Models for the spread of drug resistance

February 21, 2008

Contents

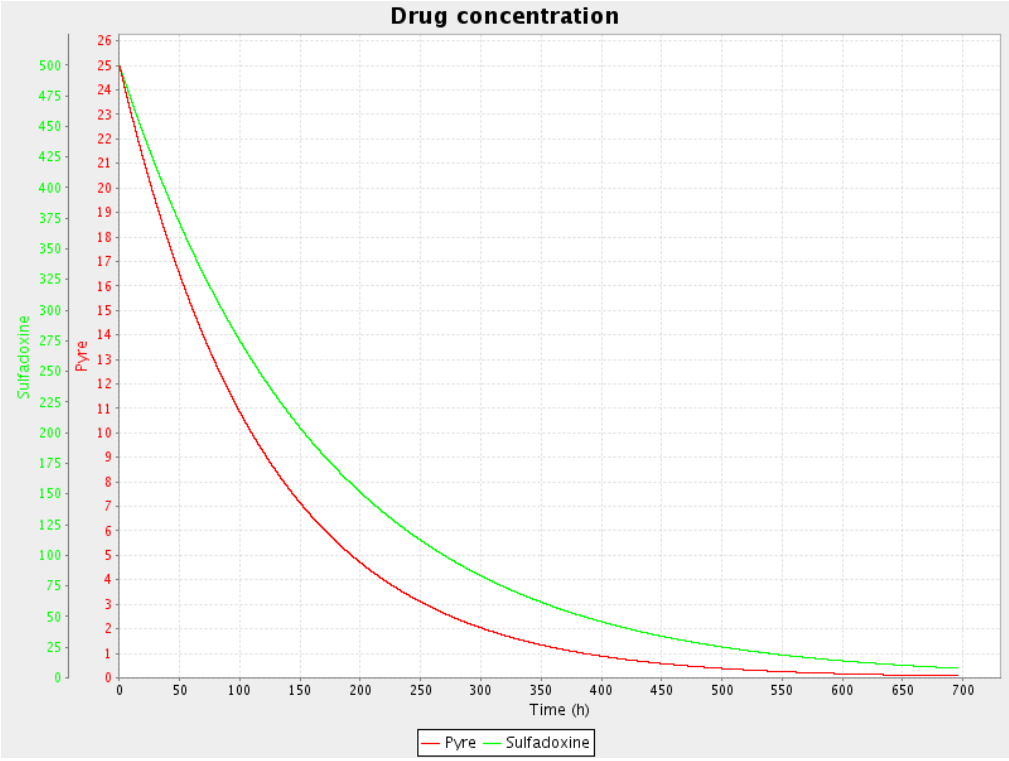
1 Compounds

Name	Abreviation	Half-life(h)
Sulfadoxine	S	6960
Pyre	P	4980
Arthemeter	A	90
Lumefrantrine	L	4560

