MYB regulates invasion and migration in oe33 cells and is a marker of poor prognosis in oesophageal adenocarcinoma

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The MYB transcription factor, important for proliferation, differentiation and apoptosis in many cell types, is upregulated in oesophageal adenocarcinoma (OA). To determine what MYB might be doing, we performed a target gene screen in OE33 cells, using inducible miRNA to reduce MYB expression. Microarray analysis in the presence and absence of MYB identified cell adhesion as the principal process affected. This was confirmed by in vitro studies showing that MYB loss resulted in reduced migration and invasion, likely via the concomitant upregulation of E-cadherin expression.

In parallel, OA tissue sections from 79 treatment-naïve patients were stained for MYB. Patient survival rates and MYB expression data were used to construct Kaplan-Meier survival curves. Expression at the invasive edge was strongly associated with poor survival and there was a significant association between staining at the tumour edge and nodal involvement. Taken together, these data imply that the novel function we have defined for MYB as a regulator of migration and invasion may be important in the progression of the human disease.