

## Absorbed Dose Estimation of $^{177}\text{Lu}$ -DOTATOC in Adenocarcinoma Breast Cancer Bearing Mice

**Authors :** S. Zolghadri, M. Mousavi-Daramoroudi, H. Yousefnia, F. Abbasi-Davani

**Abstract :** In this study, the absorbed dose of human organs after injection of  $^{177}\text{Lu}$ -DOTATOC was studied based on the biodistribution of the complex in adenocarcinoma breast cancer bearing mice. For this purpose, the biodistribution of the radiolabelled complex was studied and compartmental modeling was applied to calculate the absorbed dose with high precision. As expected,  $^{177}\text{Lu}$ -DOTATOC illustrated a notable specific uptake in tumor and pancreas, organs with high level of somatostatin receptor on their surface and the effectiveness of the radio-conjugate for targeting of the breast adenocarcinoma tumors was indicated. The elicited results of modeling were the exponential equations, and those are utilized for obtaining the cumulated activity data by taking their integral. The results also exemplified that non-target absorbed-doses such as the liver, spleen and pancreas were approximately 0.008, 0.004, and 0.039, respectively. While these values were so much lower than target (tumor) absorbed-dose, it seems due to this low toxicity, this complex is a good agent for therapy.

**Keywords :**  $^{177}\text{Lu}$ , breast cancer, compartmental modeling, dosimetry

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