Investigating the expression and function of chaperones and oxidoreductases in Barrett’s Oesophagus and the GI tract.

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Cancers of the stomach and oesophagus (upper gastro-intestinal [GI] system) have a high mortality rate, with over 13,000 people dying from upper GI cancer in Britain every year. One of the major indications for upper GI cancer is Barrett’s epithelium. Barrett’s epithelium starts to grow inappropriately in the oesophagus, often after oesophageal exposure to stomach acid during reflux. However, how Barrett’s epithelium changes from a benign to malignant state is not fully understood. We are approaching this problem by looking at the expression patterns of oxidoreductase and chaperone proteins in the oesophagus and stomach, in Barrett’s epithelium, and in GI cancers, as well as in oesophageal cell lines. Chaperones and oxidoreductases are involved in controlling protein secretion, angiogenesis and the redox environment, and hence may have a role to play in GI cancer development. We are exploring when, how and why these proteins are expressed during the transition from Barrett’s epithelium to cancer. Preliminary findings and the functional significance of our findings will be discussed.