Screening for genes that are differentially-expressed between gastric cancer cells and gastric tumor sphere cells using the gene chip technique


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ABSTRACT. The purpose of this study was to screen for genes that were differentially expressed between a human gastric carcinoma cell line (HGC-27) and their tumor spheres, using the gene chip technique. The HGC-27 cells and tumor sphere cells were cultured in vitro in a sterile environment. Total RNA was extracted from both samples and purified using a standard TRIzol reagent. Total RNA was then hybridized onto a GeneChip, according to the standard protocols provided by the manufacturers of the GeneChip IVT Express Kit. The resulting fluorescence signals were analyzed and displayed using the Cluster and Treeview software programs. Under the criteria for significant differential expression (≥2-fold difference), 610 up- and 1135 down-regulated genes were identified in tumor sphere cells, compared to HCG-27 cells. These genes were involved in cell growth, signal transduction, tumorigenesis, and many other functional aspects of tumor cells. In conclusion, a number of genes were differentially expressed in tumor sphere cells compared to
HCG-27 cells. In addition, we identified a close correlation between tumor sphere cells and tumorigenesis.

**Key words:** Gastric cancer cells; Tumor spheres; DNA microarray; Gene expression