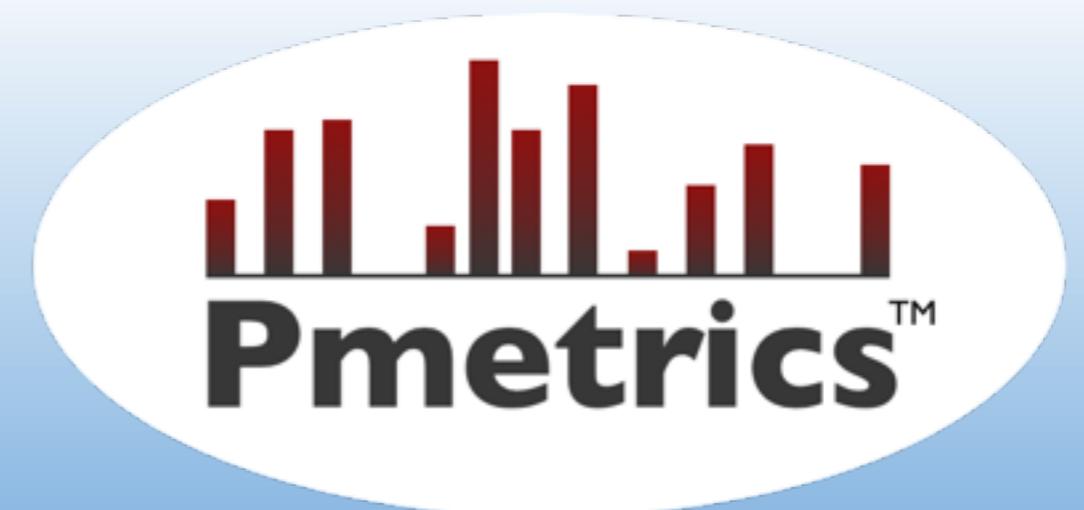


# Plots for Pmetrics Tutorial



RStudio

Pmetrics\_examples.R

Source on Save | Run | Source

1  
2 - # INTRODUCTION -----  
3  
4  
5 #Lines that start with "#" are comments and ignored by R. Follow the dir  
6 #Execute each non-comment line in this script by putting your cursor on i  
7 #You can do this in several ways:  
8 # Windows  
9 # R-studio  
10 # 1) The Run button at the top  
11 # 2) Ctrl-Enter  
12 # R GUI - when the script window is active  
13 # 1) The Run line or selection button at the top  
14 # 2) Ctrl-R  
15 # Mac  
16 # R-studio

1:1 (Top Level) R Script

Console - /LAPK/Pmetrics/ ↵  
Copyright (C) 2014 The R Foundation for Statistical Computing  
Platform: x86\_64-apple-darwin13.1.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

>

Environment History

Import Dataset Clear Grid

Global Environment

Name	Type	Length	Size	Value
as.numeric.fa...	function	1	4.7 KB	function (x)
auc.ln	function	1	36.4 KB	function (time, conc, id =..)
auc.tail	function	1	41.4 KB	function (time, conc, id =..)
aucPiece.ln	function	1	40.4 KB	function (time, conc, id =..)
brkdn	function	1	29.4 KB	function (formula, datafra..)
convert	function	1	18.3 KB	function (AUC, microM, tim..)

Files Plots Packages Help Viewer

Zoom Export Clear All

Terminal Shell Edit View Window Help

RStudio

Project: (None)

Pmetrics\_examples.R

```

64 #Run NPAG - type ?NPrun in the R console for help on NPrun and arguments
65 #You must specify a model and data file.
66 #In this case, we are using the default model name of "model.txt", so we
67 #Other values are set to their defaults based on the model and data files
68
69 #NPrun(data="ex.csv",model="model.txt",cycles=1000)
70 list.files()
71
72 NPrun(data="ex.csv",model="model.txt")
73
74
75
76 #Windows users: launch the npscript.bat file in your
77 #Mac users: a terminal window will open and run; don't
78
79 #After the run is complete you need aet the extracted
76:1 EXERCISE 1 - NPAG RUN :
```

Console ~/LAPK/Pmetrics/Examples/Runs/

```

L1J ex.csv      model.txt
> NPrun(data="ex.csv",model="model.txt")
Loading required package: xlsx
Loading required package: rJava
Loading required package: xlsxjars

Model solver mode: Algebraic
Number of compartments: 2, including an absorptive compartment
Primary Variables: Ka, Ke, V, Tlag1
Covariates in data file: wt, africa, age, gender, height
Covariates used in model file: WT, AFRICA, AGE, GENDER, HEI
Secondary Variables: KCP, KPC
Model conditions: no bioavailability term defined, initial c
lag term defined
Number of cycles to run: 100
```

[1] "/Users/Neely/LAPK/Pmetrics/Examples/Runs/1/outputs"

>

Environment History

Import Dataset Clear Grid

Global Environment

Name	Type	Length	Size	Value
desc.stat	function	1	19.6 KB	function (datavec, na.rm =...
error.bar	function	1	10.2 KB	function (x, y, upper, low...
getIBW	function	1	41.3 KB	function (height, age, sex)
legend2	function	1	342.7 KB	function (x, y = NULL, leg...

Iteration 1 CONV. CRIT = 0.14E-09 (1 OR HIGHER FOR CONVERGENCE)
Iteration 2 CONV. CRIT = 0.47E-08 (1 OR HIGHER FOR CONVERGENCE)
Iteration 3 CONV. CRIT = 0.86E-06 (1 OR HIGHER FOR CONVERGENCE)
Iteration 4 CONV. CRIT = 0.29E-02 (1 OR HIGHER FOR CONVERGENCE)
Iteration 5 CONV. CRIT = 0.49 (1 OR HIGHER FOR CONVERGENCE)
Iteration 6 CONV. CRIT = 0.86E+04 (1 OR HIGHER FOR CONVERGENCE)

CYCLE NO. 14. SUBJECT NOS FOLLOW:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13

```

fixed = FALSE, useBytes = FALSE)
gregexpr(pattern, text, ignore.case = FALSE, perl = FALSE,
fixed = FALSE, useBytes = FALSE)
```

Windows 7 64 bit File Edit View Actions Devices Window Help

Windows 7 64 bit Nov 7 12:41

RStudio

File Edit Code View Plots Session Build Debug Tools Help

Project: (None)

makePmetrics.R × buildDoser.R × Pmetrics\_examples.R ×

Source on Save | Run | Source

07 #Other values are set to their defaults based on the model and data 1  
68  
69 NPrun(data="ex.csv",model="model.txt",cycles=1000)  
70 list.files()  
71  
72 NPrun(data="ex.csv",model="model.txt")  
73  
74  
75  
76 #Windows users: launch the npscript.bat file in your working directory  
77 #Mac users: a terminal window will open and run; don't worry about path  
78  
79 #After the run is complete you need get the extracted information back  
80 #They will be sequentially numbered as /1, /2, /3,... in your working directory  
81 netwd()  
82

EXERCISE 1 - NPAG RUN

Console C:/LAPK/Pmetrics/Examples/Runs/

loading required package. xts, xajars

Model solver mode: Algebraic  
Number of compartments: 2, including an absorptive compartment  
Primary Variables: Ka, Ke, V, Tlag1  
Covariates in data file: wt, africa, age, gender, height  
Covariates used in model file: WT, AFRICA, AGE, GENDER, HEIGHT  
Secondary Variables: KCP, KPC  
Model conditions: no bioavailability term defined, initial conditions are zero, lag term defined  
Number of cycles to run: 100

' NPAG run initiated at 12:40 on 2014 Nov 07.  
Launch npscript.bat in your working directory to execute the NPAG run.  
[1] "C:/LAPK/Pmetrics/Examples/Runs/1/outputs"

Environment History

Import Dataset Clear

Global Environment

Values

OS	2
PMenv	Environment
wd	"C:/LAPK/Pmetrics/Examples"

Files Plots Packages Help Viewer

R: Install Packages from Repositories or Local Files Find in Topic

install.packages [utils]

R Documentation

## Install Packages from Repositories or Local Files

Description

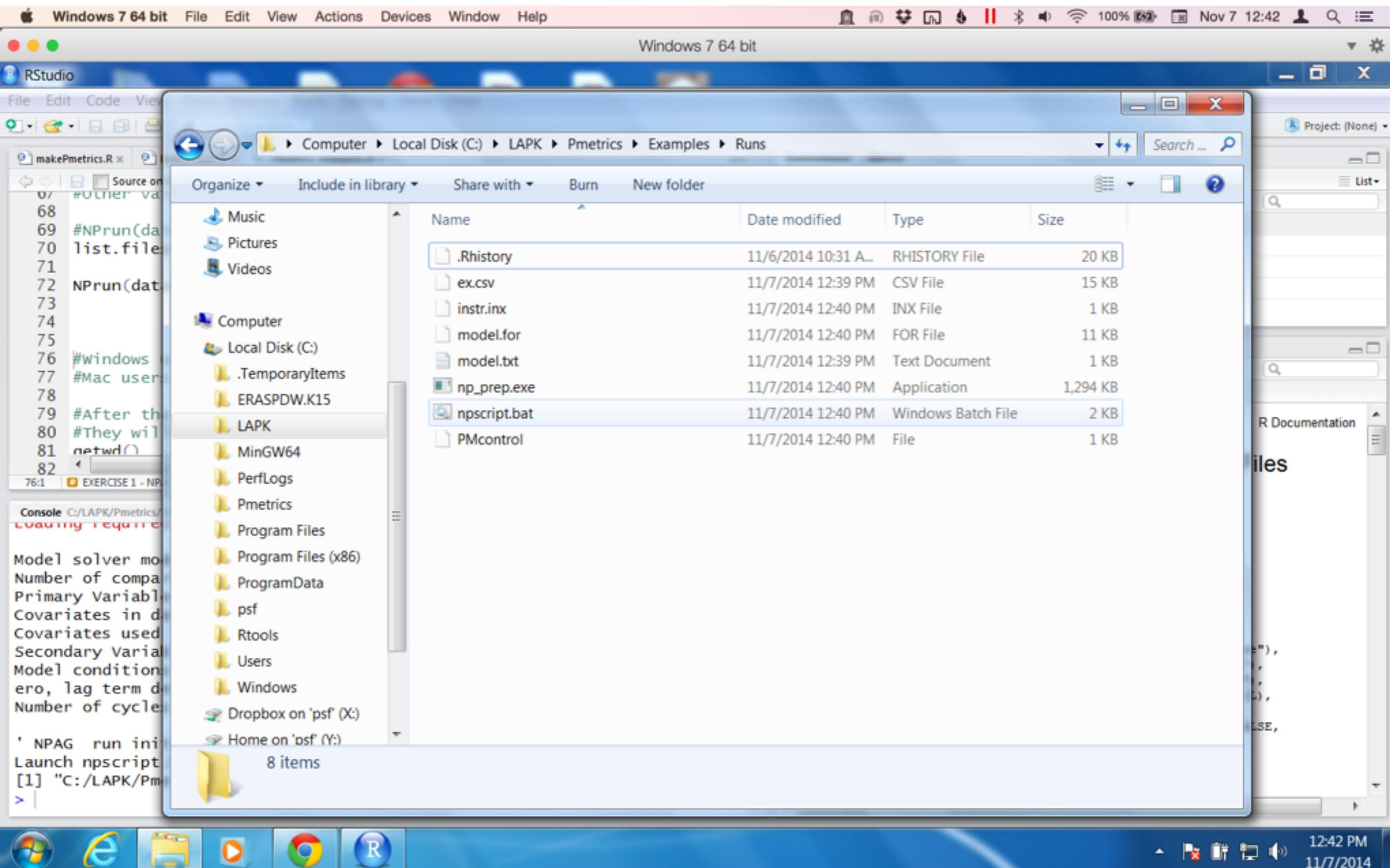
Download and install packages from CRAN-like repositories or from local files.

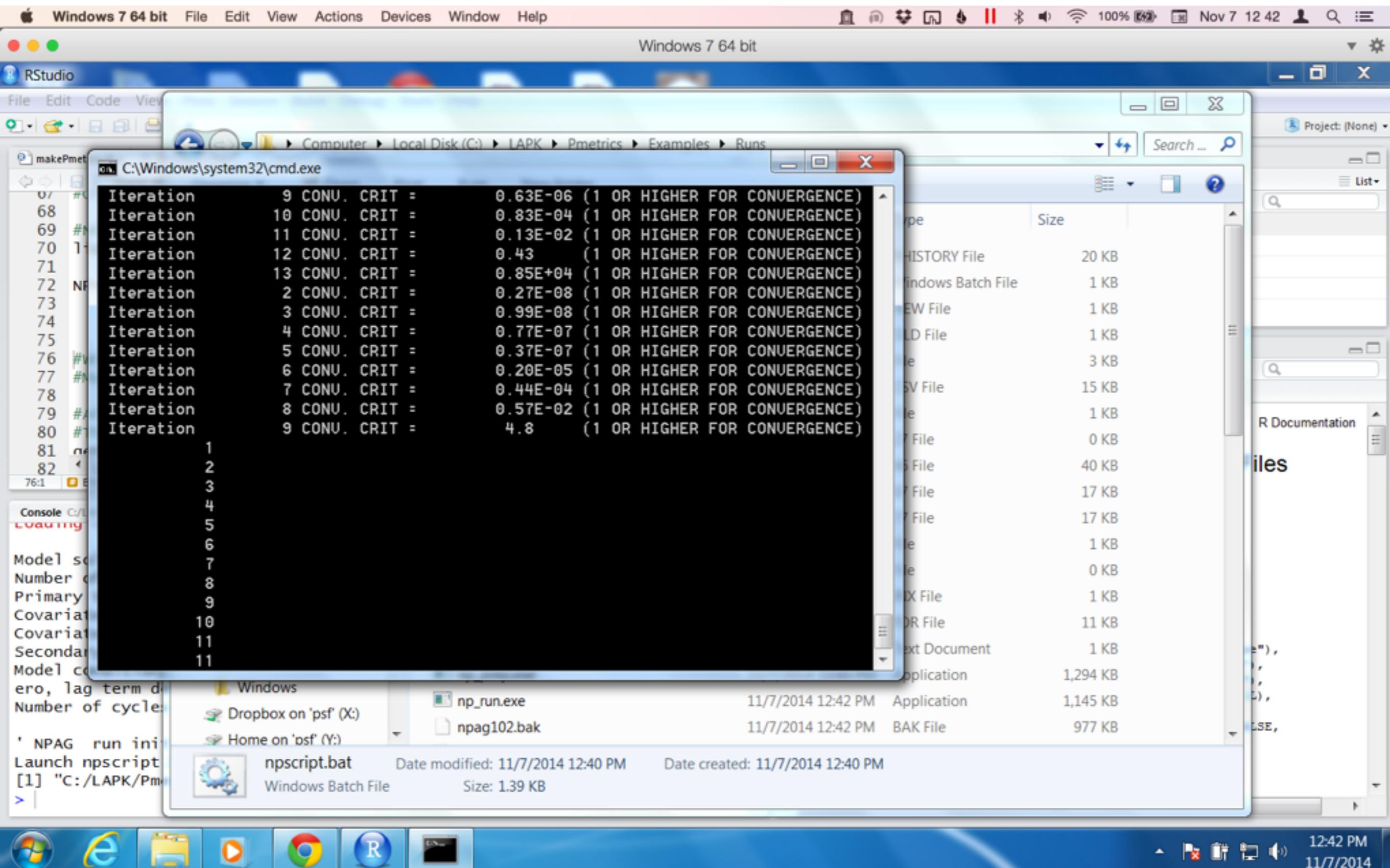
Usage

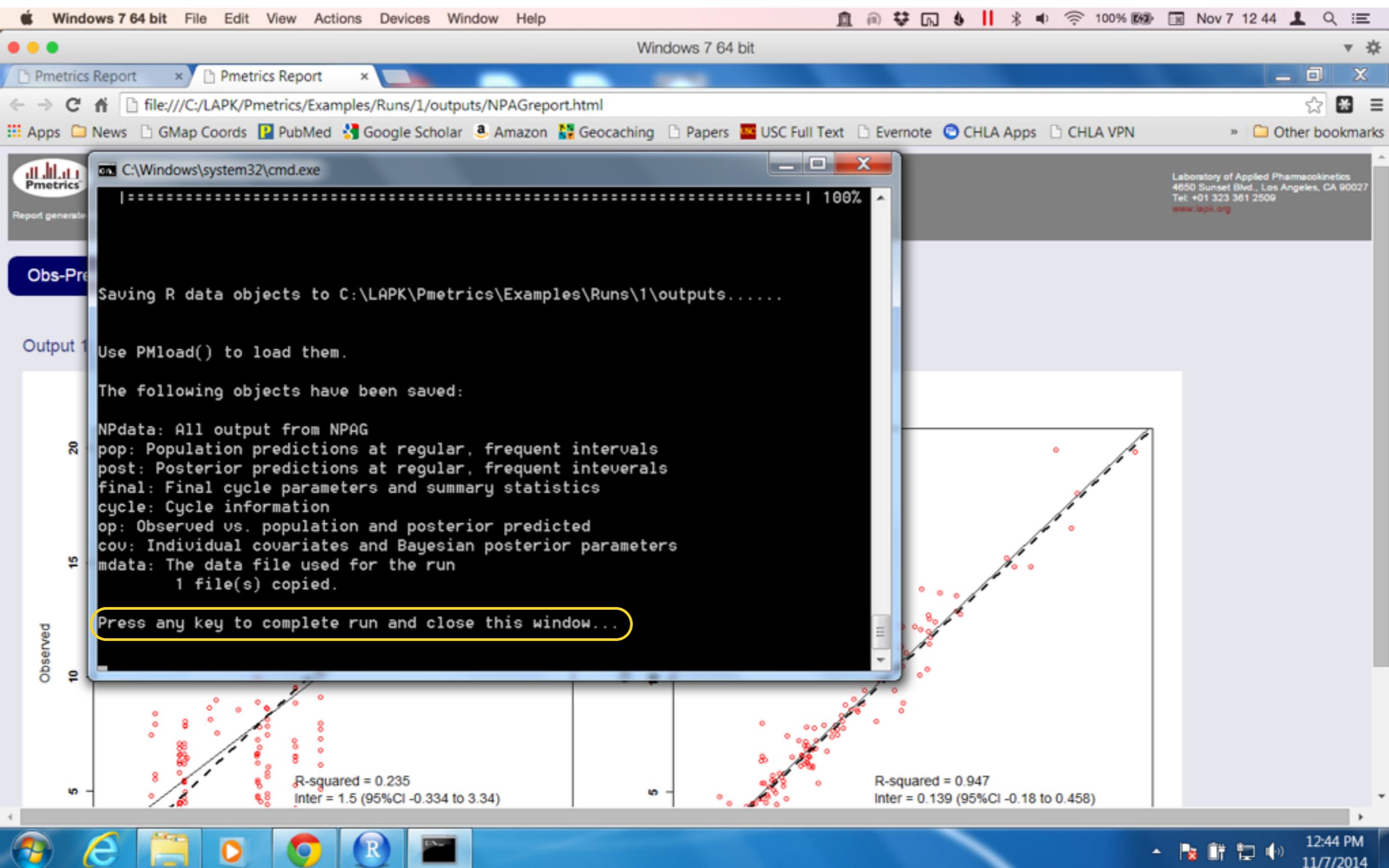
```
install.packages(pkgs, lib, repos =getOption("repos"),
  contriburl = contrib.url(repos, type),
  method, available = NULL, destdir = NULL,
  dependencies = NA, type =getOption("pkgType"),
  configure.args =getOption("configure.args"),
  configure.vars =getOption("configure.vars"),
  clean = FALSE, Ncpus =getOption("Ncpus", 1L),
  verbose =getOption("verbose"),
  libs_only = FALSE, INSTALL_opts, quiet = FALSE,
  keep_outputs = FALSE, ...)
```

Arguments

12:41 PM 11/7/2014







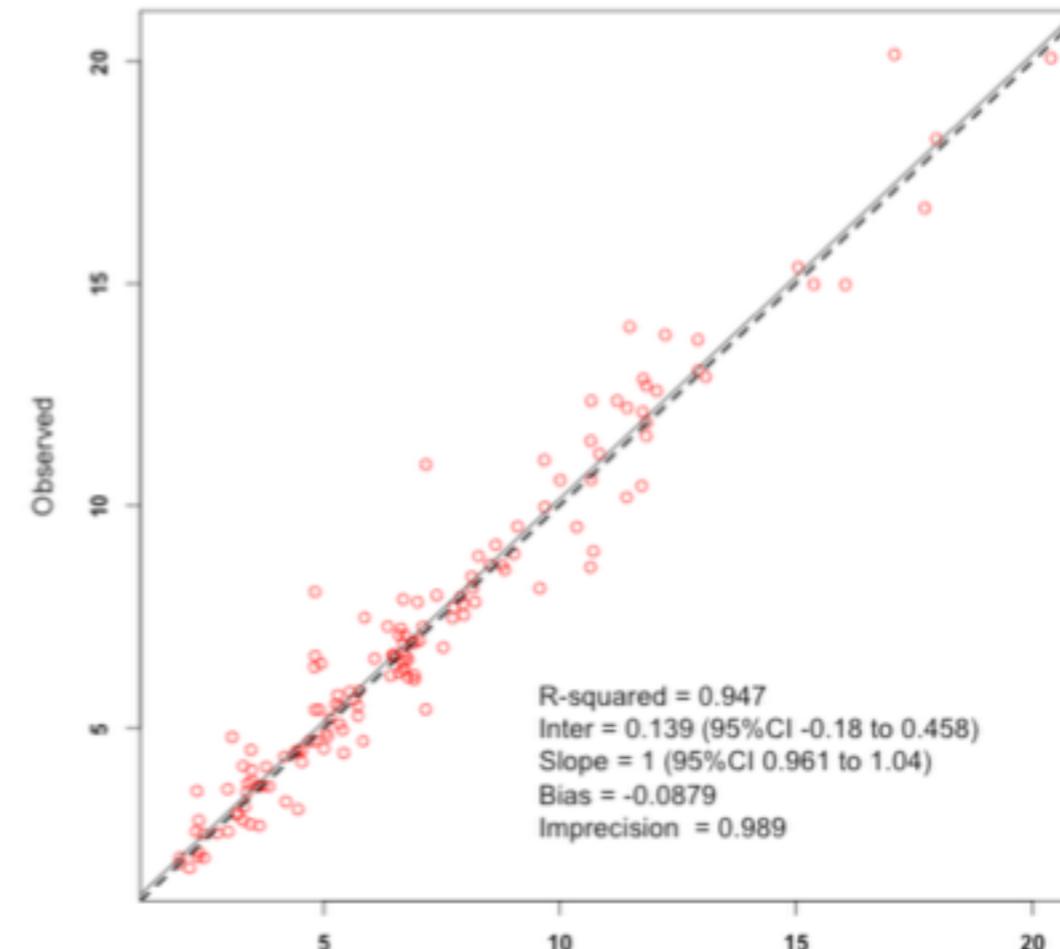
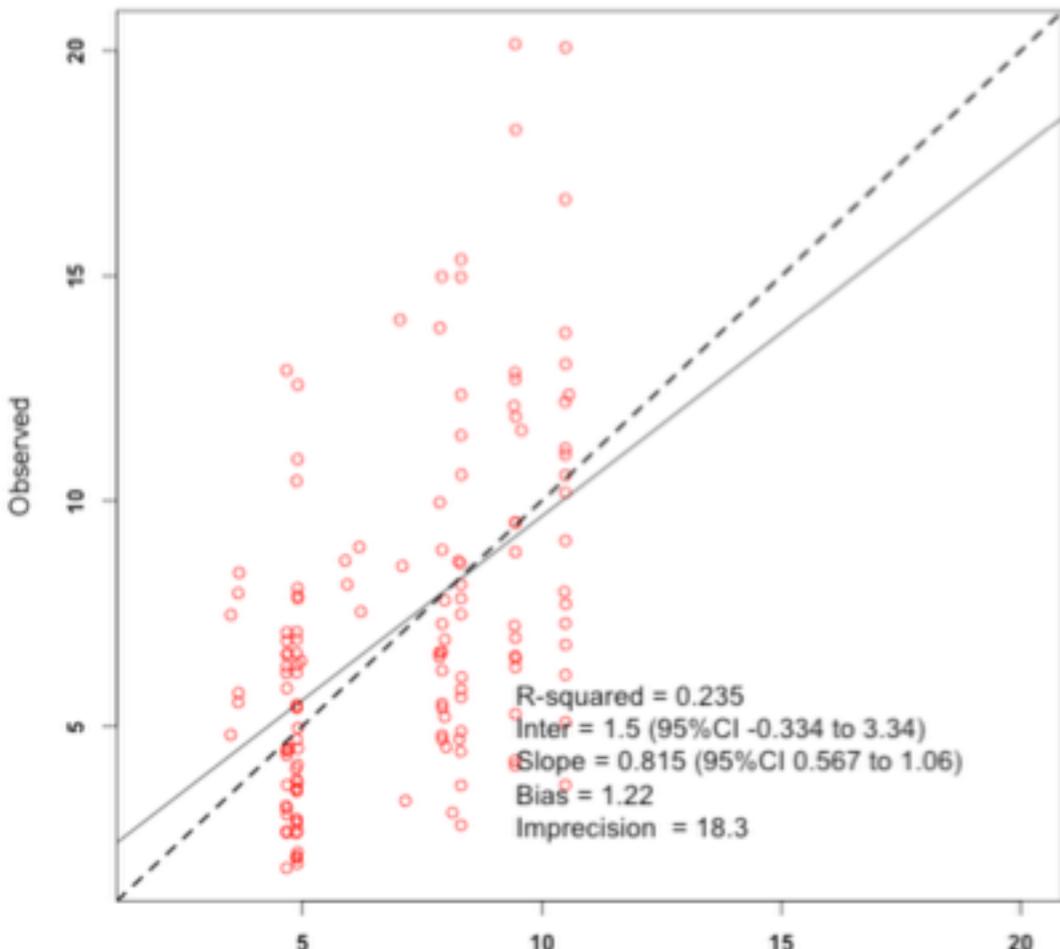
Obs-Pred Plots

