Helicobacter pylori ?-glutamyl transferase contributes to colonization and differential recruitment of T cells during persistence.

Abstract:
Helicobacter pylori ?-glutamyl transferase (gGT) is a key bacterial virulence factor that is not only important for bacterial gastric colonization but also related to the development of gastric pathology. Despite accumulating evidence for pathogenic and immunologic functions of H. pylori gGT, it is still unclear how it supports gastric colonization and how its specific effects on the host's innate and adaptive immune responses contribute to colonization and pathology. We have compared mice showing similar bacterial load after infection with gGT-proficient or gGT-deficient H. pylori to analyse the specific role of the enzyme during infection. Our data indicate that H. pylori gGT supports initial colonization. Nevertheless, bacteria lacking gGT can still colonize and persist. We observed that the presence of gGT during infection favoured a proinflammatory innate and adaptive immune response. Notably, H. pylori gGT activity was linked to increased levels of IFN?, which were attributed to a differential recruitment of CD8+ T cells to the stomach. Our data support an essential role for H. pylori gGT in gastric colonization and further suggest that gGT favours infiltration of CD8+ cells to the gastric mucosa, which might play an important and yet overlooked role in the pathogenesis of H. pylori.