KM FRET LCA Classes split by raw FRET

P Barber

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```
load(file = "COIN_Final.Rdata")
```

```
library(survival)

data <- patient_data

data$SurvObj.os <- with(data, Surv(ostime, osevent))
data$SurvObj.pfs <- with(data, Surv(pfstime, pfsevent))
```

Split FRET by Tertiles

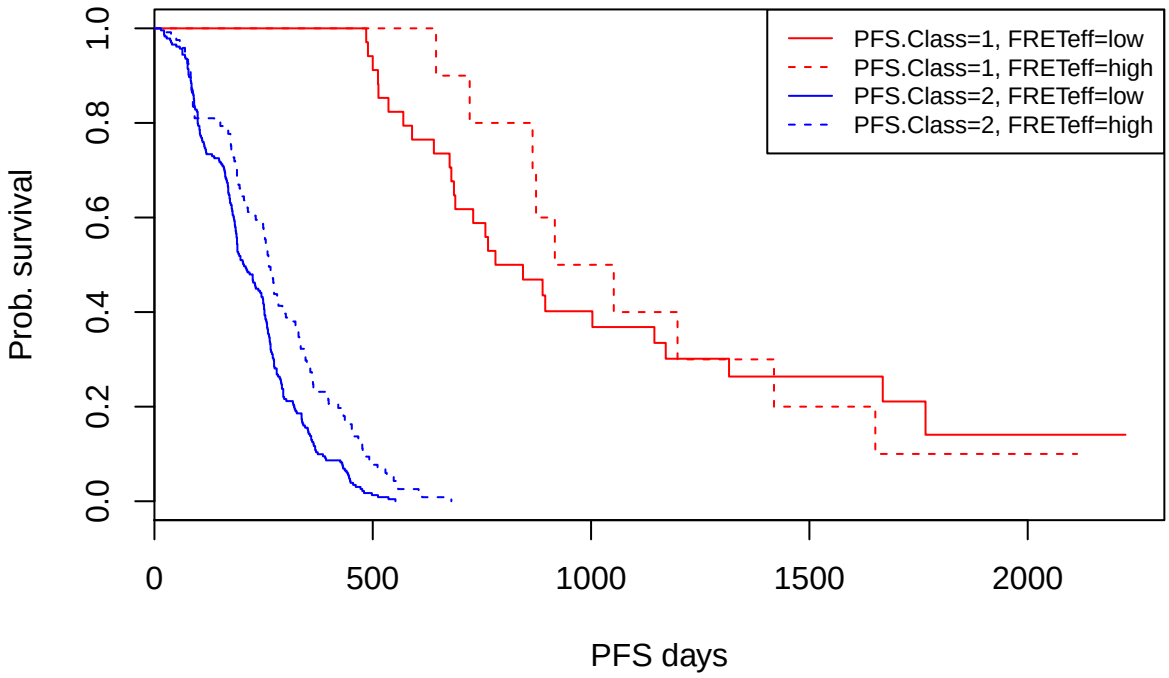
```
breaks <- quantile(data$FRET, probs = c(0.0, 0.67, 1.0), na.rm = T)
data$FRETeff <- cut(data$FRET, breaks = breaks, labels = c("low", "high"),
                    include.lowest = T)

col=c("red", "red", "blue", "blue")
lty=c(1,2,1,2)
```

PFS

```
# rename
data$PFS.Class <- data$Class.FRET.PFS

km <- survfit(SurvObj.pfs ~ PFS.Class + FRETeff, data=data)
plot(km, col=col, lty=lty, xlab="PFS days", ylab="Prob. survival")
legend("topright", col=col, legend = names(km$strata), lty=lty, cex=0.75)
```




```
print(km)
```

```
## Call: survfit(formula = SurvObj.pfs ~ PFS.Class + FRETeff, data = data)
##
##    1232 observations deleted due to missingness
##                              n events median 0.95LCL 0.95UCL
## PFS.Class=1, FRETeff=low    34     26    812     689    1316
## PFS.Class=1, FRETeff=high   10      9    984     866      NA
## PFS.Class=2, FRETeff=low   233    232    205     188     248
## PFS.Class=2, FRETeff=high  121    120    262     249     298
```

