

The Effect of the Introduction of the *Salmonella* Plasmid Virulence (*spv*) genes of *Salmonella typhimurium* into other *Salmonella* serotypes

J.E. Olsen¹, D.J. Brown¹ and D.J. Platt²

The *Salmonella* Plasmid Virulence (*spv*) genes from *Salmonella typhimurium* have been introduced into 32 different serotypes of *Salmonella enterica* by means of a conjugative cointegrate plasmid, pOG669, derived from the serotype associated virulence plasmid (SAP) of *S. typhimurium* and a 54 kb IncX resistance plasmid (pOG670). The cointegrate was found to be incompatible with the serotype associated virulence plasmids (SAP) in *S. typhimurium*, *S. enteritidis*, *S. dublin*, *S. choleraesuis*, *S. gallinarum* biovar *gallinarum*. The SAP of *S. dublin* was also incompatible with pOG670.

Salmonella strains and their pOG669 and pOG670 containing derivatives were tested for mouse virulence following intraperitoneal (i.p.) inoculation in Balb/c mice. Replacement of the SAPs present in *S. typhimurium*, *S. enteritidis*, *S. dublin* or *S. choleraesuis* with pOG669 did not alter mouse virulence after intraperitoneal inoculation. Similarly, replacement of the SAP in a strain of *S. gallinarum* biovar *gallinarum* by pOG669 did not affect the virulence for chicks as ascertained by viable counts obtained at different times from organs after oral inoculation of day old chicks. No effect on mouse virulence was observed when pOG670 was introduced into any of the serotypes tested except that *S. dublin* became avirulent following displacement of the resident virulence plasmid by pOG670. The mouse virulence of 27 other *Salmonella* serotypes not associated with SAPs was not increased by the presence of pOG669.

These observations strongly suggest that whereas the *spv* locus is necessary for salmonella virulence in mice there appear to be host strain factors required for the expression of virulence.

¹ Department of Veterinary Microbiology, The Royal Veterinary and Agricultural University, Bülowsvej 13, DK 1870 Frederiksberg C., Denmark.

² University Department of Bacteriology, Royal Infirmary, Castle Street, Glasgow, G4 0SF, Scotland.