"PANDER/FAM3B Overexpression Inhibits Cell Death and Affects Cell Migration in MDA-MB-231 Breast Tumor Cells

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Background: *FAM3B/PANDER(Pancreatic-derived factor) is a novel cytokine that induces apoptosis in pancreatic beta-cells and regulates the effects of insulin in peripheral tissues. Our previous results reveal that increased FAM3B expression in DU145 prostate tumor cells inhibits cell death and promotes tumor growth.* ***Aims:*** *We evaluate the role of this cytokine in cell death and migration of a breast adenocarcinoma cell line.* ***Methods****: We used the breast tumor cell line MDA-MB-231-overexpressing FAM3B and cells transfected with the empty vector as control. Cell viability and apoptosis of MDA-MB-231 cells stimulated by apoptosis inducers (TNF-a plus cycloheximide, staurosporine) were measured by using MTT assay and DNA fragmentation by flow cytometry. The gene expression of Bcl-2 family members was quantified by real-time PCR and western Blot. Caspase-3 activity was measured by using fluorometric assays. Cell migration was mesuared with wound healing assay.* ***Results:*** *Cell viability and DNA fragmentation analysis revealed that overexpression of FAM3B inhibits significantly cell death induced by TNF-α plus cycloheximide and staurosporine. The survival advantages provided by FAM3B are accompanied by increasing expression of anti-apoptotic genes Bcl-2 and Bcl-XL and decreasing of caspase-3 activity. In addition, wound healing assay, shown increased rates of cellular migration on cells overexpressing FAM3B.* ***Conclusions:*** *In agreement with previously demonstrated role in prostate tumor cells, FAM3B also was capable to activates pro-survival mechanisms and cell migration in MDA-MB-231 breast tumor cells. These roles involve, at least in part, the activation of Bcl-2-mediated pathways.*

key words: FAM3B, cell death, cell migration.