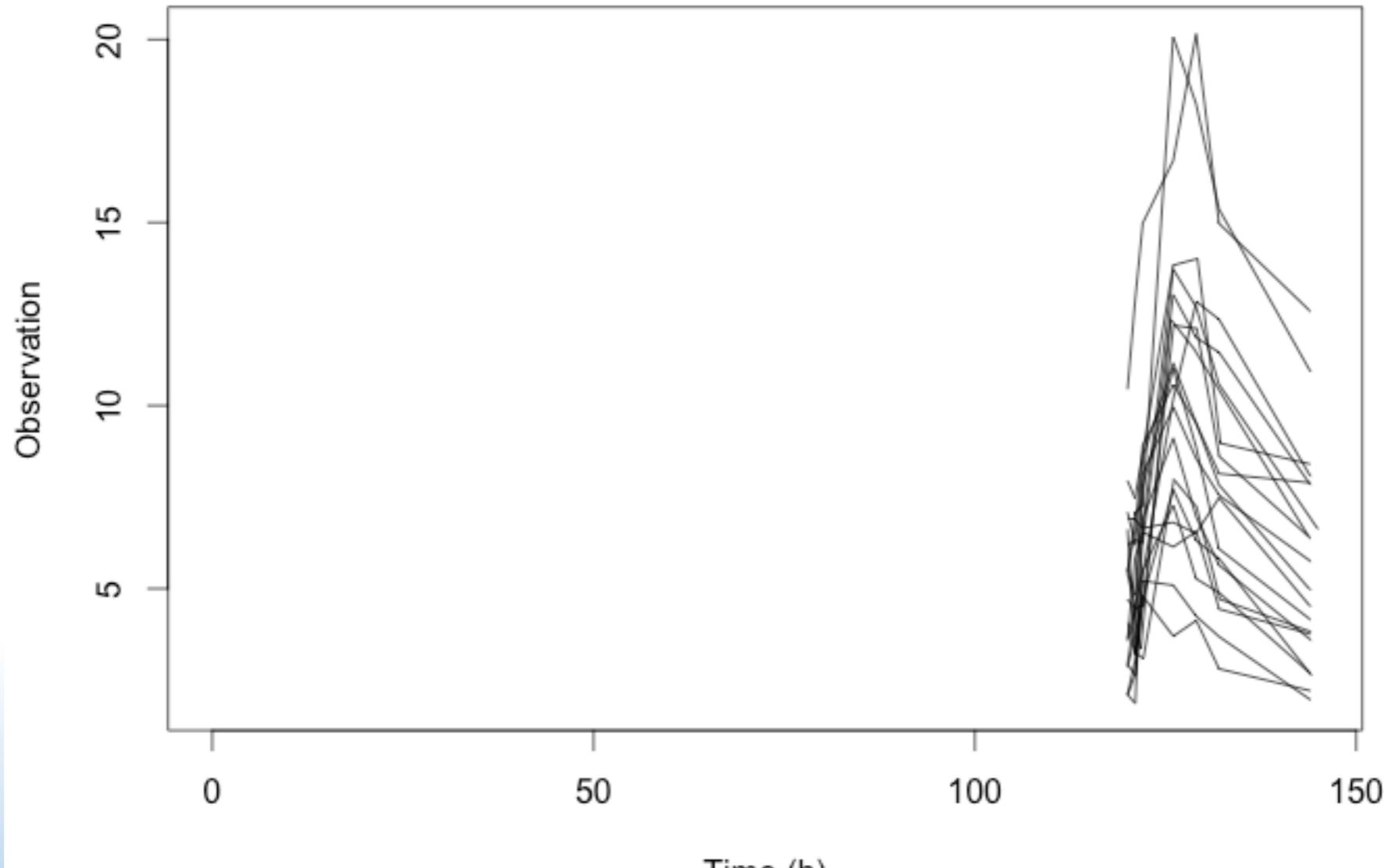
Convergence Plots

Marginal Plots

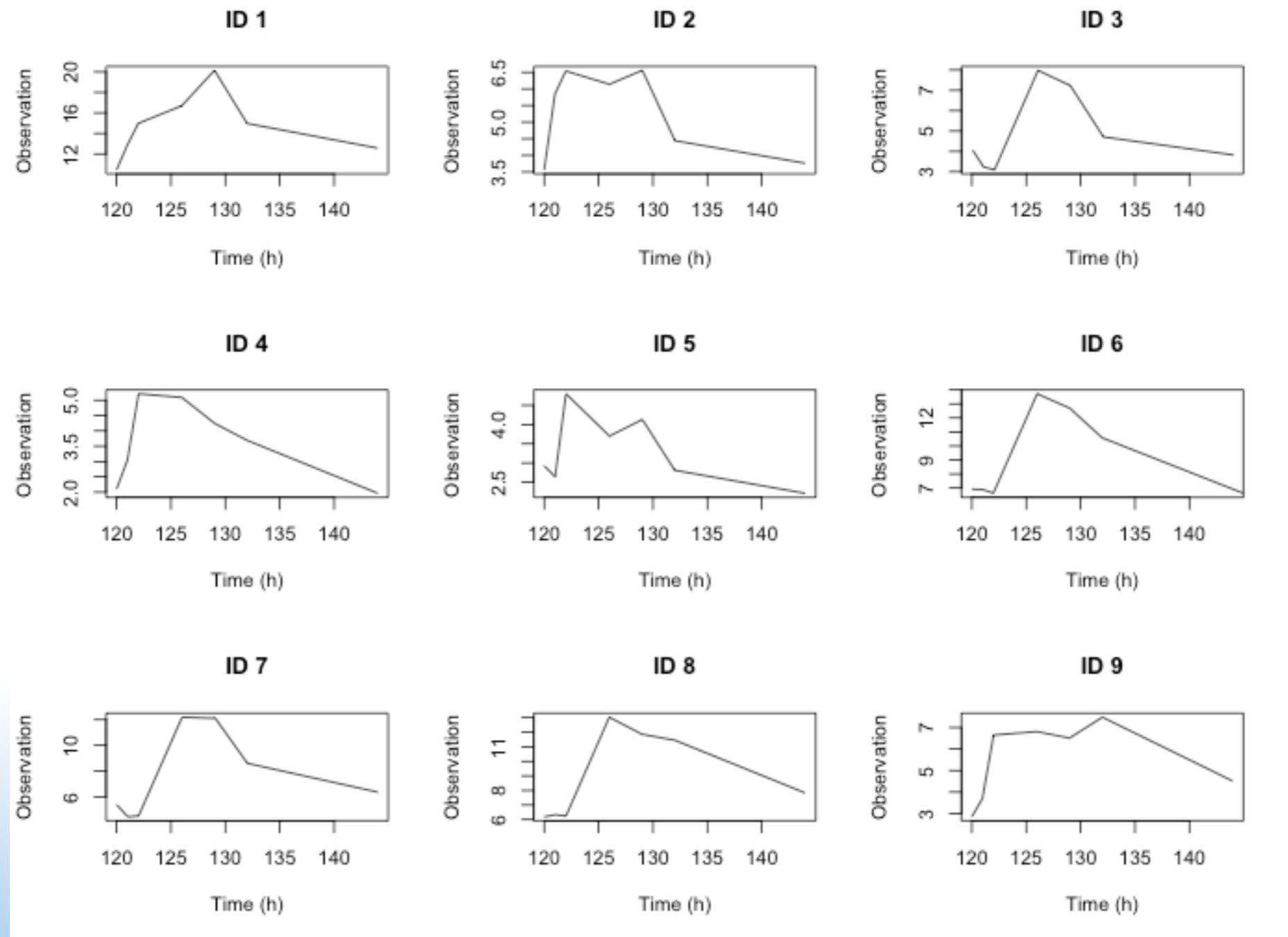
Parameter Values

Summary\*

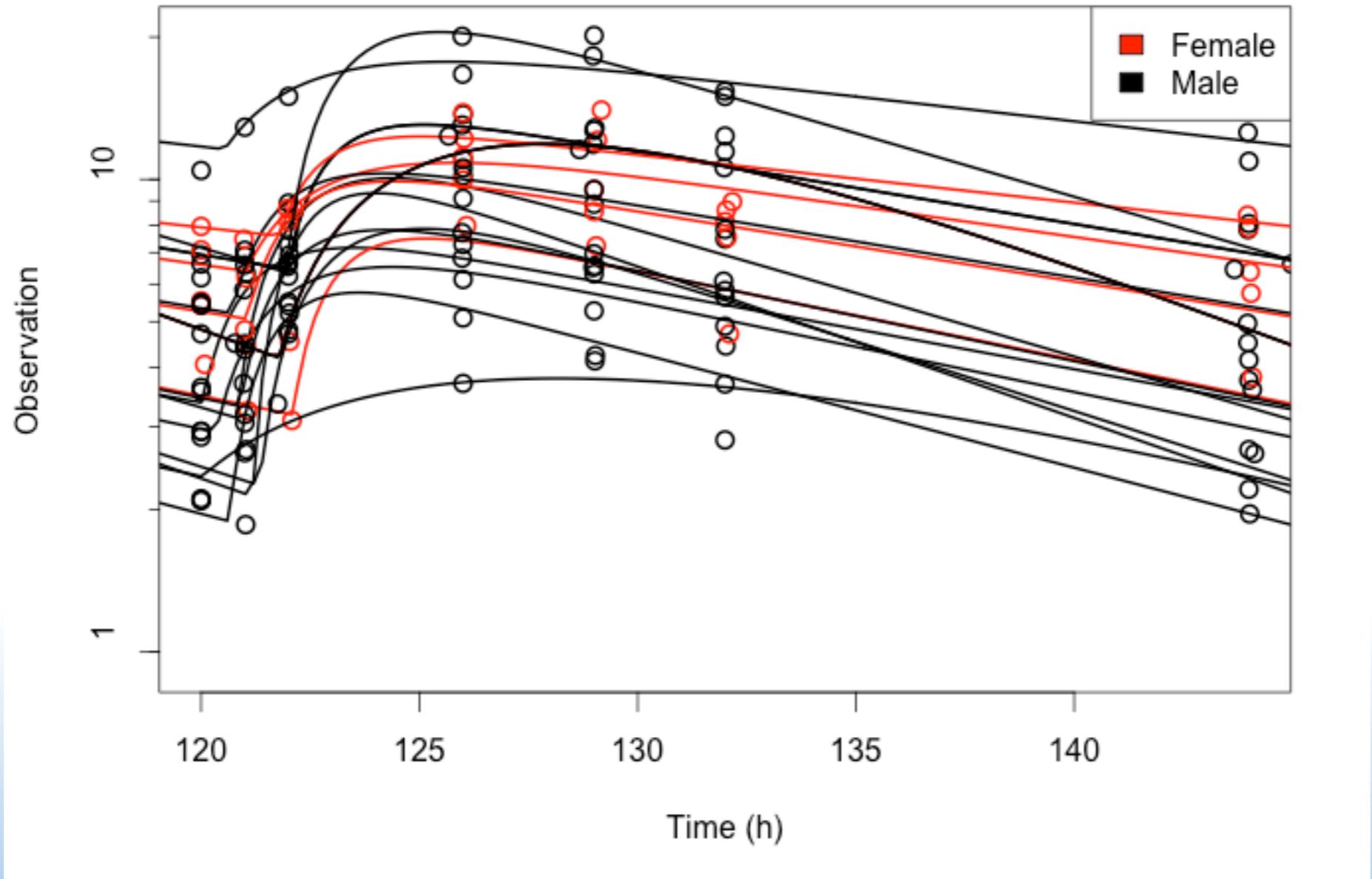
Output 1 [Open image file](#)



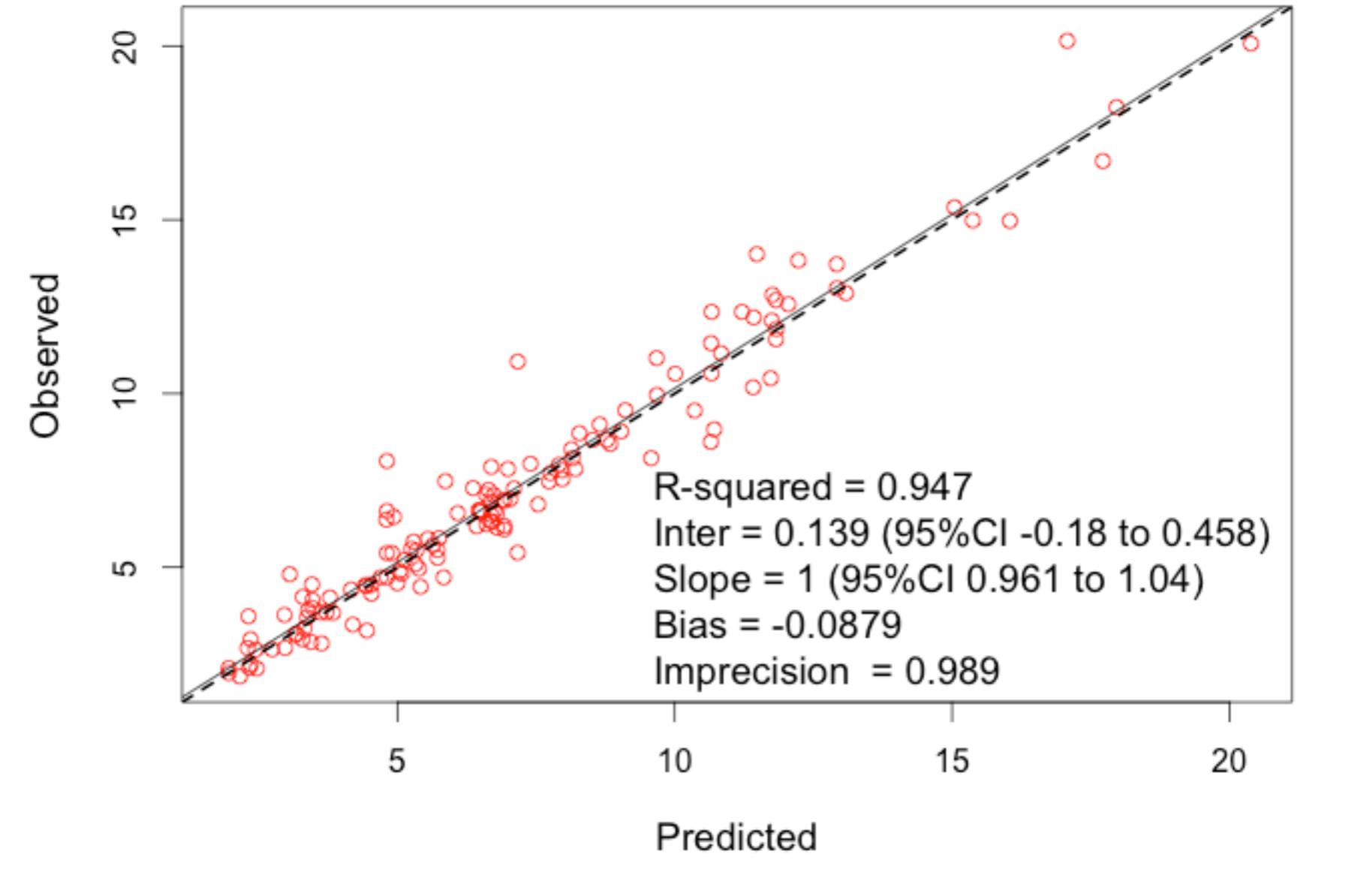
```
plot(mdata.1)
```



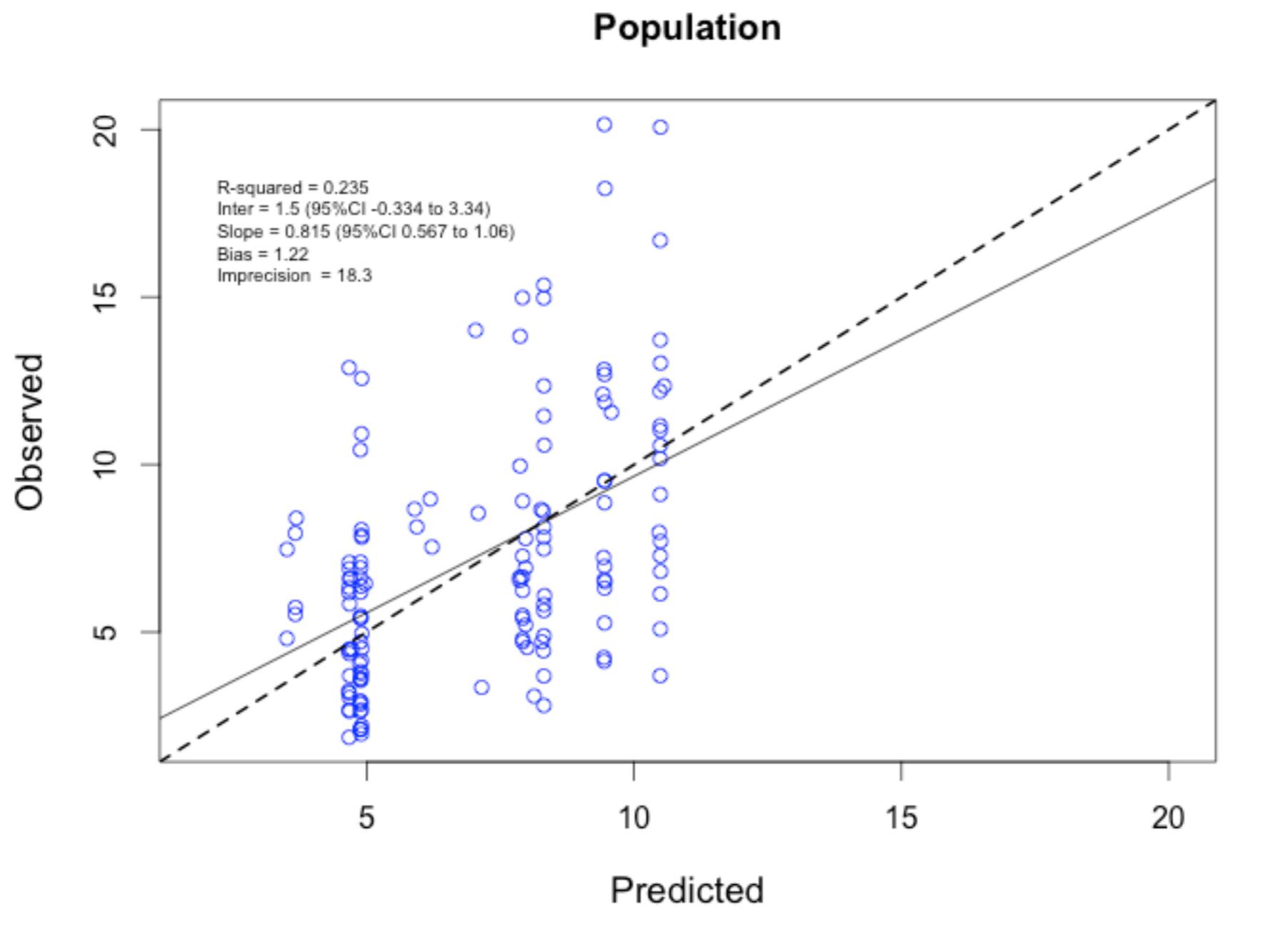
```
plot(mdata.1, overlay=F, xlim=c(120,144))
```



```
plot(mdata.1,pred=post.1, overlay=T, group="gender", pch=1, cex=1.2,
lwd=2, xlim=c(120,144), join=F, doses=F,
legend=list(legend=c("Female","Male")), col=c("red","black"), log=T)
```

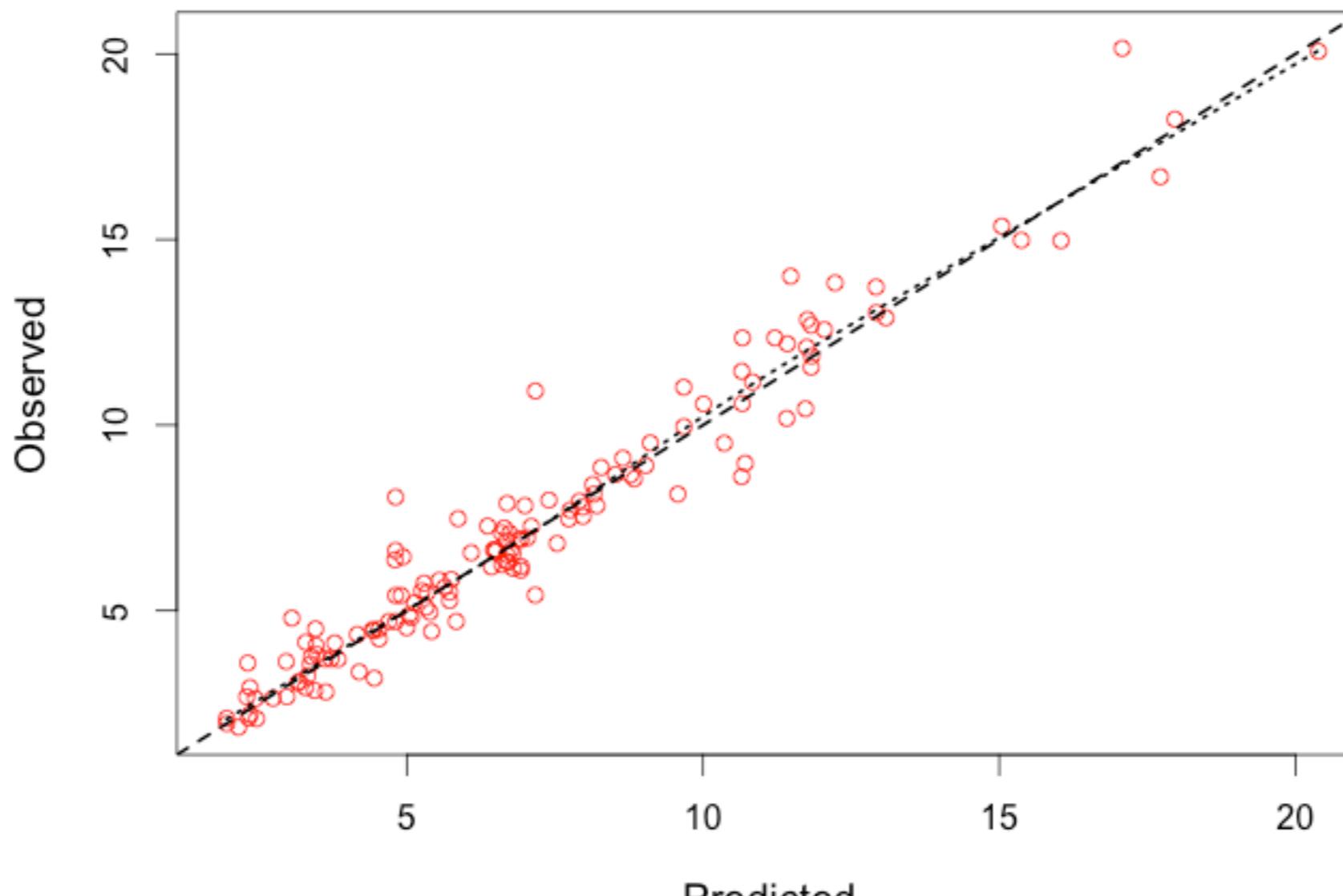


plot (op.1)



