

DOI: 10.29289/259453942018V28S1069

IN VIVO IMAGING USING BIOLUMINESCENCE FOR EVALUATION OF ANTITUMORAL EFFICACY IN A BREAST CANCER MODEL

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Objective: To evaluate the Antitumor activity of a liposomal nanosystem containing Paclitaxel and Doxorubicina (pHSL-PTX/DXR), by monitoring the tumor cells bioluminescence *in vivo*. **Methodology:** The tumor cell line 4T1 (adenocarcinoma mammary murine – ATCC CRL-2539) was modified using lentivirus particles Lentifact™ (GeneCopoeia, MD, EUA), according to the manufacturer's protocol. The cells were cultivated in DMEM medium, with fetal bovine serum and antibiotics, 10% and 1%, respectively. The orthotopic implants of 4T1-luc (1×10^5) was performed in the left fifth breast of female Balb/c mouse. Throughout the procedure, the animals were kept under inhalation anesthesia with isoflurane (2.5%). The treatment started after 14 days of tumor induction, in the following groups: *pHSL-PTX/DXR*, *pHSL-DXR*; *pHSL-PTX*, *free DXR*, *free PTX* e *free PTX/free DXR*. The intravenous treatments were performed in 4 doses of 100 µL, three days interval. For the bioluminescence images, 100 µL of D-Luciferin (concentration 150 mg.kg⁻¹) (Sigma) was used. The animals were kept under anesthesia in the Lumina XR IVIS equipment, with 1 minute exposure time. The quantification of the photon signal was processed in the Living Image 3.0 program, Caliper Life Sciences, Alameda, CA. **Results:** The *pHSL-PTX/DXR* treated group system showed the smallest sign of bioluminescence during and after treatment, showing a reduction in tumor mass, and consequently better efficacy against primary breast tumor. There was also a reduction of the light signal in the lung region, indicating a decrease in the metastasis process caused by this type of tumor cell. **Conclusion:** using the *in vivo* bioluminescence method it was possible to evaluate the antitumor efficacy of the liposomal nanosystem *pHSL-PTX/DXR*, and the non-invasive monitoring of pulmonary metastases.