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Cancer Stem Cells: An Evolving Concept in Head and Neck Squamous Cell Carcinoma

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Human head and neck squamous cell carcinoma (HNSCC) is a highly heterogeneous disease worldwide. The current evolutionary progression model has limitations in explaining the heterogeneity existing in a single tumor nest. Hence, understanding the biology of HNSCC progression is necessary for the development of novel approaches to its prevention, early detection and treatment and to determine the prognosis. Recent evidence supports the existence of cancer stem cells (CSCs) as small subpopulations that plays an important role in the pathobiology of solid tumors, including HNSCC. These cells are able to self-renewal in vitro, give rise both to other tumor stem cells and most advanced cells in the line of differentiation. A final characteristic is tumorigenicity, which outlines the tumor stem cell as the only cell able to initiate the formation of a tumor when implanted in immune-deficient mice. Despite advances in diagnostic and therapeutic methods, survival of HNSCC remains unchanged over the last 30 years with treatment failure and metastases being the strongest indicators of poor prognosis. Notably, current evidence suggests that, it is not possible to isolate stem cells from all types of neoplasia and are extremely resistant to conventional therapy. Since, these are the drivers of local recurrence and metastatic spreads which may eventually lead to the lack of treatment success, there is an urgent need in the better understanding of CSCs biology and identify them as potential target in new treatment modality.

Biography

Dr. Divya. S has completed her MDS in Oral and Maxillofacial Pathology from Vydehi Dental College and Research Centre affiliated with Rajiv Gandhi Universities of Health Sciences (RGUHS), Karnataka, India. She is a one among the rank holders in RGHS during her post- graduation in the year 2014. She is a senior lecturer in Department of Oral and Maxillofacial Pathology and scientist in the Department of Molecular Genetics & Stem Cell Research. She is currently working on Cancer Stem Cells, to identify biomarkers present on CSCs, drug targets and drug resistance.

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