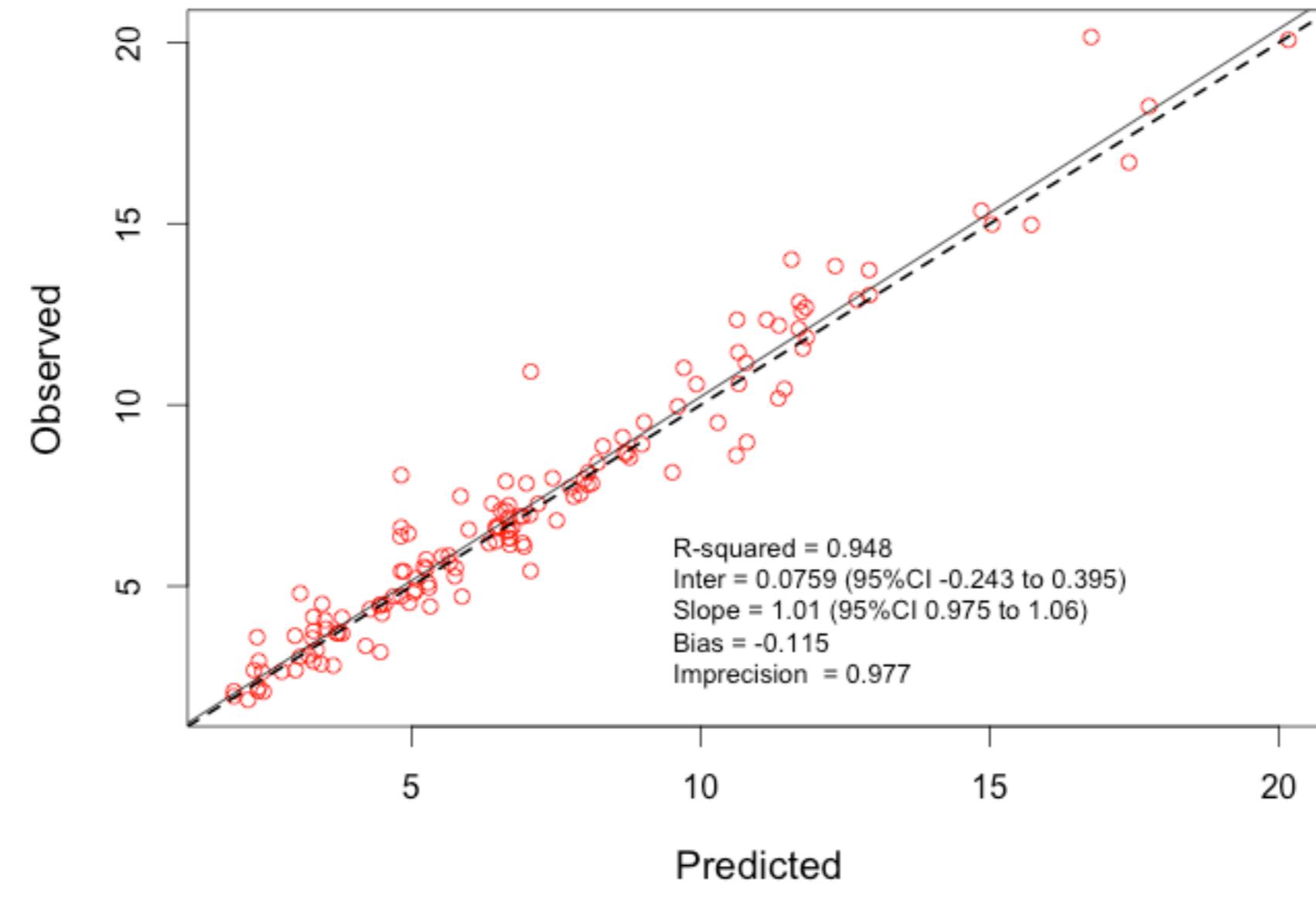
```
plot(op.1, pred.type="pop", main="Population", square=T, ref=T,  
reg=T,col="blue",cex.stat=0.6,x.stat=0,y.stat=0.8)
```

## Posterior

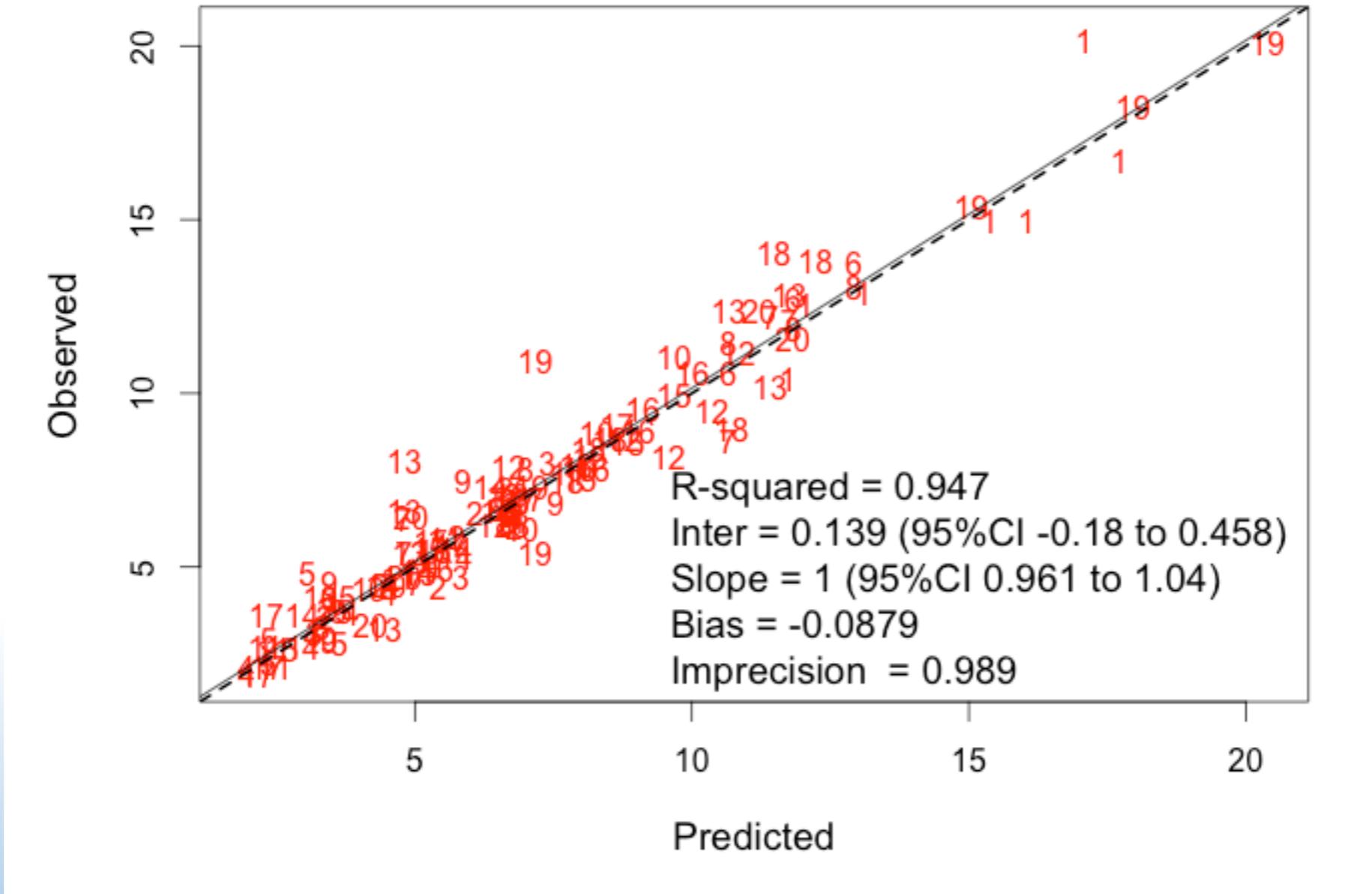


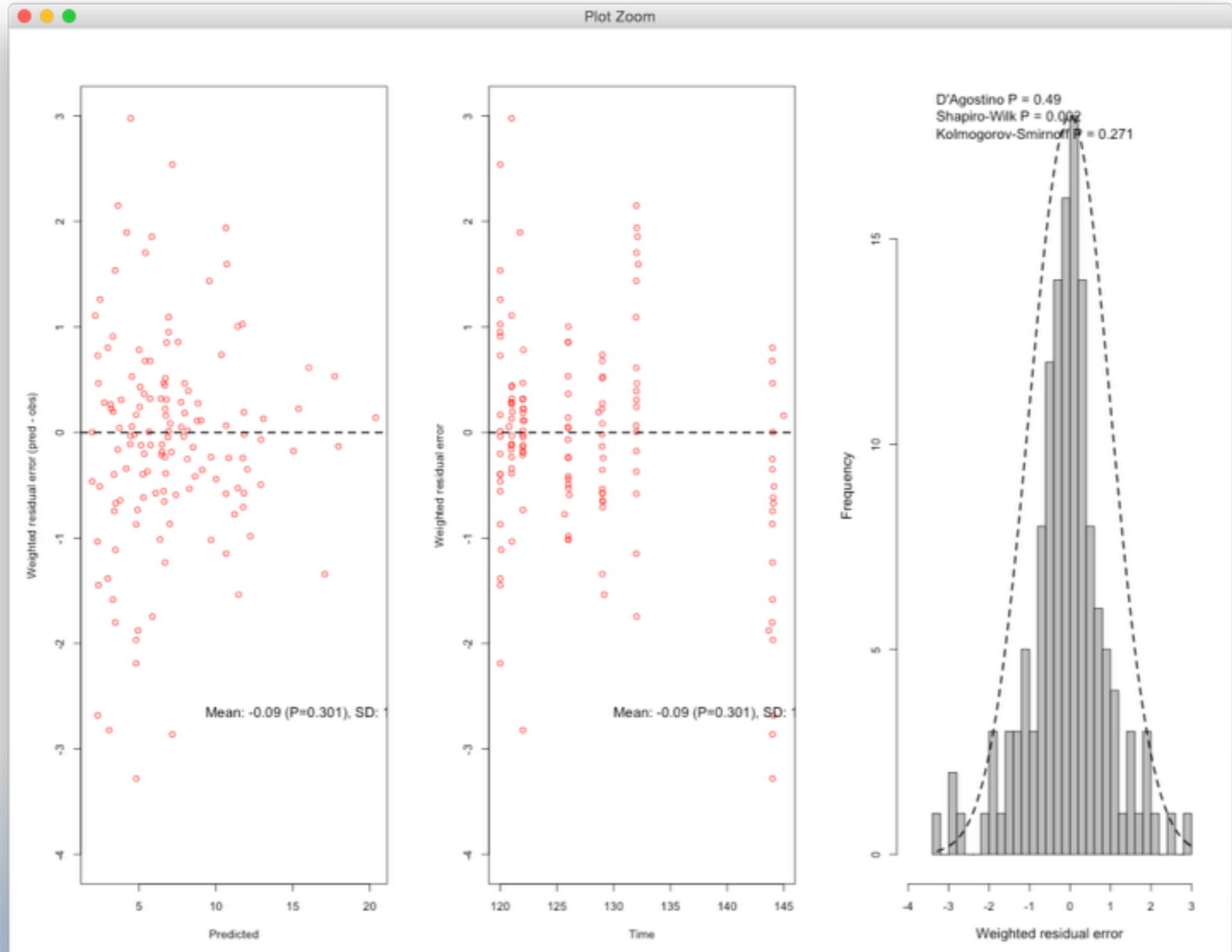
```
plot(op.1, main="Posterior", log=F, square=T, ref=T, reg=F, lowess=T)
```

## Posterior

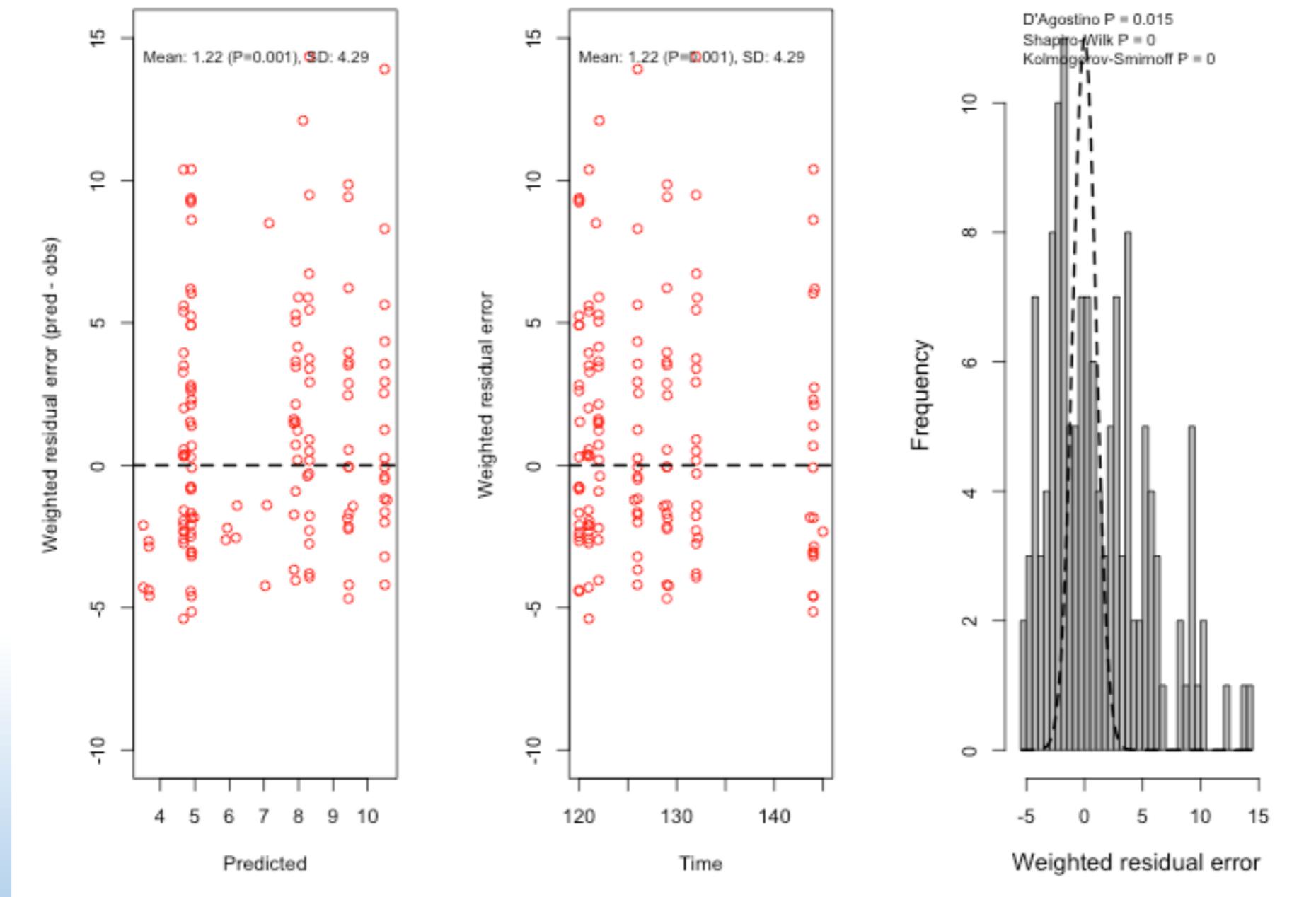


```
plot(op.1, main="Posterior", icen="mean", cex.stat=0.8)
```

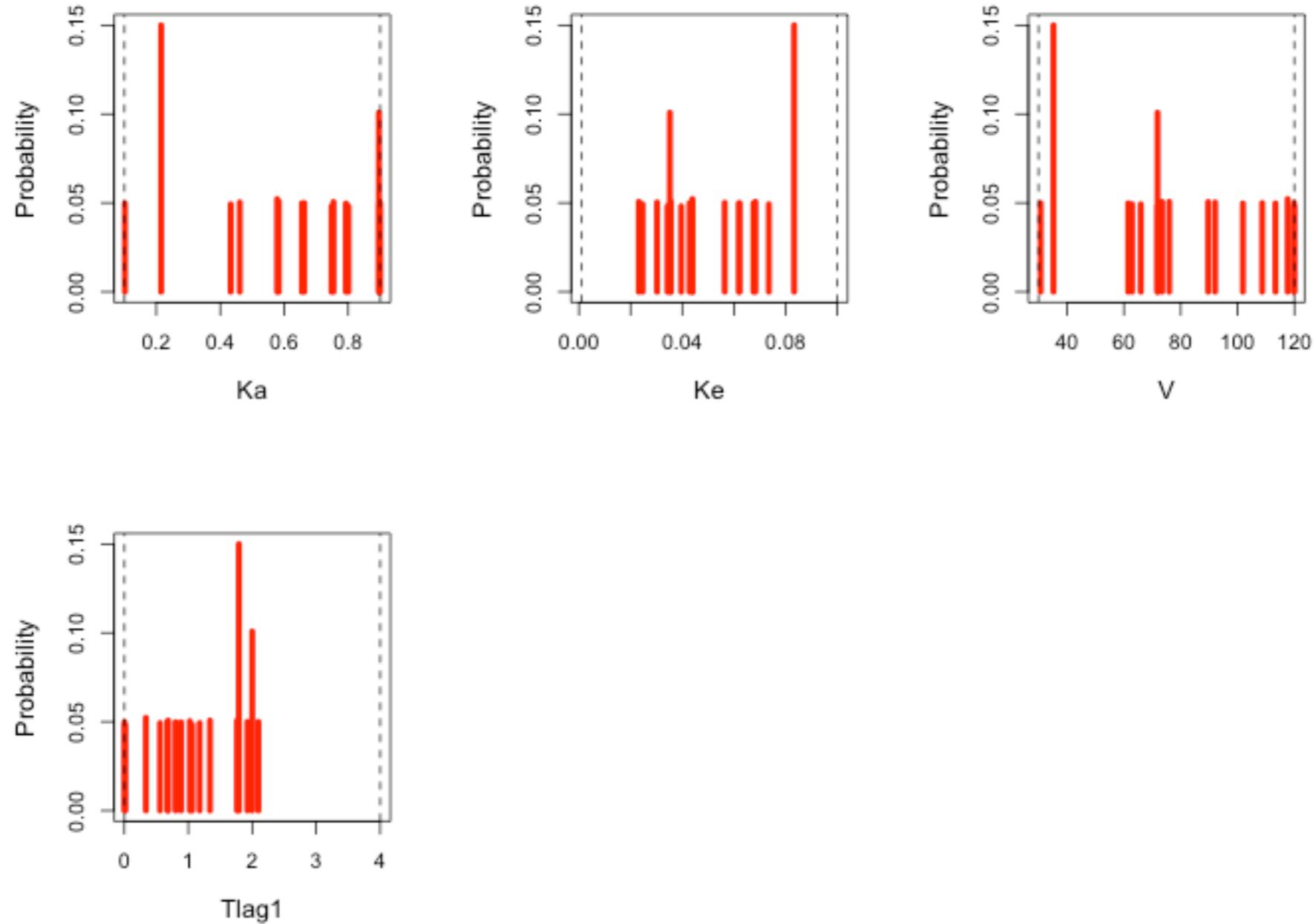




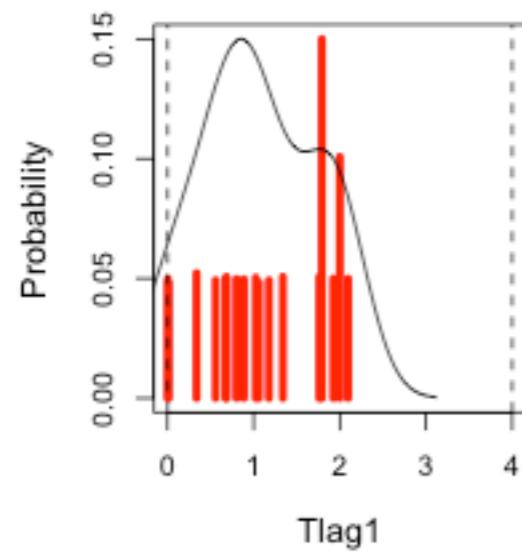
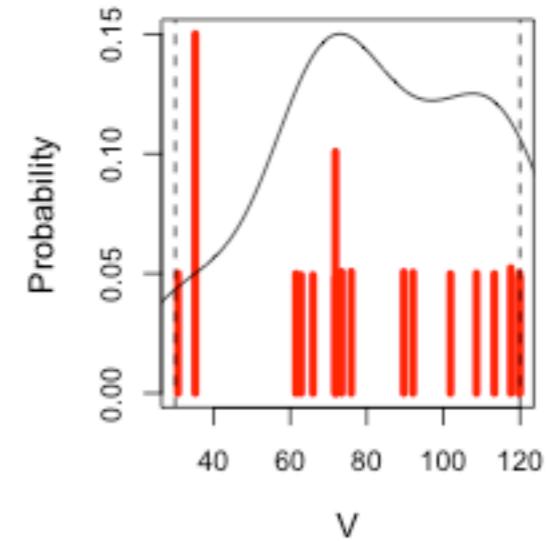
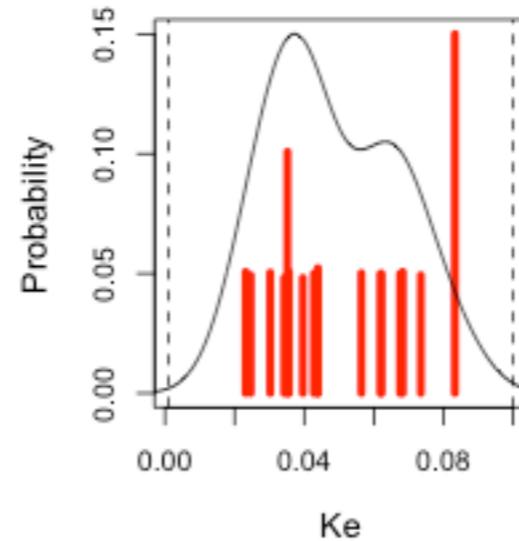
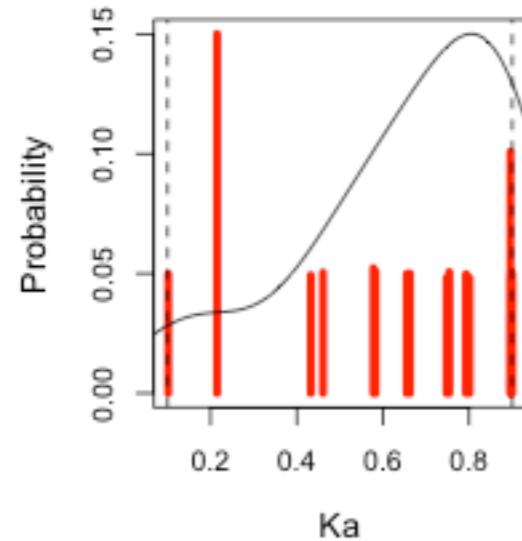
```
plot(op.1, resid=T)
```



