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Brain - specific gene signature during cancer metastasis

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The development of cancer metastasis depends on multiple interactions between selected metastatic cells and homeostatic mechanisms unique to some organ microenvironment. The organ microenvironment can influence the biology of cancer growth, angiogenesis, metastasis, and chemotherapy. Our aim is to identify the differentially expressed transcripts in brain compared to other tissues. We growed a human melanoma cell line A375 SM in subcutis, lung, and brain in nude mice. We next extracted RNA and performed a RNA microarray analysis. Biotin-labeled cRNA samples for hybridization were prepared by using Illumina Total Prep RNA Amplification Kit. Total RNA were used for the synthesis of cDNA and followed by an amplification and biotin labeling. The biotinylated cRNAs was hybridized to Illumina Human-6 BeadChip v.2 microarray. Signals were developed by Amersham fluorolink streptavidin-Cy3.Gene expression data were collected by using an Illumina bead Array Reader confocal scanner. Univariate analysis is performed to identify differentially expressed transcripts using t-test in each of these comparisons. The p-values obtained by multiple t-tests are corrected for FDR by BUM method. With an FDR threshold of 0.05, there are 782, 193 and 522 significant transcripts in the comparisons of brain vs cell line, brain vs. subcutis and brain vs lung, respectively. This research shows that tumor microenvironments affect gene expression and might play an important role cancer metastasis.

Biography

Taichun Qin has completed his Ph.D and one postdoctoral fellowship from University of Texas, MD Anderson Cancer Center. In addition, he received Equivalent Pharmacy Degree Certificate from National Association of Board of Pharmacy in USA. He is currently a Senior Research Fellow at the University of Texas, MD Anderson Cancer Center. He has published more than 10 papers in reputed journals and given more than 20 presentations in international conferences. He serves as a reviewer for Anti-Cancer Drugs, Acta Pharmacol Sinica, and Clinical Cancer Research as well on editorial board of Journal of Bioanalysis and Biomedicine.

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