Saira Saleem, J Cell Sci Ther 2016, 7:1 (Suppl)
http://dx.doi.org/10.4172/2157-7013.C1.035

OMICS International
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6th World Congress on
Cell & Stem Cell Research
February 29-March 02, 2016 Philadelphia, USA

Patterns of cancer cell sphere formation in primary cultures of human oral tongue squamous cell carcinoma and neck nodes

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Recently a subpopulation of cells with stem cell characteristics, reported to be associated with initiation, growth, spread and recurrence, has been identified in several solid tumors including oral tongue squamous cell carcinoma (OTSCC). The aim of our pilot study was to isolate CD44+ cancer stem cells from primary cultures of OTSCC and neck node Level I (node-I) biopsies, grow cell spheres and observe their characteristics in primary cultures. Parallel cultures of hyper plastic lesions of tongue (non-cancer) were set up as a control. Immunohistochemistry was used to detect CD44/CD24 expression and magnetic activated cell sorting to isolate CD44+ cell populations followed by primary cell culturing. Both OTSCC and node-I biopsies produced floating spheres in suspension, however those grown in hyper plastic and node-I primary cultures did not exhibit self renewal properties. Lymph node metastatic OTSCC, express higher CD44/CD24 levels, produce cancer cell spheres in larger number and rapidly (24 hours) compared to node negative OTSCC (1 week) and non-cancer specimens (3 weeks). In addition, metastatic OTSCC have the capacity for proliferation for up to three generations in primary culture. This *in vitro* system will be used to study cancer stem cell behavior, therapeutic drug screening and optimization of radiation dose for elimination of resistant cancer cells.

Biography

Saira Saleem has earned her PhD degree from the University of Bradford, UK as an awardee of Chancellor Cancer Research Studentship: A collaborative PhD scholarship offered by University of Bradford, UK and SKMCH&RC, Pakistan.

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