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Salivary protein profiles for modeling breast cancer progression

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Abstract

Introduction: Currently, there are three major methods for creating models for studying breast cancer progression. The three methods utilize either breast cancer tumor cell lines, xenografts of cell lines and genetically engineered mice. Hence, an adjunct, in vivo model system is needed to study breast cancer tumor genesis and predictive modeling for treatment response. **Purpose:** The objective of this study was to compare the salivary protein profiles from individuals diagnosed with breast cancer that were either HER2/neu receptor positive or negative in order to determine if altered salivary protein profiles could be used to study breast cancer progression. **Methods:** Two pooled saliva specimens underwent proteomic analysis. One pooled specimen was from women diagnosed with stage IIa HER2/neu-receptor-positive breast cancer patients (n =10) and the other was from women diagnosed with stage IIa HER2/neu-receptor-negative cancer patients (n = 10). The pooled samples were trypsinized and the peptides labeled with iTRAQ reagent. Specimens were analyzed using an LC-MS/MS mass spectrometer**. Results**: The results yielded approximately 71 differentially expressed proteins in the saliva specimens. There were 34 up-regulated proteins and 37 down-regulated proteins. The results of the study suggest salivary protein alterations secondary to HER2 receptor status. **Conclusion:** The preliminary findings suggest that this in vivo model system, may fill in the current gaps in our understanding of breast cancer pathogenesis, signaling pathways, the efficacy of varying chemotherapeutics, and identifying novel therapies. Most importantly, this new approach may shed new light on metastatic progression that is the principle cause of patient mortality.

Biography

Dr. Charles F. Streckfus is a professor at the University of Texas School of Dentistry at Houston. He has published numerous peer-reviewed journal articles and has been invited to speak at many national and international conferences. He has received many honors and awards which include the National Institutes for Dental Research: Merit Award, the Gerontological Society of America: Certificate of Recognition, the American Academy of Oral Medicine, Professional Service Award, and received the prestigious President's Award for Scientific Excellence, Presented by the International Society for Preventive Oncology, 6th International Symposium Predictive Oncology Intervention Strategies, Pasteur Institute, Paris France, 2002.

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