```
begin model
################################################################################
#
begin parameters
# molecules
LCK_T   16.491
CD3z_T  20000


##################################
##################################
KmA1 1.60E+05
KmA2 5.55E+06
KmB1 4.05E+06
KmB2 3.88E+05
KmC1 2.55E+08
KmC2 6.86E+06


Kcat 381.73
L 3


end parameters

################################################################################
#

begin molecule types

LCK(b,Y394~U~P,Y505~U~P)
count(num~0~1~2~3~4~5~6,A1,A2,B1,B2,C1,C2)
A1(I,Y~U~P~X)
A2(I,Y~U~P~X)
B1(I,Y~U~P~X)
B2(I,Y~U~P~X)
C1(I,Y~U~P~X)
C2(I,Y~U~P~X)


end molecule types

################################################################################
#

begin seed species

LCK(b,Y394~P,Y505~U)  LCK_T

count(num~0,A1!1,A2!2,B1!3,B2!4,C1!5,C2!6).A1(I!1,Y~U).A2(I!2,Y~U).B1(I!3,Y~U).B2(I!4,Y~U).C1(I!5,Y~U).C2(I!6,Y~U
) CD3z_T


end seed species

################################################################################
#

begin observables
Molecules Total_A1 A1(Y~P!?)
Molecules Total_A2 A2(Y~P!?)
Molecules Total_B1 B1(Y~P!?)
Molecules Total_B2 B2(Y~P!?)
Molecules Total_C1 C1(Y~P!?)
Molecules Total_C2 C2(Y~P!?)


Molecules U_A1 A1(Y~U!?)
Molecules U_A2 A2(Y~U!?)
Molecules U_B1 B1(Y~U!?)
Molecules U_B2 B2(Y~U!?)
Molecules U_C1 C1(Y~U!?)
Molecules U_C2 C2(Y~U!?)

Molecules F_A1  A1(Y~X!?)
Molecules F_A2  A2(Y~X!?)
Molecules F_B1  B1(Y~X!?)
Molecules F_B2  B2(Y~X!?)
Molecules F_C1  C1(Y~X!?)
Molecules F_C2  C2(Y~X!?)
```

end observables

```
################################################################################################
#

begin reaction rules # CD3z(A1~?,A2~?,B1~?,B2~?,C1~?,C2~?)

count(num~0,A1!1).A1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~1,A1!1).A1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA1) + U_A1)
count(num~1,A1!1).A1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~2,A1!1).A1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA1/L) +
U_A1)
count(num~2,A1!1).A1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~3,A1!1).A1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA1/L/L) +
U_A1)
count(num~3,A1!1).A1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~4,A1!1).A1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA1/L/L/L) +
U_A1)
count(num~4,A1!1).A1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~5,A1!1).A1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA1/L/L/L/L)
+ U_A1)
count(num~5,A1!1).A1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~6,A1!1).A1(I!1,Y~P) + LCK(b,Y394~P,Y505~U)
(Kcat)/((KmA1/L/L/L/L/L) + U_A1)


count(num~0,A2!1).A2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~1,A2!1).A2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA2) + U_A2)
count(num~1,A2!1).A2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~2,A2!1).A2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA2/L) +
U_A2)
count(num~2,A2!1).A2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~3,A2!1).A2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA2/L/L) +
U_A2)
count(num~3,A2!1).A2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~4,A2!1).A2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA2/L/L/L) +
U_A2)
count(num~4,A2!1).A2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~5,A2!1).A2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmA2/L/L/L/L)
+ U_A2)
count(num~5,A2!1).A2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~6,A2!1).A2(I!1,Y~P) + LCK(b,Y394~P,Y505~U)
(Kcat)/((KmA2/L/L/L/L/L) + U_A2)


count(num~0,B1!1).B1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~1,B1!1).B1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB1) + U_B1)
count(num~1,B1!1).B1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~2,B1!1).B1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB1/L) +
U_B1)
count(num~2,B1!1).B1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~3,B1!1).B1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB1/L/L) +
U_B1)
count(num~3,B1!1).B1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~4,B1!1).B1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB1/L/L/L) +
U_B1)
count(num~4,B1!1).B1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~5,B1!1).B1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB1/L/L/L/L)
+ U_B1)
count(num~5,B1!1).B1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~6,B1!1).B1(I!1,Y~P) + LCK(b,Y394~P,Y505~U)
(Kcat)/((KmB1/L/L/L/L/L) + U_B1)


count(num~0,B2!1).B2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~1,B2!1).B2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB2) + U_B2)
count(num~1,B2!1).B2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~2,B2!1).B2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB2/L) +
U_B2)
count(num~2,B2!1).B2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~3,B2!1).B2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB2/L/L) +
U_B2)
count(num~3,B2!1).B2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~4,B2!1).B2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB2/L/L/L) +
U_B2)
count(num~4,B2!1).B2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~5,B2!1).B2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmB2/L/L/L/L)
+ U_B2)
count(num~5,B2!1).B2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
```

```
count(num~6,B2!1).B2(I!1,Y~P) + LCK(b,Y394~P,Y505~U)
(Kcat)/((KmB2/L/L/L/L/L) + U_B2)


count(num~0,C1!1).C1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~1,C1!1).C1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC1) + U_C1)
count(num~1,C1!1).C1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~2,C1!1).C1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC1/L) +
U_C1)
count(num~2,C1!1).C1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~3,C1!1).C1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC1/L/L) +
U_C1)
count(num~3,C1!1).C1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~4,C1!1).C1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC1/L/L/L) +
U_C1)
count(num~4,C1!1).C1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~5,C1!1).C1(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC1/L/L/L/L)
+ U_C1)
count(num~5,C1!1).C1(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~6,C1!1).C1(I!1,Y~P) + LCK(b,Y394~P,Y505~U)
(Kcat)/((KmC1/L/L/L/L/L) + U_C1)

count(num~0,C2!1).C2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~1,C2!1).C2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC2) + U_C2)
count(num~1,C2!1).C2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~2,C2!1).C2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC2/L) +
U_C2)
count(num~2,C2!1).C2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~3,C2!1).C2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC2/L/L) +
U_C2)
count(num~3,C2!1).C2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~4,C2!1).C2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC2/L/L/L) +
U_C2)
count(num~4,C2!1).C2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~5,C2!1).C2(I!1,Y~P) + LCK(b,Y394~P,Y505~U) (Kcat)/((KmC2/L/L/L/L)
+ U_C2)
count(num~5,C2!1).C2(I!1,Y~U) + LCK(b,Y394~P,Y505~U) ->
count(num~6,C2!1).C2(I!1,Y~P) + LCK(b,Y394~P,Y505~U)
(Kcat)/((KmC2/L/L/L/L/L) + U_C2)


end reaction rules

end model

generate_network({overwrite=>1});
writeMfile({});
```