```
survdiff(SurvObj.pfs ~ PFS.Class, data=data)
```

```
## Call:
## survdiff(formula = SurvObj.pfs ~ PFS.Class, data = data)
##
## n=398, 1232 observations deleted due to missingness.
##
##                N Observed Expected (O-E)^2/E (O-E)^2/V
## PFS.Class=1   44       35      129      68.3       151
## PFS.Class=2 354      352      258      34.1       151
##
##  Chisq= 151  on 1 degrees of freedom, p= <2e-16
```

```
survdiff(SurvObj.pfs[PFS.Class==1] ~ FRETeff[PFS.Class==1], data=data)
```

```
## Call:
## survdiff(formula = SurvObj.pfs[PFS.Class == 1] ~ FRETeff[PFS.Class ==
```

```
##     1], data = data)
##
## n=44, 1232 observations deleted due to missingness.
##
##                                N Observed Expected (O-E)^2/E (O-E)^2/V
## FRETeff[PFS.Class == 1]=low  34       26    25.21    0.0247    0.0889
## FRETeff[PFS.Class == 1]=high 10        9     9.79    0.0637    0.0889
##
##  Chisq= 0.1  on 1 degrees of freedom, p= 0.8
```

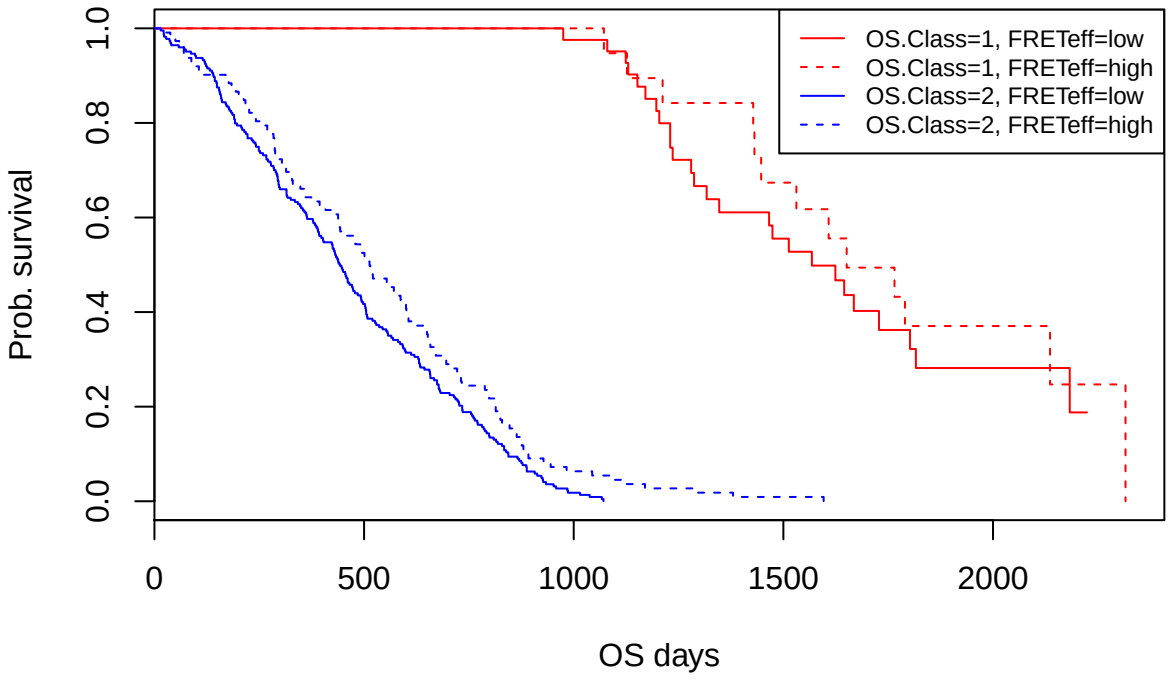
```
survdiff(SurvObj.pfs[PFS.Class==2] ~ FRETeff[PFS.Class==2], data=data)
```

