附 錄

非室體模式 (Noncompartment model)

T_{max}：**藥物到達血中濃度最高之時間** (min)

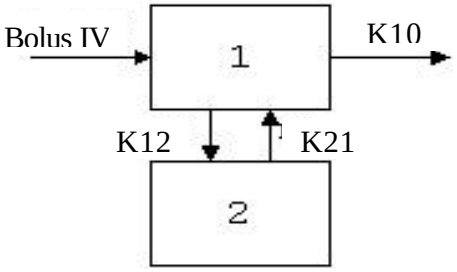
C_{max}：**血中藥物最高濃度** ($nmol \cdot mL^{-1}$)，($ng \cdot mL^{-1}$)

AUC_{0-t} ：**血中藥物濃度對時間之曲線下面積** ($nmol \cdot min \cdot mL^{-1}$)，
($ng \cdot min \cdot mL^{-1}$)

$AUMC_{0-t}$：**第一動差時間對時間曲線下面積** ($nmol \cdot min^2 \cdot mL^{-1}$)，
($ng \cdot min^2 \cdot mL^{-1}$)

MRT：**藥物之平均滯留時間** (min)

二室體模式（Two compartment model）



A ：藥物於分佈相 (alpha phase)零時間之截距(nmol/mL)，(ng/mL)

α： 藥物之分佈速率常數(min^{-1})

ALPHA-HL($T_{1/2}$α)：藥物之分佈半衰期(min)

AUC_{0-t} ：血中藥物濃度對時間之曲線下面積 (nmol・min・mL^{-1})，

(ng・min・mL^{-1})

B ：藥物於排除相(beta phase)零時間之截距(nmol/mL)，(ng/mL)

β： 藥物之末端排除速率常數(min^{-1})

BETA-HL($T_{1/2}$β)：藥物之末端排除半衰期(min)

CL：藥物之全身清除率 (mL・min^{-1})

MRT：藥物之平均滯留時間 (min)

VD_{ss}：體內藥物分佈達穩定狀態之分佈體積(mL)

附錄一 Glossary

A

The zero time intercept associated with the Alpha phase.

AIC

Akaike Criteria. A measure of goodness of fit based on maximum likelihood. When comparing several models for a given set of data, the model associated with the smallest value of AIC is regarded as giving the best fit out of that set of models. Akaike Criteria is only appropriate for use when comparing models using the same weighting scheme.

AIC = NOBS * LOG(WSS) + 2 * NPARM

Alpha

"Macro" rate constant associated with the distribution phase.

Alpha Half-Life

The half life associated with the macro constant Alpha, sometimes denoted as ALPHA_HL.

AUC

Area under a curve.

AUClast

AUC (area under a curve) computed to the last observation.

AUMC

Area under the moment curve.

AUMClast

Area under the moment curve computed to the last observation.

B

The zero time intercept associated with the beta phase.

Beta

"Macro" rate constant associated with the elimination phase.

0.693/beta is usually regarded as the elimination half-life of the drug.

Beta Half-Life

The half life associated with the macro constant Beta, sometimes denoted as BETA_HL.

CL

Total body clearance. CL= Dose/AUC

Cmax

The peak or maximum concentration.

Compartmental Pharmacokinetic Module

A program for the solution of nonlinear regression problems, constrained parameter estimation problems and systems of differential equations. It includes libraries of pharmacokinetic (PK), pharmacodynamic(PD), PK/PD Link, Indirect Response and simultaneous link models.

Compartments

Many biological systems are made up of a finite number of homogenous, well mixed subsystems called compartments. Classically compartments have been used to represent blood plasma, kidneys, lungs or other organs.

Cp

Plasma concentration of a drug.

K01

The rate at which the drug enters the central compartment from outside the system. It is sometimes denoted as Ka.

K10

The rate at which the drug leaves the system from the central compartment. The elimination rate.

Macro Rate Constants

Compartmental models involving first order kinetics can be written as a sum of exponentials. The parameters associated with the sum of exponentials are called macro rate constants and are functions of the underlying micro rate constants.

MRT

Mean Residence Time is the average amount of time a particle remains in a compartment or system.

MRTlast

Mean Residence Time when the drug concentration profile is not extrapolated

to infinity, but rather is based on values up to and including the last measured concentration.

MRTlast = AUMClast / AUClast

Tmax

The time of peak concentration.

V

Volume of distribution of the central compartment. This is also denoted Vc.

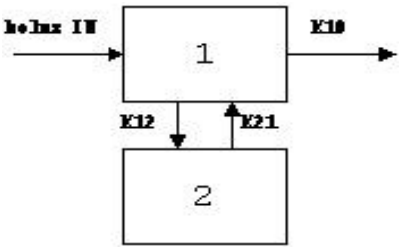
Vss

Volume of distribution at steady state.

Vss = MRT * CL

where MRT = Mean Residence Time and CL= total body clearance

Model 7: Two compartment with bolus input and first-order output; micro-constants as primary parameters.



C(T)=A*EXP(-ALPHA*T) + B*EXP(-BETA*T)

A = D/V*(ALPHA - K21)/(ALPHA - BETA),

B = -D/V*(BETA - K21)/(ALPHA - BETA),

ALPHA and BETA (ALPHA>BETA) are the roots of the quadratic equation:(r*r + (K12 + K21 + K10)*r + K21*K10 = 0).

Estimated Parameters (1)V = Volume
(2)K10 = elimination rate
(3) K12 = transfer rate, 1 to 2
(4) K21 = transfer rate, 2 to 1

Secondary Parameters
(1) AUC = D/V/K10
(2) K10 half-life
(3) ALPHA
(4) BETA (11) AUMC
(5) ALPHA half-life
(6) BETA half-life
(7) A
(8) B
(9) Cmax = D/V
(10) CL
(11)AUMC
(12) MRT
(13) Vss

"Model 200 Noncompartmental Models
Extravascular Input

Estimated parameters:
(1) Rsq
(2) Rsq(adjusted)
(3) Corr(x:y)
(4) Tlag
(5) Tmax
(6) Cmax
(7) No._points_Lambda_z
(8) Tlast
(9) Clast
(10) AUClast
(11) Lambda_z
(12) Lambda_z_lower
(13) Lambda_z_upper
(14) t1/2_Lambda_z
(15) AUCall
(16) AUCINF(observed)
(17) AUC_%Extrap(observed)
(18) Vz(observed)/F
(19) Cl(observed)/F
(20) AUCINF(predicted)
(21) AUC_%Extrap(predicted)
(22) Vz(predicted)/F
(23) Cl(predicted)/F
(24) AUMClast
(25) AUMCINF(observed)
(26) AUMC_%Extrap(observed)
(27) AUMCINF(predicted)
(28) AUMC_%Extrap(predicted)
(29) MRTlast
(30) MRTINF(observed)
(31) MRTINF(predicted)

Note: Parameters 1-3, 11-14, 16-23, 25-28, and 30-31 are only provided if lambda z can be estimated.