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Practical 4

3(b) The mean time between diagnosis and death for deceased patients is 1790.3 days. The mean time between diagnosis and last follow up of alive patients is 1880 days. Therefore, the difference mean days between deceased and alive patients is 89.7 days (1880-1790.3).

4. 22 cell types are represented in LM22 signature matrix.

5. In this melanoma dataset, these data are affected by different laboratory conditions, reagent lots and personal preferences, even computational pipelines. It is known as batch effect and it is related with the outcome of interest and may result in incorrect conclusions. Because of this, batch correction should be performed in this case.

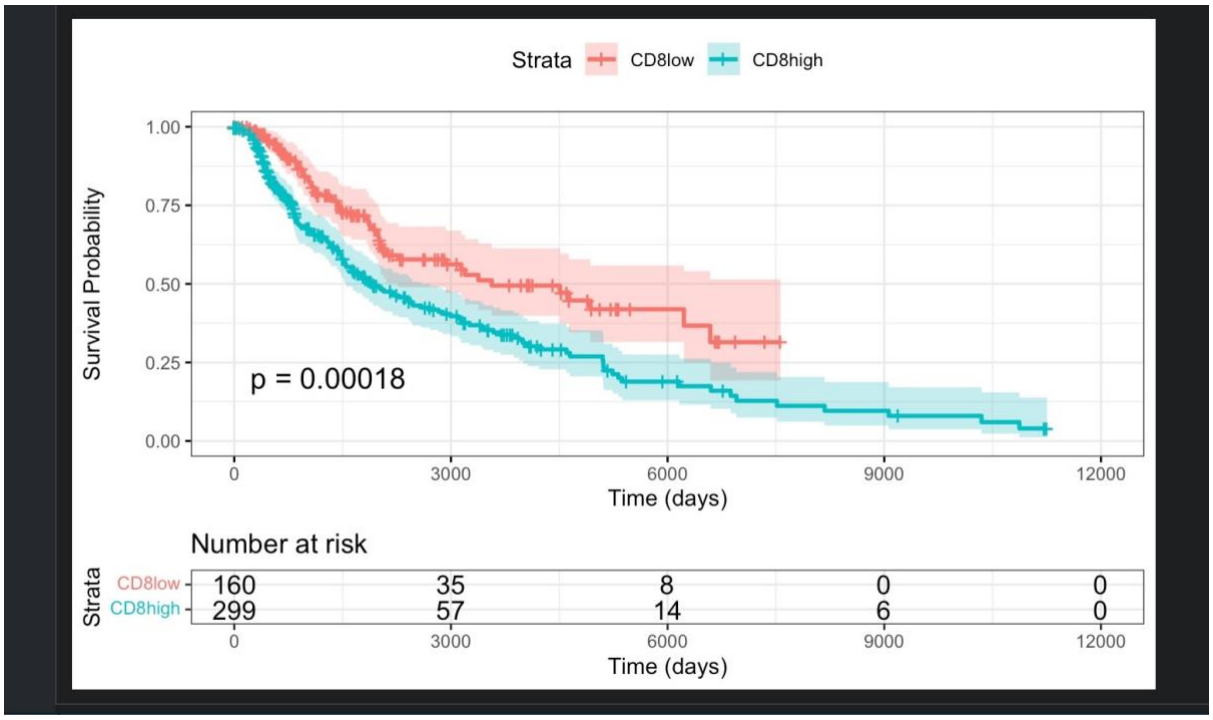
6.Most abundant immune cell type is T cells.CD8 with 0.303877.

8.

```r
ciber<-read.delim("CIBERSORTx_Job1_Adjusted2.txt")
summary(ciber)
newciber<- ciber[,c(1,5)]
colnames(newciber)[1]<-'ID'
common<-merge(aa,newciber,by="ID")
```

```r
design<-ifelse(common$T.cells.CD8>0.2,"CD8high","CD8low")
common<-cbind(common,design)
surv_object<-Surv(common$time,common$status)
survfit_object<-survfit(surv_object~common$design)
summary(survfit_object)
ggsurvplot(survfit_object, data =common, risk.table = TRUE, pval = TRUE, conf.int = TRUE,
legend.labs = c("CD8low", "CD8high"), xlab = "Time (days)", ylab = "Survival Probability",
ggtheme = theme_bw())
```

10.



11. Patients with high CD8+TILs are better prognosis.