Title:	Gene expression profiling reveals biological pathways responsible for phenotypic heterogeneity between UK and Sri Lankan oral squamous cell carcinomas
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Abstract:	Objectives: It is well recognized that oral squamous cell carcinoma (OSCC) cases from Asia that are associated with betel quid chewing are phenotypically distinct to those from Western countries that are predominantly caused by smoking/drinking, but the molecular basis of these differences are largely unknown. The aim of this study is to examine gene expression, related carcinogenic pathways and molecular processes that might be responsible for the phenotypic heterogeneity of OSCC between UK and Sri Lankan population groups. Methods: We have compared the gene expression profiles of OSCCs and normal oral mucosal tissues from both Sri Lankan and UK individuals using Affymetrix gene expression arrays. The generated data was interrogated using significance analysis of microarrays and Ingenuity Pathway Analysis (IPA).

	Results: The gene expression profiles of UK and Sri Lankan OSCC are similar in many respects to other oral cancer expression profiles reported in the literature and were mainly similar to each other. However, genes involved in tumor invasion, metastasis and recurrence were more obviously associated with UK tumors as opposed to those from Sri Lanka. Conclusion: The development of OSCCs in both UK and Sri Lankan populations appears largely mediated by similar biological pathways despite the differences related to race, ethnicity, lifestyle, and/or exposure to environmental carcinogens. However, IPA revealed a highly activated ''Cell-mediated Immune Response'' in Sri Lankan normal and tumor samples relative to UK cohorts. It seems likely, therefore, that any future attempts to personalize treatment for OSCC patients will need to be different in Western and Asian countries to reflect differences in gene expression and the immune status of the patients.
Keyword:	gene expression profiling; microarray; oral squamous cell carcinoma; uk; sri lanka; biological pathways; neck-cancer; colorectal-cancer; lymphocyte subpopulations; matrix metalloproteinases; cyclooxygenase-2 pathway; tumor angiogenesis; adhesion molecule; prognostic marker; akt/pkb pathway; messenger-rna
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