Crosstalk Between β-catenin and ILK Signalling Cascades In Human Oesophageal Squamous Cell Carcinoma of the Oesophagus

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It is well established that both the ILK and β-catenin signalling pathways are crucial regulators of distinct cell adhesion and gene regulatory processes. There is some evidence for crosstalk between the ILK and β-catenin pathways via signalling intermediates such as PI3K, PTEN and GSK3β. The question remains, however, whether a more direct form of crosstalk exists, based possibly on a more intimate relationship between ILK and β-catenin. We have previously shown by western blot analysis that ILK, PTEN and β-catenin are expressed across all five moderately differentiated oesophageal carcinoma cell lines. We hypothesise that physical interactions exist between ILK/PTEN and ILK/β-catenin. In order to confirm this notion, co-immunoprecipitation analysis was performed using antibodies specific for ILK, PTEN and β-catenin. In support of our hypothesis, it was demonstrated that an intact β-catenin was capable of binding to ILK in four of the oesophageal carcinoma cell lines. In contrast, the immunoreactive PTEN polypeptide found to interact with ILK produced a product of smaller molecular weight than the intact PTEN control. To our knowledge this is the first demonstration of direct associations between ILK/PTEN and ILK/β-catenin in carcinoma of the oesophagus. However, what has not been demonstrated is the functional significance of these associations, which is currently under investigation.