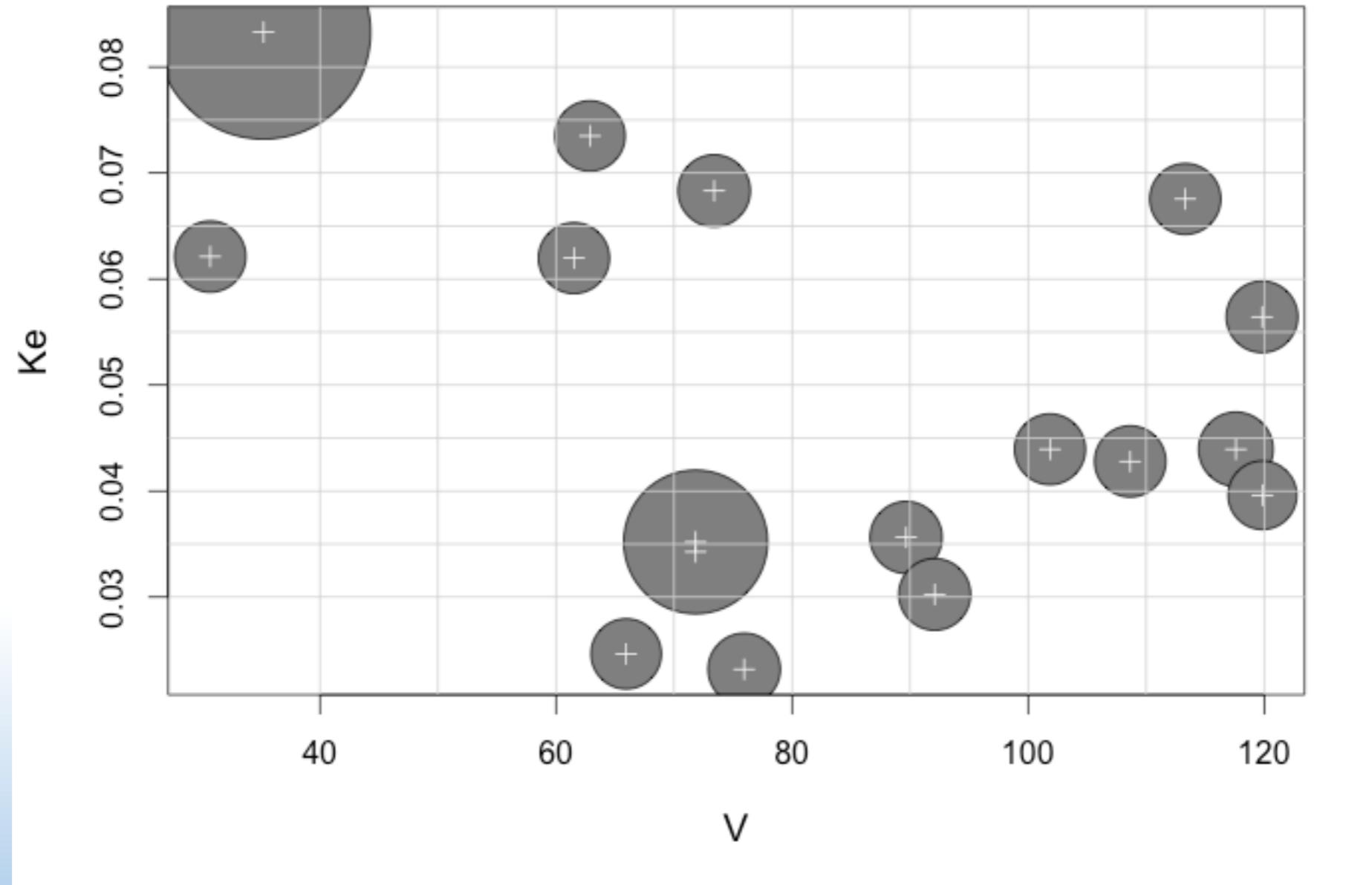
```
plot(op.1,pred.type="pop",resid=T,y.stat=1,x.stat=0,cex.stat=0.8)
```



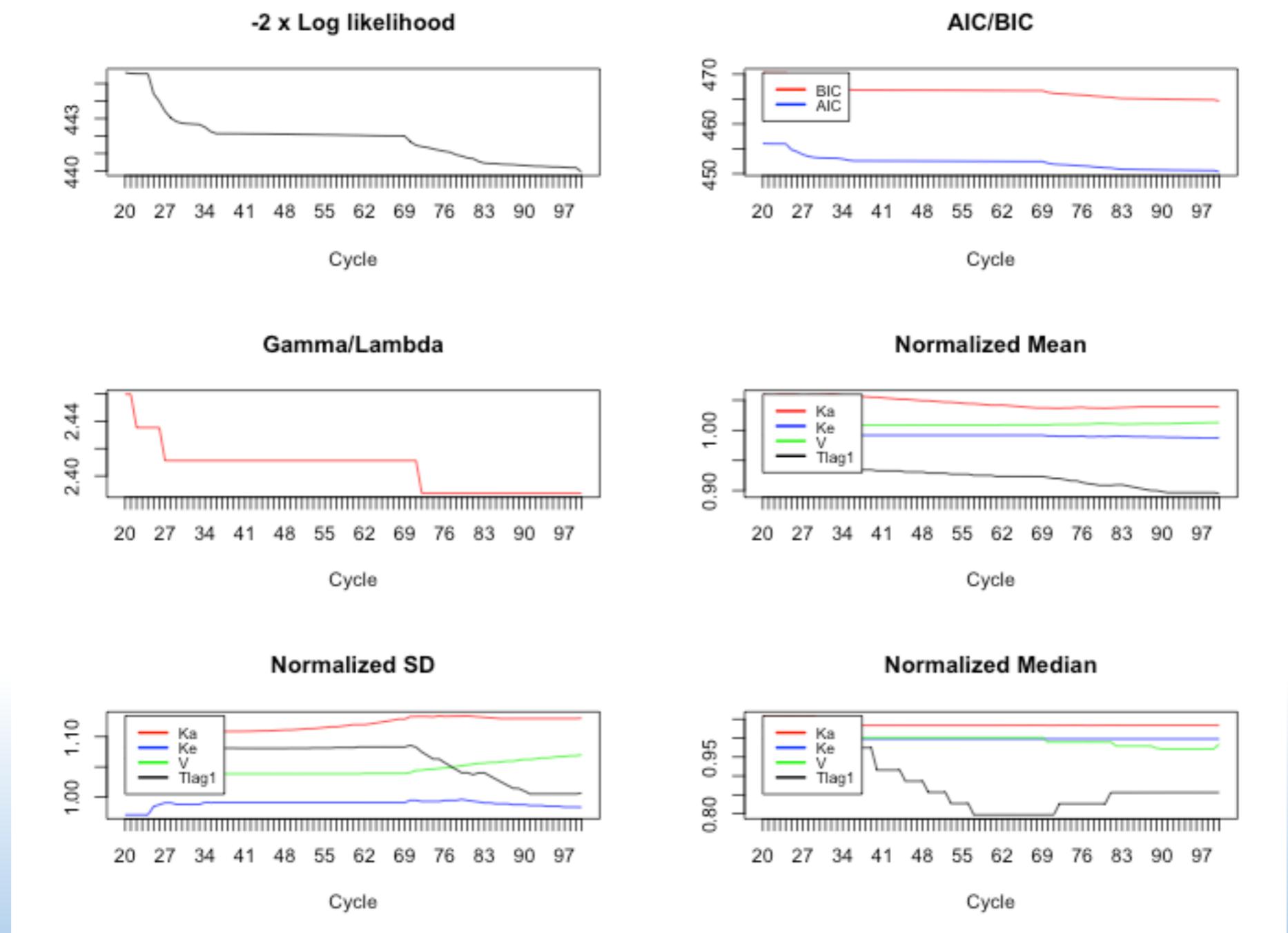
```
plot(final.1)
```



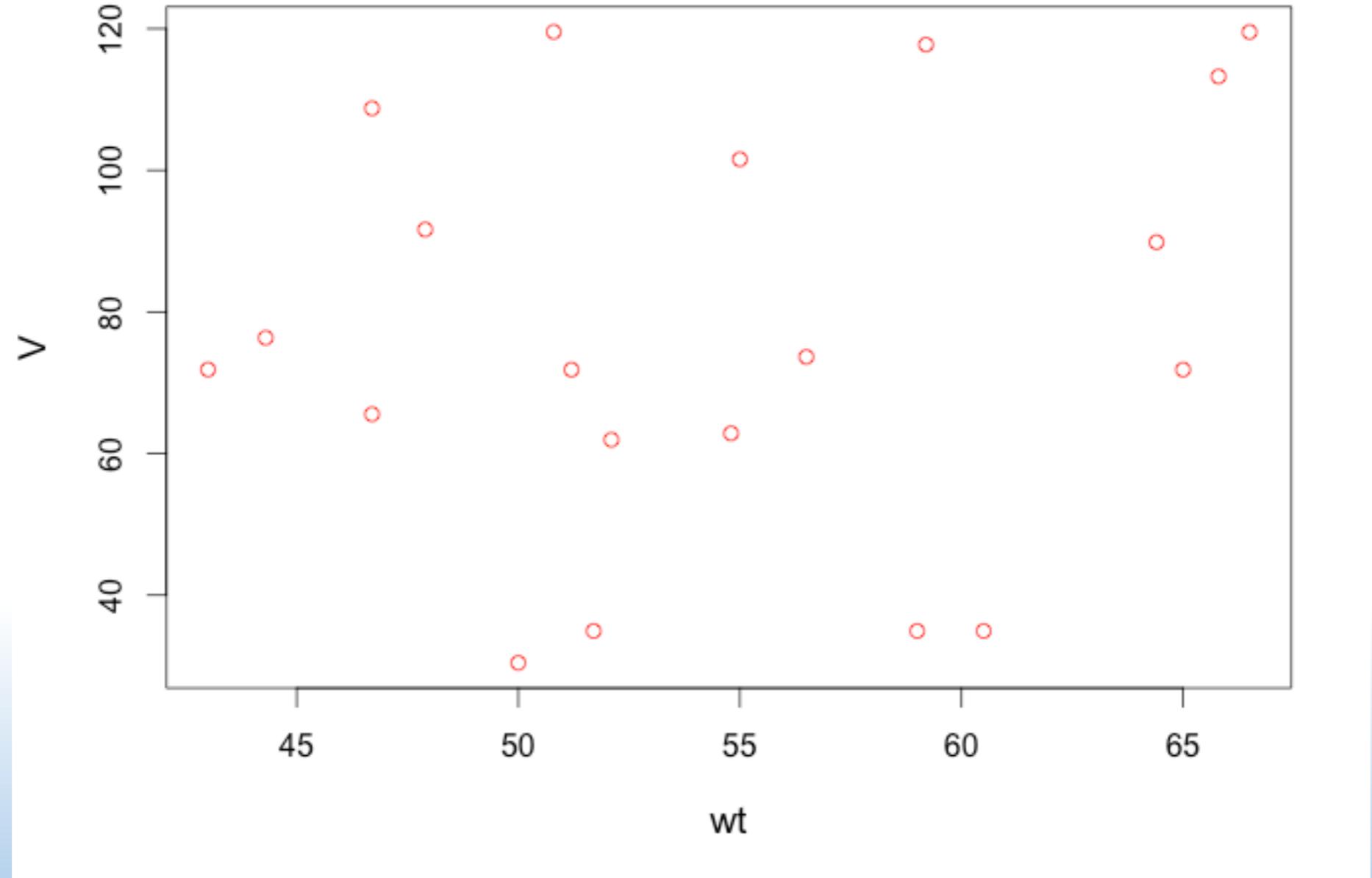
```
plot(final.1, density=T)
```



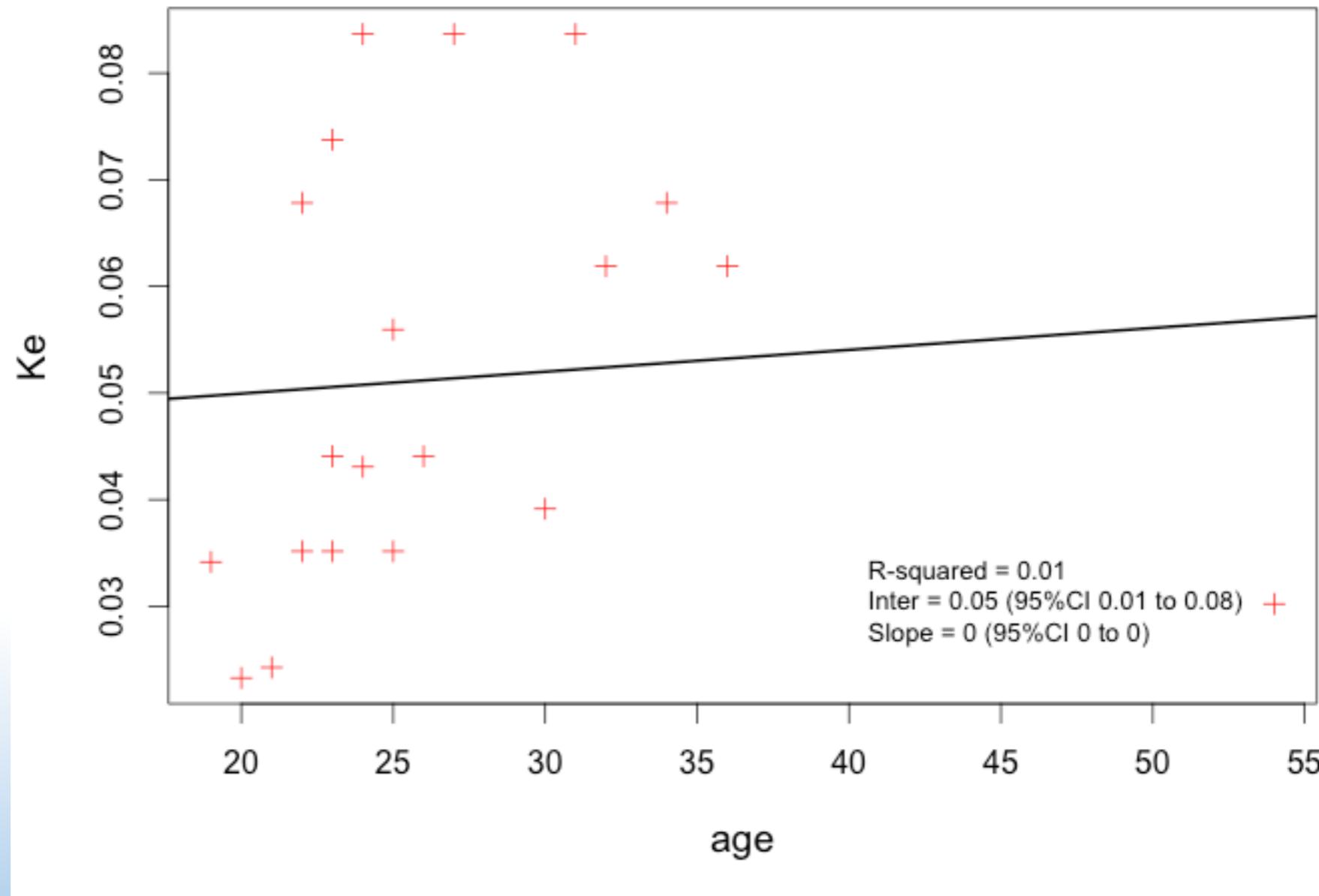
```
plot(final.1, Ke~V)
```



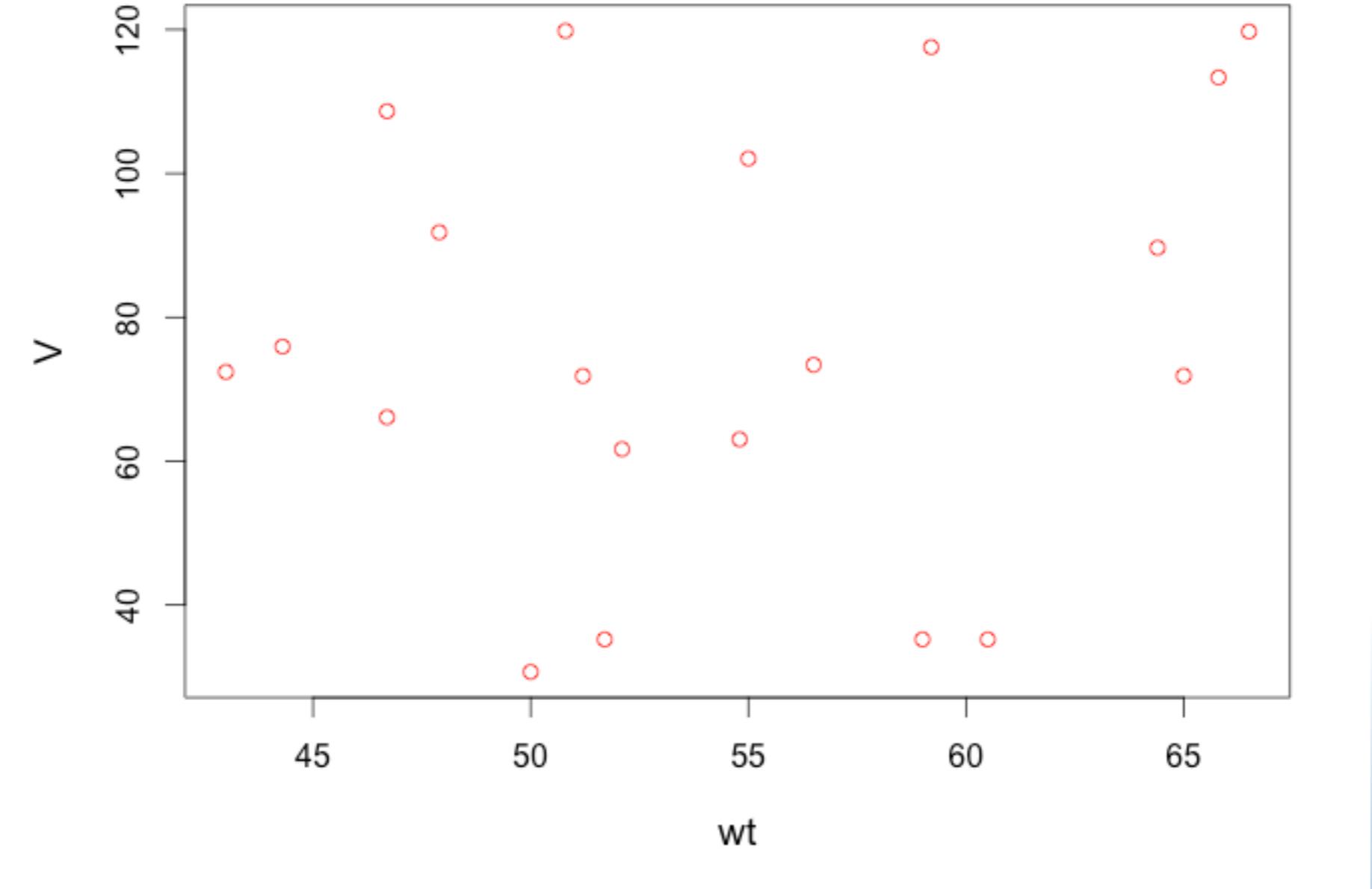
```
plot(cycle.1, cex.leg=0.8)
```



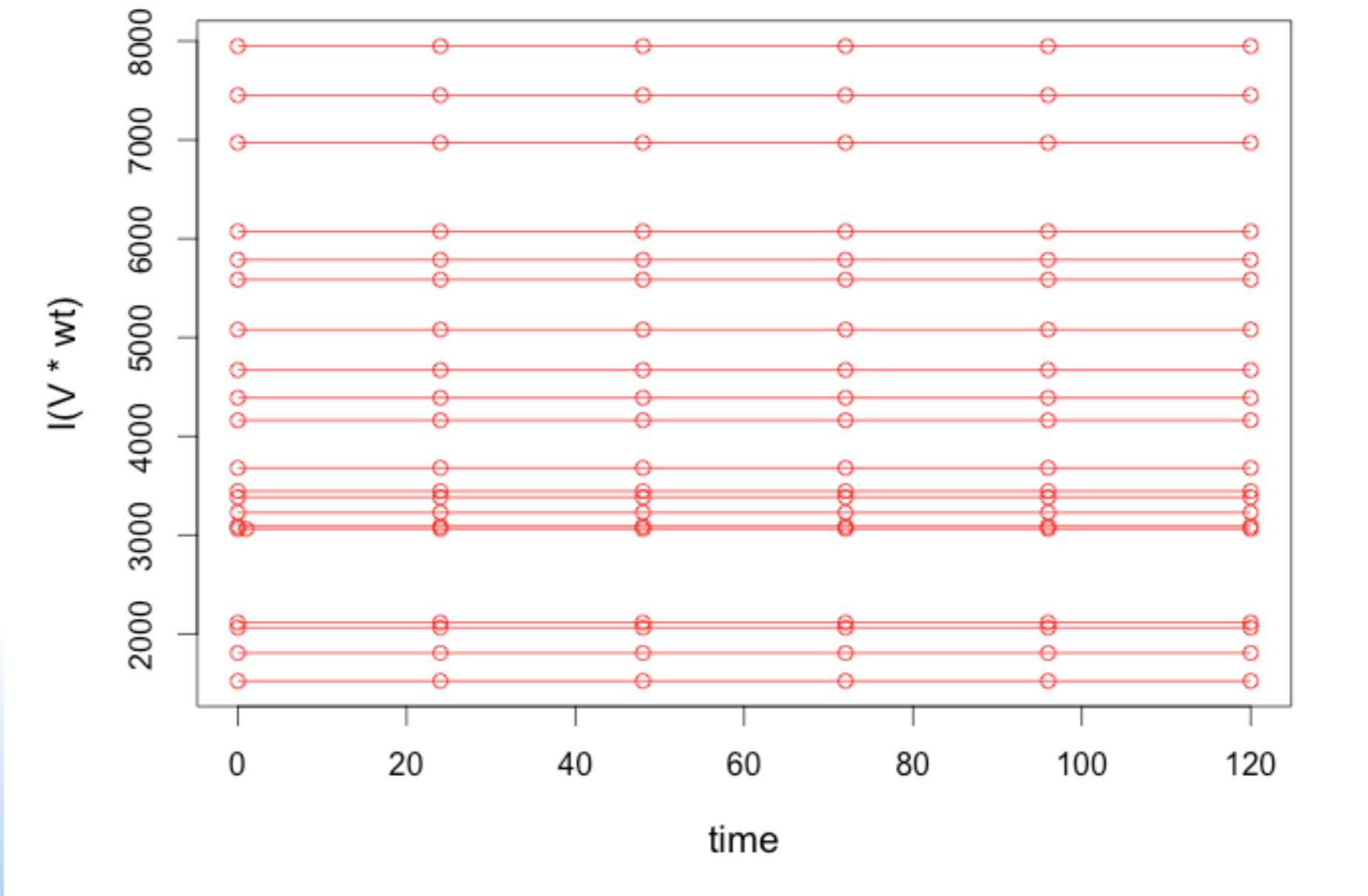
```
plot(cov.1, V~wt)
```



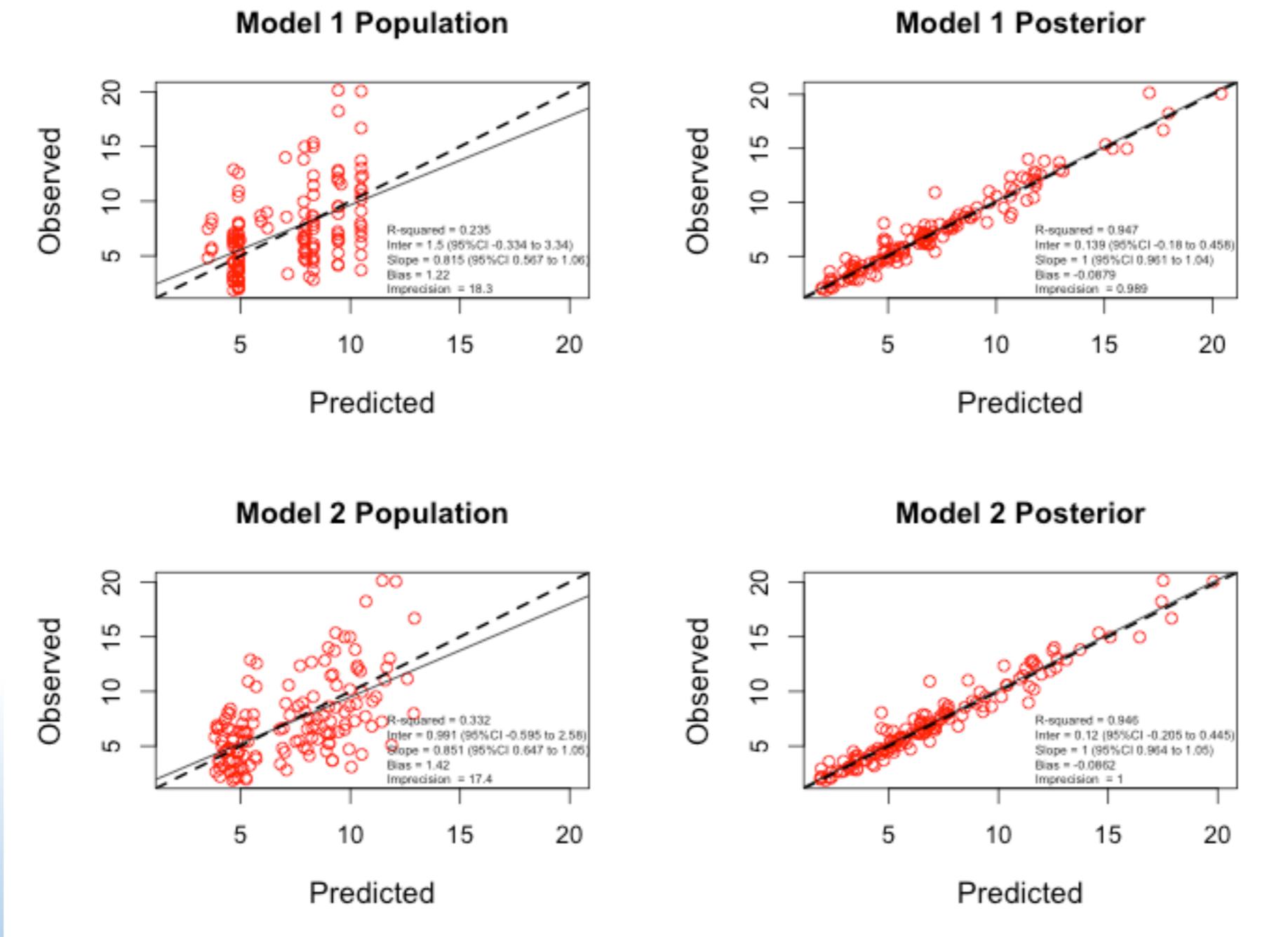
```
plot(cov.1,Ke~age,lowess=F,reg=T,pch=3)
```



```
plot(cov.1,V~wt,icen="mean")
```

