**The Study of H. pylori-host Epithelial Interactions**

**Jason Wei**, Michael Schumacher, Rui Feng, Kyle McCracken and Yana Zavros

Department of Molecular Cellular Physiology, University of Cincinnati, OH

**Introduction:**

Gastric cancer is the second leading cause of cancer related death worldwide. Chronic gastric inflammation typically caused by *Helicobacter pylori (H. pylori*) is the most consistent lesion leading to cancer. It is known that the virulence factor CagA from *H. pylori* binds with c-Met, a hepatocyte growth factor receptor, to activate a proliferative response. Furthermore, recent study has shown that CD44 to be a gastric cancer stem cell marker which is known to be relevant in inducing cell proliferation when it translocate into the nucleus. CD44v6, a variant of CD44, acts as a co-receptor for the c-Met.

**Aims/Hypothesis**

We hypothesized that H. pylori virulence factor CagA induces phosphorylation of c-Met which co-activates CD44v6 to cause a downstream activation contributing to a proliferative response within gastric epithelial cells and an upregulation of CD44v6.

**Methods**

Organoid gastric cultures were grown from fundic glands from mouse stomachs and human derived induced pluripotent stem cells. The matured organoids were injected with wildtype, CagA mutant H. pylori and Brucella broth to observe the effects of H. pylori infection. The mouse organoid cultures were lysed and a western blot was performed to test a formation of a complex between c-Met and CD44v6. The human organoids were stained with a fluorescent CD44v6 antibody to observe the upregulation of CD44v6.

**Results/Summary**

In the experiment, the immunoprecipitation of mouse organoid for phosphorylated c-Met and CD44v6 showed that the two proteins form a complex when infected with H. pylori. This data indicates that CD44v6 is a component that is necessary for the activation of downstream cascade that causes a proliferative response. In the human organoid cell culture, we observe an increase of CD44v6 expression in cells that were infected with H. pylori. This suggests that the CD44v6 is a possible marker used to identify gastric cancer caused by H. pylori.