

Abstract

Charles University

Faculty of Pharmacy in Hradec Králové

Department of Biophysics and Physical Chemistry

Candidate: Yestay Rakhimov

Supervisor: doc. Erik Jurjen Duintjer Tebbens, Ph.D.

Title of diploma thesis: Mathematics and implementations of physiologically based pharmacokinetic modeling

The thesis addresses some basic aspects of pharmacokinetic modeling, which is used to describe pharmacokinetic processes. Understanding these processes is important for example to determine optimal concentrations of drugs dosing.

The thesis focuses on mathematical proofs of a number of pharmacokinetic equations, which are often not given in standard books. The derived equations are illustrated with numerical experiments for a particular drug in the software PharmCalcCl and MATLAB.