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INTRODUCTION

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).

OBJECTIVES

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.

MATERIALS AND METHODS

Ixolaris radioiodination was done using iodogen at room temperature. Quality control was made with paper and liquid chromatography (sephadex G-75). Labeling stability was assessed 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.

DISCUSSION AND RESULTS

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 131I-Ixolaris demonstrated uptake in pulmonary topography.

CONCLUSION

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
Supported by: CNPq, FAPERJ

SPBN-05.02 - 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, using three-dimensional organization of cells in cultures, are being increasingly used to this purpose. Research organizations and industry are striving to produce 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

Supported by: FAPESP (2017/50332-0), FINEP (23784-17) & IPEN/CNEN-SP

SPBN-05.03 - Derivative from the antimicrobial peptide LyeTx I as potential positron emission tomography (PET) radiopharmaceutical

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INTRODUCTION

Current diagnostic methods and imaging techniques are not able to differentiate infection and sterile inflammation. Thus, reliable methods are sought to provide this distinction and molecular imaging techniques are interesting options, since they are based on physiological changes. In this context, radiolabeled antimicrobial peptides have been investigated as they accumulate in infectious sites instead of aseptic inflammation, due to their selectivity for interaction with microorganism cells rather than with mammalian cells. Previously, the antimicrobial peptide LyeTx I was isolated from the venom of the spider *Lycosa erythrognatha*.

OBJECTIVES

In this lecture, it will be described the development of a ⁶⁸Ga-labeled derivative from LyeTx I as a potential radiopharmaceutical for infection imaging using the PET/CT technique.