Experimental Infection of *Helicobacter pullorum* in B6.129P2-IL-10^{tm1Cgn} Mice

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Helicobacter pullorum, an enterohepatic *Helicobacter* species, is associated with gastroenteritis and hepatobiliary disease in humans and chickens. *H. pullorum* infection in barrier-maintained BN/MolTac rats and C57BL/6NTac and C3H/HeNTac mice has been recently described. We subsequently established that persistent *H. pullorum* infection is observed in naturally infected C57BL/6NTac mice obtained for longitudinal studies. For this study, infection of interleukin-10$^{-/-}$ (IL-10$^{-/-}$) mice on a C57BL/6 background with *H. pullorum* was explored as a possible model for inflammatory bowel disease; this model has been previously used for other experimental *Helicobacter* species infectivity studies in mice. Forty *Helicobacter*-free IL-10-/- mice were inoculated by orogastric gavage with 200µL (2 x 10^8 CFU) of *H. pullorum* in *Brucella* broth once every other day for three doses, while 20 age-matched controls were sham-dosed with *Brucella* broth. Mice were monitored every 2-3 weeks by fecal PCR using *H. pullorum* cytolethal distending toxin B-specific (*cdtB*) primers and *H. pullorum*-specific ELISA over the following 24 weeks. All mice were confirmed *H. pullorum* PCR positive by 2 weeks postinfection (WPI) using pooled fecal sampling by cage. At 4-6 WPI, 5/10 mice necropsied depicted weight loss and rectal prolapsed, with all 10 mice positive by PCR for *H. pullorum* (10/10 fecal, 9/10 cecal, and 7/10 colonic samples). By 12 WPI, only 1/10 mice necropsied depicted weight loss. *H. pullorum* was detected in all 10 mice by PCR-based assays (10/10 fecal, 8/10 cecal, and 10/10 colonic samples). IgG seroconversion was observed in 7/10 and 8/10 *H. pullorum*-infected mice at 6 and 12 weeks, respectively. Histologic lesions in *H. pullorum* consistent with typhlocolitis were observed; however, statistical significance could not be established when compared to the *Helicobacter*-free control group at either timepoint. These preliminary findings suggest that the B6.129P2-IL-10^{tm1Cgn} mouse offers promise in dissecting the *in vivo* pathogenesis of *H. pullorum.*