20TH CONGRESS OF THE INTERNATIONAL UNION FOR PURE APPLIED BIOPHYSICS (IUPAB)

50TH ANNUAL MEETING OF THE BRAZILIAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY (SBBQ)

45TH CONGRESS OF BRAZILIAN BIOPHYSICS SOCIETY (SBBF)

13TH BRAZILIAN SOCIETY ON NUCLEAR BIOSCIENCES CONGRESS

PROGRAM AND ABSTRACT BOOK

October, 2021

20th International Congress of the International Union for Pure Applied Biophysics (IUPAB)

50th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq)

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13th Brazilian Society on Nuclear Biosciences Congress (SBBN)

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.

Ilustração da Capa: Alexandre Takashi

SPBN-05 - *Development of models for tumoral and inflammatory imaging*

SPBN-05.01 - Three-dimensional cellular culture system for testing of biological effects of radiations in tumoral and non-tumoral models

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In vitro cell cultures are a well-known controlled test system used to analyze tumor physiologic responses upon negative stimuli. Updated techniques, us-ing three-dimensional organization of cells in cultures, are being increasingly used to this purpose. Research organizations and industry are striving to pro-duce in vitro tumor surrogates that could be better test systems to antitumor agents as new compounds or to study radiation effects on cancers. The presentation will show some techniques currently used to build and maintain these specific cell cultures, and how experiments are evolving towards the production of tumoroids, or tumoral organoids, which will include various cell types and additive manufacturing
Keywords: 3D cell culture, tumoroids, radiations
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SPBN-05.02 - 131I-Ixolaris development as a theragnostic agent: metastatic melanoma pre-clinical studies

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Metastatic melanoma is a very aggressive neoplasm presenting high mortality rates in a few months and resistance to therapeutic interventions. Previous studies have shown that tissue factor expression (TF), a blood coagulation initiator protein, correlates with the histological grade of malignancy and vascularity, playing a fundamental role in tumor invasion, tumor growth, angiogenesis and metastasis. Ixolaris, a non-immunogenic molecule that specifically binds to TF, has already demonstrated in vivo reduced growth of melanoma tumor metastatic nodules (B16-F10). Thus, the main objectives of this work were: I) To develop an efficient and stable labeling technique of Ixolaris with Iodine-131(131I) which could also maintain its biological activity; II) To study and compare in healthy and melanoma-induced mice, the biodistribution of 131I and 131I-Ixolaris; and III) to evaluate whether 131I-Ixolaris could serve as a metastatic melanoma agent. Ixolaris radioiodination was done using iodogen at room temperature. Quality control was made with paper and liquid chromatography (sephadex G-75). Labeling stability was accessed for 24h and the anticoagulant activity of 131I-Ixolaris was measured using a coagulometer. Planar and SPECT imaging and biodistribution studies were performed after intravenous administration (iv) of 131I or 131I-Ixolaris in a murine melanoma model (B16-F10) divided in 3 groups: I-D0 of induction; II-D15; and III-D1 and D15 (double treatment). Animals were sacrificed at D18. In vitro studies have demonstrated that 131I-Ixolaris is stable at plasma and saline for at least 24h and maintains its inhibitory activity on blood coagulation. Biodistribution studies and lung nodules counts showed that the fractionated use of 9MBq of 131I-Ixolaris (D1/D15) reached better results showing a decrease in lung metastatic nodules. Scintigraphy 90 minutes after iv of 131IIxolaris demonstrated uptake in pulmonary topography. These results suggest that 131I-Ixolaris has a promising future as a theragnostic agent and could serve as a new tool for the management and treatment of metastatic melanoma.
Keywords: Ixolaris, Melanoma, Theragnostic
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