

PBPK/PD Modeling — Hands-on

Learn end-to-end **PBPK/PD** modeling to translate in vitro and preclinical findings into clinically relevant predictions. This hands-on module covers compartmental vs PBPK structures, **IVIVE** and allometric scaling, parameter estimation (nonlinear mixed effects), covariate modeling, and **simulation-based decision making** for dose and regimen selection — delivered as **reproducible workflows**.

PBPK/PD Modeling Fundamentals for Drug Development

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Session 1

Fee: Rs 19800 [Apply Now](#)

PK/PD Basics, Data & Assumptions

Core concepts & study designs

[PK vs PD, exposure-response](#) [noncompartmental analysis \(NCA\)](#) [sampling designs & BLQ handling](#)

Data requirements & QC

[concentration-time, bioanalytical QC](#) [units & dosing records](#) [EDA & outlier strategy](#)

Toolchain

R (nlmixr2/mrgsolve) Stan/TMB PK-Sim/OSPSuite

Session 2

Fee: Rs 22800 Apply Now

Compartmental vs PBPK & IVIVE

Structural model choices

one/two-compartment (+ effect site) PBPK organ
flows/volumes permeability & binding

Scaling & IVIVE

allometry (CL, V) in vitro → in vivo
(microsomes/hepatocytes) first-pass & absorption
models

PD link models

Emax/sigmoid Emax indirect response models
turnover & transit compartments

Session 3

Fee: Rs 25800 Apply Now

Parameter Estimation, PopPK & Covariates

Fitting strategies & diagnostics

FOCEI/SAEM/Bayesian residuals, GOF, VPC bootstrap
& shrinkage

Population variability & covariates

inter-/intra-subject effects age/weight/renal/hepatic
DDI & formulation effects

Model reporting & reproducibility

model file/version control unit tests/simulation

checks model/decision cards

Session 4

Fee: Rs 29800 Apply Now

Mini Capstone: Scenario Simulations & Dosing

Design simulations for decision support

Theory + Practical

What-if scenarios & dose optimization

DDI, renal/hepatic impairment pediatrics/geriatrics
target attainment, PTA/T>MIC

Deliverables

simulation notebook & config VPC/GOF plots &
report dose/regimen recommendation