

EVIDENCE FOR A MOLECULAR SIGNATURE OF METASTATIC POTENTIAL OF AN ORAL SQUAMOUS CELL CARCINOMA CELL LINE

C O Rodini¹, N M Lopes¹, R A Alavarce¹, T J Dionísio¹, R C Ortiz¹, N G Amôr¹, R F Buzo¹ and E Graner²

¹University of Sao Paulo, Brazil

²University of Campinas, Brazil

Recent evidences show that there is a link between cancer stem cells (CSC) and the process of epithelial-mesenchymal transition (EMT). The purpose of the present study was to *in vitro* evaluate the combination of the biological properties related to CSC and EMT phenotypes with the invasive and metastatic behavior of the corresponding primary and metastatic oral squamous cell carcinoma (OSCC) cell line SCC-9. To accomplish this parental (SCC-9 ZsGreen) and metastatic (SCC-9 ZsGreen LN-1) OSCC cell lines, obtained after *in vivo* tumorigenesis assays, were initially characterized regarding the ability of migration and invasion by *in vitro* scratch and 3D invasion assays, respectively. Further, qRT-PCR was conducted to verify the differential expression levels of CSC (CD44, BMI-1, ALDH-1 and p75NTR) and EMT (SNAIL1, TWIST1, AXL, vimentin, E-cadherin and N-cadherin) markers in both tumor cell lines, using human palate epithelial cells (HPEC) as control. The study provides evidence of a CSC subpopulation within the metastatic cell line undergoing EMT to acquire greater migratory and invasion capacities, depending on the simultaneous overexpression of CD44, AXL, vimentin and N-cadherin, associated with loss of E-cadherin. This can be considered as a “molecular signature” of CSCs undergoing EMT (EMT-CSC) in OSCC, with potential to be used clinically in the classification of tumors with higher or lower metastatic potential, as well as to support new therapeutic strategies against this neoplasm.

BIOGRAPHY

C O Rodini has completed her PhD at the age of 30 years from University of São Paulo, Brazil. She is an Assistant Professor of Biological Sciences at Bauru School of Dentistry, University of São Paulo, since 2010. She has 36 publications that have been cited over 200 times, and her publication H-index is 11. She has been responsible for two ongoing grants funded by the Brazilian government (FAPESP). She is the head of the research group “Cancer Stem Cells in Head and Neck Cancer”, studying the role of cancer stem cells and tumor microenvironment in the process of invasion and metastasis of oral squamous cell carcinoma.

carodini@usp.br



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