

INTERNAL DOSIMETRY MODELLING FOR ⁸⁹Zr-LABELLED CHIMERIC MONOCLONAL ANTIBODY U36 BASED ON REAL CLINICAL RESULTS

Zakaly H.M.H.^{1,2}, Mostafa M.Y.A.^{1,4}, Zhukovsky M.^{1,3}

¹) Ural Federal University, Yekaterinburg, Russia

²) Faculty of Science, Al-Azhar University, Assuit, Egypt

³) Institute of Industrial Ecology UB RAS, Yekaterinburg, Russia

⁴) Minia University, Faculty of Science, Department of Physics, El-Minia, Egypt

E-mail: h.m.zakaly@gmail.com

Monoclonal antibodies (MAbs) have been approved for use as diagnostics and therapeutics in a broad range of medical indications, but especially in oncology. Immuno-PET, the tracking and quantification of MAbs with PET in vivo, is an exciting novel option to improve diagnostic imaging.

The dynamic of ⁸⁹Zr-labelled labelled chimeric monoclonal antibody U36 after injection into the human body is modelled based on real clinical results. Results for 20 patients (11 men and 9 women) from published work is used to create a simple biokinetic model. Cumulative ⁸⁹Zr activity in organs and tissues per Bq of administered activity is calculated with the WinAct program. For the most organs receiving the highest radiation exposure, average absorbed doses were estimated with IDAC 2.1 software. The results from the modelled calculations are compared with the published experimental diagnostic results conducted in real patients and with given results by OLINDA software. Based on real clinical results, the recommended value of blood removing biological time is 65 h for Zr-89 labelled with cMab-U36.

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