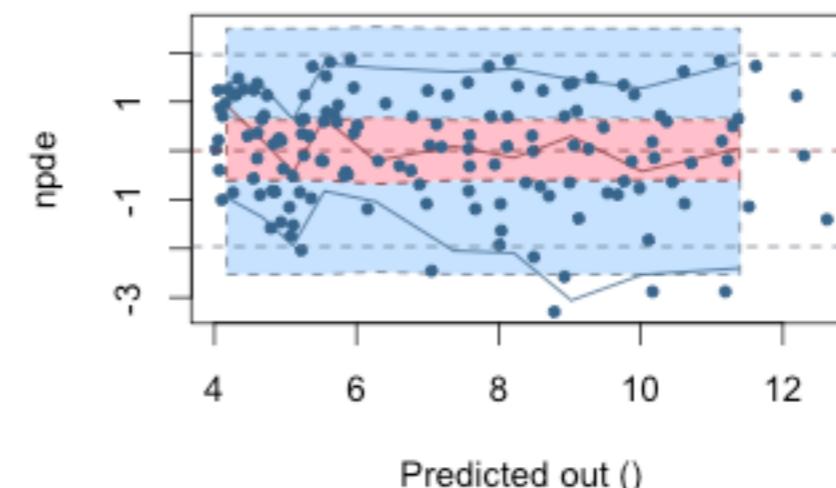
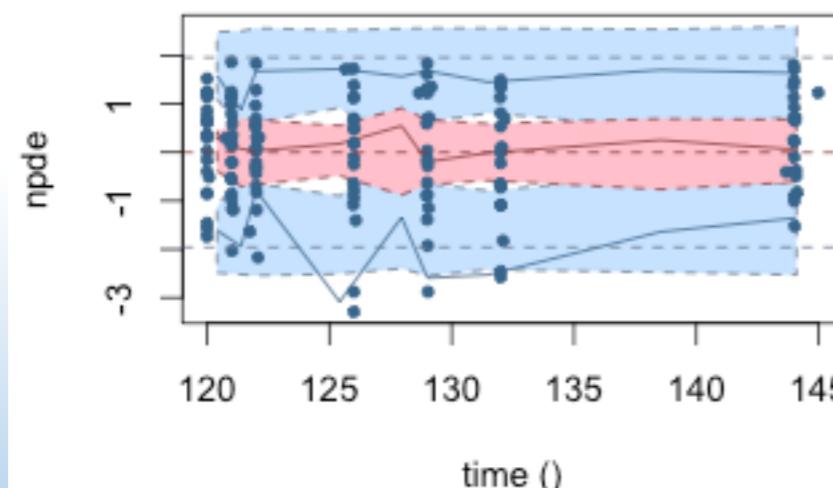
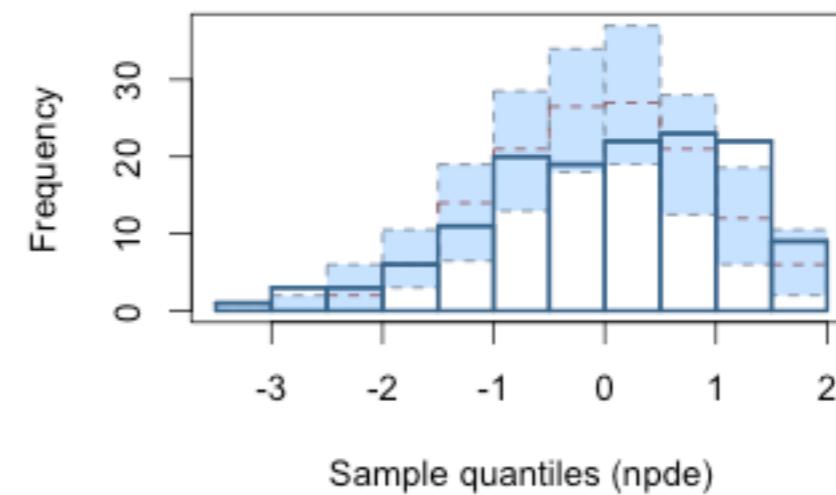
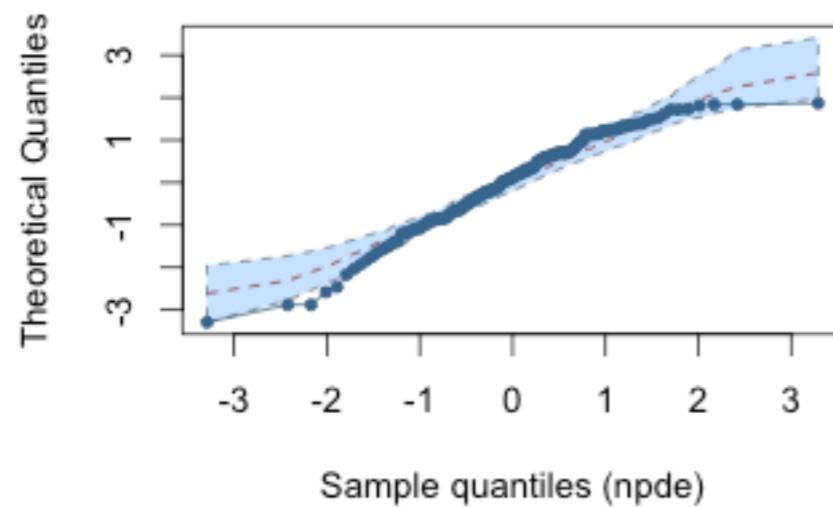


```
plot(cov.1, I(V*wt) ~ time)
```



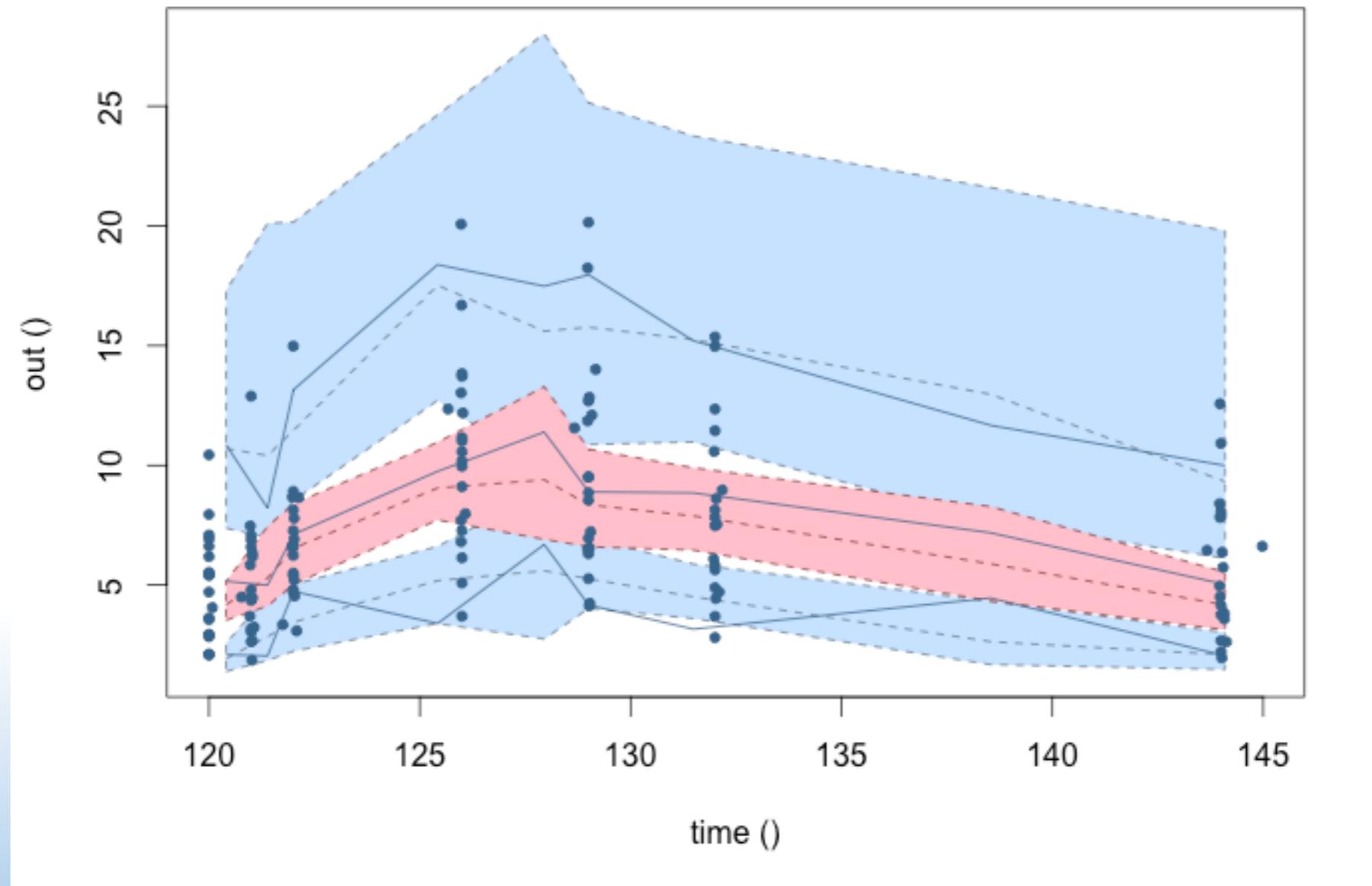
```
PMcompare(1,2,plot=T,cex.stat=0.5)
```

**Q-Q plot versus  $N(0,1)$  for npde**

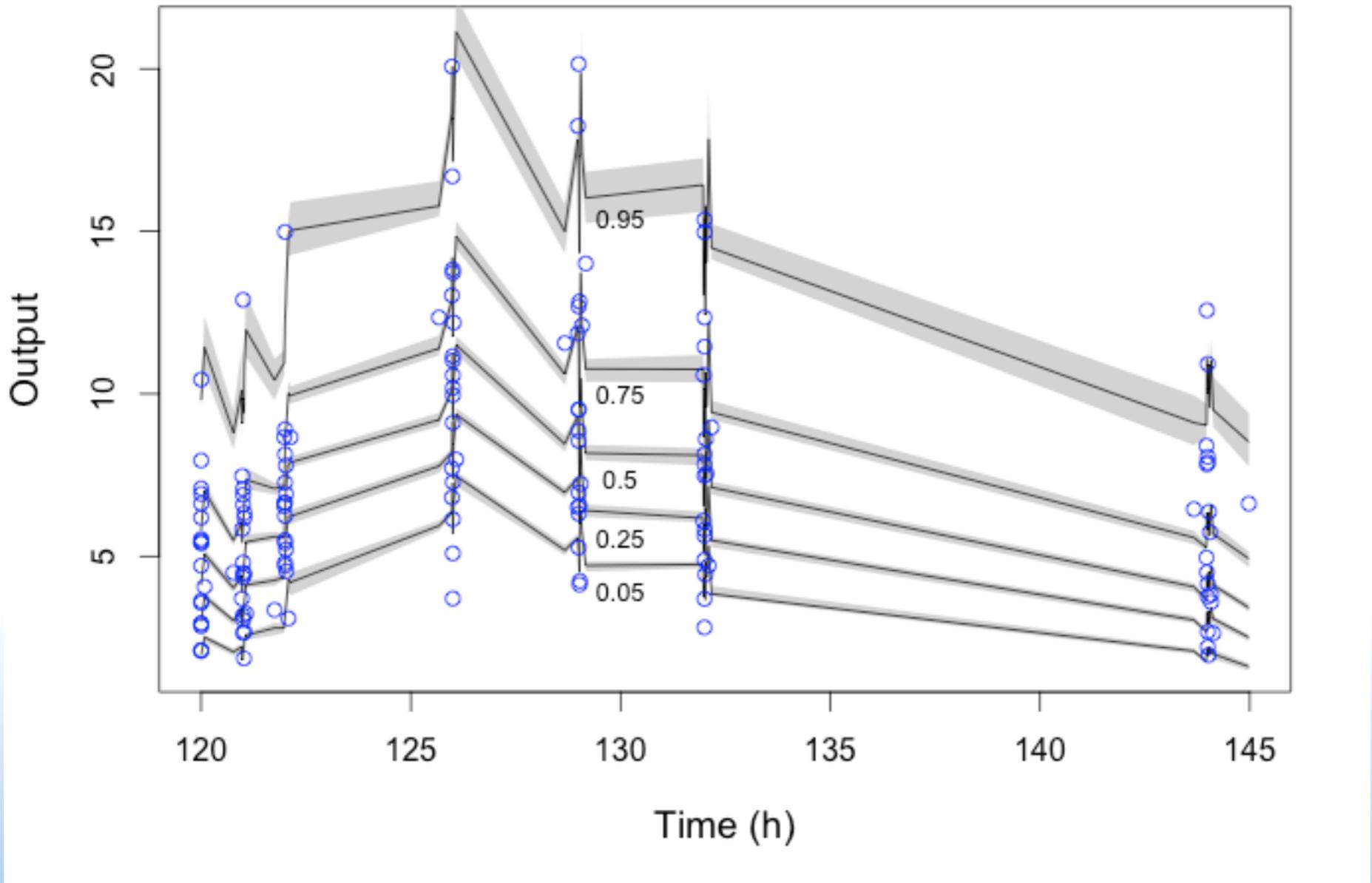


plot(npde.2)

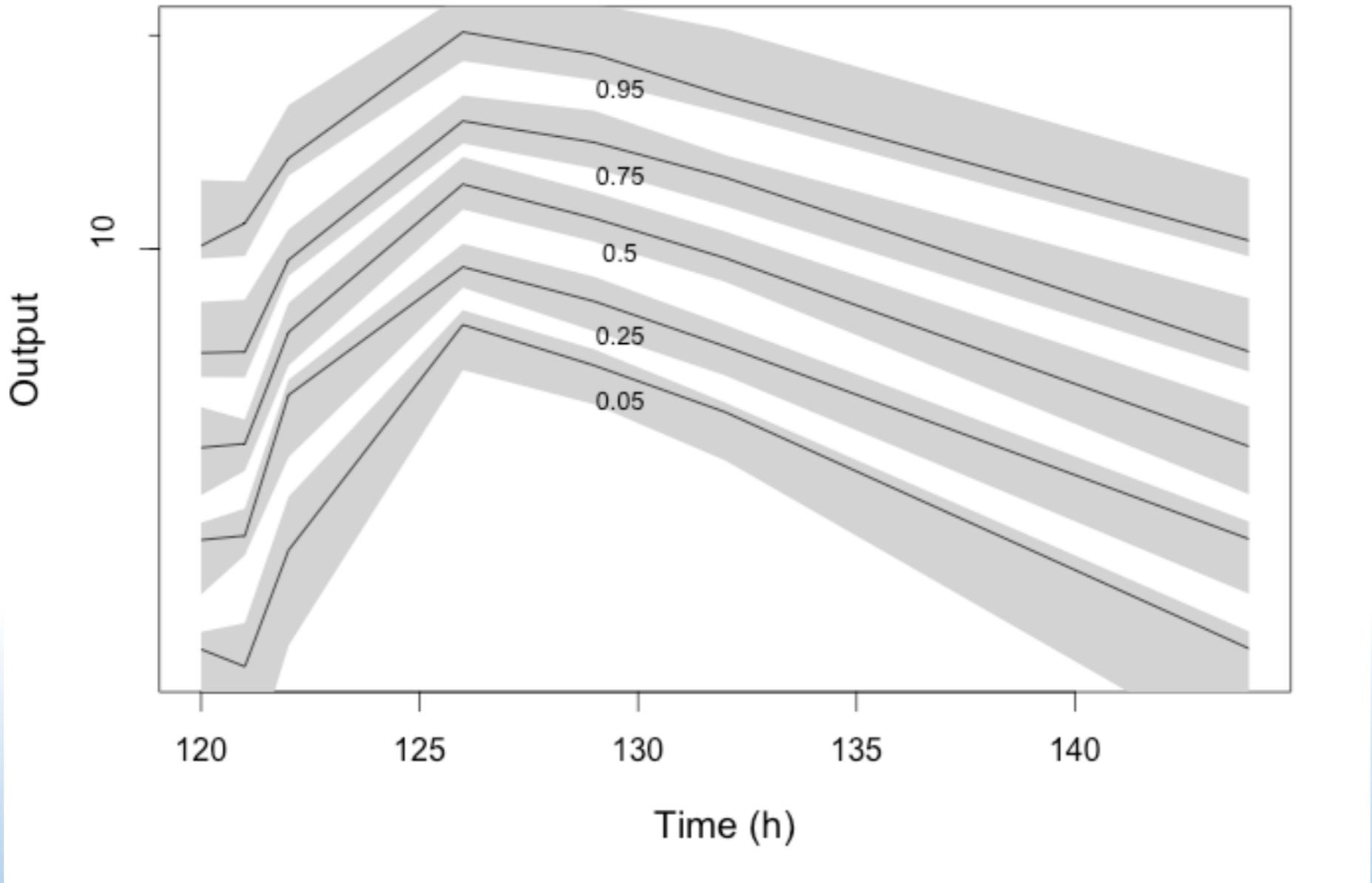
## Visual Predictive Check



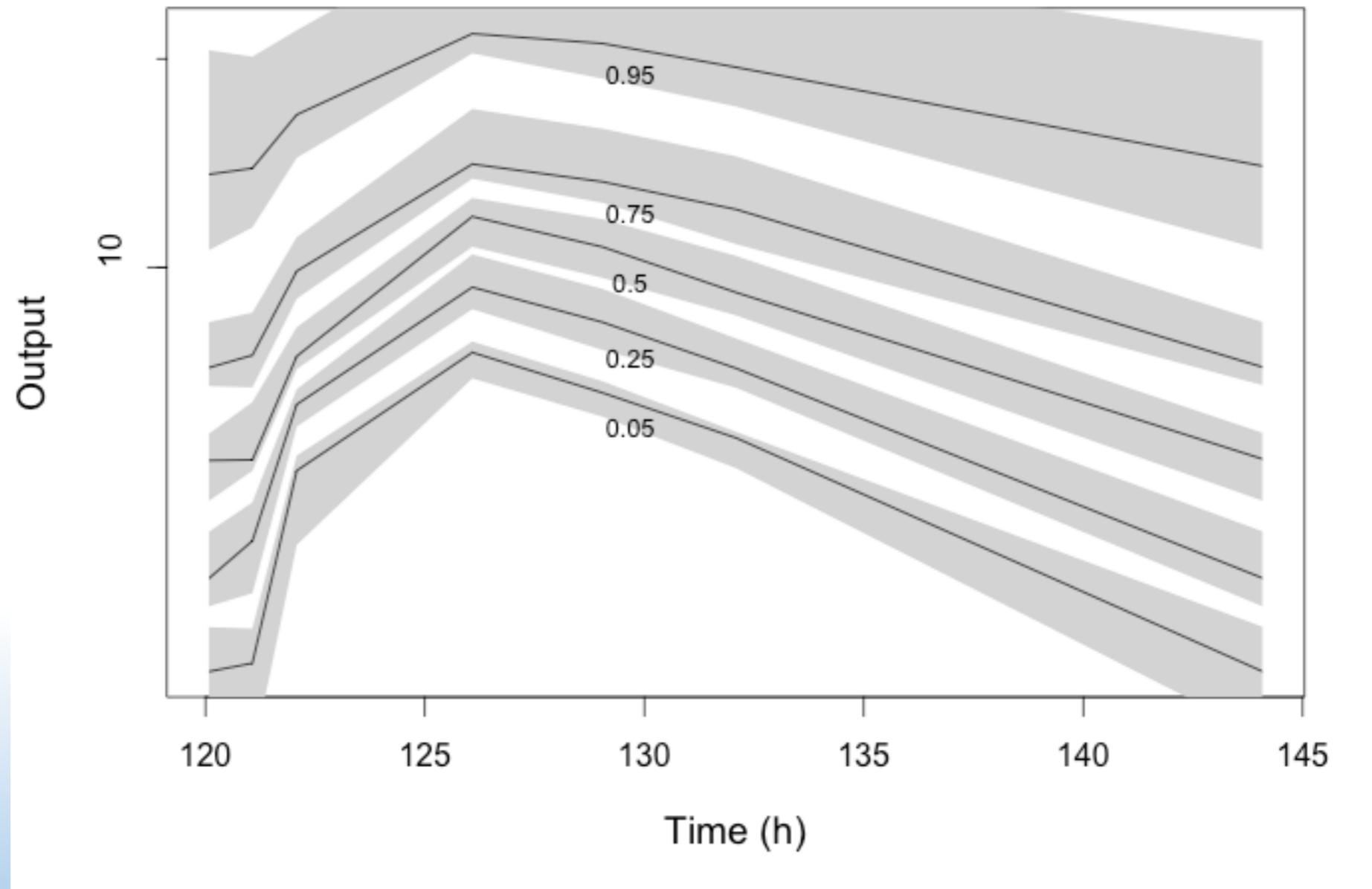
```
plot(npde.2, plot.type="vpc", ylog=F)
```



