

Genetic biomarkers for metastatic melanoma

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We hypothesize that the heterogeneous outcomes of melanoma are genetically determined. Sixty two melanoma-related genes have been categorized from the literature to compare the functional genes between metastatic melanoma and their skin controls. The 62 gene transcripts were tested against 20 frozen metastatic melanoma samples and their skin counterparts with normalization to five housekeeping genes, following approval by the institutional IRB. RNA expression was quantified directly from tissue homogenates by the QuantiGene[®] Plex branched DNA assay. Seven genes demonstrating the most significant difference in expression differences (p-values 1.28E-09 -1.93E-06) between melanoma and normal skin when analyzed by Cluster Analysis and Principal Component Analysis were studied using Formalin Fixed Paraffin Embedded (FFPE) tissues by the branched DNA *in situ* RNA expression technology QuantiGene[®] ViewRNA. Of these 7 genes, 4 genes were upregulated in the melanoma metastases versus normal skin tissues. These 7 candidate genes gave signal differences both in intensity and/or spatial recognition between melanoma and normal skin tissue microenvironments relating to angiogenesis, immune response/inflammation, DNA replication, cell proliferation/motility, tissue invasion/progression, epidermis development, cell communication and morphogenesis. We conclude that a novel set of melanoma-associated genes was found in this discovery phase. Future studies may include *in situ* QuantiGene[®] ViewRNA assay from FFPE sections in a large cohort of melanoma patients with detailed clinical outcomes to determine the significance of these genes.

Biography

Dr. Stanley P.L. Leong received his MD and MS degrees from Tulane University. He completed a surgical oncology fellowship at the NCI. He is currently Chief of Cutaneous Oncology, Associate Director of the Center for Melanoma Research and Treatment at the California Pacific Medical Center and Senior Scientist at the California Pacific Medical Center Research Institute as well as Professor Emeritus of Surgery at the University of California, San Francisco. He has published over 140 peer-reviewed articles and 12 books and serving on several editorial boards of repute. His research interests include cancer metastasis, sentinel node biology and cancer immunology.