**Alternative Monolix source code for Eqs. (15),(17),(25)-(30)**

DESCRIPTION:

BsAb QE approximation with constant total receptors

[LONGITUDINAL]

input = {kel,KD1,KD2,a,RA0,RB0,kint,V}

PK:

tdur = 0.0001

depot(adm = 1,target = In,p = 1/tdur)

depot(adm = 1,target = In,p = -1/tdur, Tlag = tdur)

EQUATION:

t\_0=0

C\_0 = 0

In\_0 = 0

aa = (1+C/KD2)\*(C/(a\*KD1\*KD2))

bb = C\*(RA0-RB0)/(a\*KD1\*KD2) + (1+C/KD1)\*(1+C/KD2)

dd = -RB0\*(1+C/KD1)

if (C == 0)

RB = RB0

else

RB = (-bb+sqrt(bb^2-4\*aa\*dd))/(2\*aa)

end

RA = RA0 / ( 1 + C/KD1 + RB\*C/(a\*KD1\*KD2))

DET = ( C\*KD2\*RA^2 + C^2\*KD2\*RA + C\*KD1\*RB^2 + C^2\*KD1\*RB + C^2\*RA\*RB + a\*KD1^2\*KD2^2 + C\*KD1\*KD2\*RA + C\*KD1\*KD2\*RB + KD1\*KD2\*RA\*RB + a\*C\*KD1\*KD2^2 + a\*C\*KD1^2\*KD2 + a\*C^2\*KD1\*KD2 + a\*KD1\*KD2^2\*RA + a\*KD1^2\*KD2\*RB + a\*C\*KD1\*KD2\*RA + a\*C\*KD1\*KD2\*RB )/ (a\*KD1^2\*KD2^2)

M11 = (C^2\*KD2\*RA + C^2\*KD1\*RB + a\*KD1^2\*KD2^2 + C\*KD1\*KD2\*RA + C\*KD1\*KD2\*RB + a\*C\*KD1\*KD2^2 + a\*C\*KD1^2\*KD2 + a\*C^2\*KD1\*KD2 ) / (a\*KD1^2\*KD2^2)

G1 = In/V - kel\*C - (kint\*C\*RA)/KD1 - (kint\*C\*RB)/KD2 - (kint\*RA\*RB\*C)/(a\*KD1\*KD2)

ddt\_C = (M11/DET)\*G1

ddt\_In = 0

OUTPUT:

output = {C,RA,RB}