Evaluating the role of the novel cytokine PANDER (FAM3B) in breast and prostate tumors

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PANDER (Pancreatic-derived factor) was identified as a novel islet-specific cytokine, shown to induce apoptosis in insulin-secreting β-cells. Since *in silico* data revealed that PANDER is expressed by several tumors, we evaluated the role of this cytokine in tumor progression. As measured by quantitative PCR in paired clinical tissue samples, PANDER expression was increased in breast cancer tumors ($n = 30$, $p < 0.05$) and prostate cancer tumors ($n = 6$, $p < 0.05$) at late stages of tumor progression. In both cases, PANDER expression was associated with the presence of metastasis. We observed increased PANDER expression in the highly metastatic and invasive MDA-MB-435 breast tumor line, in contrast to the less metastatic MDA-MB-231 cell line. However, we found a higher expression of PANDER mRNA in the less invasive LnCAP than in the highly invasive Du145 and PC3 prostate tumor cell lines. No significant differences in morphological features and DNA fragmentation were observed in DU145 cells transiently overexpressing PANDER. Additionally, no changes in expression of the Bcl-2 apoptosis-related gene family (Bax, Bad, Bcl-2, $BclX_L$) were evident. In summary, these data suggest a lack of pro-apoptotic activity of PANDER in tumor cells and reveal a putative role for this protein in tumor progression and metastasis; however, the mechanisms are still largely unknown.
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