

Overexpression of Yeast Bax Inhibitor (BXI1) Increases Cytosolic Calcium Levels

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The Bax Inhibitor (TMBIM) gene family has been linked to different cancers in human patients. Overexpression of the human Bax inhibitor gene, BI-1/TMBIM6 is known to drive the malignant phenotype of prostate cancer cells. Downregulation of BI-1 triggers apoptosis and tumor death suggesting that Bax inhibitor is anti-apoptotic in nature. The budding yeast, *Saccharomyces cerevisiae*, is known to have one TMBIM gene member that we have named BXI1. The protein is localized to the ER and vacuolar membranes. Studies in our lab suggest that it is a calcium channel when overexpressed in *E. coli* yet little is known about its endogenous function in yeast and how it inhibits the killing activity of Bax. To uncover its potential role in regulating calcium dynamics, we have measured the cytosolic calcium levels in yeast cells with loss-of-function and gain-of-function alleles of BXI1. Our preliminary data suggests that Bxi1p functions as a calcium channel in yeast that regulates cytosolic calcium levels.