

FINAL PROJECT REPORT

Date: 27-1-10

Name:

Dr Kenny Chitcholtan

Project Title:

Do *Helicobacter pylori* outer membrane vesicles (OMVs) compromise the integrity of Gastric epithelial cells?

Please copy the "Outcome(s)" statement, entered on your application form, in the space below.

We previously reported that outer membrane vesicles (OMVs) from *H. pylori* can exert measurable effects on the transformed gastric cancer cell line (AGS cells). In this study, we further investigated the effect on primary gastric epithelial cells which were isolated from healthy patients. We proposed that primary gastric epithelial cells were an appropriate cell model to study the early response to *H. pylori* colonisation. The main objective of this study was to determine whether OMVs can alter cell polarity and integrity of epithelial cells. We used biochemical and cell biological techniques to analyse the outcomes. We found that OMVs can alter the distribution of junctional proteins responsible for maintaining cell morphology and cell polarity. Furthermore, OMVs reduced the expression of those proteins. We further compared cell morphology, expression and distribution of junctional proteins of primary gastric cells with expression in a transformed gastric epithelial cell (MKN-7). Interestingly, OMVs also altered cell morphology, and distributions of junctional proteins in MKN-7 cells. Thus, our results suggested that OMVs from *H. pylori* may trigger the onset and also increase the risk of gastric cancer.

Will your work contribute to this outcome(s) in the manner you envisaged? If not, what has changed?

This study was not completed as my position as the Post Doctoral fellow was finished in June 2009. I am no longer working with Dr Jacqui Keenan. However, we had managed to accomplish the main objective of the project. In order to produce a publishable manuscript, there are some minor experiments that need to be completed.

Please copy the "Specific Objective(s)" statement, entered on your application form, in the space below.

To determine if OMVs disrupt the normal cellular processes involved in maintaining gastric epithelium integrity.

Briefly describe how successful you were in achieving the stated objective(s). If the objective(s) was not achieved, explain why that is the case and describe what you did manage to achieve.

The stated object was achieved.

Please confirm delivery of the outputs listed on your application form. If these outputs were not to be delivered, please explain why.

Immunostaining of junctional proteins and cell morphology of primary gastric and transformed cells were completed. Immunostaining of beta 4 integrin and laminin receptor is not yet investigated due to the unavailability of gastric biopsies. Determination of cell death and viability causing by OMVs is not yet completed.