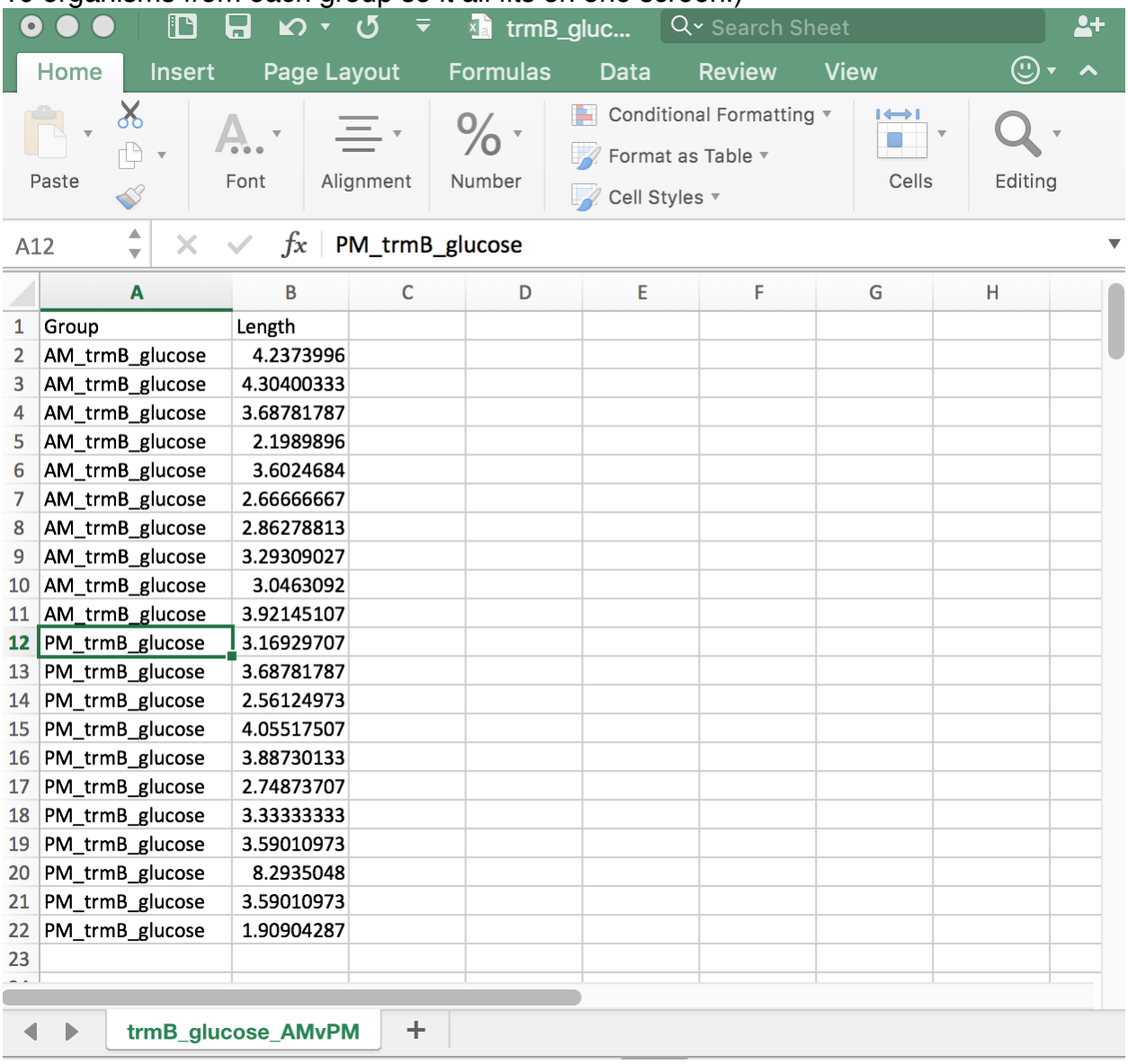
How to Make a Boxplot in R

We can make boxplots to compare two (or more) experimental conditions. First, prepare your data in Excel. You want each organism to have its own row in the sheet and each experimental condition to have a distinct name. In the example below, I am comparing trmB_glucose from the AM group (AM_trmB_glucose) with trmB_glucose from the PM group (PM_trmB_glucose). (I've shrunk the data set in the picture below to only include 10 organisms from each group so it all fits on one screen.)



	A	B	C	D	E	F	G	H
1	Group	Length						
2	AM_trmB_glucose	4.2373996						
3	AM_trmB_glucose	4.30400333						
4	AM_trmB_glucose	3.68781787						
5	AM_trmB_glucose	2.1989896						
6	AM_trmB_glucose	3.6024684						
7	AM_trmB_glucose	2.66666667						
8	AM_trmB_glucose	2.86278813						
9	AM_trmB_glucose	3.29309027						
10	AM_trmB_glucose	3.0463092						
11	AM_trmB_glucose	3.92145107						
12	PM_trmB_glucose	3.16929707						
13	PM_trmB_glucose	3.68781787						
14	PM_trmB_glucose	2.56124973						
15	PM_trmB_glucose	4.05517507						
16	PM_trmB_glucose	3.88730133						
17	PM_trmB_glucose	2.74873707						
18	PM_trmB_glucose	3.33333333						
19	PM_trmB_glucose	3.59010973						
20	PM_trmB_glucose	8.2935048						
21	PM_trmB_glucose	3.59010973						
22	PM_trmB_glucose	1.90904287						
23								

trmB_glucose_AMvPM

Save as a .csv file.

Download and install R (https://cloud.r-project.org) and RStudio Desktop (https://www.rstudio.com/products/rstudio/download/)

Open RStudio

To install ggplot2:
```
> install.packages("ggplot2")
```

To load ggplot2:
```
> library(ggplot2)
```

To import your data:
```
> data2 <- read.csv(file.choose(), header=TRUE)
```

To see what the data looks like to R:
```
> View(data2)
```

To make a simple box plot:
```
> ggplot (data=data2, aes(data2$Group, data2$Length)) +
geom_boxplot()
```

To add labels:
```
> ggplot (data=data2, aes(data2$Group, data2$Length)) +
geom_boxplot()
     + labs(x = "Group", y = "Length (um)")
```

To format the plot theme:
```
> ggplot (data=data2, aes(data2$Group, data2$Length)) +
geom_boxplot() + labs(x = "Group", y = "Length (um)")
     + theme(panel.grid.major = element_blank(),
panel.grid.minor = element_blank(), panel.background =
element_blank(), axis.line = element_line(color = "black"))
```

Export your plot after doing any other customization you choose.