```
library(mrgsolve)
library(ggplot2)
library(dplyr)
library(knitr)
opts_chunk$set(comment='.', message=FALSE)
```

```
mod <- mread("opg", end=528,delta=6)
```

```
e <- ev(amt=70*3,cmt=1)
```
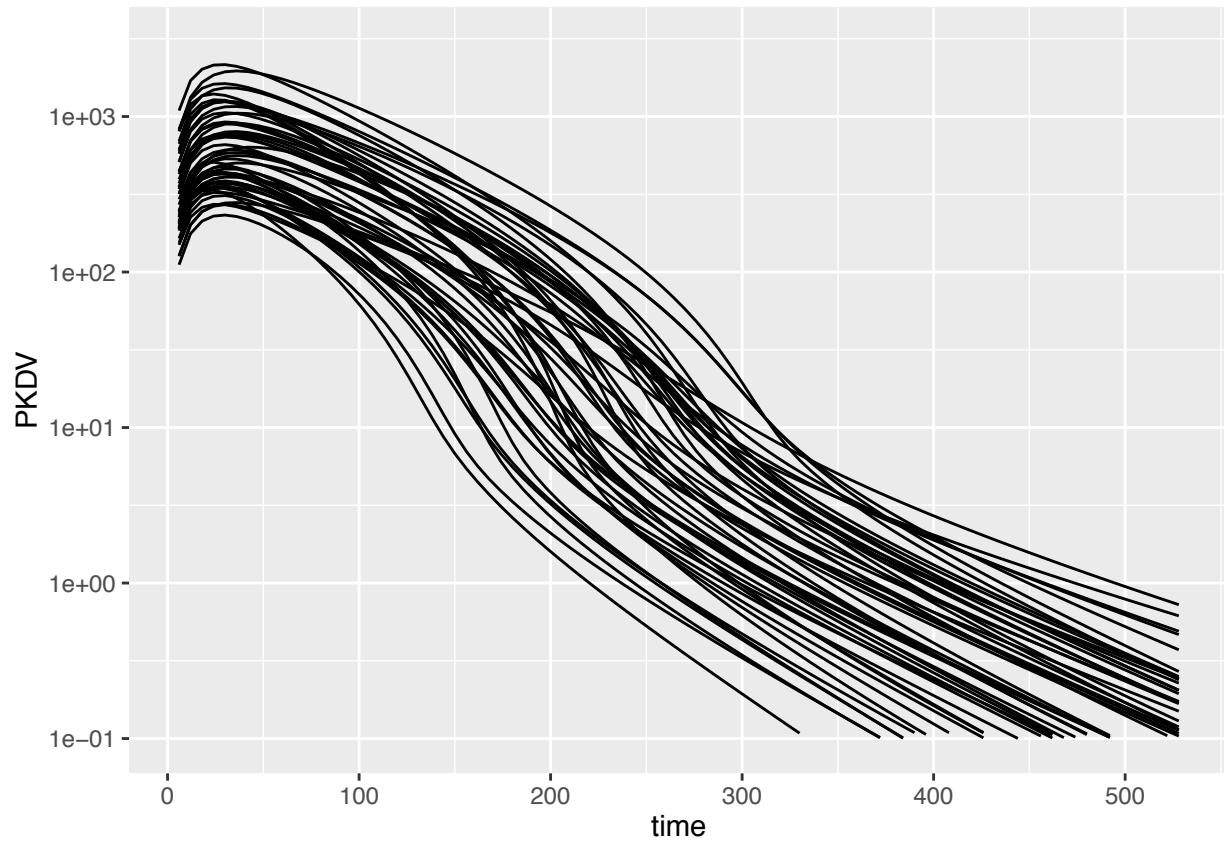
```
sim <-
  mod %>% Req(PKDV,NTX) %>% zero_re(sigma) %>%
  mrgsim(events=e,nid=50,atol=1E-30,obsonly=TRUE) %>%
  filter(time >0)
```

```
sim
```

```
. # A tibble: 4,400 × 4
.        ID  time       NTX        PKDV
.     <dbl> <dbl>     <dbl>       <dbl>
. 1      1      6 37.57427   803.7310
. 2      1     12 33.69934 1194.9172
. 3      1     18 30.21619 1358.2913
. 4      1     24 27.09512 1396.5714
. 5      1     30 24.30197 1367.2986
. 6      1     36 21.80428 1302.8112
. 7      1     42 19.57229 1221.3294
. 8      1     48 17.57906 1133.1247
. 9      1     54 15.80038 1043.9659
. 10     1     60 14.21453  957.0524
. # ... with 4,390 more rows
```

```
ggplot(sim, aes(time,PKDV,group=ID)) + geom_line() +
  scale_y_continuous(trans='log',breaks=10^seq(-4,4),limit=(c(0.1,3000)))
```

. Warning: Removed 368 rows containing missing values (geom_path).

```
ggplot(sim, aes(time,NTX,group=ID)) + geom_line()
```