

# P8131 HW9

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Set output parameters

```
knitr::opts_chunk$set(  
  fig.width = 6, fig.asp = .6, out.width = "90%"  
)
```

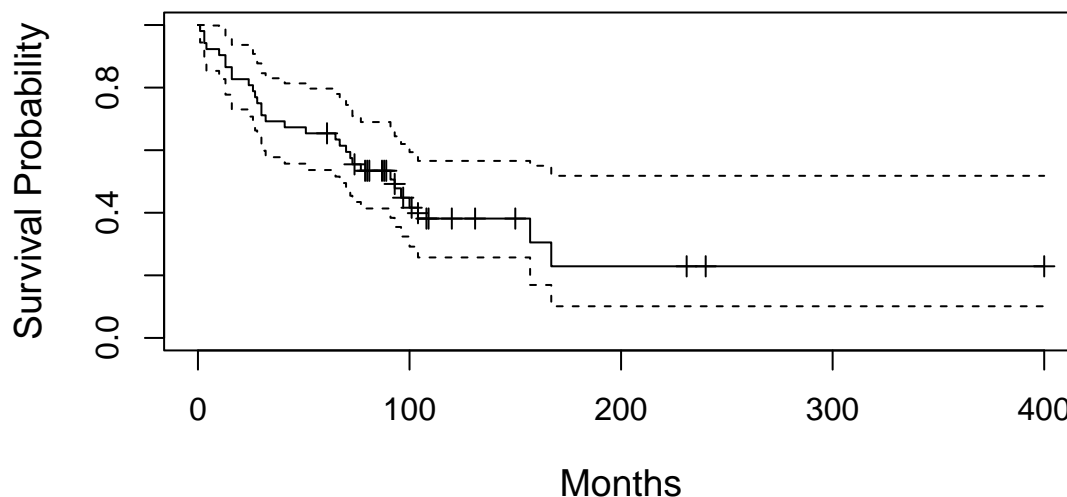
Load package and data

```
library(survival)  
data("tongue", package = "KMsurv") # type 1 = Aneuploid Tumor, type 2 = Diploid Tumor  
  
# the follow code shows the right censored data  
Surv(tongue$time, tongue$delta, type='right') # 0: censored, 1: observed death
```

Fit and plot a KM curve for the aneuploid tumor data

```
km_an = survfit(Surv(time, delta) ~ 1, data = subset(tongue, type == 1), conf.type='log')  
plot(km_an, mark.time = TRUE,  
      xlab = "Months", ylab = "Survival Probability", main = "Aneuploid Tumor Survival Function KM curve",  
      cex.lab = 1.2, cex.main = 1.2)
```

## Aneuploid Tumor Survival Function KM curve



Obtain the survival rate at the 1 year mark with 95% CI

```
# time = 52 (52 weeks in a year); n.event: the cumulative number of deaths at the time point  
surv_an = round(summary(km_an, time = 52)$surv, 3)  
lcl_an = round(summary(km_an, time = 52)$lower, 3)
```

```

ucl_an = round(summary(km_an, time = 52)$upper, 3)
stat_an = rbind(c(surv_an, lcl_an, ucl_an))
colnames(stat_an) = c("Survival Rate", "CI Lower", "CI Upper")
knitr::kable(stat_an, "simple")

```

Survival Rate	CI Lower	CI Upper
0.654	0.537	0.797

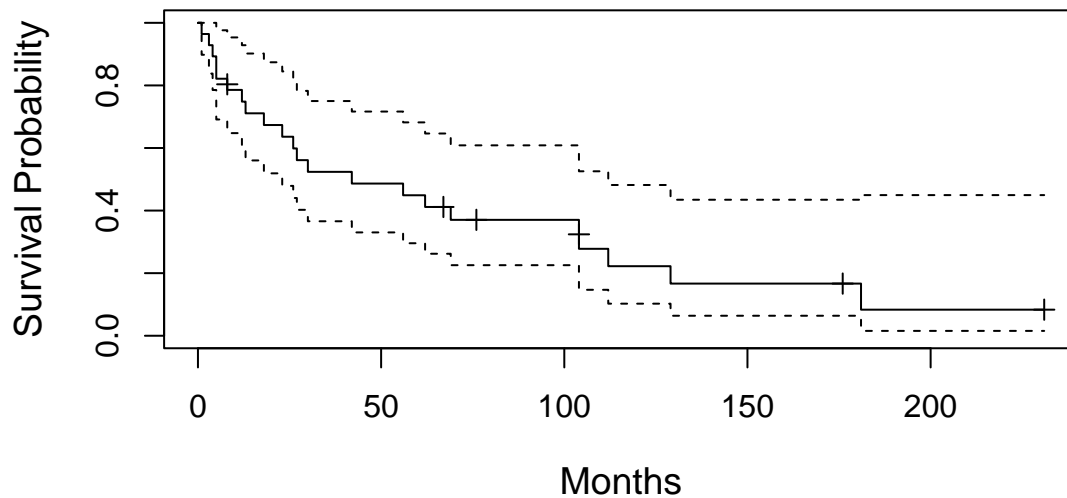
Fit and plot a KM curve for the diploid tumor data

```

km_di = survfit(Surv(time, delta) ~ 1, data = subset(tongue, type == 2), conf.type='log')
plot(km_di, mark.time = TRUE,
     xlab = "Months", ylab = "Survival Probability", main = "Diploid Tumor Survival Function KM curve",
     cex.lab = 1.2, cex.main = 1.2)

```

### Diploid Tumor Survival Function KM curve



Obtain the survival rate at the 1 year mark with 95% CI

```

surv_di = round(summary(km_di, time = 52)$surv, 3)
lcl_di = round(summary(km_di, time = 52)$lower, 3)
ucl_di = round(summary(km_di, time = 52)$upper, 3)
stat_di = rbind(c(surv_di, lcl_di, ucl_di))
colnames(stat_di) = c("Survival Rate", "CI Lower", "CI Upper")
knitr::kable(stat_di, "simple")

```

Survival Rate	CI Lower	CI Upper
0.486	0.33	0.716