```
## Call:
## survdiff(formula = SurvObj.pfs[PFS.Class == 2] ~ FRETeff[PFS.Class ==
##     2], data = data)
##
## n=354, 1232 observations deleted due to missingness.
##
##                                 N Observed Expected (O-E)^2/E (O-E)^2/V
## FRETeff[PFS.Class == 2]=low  233      232      195      7.08        17
## FRETeff[PFS.Class == 2]=high 121      120      157      8.78        17
##
##  Chisq= 17  on 1 degrees of freedom, p= 4e-05
```

OS

```
# rename
data$OS.Class <- data$Class.FRET.OS

km <- survfit(SurvObj.os ~ OS.Class + FRETeff, data=data)
plot(km, col=col, lty=lty, xlab="OS days", ylab="Prob. survival")
legend("topright", col=col, legend = names(km$strata), lty=lty, cex=0.75)
```




```
print(km)
```

```
## Call: survfit(formula = SurvObj.os ~ OS.Class + FRETeff, data = data)
##
##    1232 observations deleted due to missingness
##                              n events median 0.95LCL 0.95UCL
## OS.Class=1, FRETeff=low     43     26   1568    1347    1816
## OS.Class=1, FRETeff=high    19     13   1651    1447      NA
## OS.Class=2, FRETeff=low    224    223    442     393     493
## OS.Class=2, FRETeff=high   112    111    513     441     603
```

```
survdiff(SurvObj.os ~ OS.Class, data=data)
```

```
## Call:
## survdiff(formula = SurvObj.os ~ OS.Class, data = data)
##
## n=398, 1232 observations deleted due to missingness.
##
##              N Observed Expected (O-E)^2/E (O-E)^2/V
## OS.Class=1  62       39      151      83.5       197
## OS.Class=2 336      334      222      57.1       197
##
##  Chisq= 197  on 1 degrees of freedom, p= <2e-16
```

```
survdiff(SurvObj.os[OS.Class==1] ~ FRETeff[OS.Class==1], data=data)
```

```
## Call:
## survdiff(formula = SurvObj.os[OS.Class == 1] ~ FRETeff[OS.Class ==
```

```
##     1], data = data)
##
## n=62, 1232 observations deleted due to missingness.
##
##                               N Observed Expected (O-E)^2/E (O-E)^2/V
## FRETeff[OS.Class == 1]=low  43       26     23.9     0.187     0.508
## FRETeff[OS.Class == 1]=high 19       13     15.1     0.295     0.508
##
##  Chisq= 0.5  on 1 degrees of freedom, p= 0.5
```

```
survdiff(SurvObj.os[OS.Class==2] ~ FRETeff[OS.Class==2], data=data)
```

```
## Call:
## survdiff(formula = SurvObj.os[OS.Class == 2] ~ FRETeff[OS.Class ==
##     2], data = data)
##
## n=336, 1232 observations deleted due to missingness.
##
##                               N Observed Expected (O-E)^2/E (O-E)^2/V
## FRETeff[OS.Class == 2]=low  224      223      202      2.11       5.6
## FRETeff[OS.Class == 2]=high 112      111      132      3.24       5.6
##
##  Chisq= 5.6  on 1 degrees of freedom, p= 0.02
```

Session Information

```
sessionInfo()
```

```
## R version 3.5.1 (2018-07-02)
## Platform: x86_64-w64-mingw32/x64 (64-bit)
## Running under: Windows 10 x64 (build 17134)
##
## Matrix products: default
##
## locale:
## [1] LC_COLLATE=English_United Kingdom.1252
## [2] LC_CTYPE=English_United Kingdom.1252
## [3] LC_MONETARY=English_United Kingdom.1252
## [4] LC_NUMERIC=C
## [5] LC_TIME=English_United Kingdom.1252
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
## [1] survival_2.42-6
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_1.0.1      lattice_0.20-35 digest_0.6.18   rprojroot_1.3-2
##  [5] grid_3.5.1      backports_1.1.2 magrittr_1.5    evaluate_0.12
##  [9] stringi_1.1.7   Matrix_1.2-14   rmarkdown_1.10  splines_3.5.1
## [13] tools_3.5.1     stringr_1.3.1   yaml_2.2.0      compiler_3.5.1
## [17] htmltools_0.3.6 knitr_1.20
```