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Nucleoplasmic calcium arising as a new targeting to treat epithelial cancers

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Conventional cancer therapies have been shown lower overall survival especially to treat epithelial tumors which has encouraged researchers worldwide to search for new approaches that could be able to improve chemotherapy effects as well as radiotherapy. In this scenario the main challenge is to find one method with higher selectivity to tumor cells rather than normal tissues avoiding severe sequels. This lecture will address the role of nucleoplasmic calcium as a potential new therapeutically cancer targeting to impair tumor cell proliferation and migration. Our research group already demonstrated that nuclear calcium buffering decreases tumor hepatic cell proliferation *in vitro* as well as *in vivo* through mitosis blocking even as the asparaginyl endo peptidase legumain expression reduction. Recently, we found the action of nuclear calcium buffering in the prevention of *a disintegrin and metalloproteinase (*ADAM-17) and epidermal growth factor receptor (EGFR) overexpression induced by ionizing radiation on human squamous cell carcinoma. Moreover, association of nuclear calcium buffering and X-rays is able to decrease survival fractions in 90%. Likewise, proliferation rate also decreased under nuclear calcium buffering in squamous cell carcinoma, without alteration on non-tumorigenic cells.In addition to these subjects, attendees of this lecture will be familiarized with the importance of calcium signaling patterns to cellular physiology and the proposal of nucleoplasmic calcium as a promising new targeting to epithelial cancer even as an adjuvant method to improve the beneficial radiotherapy effects.

Biography

Lídia Maria de Andrade is a dentist, MSc in Nuclear Sciences and PhD in Health Sciences at René Rachou Research Centre, Brazil, with an internship in cell dynamics and non-invasive functional images at Radboud UMC, The Netherlands. She was Head of Radiology Technology Department at José do RosárioVellano University, wrote the book chapter Calcium signaling and the cancer cell growth in: Calcium signaling: cellular biochemistry and physiology and has published 16 papers in reputed journals and received Honorable Mention during the Third Week of Knowledge for having stood out among the best papers presented at Federal University of Minas Gerais, Brazil.

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