Figures 1, 2, and 3:

source(“bimodality\_code.R”)

source(“histograms.R’’)

Figure 5:

source(“ribbon\_code\_G1.R”) #Simulation on dataset I with RIBBON

source(“ribbon\_code\_G2M.R”) #Simulation on dataset II with RIBBON

source(“ribbon\_code\_S.R”) #Simulation on dataset III with RIBBON

source(“ribbon\_code\_GSE81730.R”) #Simulation on dataset IV with RIBBON

source(“ribbon\_code\_GSE11207.R”) #Simulation on dataset V with RIBBON

source(“ribbon\_code\_HSMM.R”) #Simulation on dataset VI with RIBBON

source(“ribbon\_code\_lung.R”) #Simulation on dataset VII with RIBBON

source(“scDD\_code.R”) #Simulation for all datasets with scDD

source(“desingle\_code.R”) #Simulation for all datasets with DESingle

source(“sc2p\_code.R”) #Simulation for all datasets with SC2P

source(“mast\_code.R”) #Simulation for all datasets with MAST

source(“simulation\_plotting\_code.R”) #Plotting of result

Figure 6:

source(“ribbon\_simulation.R”) #Simulation with RIBBON

#Differential Expression on dataset of sample size 100 with RIBBON-U

source(“ribbon\_simulation\_alternative\_3\_100.R”)

source(“ribbon\_simulation\_null\_3\_100.R”)

#Differential Expression on dataset of sample size 100 with RIBBON-B

source(“ribbon\_simulation\_alternative\_8\_100.R”)

source(“ribbon\_simulation\_null\_8\_100.R”)

#Differential Expression on dataset of sample size 100 with DESingle

source(“desingle\_ribbon\_simulation\_alternative\_100.R”)

source(“desingle\_ribbon\_simulation\_null\_100.R”)

#Differential Expression on dataset of sample size 100 with SC2P

source(“ribbon\_estimation\_null\_sc2p\_100.R”)

source(“ribbon\_estimation\_alternative\_sc2p\_100.R”)

#Differential Expression on dataset of sample size 100 with MAST

source(“ribbon\_mast\_code\_null\_100.R”)

source(“ribbon\_mast\_code\_alternative\_100.R”)

source(“ribbon\_plot\_100.R”)

#Differential Expression on dataset of sample size 1000 with RIBBON-U

source(“ribbon\_simulation\_alternative\_3\_1000.R”)

source(“ribbon\_simulation\_null\_3\_1000.R”)

#Differential Expression on dataset of sample size 1000 with RIBBON-B

source(“ribbon\_simulation\_alternative\_8\_1000.R”)

source(“ribbon\_simulation\_null\_8\_1000.R”)

#Differential Expression on dataset of sample size 1000 with DESingle

source(“desingle\_ribbon\_simulation\_alternative\_1000.R”)

source(“desingle\_ribbon\_simulation\_null\_1000.R”)

#Differential Expression on dataset of sample size 1000 with SC2P

source(“ribbon\_estimation\_null\_sc2p\_1000.R”)

source(“ribbon\_estimation\_alternative\_sc2p\_1000.R”)

#Differential Expression on dataset of sample size 1000 with MAST

source(“ribbon\_mast\_code\_null\_1000.R”)

source(“ribbon\_mast\_code\_alternative\_1000.R”)

source(“ribbon\_plot\_1000.R”) #Plotting of result

Figure 7:

source(“splatter\_simulation\_new\_scdd.R”) #Simulation with scDD

#D.E. with RIBBON-U and RIBBON-B on four types of alternative hypothesis

source(“splatter\_alternative\_code\_new\_scdd\_1.R”)

source(“splatter\_alternative\_code\_new\_scdd\_2.R”)

source(“splatter\_alternative\_code\_new\_scdd\_3.R”)

source(“splatter\_alternative\_code\_new\_scdd\_4.R”)

# D.E. with RIBBON-U and RIBBON-B on two types of null hypothesis

source(“splatter\_null\_code\_new\_scdd\_1.R”)

source(“splatter\_null\_code\_new\_scdd\_2.R”)

# D.E. with MAST

source(“splatter\_mast\_code\_scdd.R”)

# D.E. with DESingle

source(“desingle\_splatter\_scdd.R”)

# D.E. with SC2P

source(“splatter\_estimation\_sc2p\_scdd.R”)

source(“splatter\_plot\_scdd.R”)

source(“splatter\_simulation\_new\_mfa\_30.R”) #Simulation with MFA

# D.E. with RIBBON-U under alternative hypothesis

source(“bio\_bio\_alternative\_de\_code\_new\_mfa\_3\_30.R”)

# D.E. with RIBBON-B under null hypothesis

source(“bio\_bio\_alternative\_de\_code\_new\_mfa\_8\_30.R”)

# D.E. with RIBBON-U under null hypothesis

source(“bio\_bio\_null\_de\_code\_new\_mfa\_3\_30.R”)

# D.E. with RIBBON-B under null hypothesis

source(“bio\_bio\_null\_de\_code\_new\_mfa\_8\_30.R”)

# D.E. with DESingle

source(“desingle\_splatter\_mfa\_30.R”)

# D.E. with MAST

source(“splatter\_mast\_code\_mfa\_30.R”)

# D.E. with SC2P

source(“splatter\_estimation\_sc2p\_mfa\_30.R”)

source(“splatter\_plot\_mfa\_30.R”) #Plotting of results

Figures 8 and 9 :

# D.E. with RIBBON-U

source(“G1\_G2M\_ribbon3.R”)

source(“G2M\_S\_ribbon3.R”)

source(“S\_G1\_ribbon3.R”)

# D.E. with RIBBON-B

source(“G1\_G2M\_ribbon8.R”)

source(“G2M\_S\_ribbon8.R”)

source(“S\_G1\_ribbon8.R”)

# D.E. with DESingle

source(“desingle\_G1\_G2M.R”)

source(“desingle\_G2M\_S.R”)

source(“desingle\_S\_G1.R”)

# D.E. with MAST

source(“mast\_G1\_G2M.R”)

source(“mast\_G2M\_S.R”)

source(“mast\_S\_G1.R”)

# D.E. with SC2P

source(“sc2p\_G1\_G2M.R”)

source(“sc2p\_G2M\_S.R”)

source(“sc2p\_S\_G1.R”)

#Plotting of results

source(“realdata\_plotting\_code.R”)