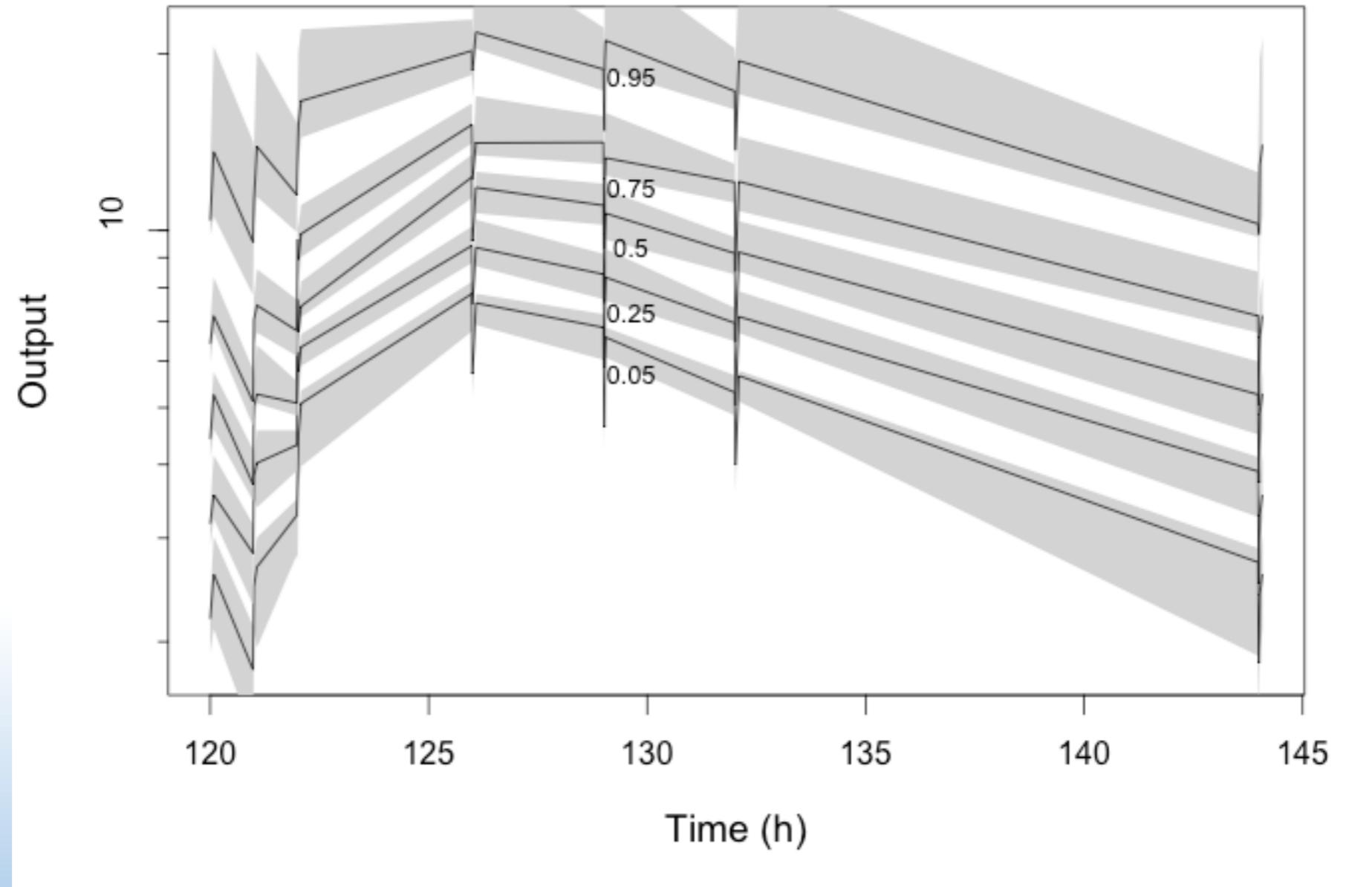
```
plot(sim.2,obs=op.2,log=F)
```



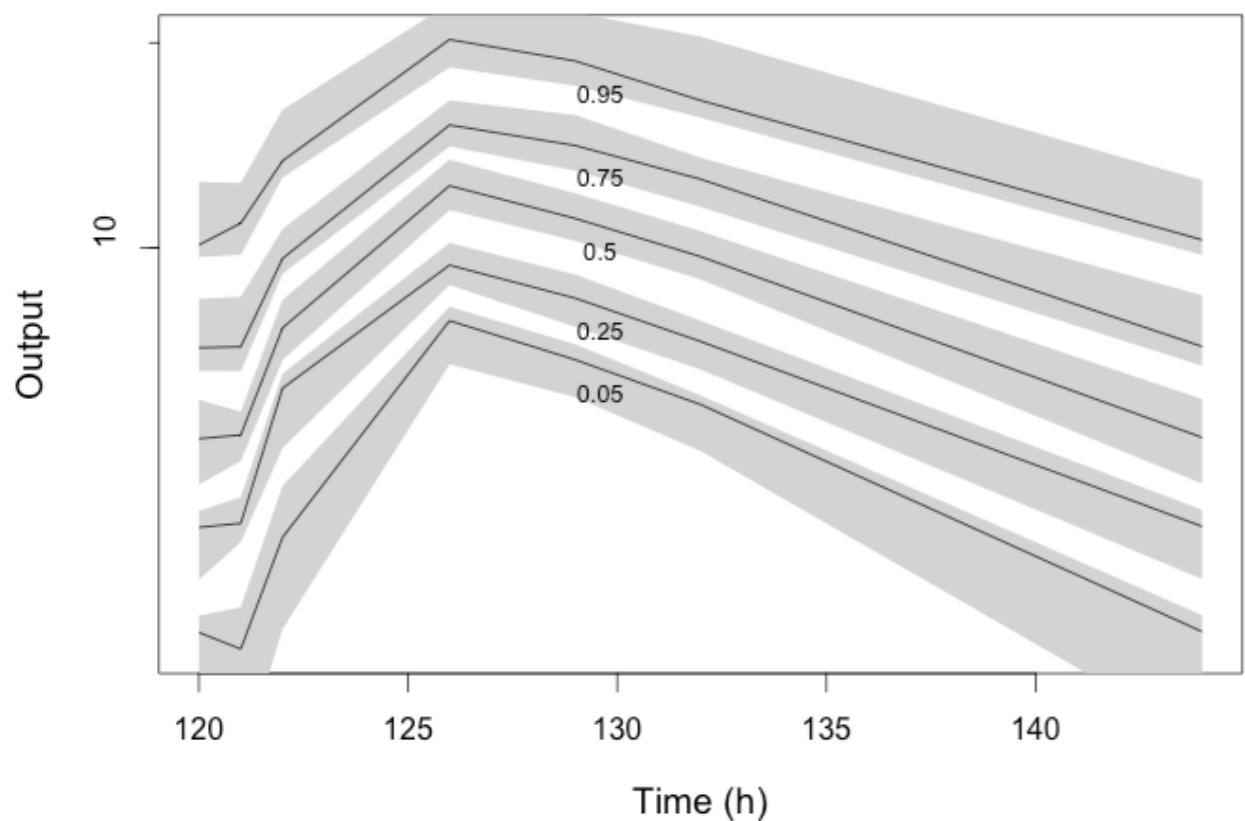
plot(simdata)



```
plot(simdata[ [3] ])
```

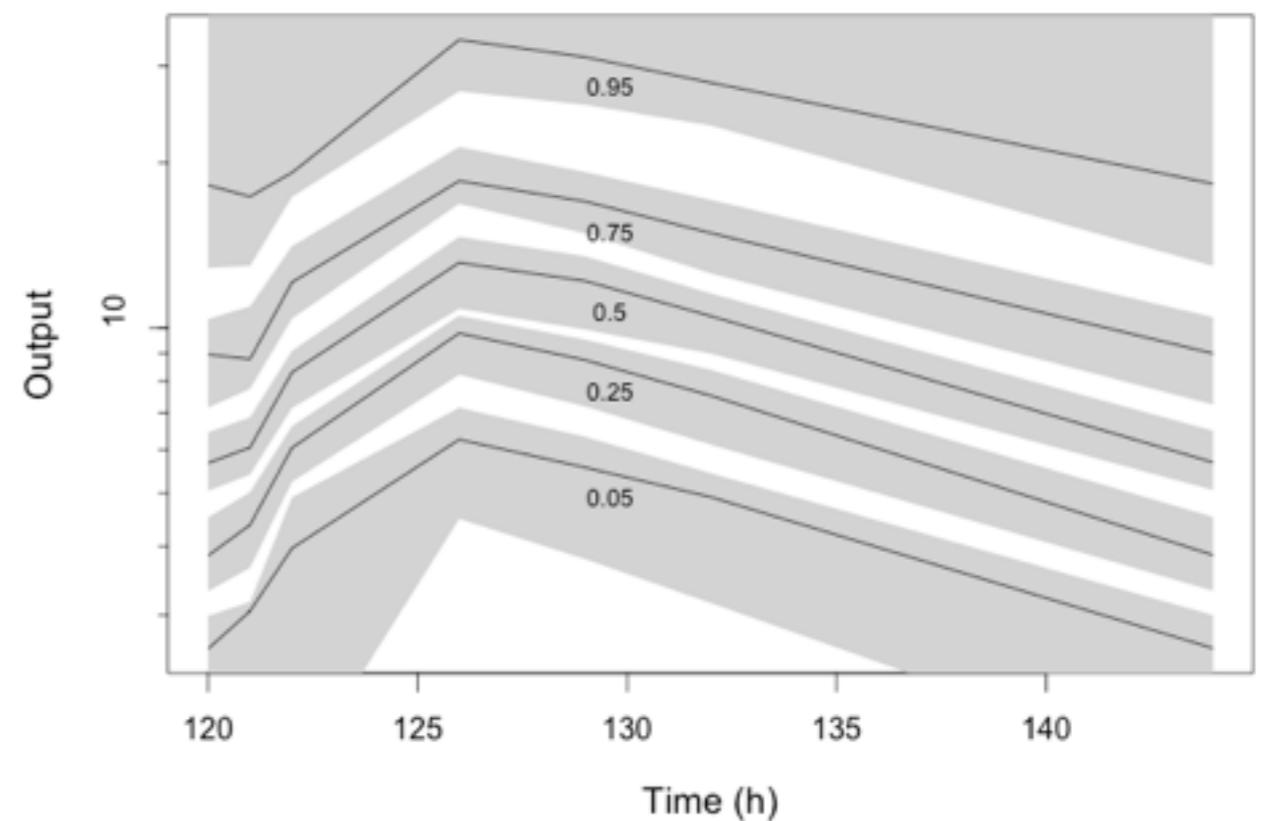


plot(simdata2)



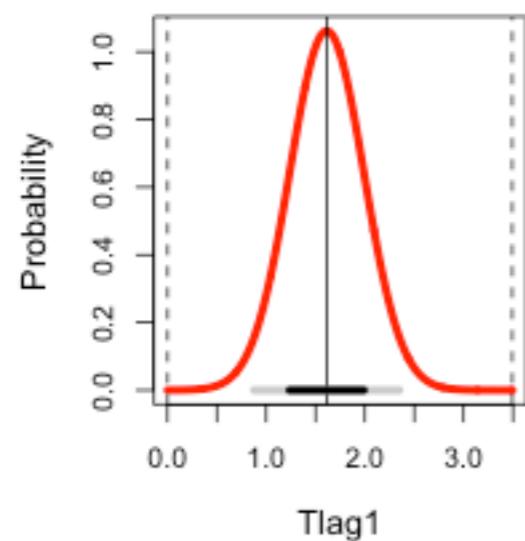
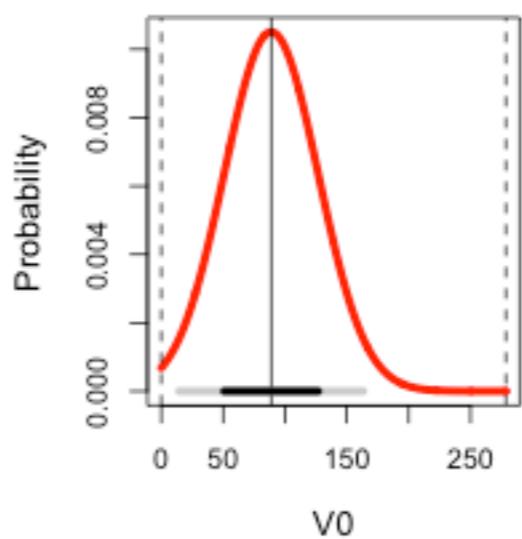
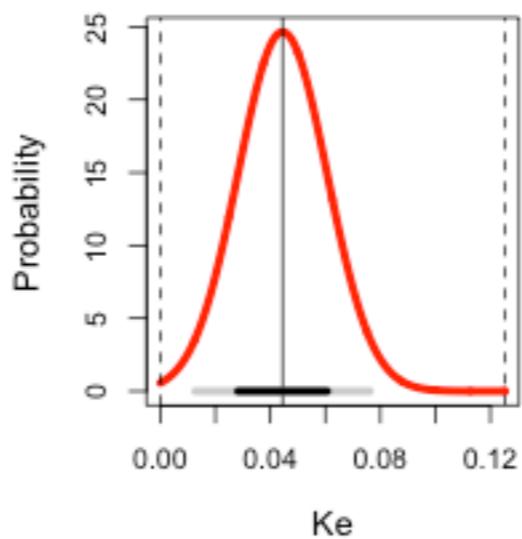
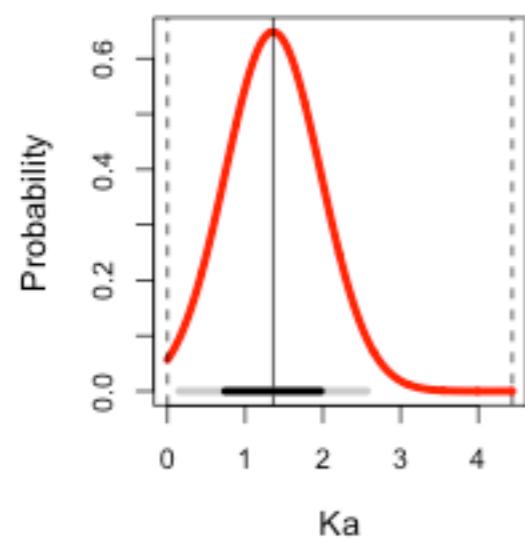
```
plot(simdata[[1]])
```

Simulation without covariates

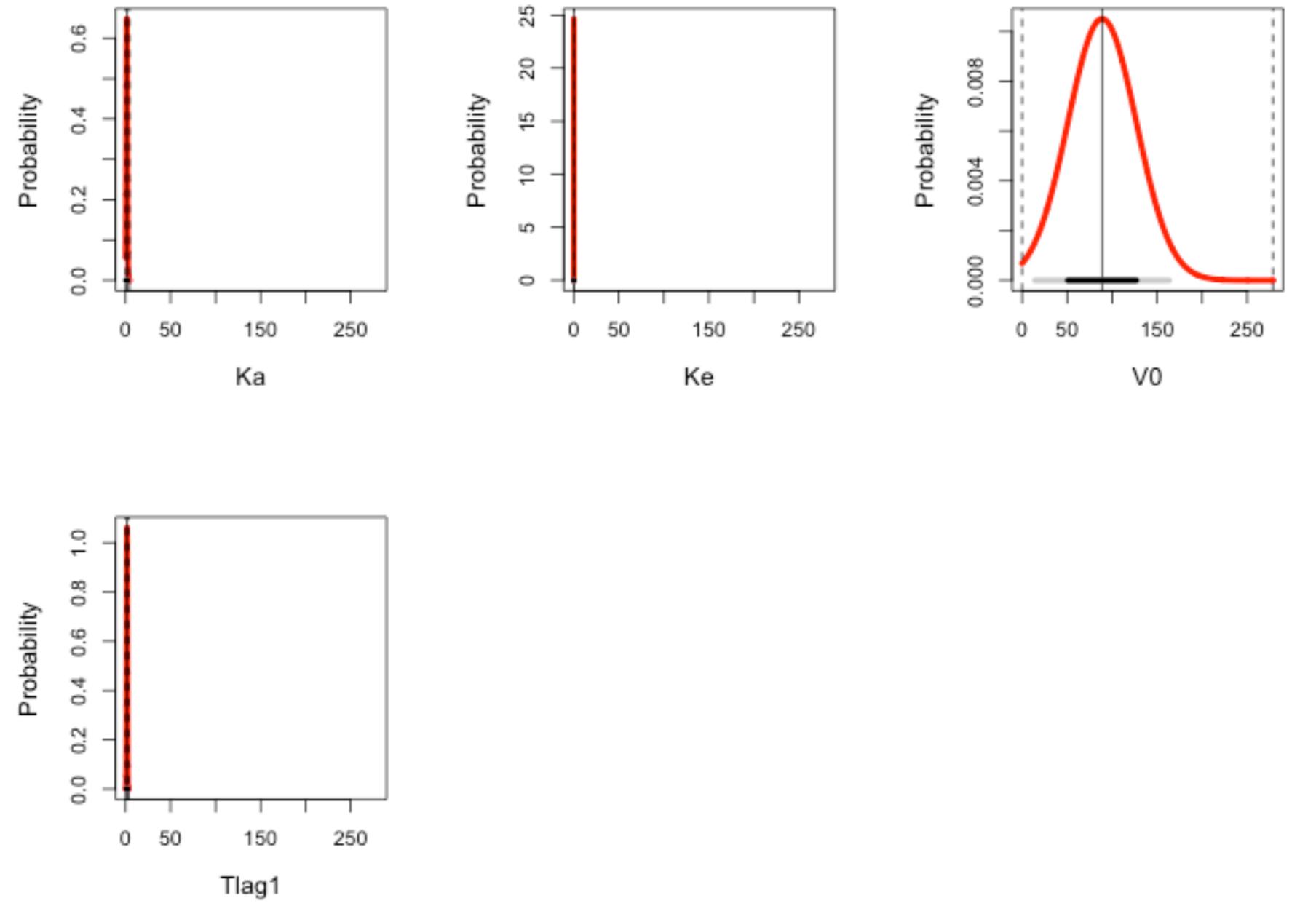


```
plot(simdata[[3]])
```

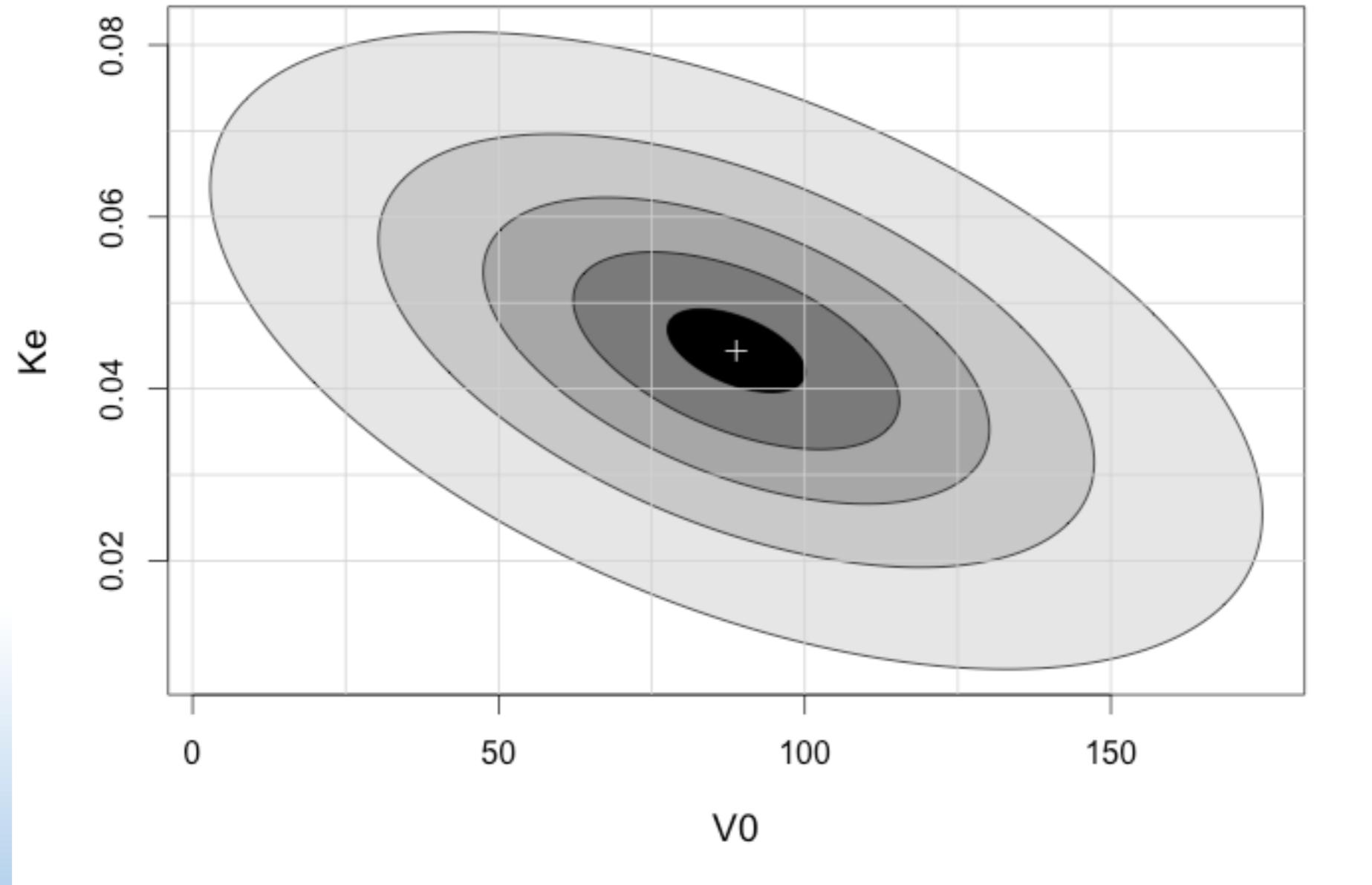
Simulation with covariates



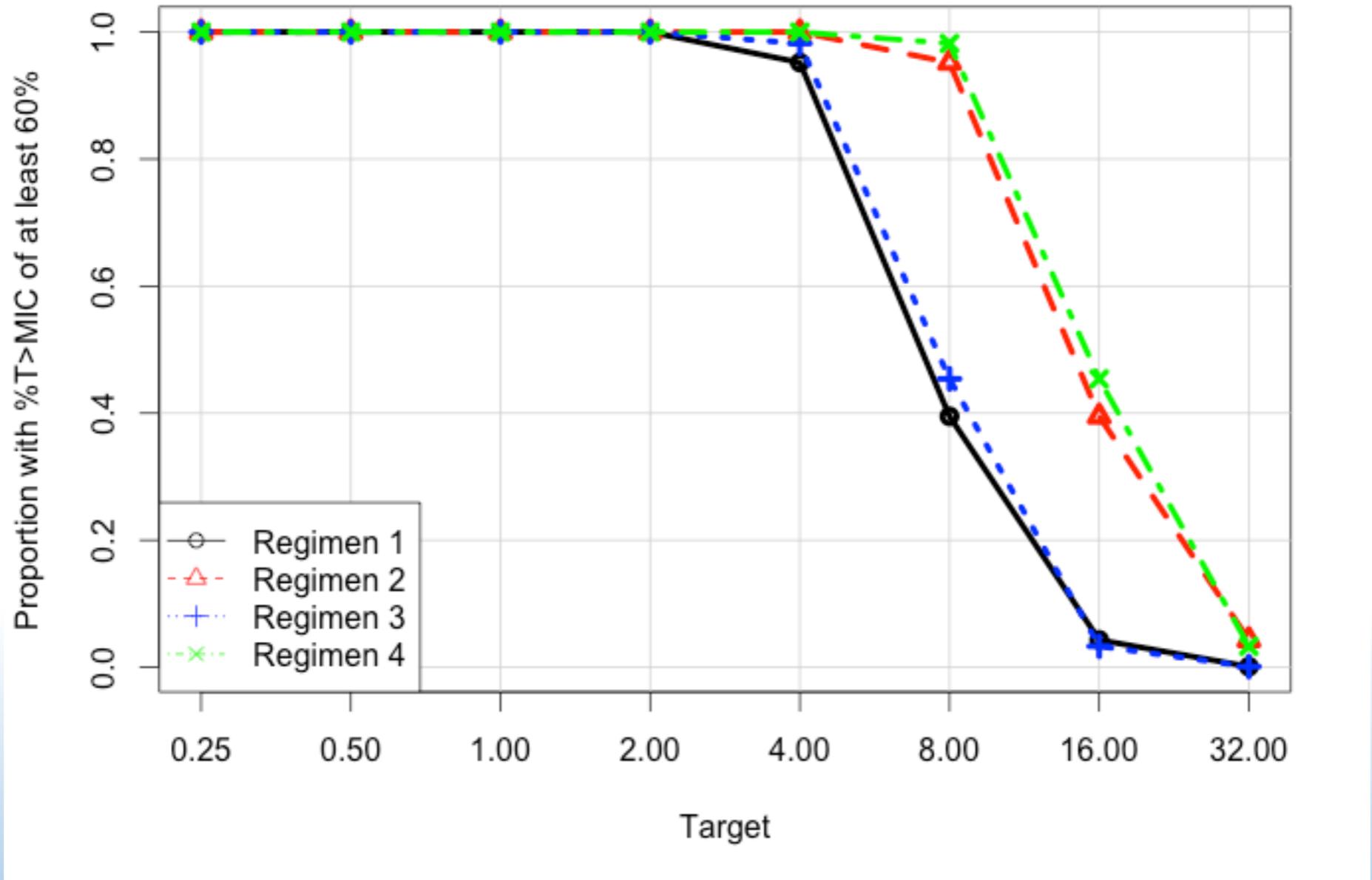
plot(final.4)



