

Campylobacter jejuni flagella is controlled short for optimal pathogenesis.

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Campylobacter jejuni virulence proteins (Cia's) are known to be secreted through the flagellar type 3 secretion system. A cell has bipolar flagella. The flagellar length is well controlled short about one-helical turn. It is not clear how flagellar length is controlled short. It is reported that longer flagella secrete less Cia's than short ones. We suspected that flagellar length might directly control the secretion of Cia's. In this study, as a candidate for length control, we chose the *flaG* gene that is encoded within the operon of the *fliD-fliS* genes involved in flagellin secretion. A *flaG*-deletion mutant constructed produced long flagella with about three-helical turns. We also confirmed that FlaG was secreted into medium. Together with previous data, we conclude that the FlaG controls flagellar length; short enough to fulfill pathogenesis and long enough to propel the cell body. We discuss the control mechanism of *C. jejuni* flagellar length using a closed-circuit regulation system.