotypic strain diversity creates inconsistent findings. Here, we took *Campylobacter jejuni* isolates (*n* = 100) from multi-locus sequence typed collections to assess their pathogenic diversity, through their inflammatory, cytotoxicity, adhesion, invasion and signaling responses in a high-throughput model using avian and human intestinal epithelial cells. *C. jejuni* induced IL-8 and CXCLi1/2 in human and avian epithelial cells, respectively, in a MAP kinase-dependent manner. In contrast, IL-10 responses in both cell types were PI 3-kinase/Akt-dependent. *C. jejuni* strains showed diverse levels of invasion with high invasion dependent on MAP kinase signaling in both cell lines. *C. jejuni* induced diverse cytotoxic responses in both cell lines with *cdt*-positive isolates showing significantly higher toxicity. Blockade of endocytic pathways suggested that invasion by *C. jejuni* was clathrin- and dynamin-dependent but caveolae- independent in both cells. In contrast, IL-8 (and CXCLi1/2) production was dependent on clathrin, dynamin, and caveolae. This study is important because of its scale, and the data produced, suggesting that avian and human epithelial cells use similar innate immune pathways where the magnitude of the response is determined by the phenotypic diversity of the *Campylobacter* species.

**Biography of presenting author** (should not exceed 100 words)

Dr Thomas S. Wilkinson studied Pharmacology at the University of Bath, UK and graduated in 1997. He then joined the research group of Prof Nick Topley at Cardiff University and received his PhD degree in 2001. After two periods of postdoctoral research in Seattle, USA and Edinburgh, UK he gained his first academic position in 2008 at Swansea University where he is now Associate Professor. Dr. Wilkinson, specializes in barrier immunity and host / pathogen responses in humans and chickens. He has published more than 40 research articles.

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Presentation Category: (Oral Presentation)

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