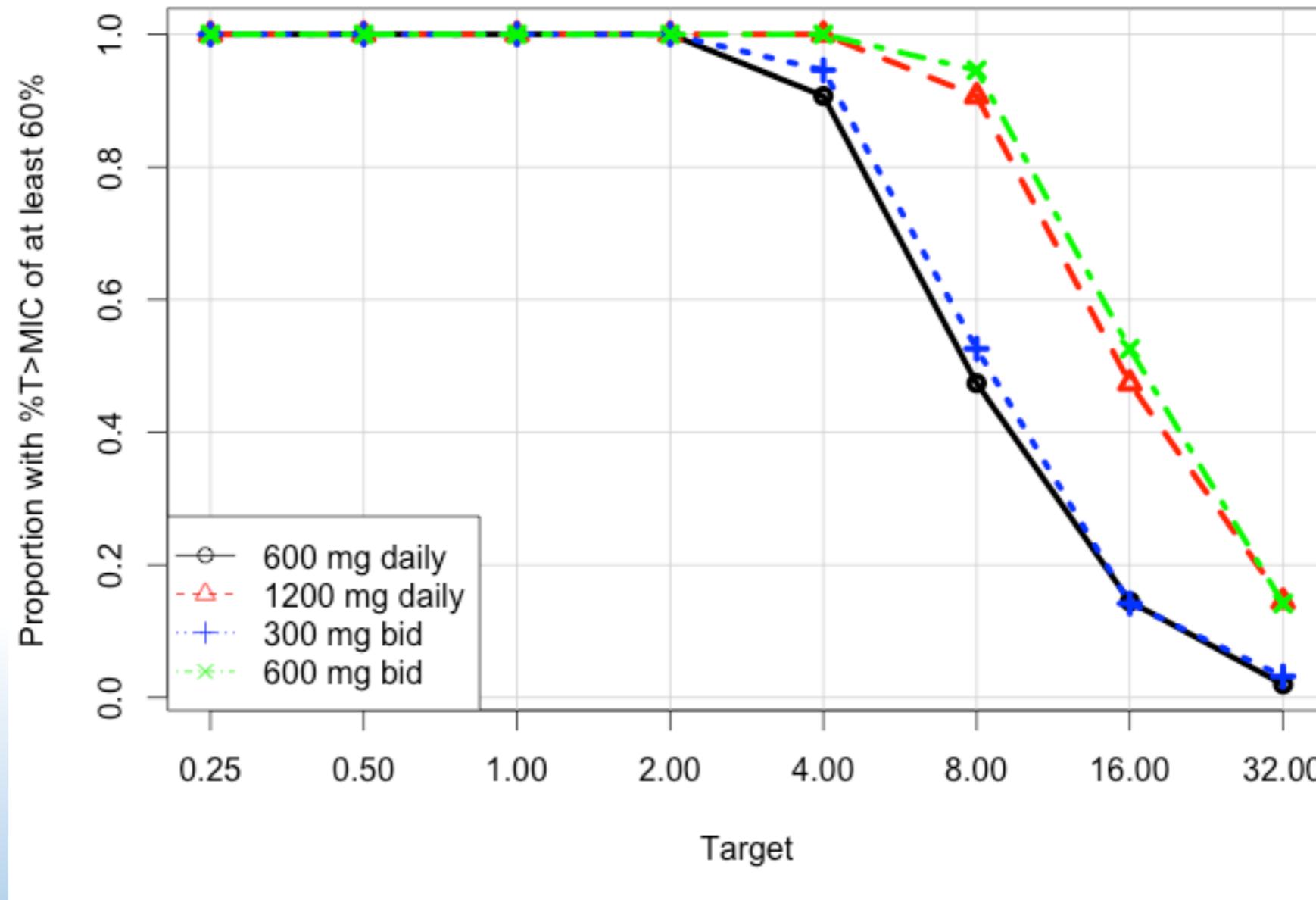
```
plot(final.4, standard=T)
```



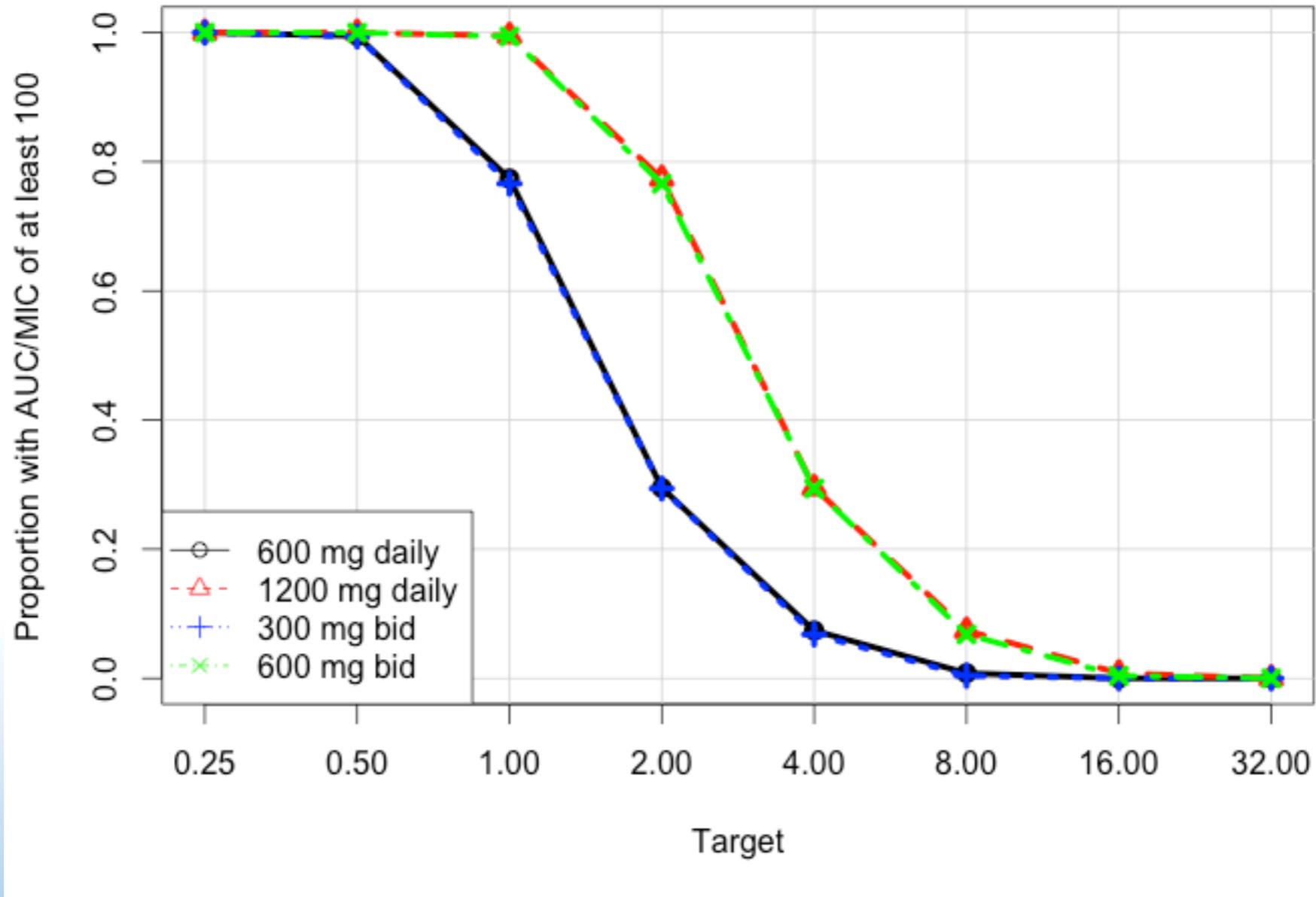
```
plot(final.4, Ke~V0)
```



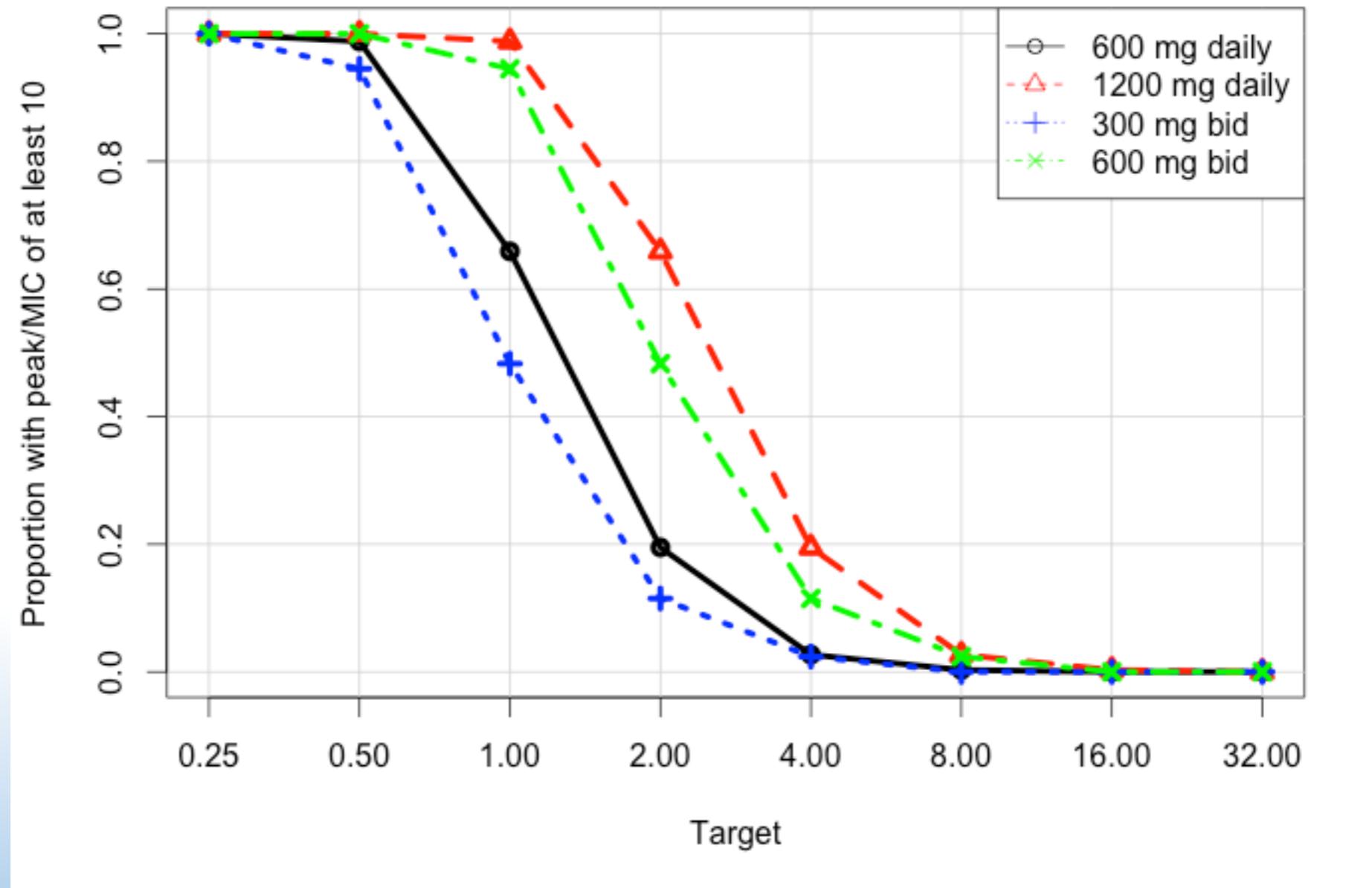
```
plot(pta1.2, ylab="Proportion with %T>MIC of at least 60%", grid=T, legend=list(x="bottomleft"))
```



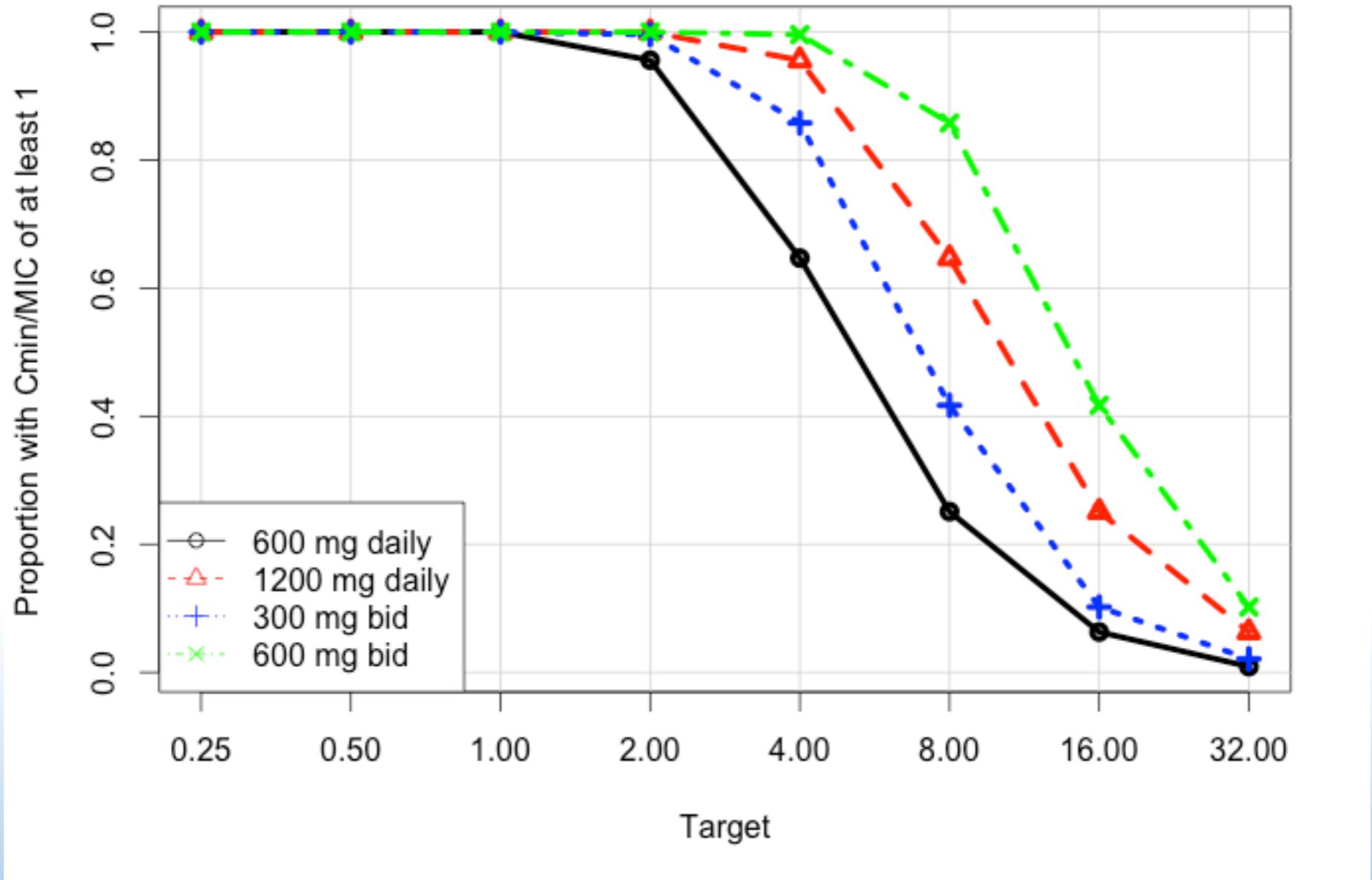
```
plot(ptalb.2, ylab="Proportion with %T>MIC of at least 60%", grid=T,  
legend=list(x="bottomleft"))
```



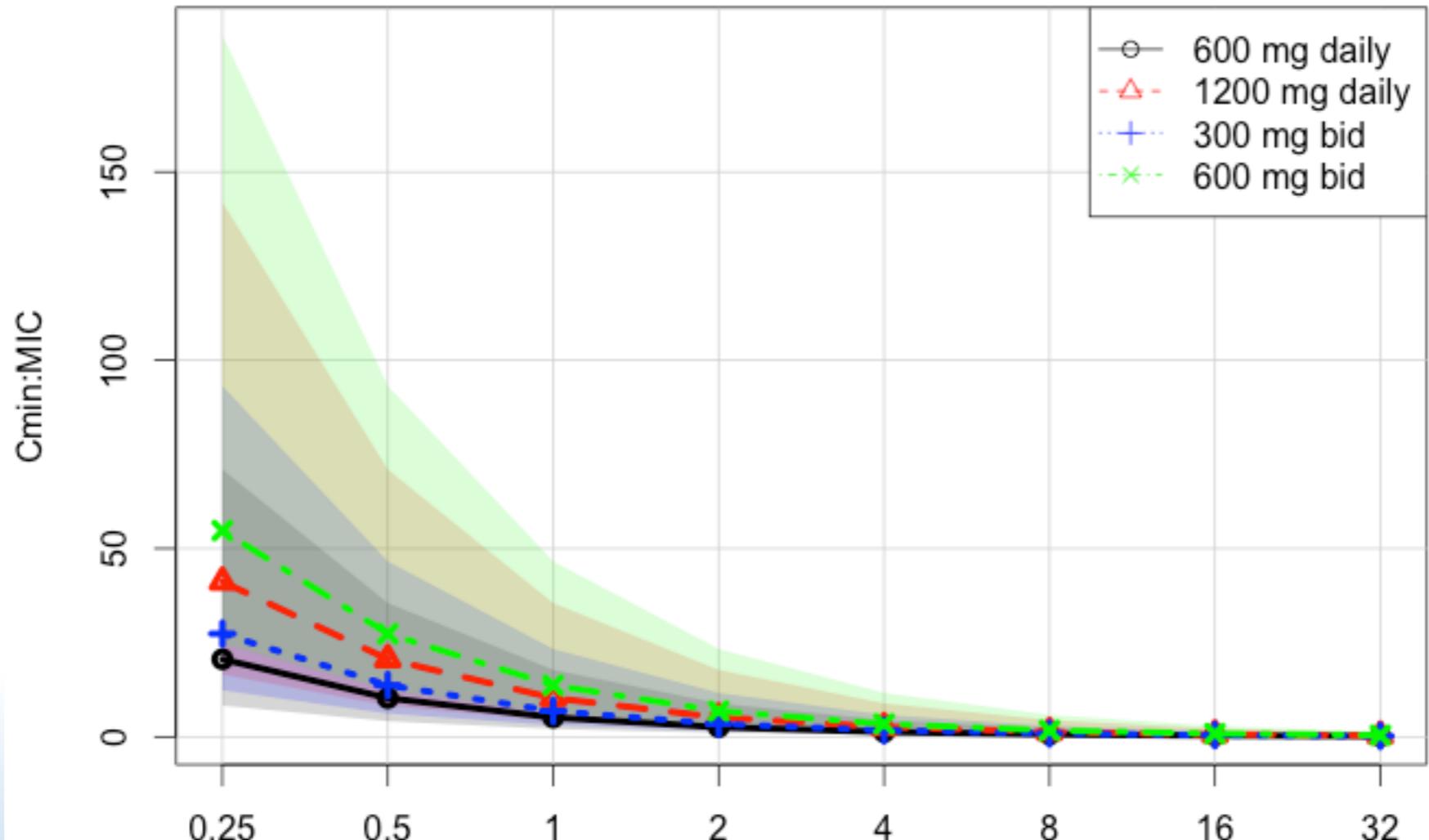
```
plot(pta2.2, ylab="Proportion with AUC/MIC of at least 100", grid=T, legend=list(x="bottomleft"))
```



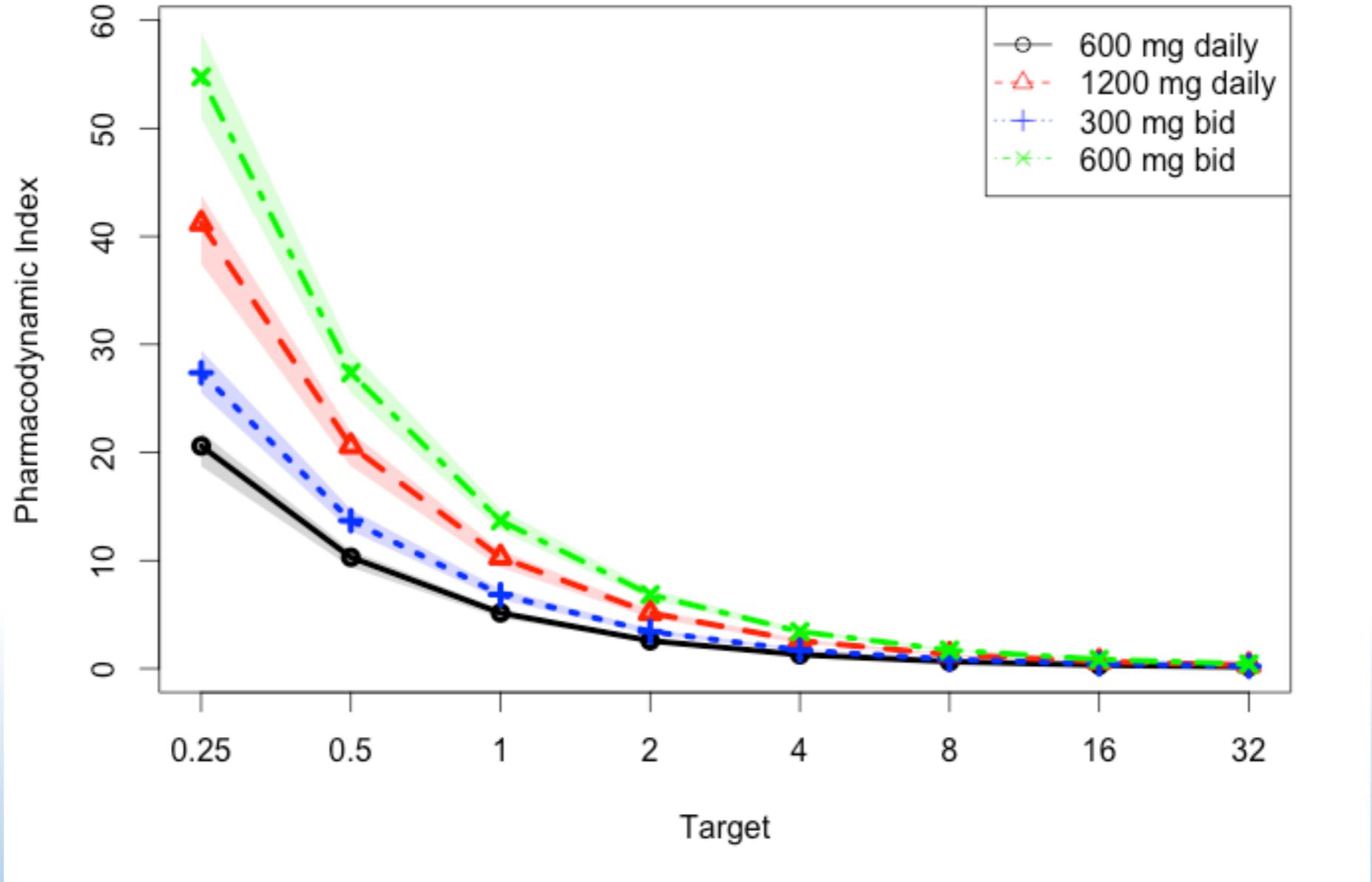
```
plot(pta3.2, ylab="Proportion with peak/MIC of at least 10", grid=T)
```



