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Gene expression profiling for targeted cancer treatment

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In 2012, our independent oncology clinic opened the door with an innovative business model for an oncology practice: to identify the blue print of individual patients' tumors by using gene expression profiling for clinical treatment. Each patient had volunteered to utilize this research tool, signed the consent form for tissue procurement & processing, and all patients had metastatic stage IV disease. One patient had failed available NCCI and ASCO guideline protocols with progression of disease. Tumor biopsies (normal and tumor tissue) were preserved in RNA-later media from three different cancer patients (liver, breast and colon cancers). Gene expression profiling was performed using Affymetrix Human Genome U133 Plus 2.0 array and data analysis was done by using Pathway Studio software from Elsevier. Doing subtraction analysis we identified the major signal transduction pathways for each type of cancer's proliferation and treated each patient with specific drugs targeting their own tumor's blueprint based on up- or down regulated genes from their individual profile. Currently, these individuals are still receiving treatment, but all three have already outlived overall survival estimates based on standard of care treatment. One patient has undergone repeat surgical resection & biopsy for further analysis of how her tumor has evolved under initial treatment to determine which specific combination of molecularly-targeted drugs are necessary to inhibit multiple signal transduction pathways in order to achieve apoptosis of her hepatocellular carcinoma cells for the next best option for treatment and continuing survival.

Biography

Luminita Castillos received a PhD in Physiology and an MBA degree for Kenan-Flager Business School Chapel-Hill North Carolina. She went on to complete three Postdoctoral fellowships in cancer research using *in-vitro* and *in-vivo* studies, gene expression profiling, laser capture microscopy and many other molecular biology studies. She launched a unique independent oncology clinic in 2012 which translates gene expression profiling data into an actionable clinical practice based on a patient's unique cancer.

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