ABSTRACT

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Title of thesis: Interspecies comparison of plasma protein binding of recently prepared radiopharmaceuticals.

Plasma protein binding is one of the parameters, which significantly influence pharmacokinetics of drug. The aim of this thesis was to determine binding of three potential radiopharmaceuticals to the proteins of human, bovine, rabit and rat plasma by the method of equilibrium dialysis at 37°C. Concretely these compounds were bifunctional chelating agent 111In-DTPA-oxn, the derivative of commonly used chelate DTPA, and two labelled receptor specific peptides- somatostatin analog 177Lu-DOTA-NOC and gastrin derivative 111In-DOTA-MG-1. The results shows that plasma protein binding of 111In-DTPA-oxn is very low and pharmacokinetically unimportant as at the standard compound 111In-DTPA. Plasma protein binding of somatostatin derivative 177In-DOTA-NOC is between 30,0- 41,4 % and increases in order: bovine < rabbit < human < rat plasma. Statistically significant difference to human plasma was found only at bovine plasma. Plasma protein binding of peptide 111In-DOTA-MG-1 was found very low and in spite of significantly higher standard deviation at this measurement can be stated, that it does not influence pharmacokinetics significantly.