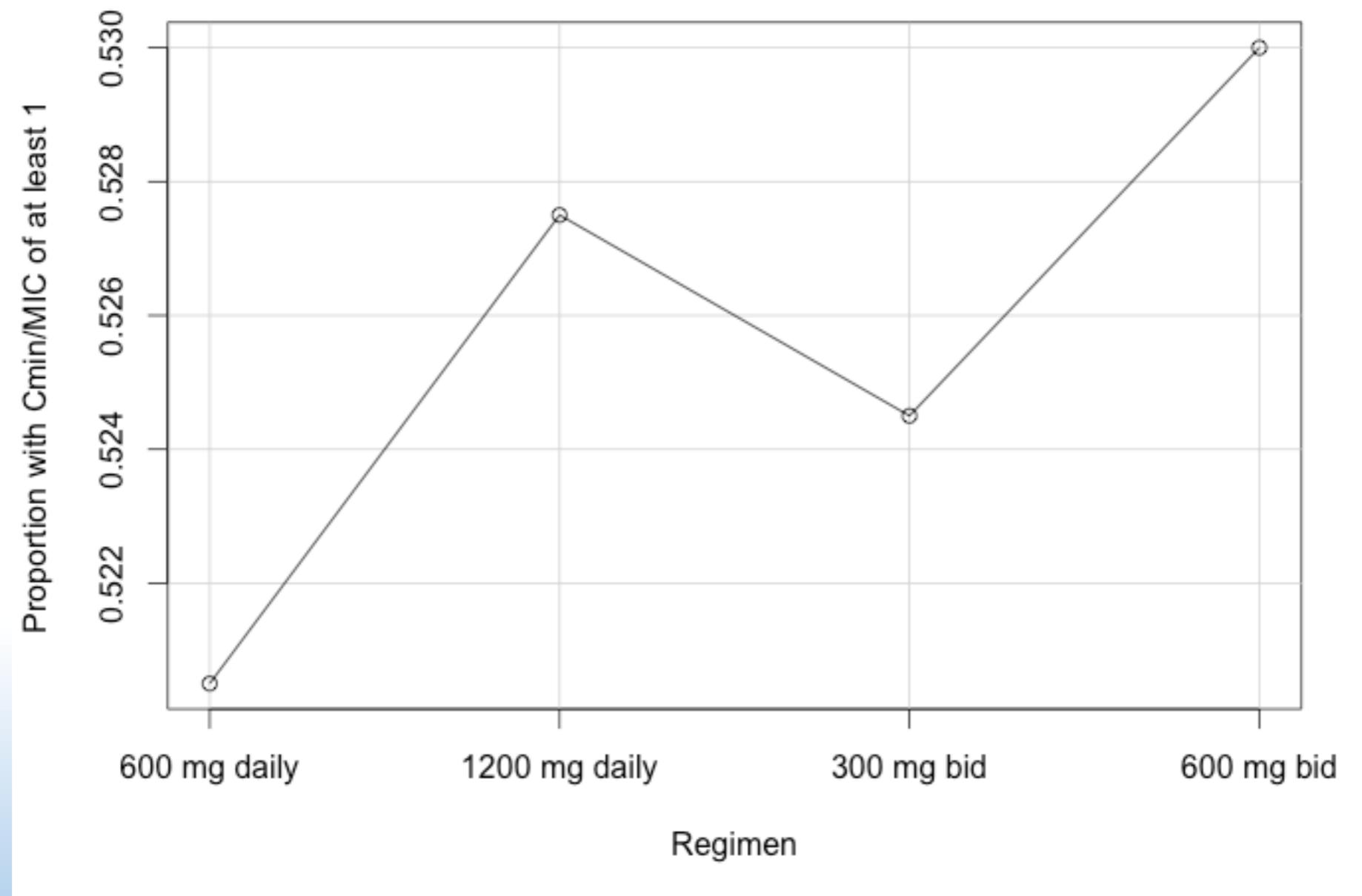
```
plot(pta4.2, ylab="Proportion with Cmin/MIC of at least 1", grid=T, legend=list(x="bottomleft"))
```



```
plot(pta4.2, plot.type="pdi", ylab="Cmin:MIC", grid=T)
```

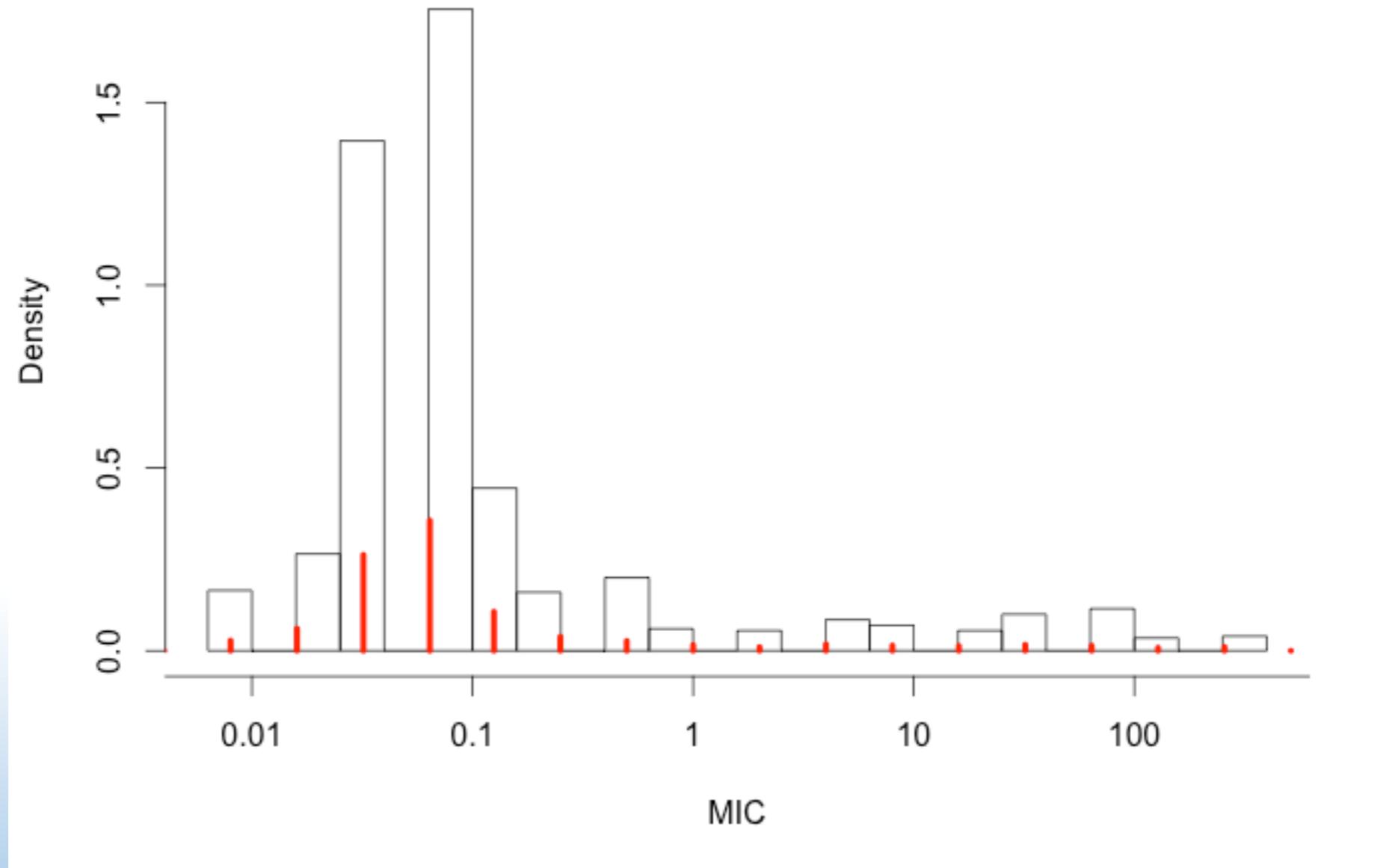


```
plot(pta4.2, plot.type="pdi", ci=0, grid=T,  
col=c("blue", "purple", "black", "brown"),  
lwd=1)
```

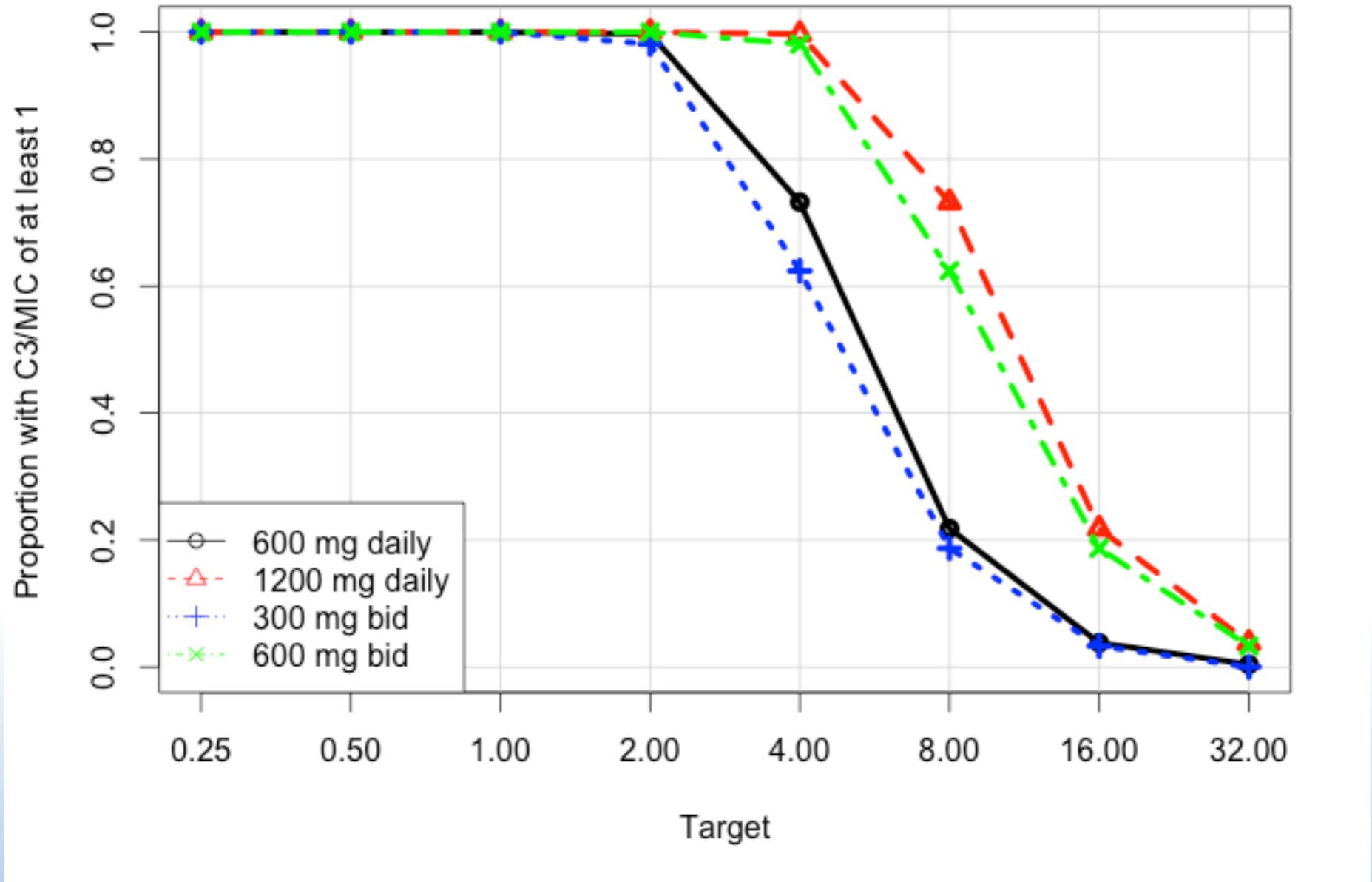


```
plot(pta4b.2, grid=T, ylab="Proportion with Cmin/MIC of at least 1")
```

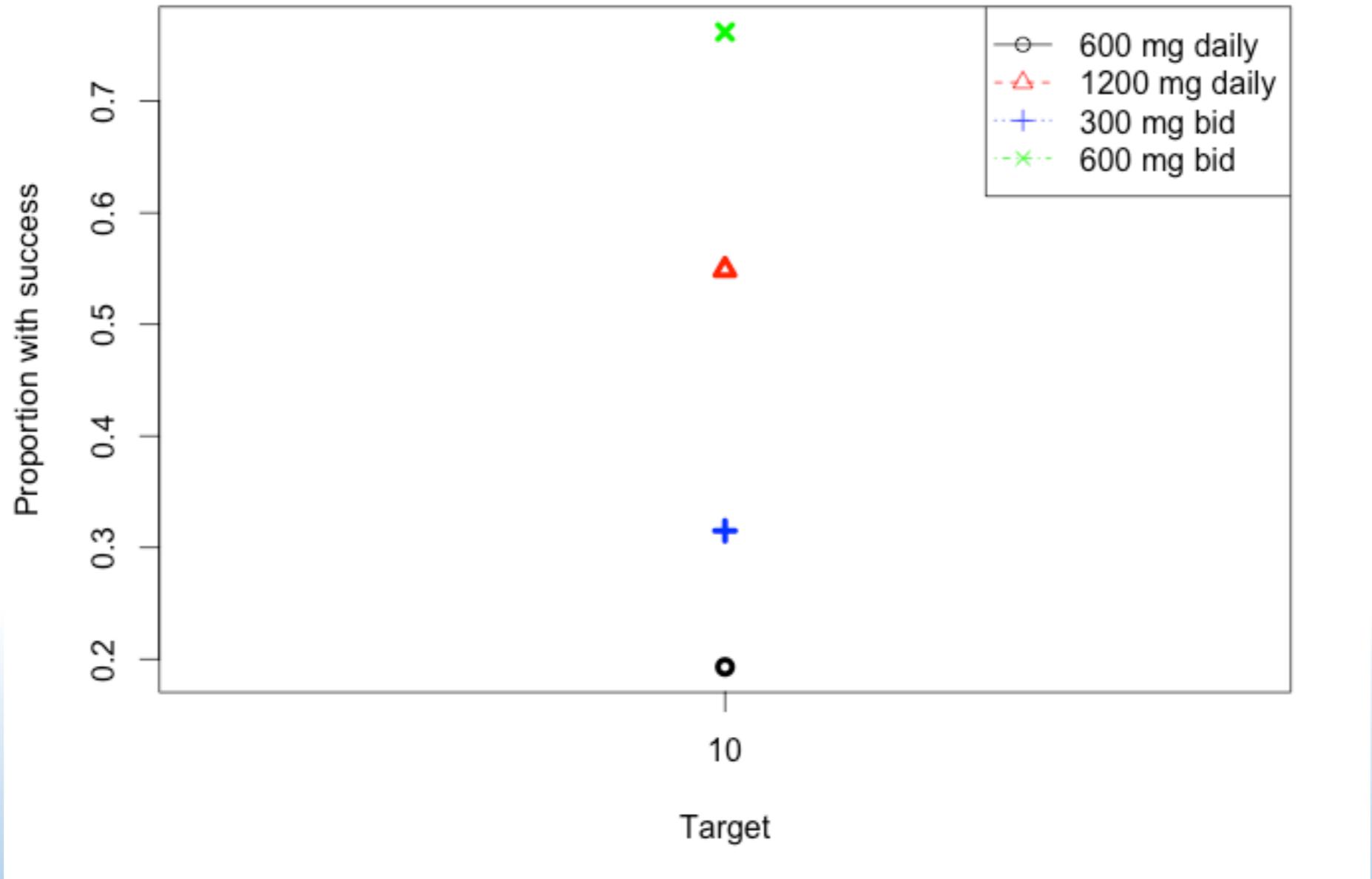
### Histogram of $\log_{10}(\text{pta4b.2$results$target})$



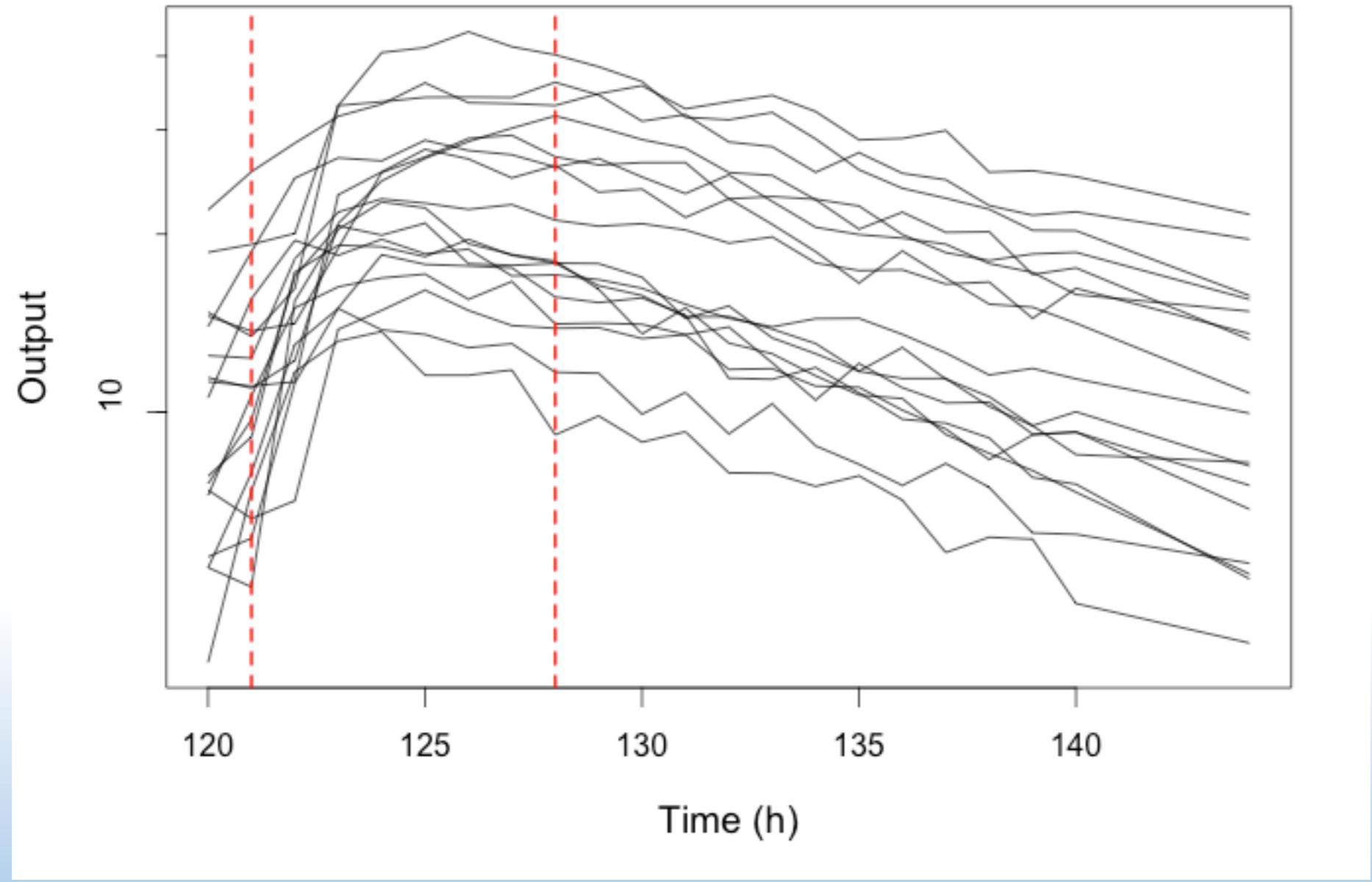
```
hist(log10(pta4b.2$results$target),breaks=20,freq=F,xlab="MIC",xaxt="n")
axis(side=1,at=pretty(log10(pta4b.2$results$target)),labels=10^{+0} pretty(log10(pta4b.
2$results$target)))
lines(x=log10(mic1$mic),y=mic1$n/sum(mic1$n),type="h",col="red",lwd=4)
```



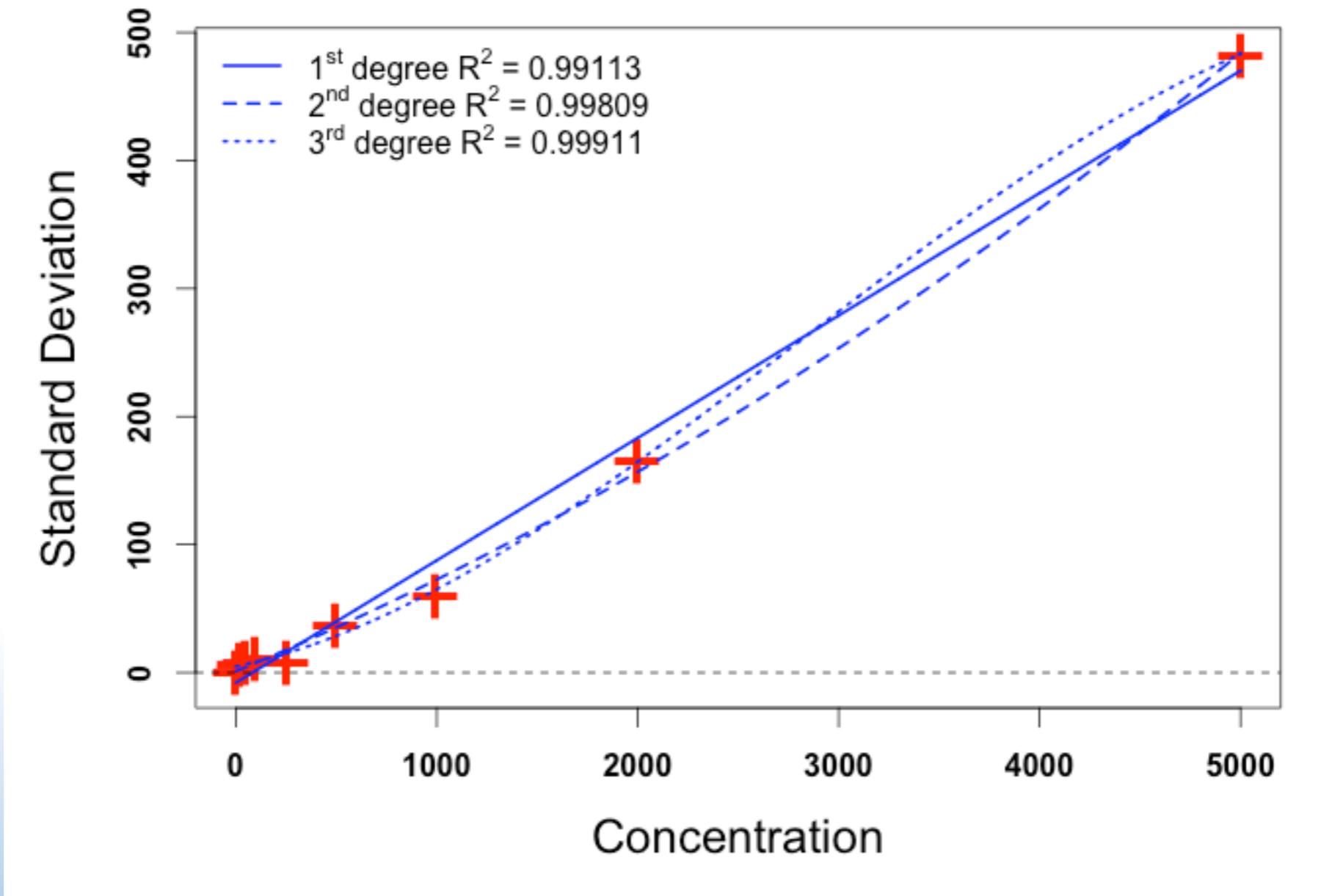
```
plot(pta5.2,ylab="Proportion with C3/MIC of at least 1",grid=T,legend=list(x="bottomleft"))
```



```
plot(pta6.2)
```



plot (mmopt.2)



```
makeErrorPoly(obs=obs, sd=sd)
```