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Store operated calcium entry in oral cancer cell line

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Oral cancer is the sixth most common cancer in the world and the third most common cancer in developing countries including India in both men and women. Mortality from oral cancer was shown 97,919 for male and 47,409 for female worldwide in year 2012. This necessitates the need of new drug targets for oral cancer. Store operated calcium entry (SOCE) is one of the key Ca^{2+} signaling mechanisms in most cells which play many pivotal roles in different patho-physiological processes including cell division, secretion, fertilization, cell migration etc. With the literature showing the involvement of SOCE in cancer pathology, we hypothesized that SOCE may be important in patho-physiology of oral cancer as well. We have selected oral cancer cell lines as model and first checked the mRNA expression of store operated calcium channel (SOCC) genes using RT-PCR. We measured SOCE using Fura-2AM, a membrane permeable ratio-metric calcium indicator. Upon adding increasing concentrations of LaCl₃ we have observed a decrease in SOCE. We have used SOCE chemical inhibitors to check the proliferation of oral cancer cells by MTT assay. We have observed a minimal inhibition at high concentration of inhibitors. Moreover, we plan to check with other reported inhibitors and anti-sense oligo-nucleotides to elucidate the role of SOCE in proliferation, invasion, migration and secretion functions of oral cancer cells.

Biography

Anuj Kumar Singh has completed his B E from Vinayaka Mission University and M-Tech from Bharath University. He is currently pursuing PhD from Department of Bioscience & Bioengineering, IIT Guwahati. He has published 2 papers related to breast cancer and ROS scavenging hormones.

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