

Supplementary File 4

The runtime program of R v4.0.4

```
#Set Folders
setwd("G:/domain")
#read file
##
library("ggstatsplot")
library("ggplot2")
library(ggpubr)
library(hrbrthemes)

data <- read.csv("pfam_domain_counts.csv",header = T)

p3 <- ggplot(data, aes(x=Macr, y=Mani)) +
  geom_point() +
  geom_smooth(method=lm , color="red", fill="#69b3a2", se=TRUE) +
  theme_ipsum()
p3

picture <-
  g(
    data=data,
    x=Macr,
    y=Mbru,
    xlab = "Macr",
    ylab = "Mbru",
    # label.var = Pfam, # variable to use for labeling data points
    # label.expression = (Ph_number < 100 & Lbru_number > 180) , # expression for
deciding which points to label
    # point.label.args = list(alpha = 0.7, size = 12, color = "grey50"),
    marginal = TRUE,
    marginal.type = "density",
    results.subtitle = FALSE,
    ggstatsplot.layer = FALSE,
    ggplot.component = list(ggplot2::scale_y_continuous(trans = "log10"),
                             ggplot2::scale_x_continuous(trans = "log10"),
                             theme(axis.title.x = element_text(face="italic", size
= 28),
                                     axis.title.y = element_text(face="italic",
size = 28),
                                     axis.text.x = element_text( size = 28),
```

```

axis.text.y = element_text( size = 28)))
)
picture

LP <- read.table("Lbru_Ph.txt",header = T)
LD <- read.table("Lbru_Dm.txt",header = T)
LL <- read.table("Lbru_Lb1A.txt",header = T)

LP$times=LP$Lbru_number/LP$Ph_number
LD$times=LD$Lbru_number/LD$Dm_number
LL$times=LL$Lbru_number/LL$Lb1A_number

LP_2times <- subset(LP, LP[,3] >=5 & LP[,4] >=5 & LP[,5] >=2)

LP_picture <-
  ggscatterstats(
    data=LP,
    x=Ph_number,
    y=Lbru_number,
    xlab = "Pediculus humanus",
    ylab = "Liposcelis brunnea",
    label.var = Name, # variable to use for labeling data points
    label.expression = (Ph_number < 100 & Lbru_number > 180) , # expression for
deciding which points to label
    point.label.args = list(alpha = 0.7, size = 12, color = "grey50"),
    marginal = TRUE,
    marginal.type = "density",
    results.subtitle = FALSE,
    ggstatsplot.layer = FALSE,
    ggplot.component = list(ggplot2::scale_y_continuous(trans = "log10"),
                             ggplot2::scale_x_continuous(trans = "log10"),
                             theme(axis.title.x = element_text(face="italic", size
= 28),
axis.title.y = element_text(face="italic",
size = 28),
axis.text.x = element_text( size = 28),
axis.text.y = element_text( size = 28))
    )
  )
)

```

```

LD_picture <-
  ggscatterstats(
    data=LD,
    x=Dm_number,
    y=Lbru_number,
    xlab = "Drosophila melanogaster",
    ylab = "Liposcelis brunnea",
    label.var = Name, # variable to use for labeling data points
    label.expression = (Dm_number < 100 & Lbru_number > 180), # expression for
deciding which points to label
    point.label.args = list(alpha = 0.7, size = 12, color = "grey50"),
    marginal = TRUE,
    marginal.type = "density",
    results.subtitle = FALSE,
    ggstatsplot.layer = FALSE,
    ggplot.component = list(ggplot2::scale_y_continuous(trans = "log10"),
                           ggplot2::scale_x_continuous(trans = "log10"),
                           theme(axis.title.x = element_text(face="italic", size = 28),
                                axis.title.y = element_text(face="italic", size = 28),
                                axis.text.x = element_text( size = 28),
                                axis.text.y = element_text( size = 28))
                           )
  )
)

```

```

LL_picture <-
  ggscatterstats(
    data=LL,
    x=Lb1A_number,
    y=Lbru_number,
    xlab = "Liposcelis bostrychophila",
    ylab = "Liposcelis brunnea",
    label.var = Name, # variable to use for labeling data points
    label.expression = (Lb1A_number < 100 & Lbru_number > 180), # expression for
deciding which points to label
    point.label.args = list(alpha = 0.7, size = 8, color = "grey50"),
    marginal = TRUE,
    marginal.type = "density",
    results.subtitle = FALSE,
    ggstatsplot.layer = FALSE,
    ggplot.component = list(ggplot2::scale_y_continuous(trans = "log10"),
                           ggplot2::scale_x_continuous(trans = "log10"),
                           theme(axis.title.x = element_text(face="bold.italic",
                                size = 22),
                                axis.title.y = element_text(face="bold.italic",
                                size = 22),
                                axis.text.x = element_text( size = 22),
                                axis.text.y = element_text( size = 22))
                           )
  )
)

```

```

axis.title.y
=
element_text(face="bold.italic", size = 22),
axis.text.x = element_text( size = 20),
axis.text.y = element_text( size = 20))
)
)

```

```

All <- ggarrange(LP_picture, LD_picture, LL_picture,
  labels = c("A", "B", "C"),
  font.label = list(size = 36, color = "black",
    face = "bold"),hjust =-0.2,
  ncol = 1, nrow = 3)

```

```

ggsave("Domain_All.tiff", plot = All,
  width =400, height = 1000, units="mm", dpi=300)

```

##2 figures

```

All_2 <- ggarrange(LP_picture, LD_picture,
  labels = c("B", "C"),
  font.label = list(size = 36, color = "black"),hjust =-0.2,
  ncol = 2, nrow = 1)

```

```

ggsave("Domain_2.tiff", plot = All_2,
  width =800, height = 400, units="mm", dpi=300)

```