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ModelPK

The pharmacokinetic profile of a drug refers to how a drug moves into, through, and out of the body, and is a critical piece of knowledge in calculating drug doses for clinical or translational projects.

The goal of this package is to make it easier for a bench scientist who is not familiar with PK modeling to visualize and extract basic information about the pharmacokinetic profile of a drug from experimental data. This package can enable the development of PK models that would better inform experimental or clinical drug dosing.

User profile:
This package was designed for bench scientists with a background in chemical or bioengineering who want to visualize and extract information about the pharmacokinetic profile of a drug from experimental data.

Users should have experimental data on in vivo drug concentrations over time and will have knowledge on the route of administration and how the drug is distributed or partitioned throughout the body. Users should be familiar with Python and calling Python functions.

Use cases:

1. Users would input drug name and select most relevant model based on prior knowledge of route of administration and drug distribution in the body
2. System will generate a base model with PK equations based on the model and route of administration chosen
3. Users would input experimental data on drug concentrations over time
4. System will plot the data
5. System will optimize values for PK parameters based on the data and the model equations
6. System will update model with final PK constants and output them to user.