2 Drugs

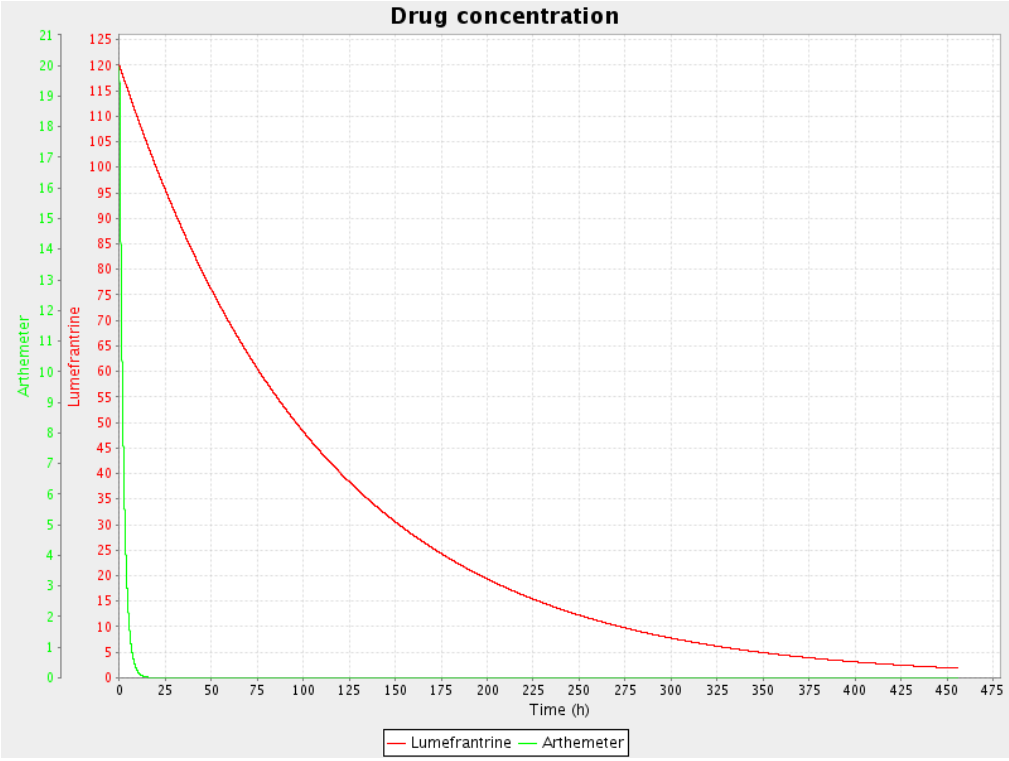
2.1 SP

Compund	Quantity(mg)	bioavailability multiplier
Pyre	25	34.0
Sulfadoxine	500	408.0



2.2 Coartem

Compund	Quantity(mg)	bioavailability multiplier
Lumefrantrine	120	25.0
Arthemeter	20	0.5



3 Effects

3.1 Exogenous folate usage

Activation expression:

$sConst * min(S, 5000.0) + P - pLim$

Parameters for wild-type:

sConst: 4.0E-4

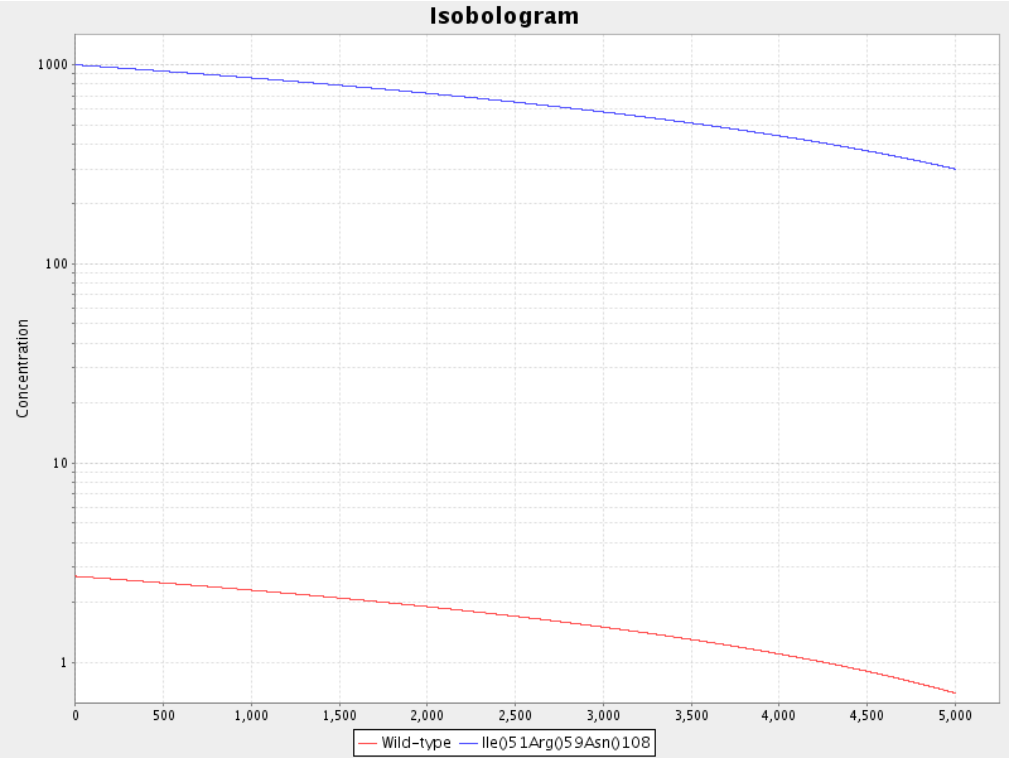
pLim: 2.7

3.1.1 Ile()51 Arg()59 Asn()108

Parameters for mutations:

sConst: 0.14

pLim: 1000.0


Isobologram
1000
100
10
1
Concentration
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
Wild-type
Ile51Arg59Asn108