

Supplementary data: Regression plots of 214 genes significantly associated with leptin mediated weight loss.

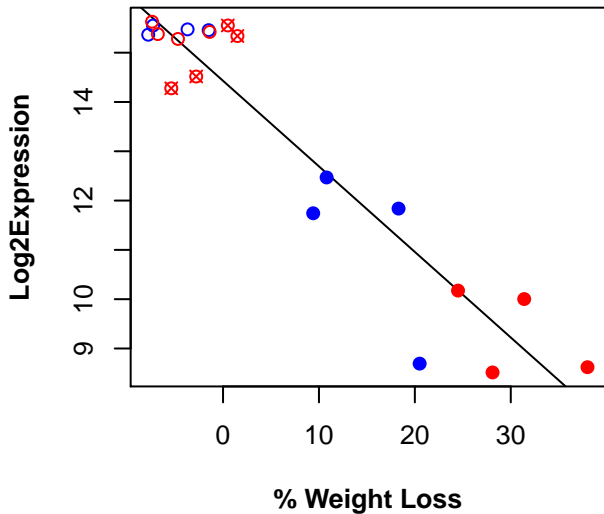
We used LIMMA to test for a linear association between gene expression levels and amount of weight loss (grams), using the amount of weight loss in a linear model and testing for the significance of the regression coefficient for weight loss. We used the false discovery rate (FDR) adjust for multiple testing. B-statistics (the log of the odds of a gene showing either any association with weight loss) were calculated for each gene. Duplicate genes, when present, were removed and their expression levels averaged across the duplicates. A total of 221 probes representing 214 unique genes were found significantly correlated with weight loss.

Regression plots of 214 are shown below. Blue open circle is vehicle subcutaneous treatment (VEH_SQ); Blue filled circle is leptin subcutaneous treatment (LEP_SQ); Red open circle is vehicle intracerebroventricular treatment (VEH_ICV); Red filled circle is leptin intracerebroventricular treatment (LEP_ICV); Red crossed circle represents four animals in which the cannula may not have been in place or treatment did not work (LEP_ICVN). While analyzing the phenotype data, we found that there was no weight loss in these four animals. Sectioning of the brain could not confirm placement of the cannula in these animals. The expression of these animals is very similar to the vehicle treated animals.

Scd1

p-value = $3.3e-07$

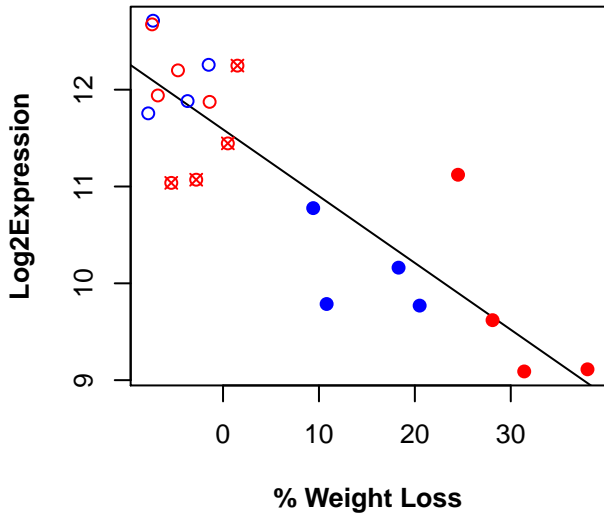
logFC = -0.174



Ahcy

p-value = 7.94e-05

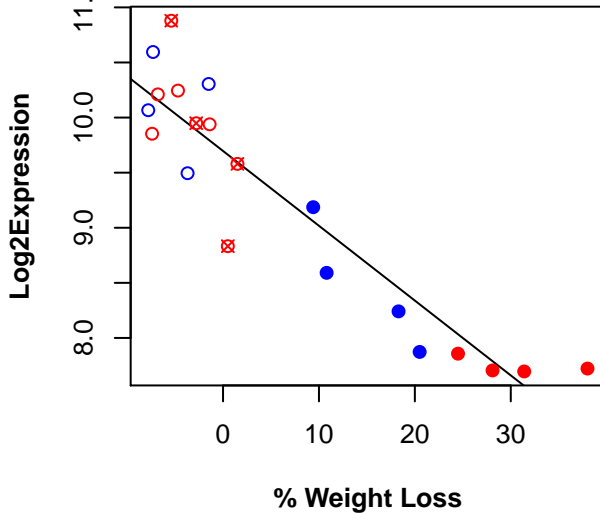
logFC = -0.069



Lrtm1

p-value = 6.44e-05

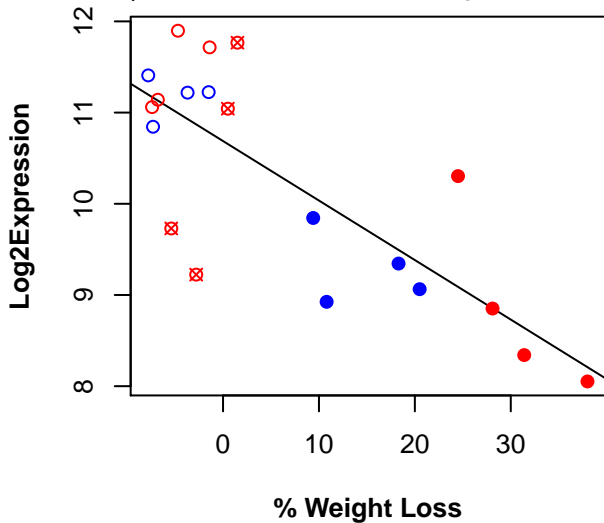
logFC = -0.068



Sardh

p-value = 0.0017663

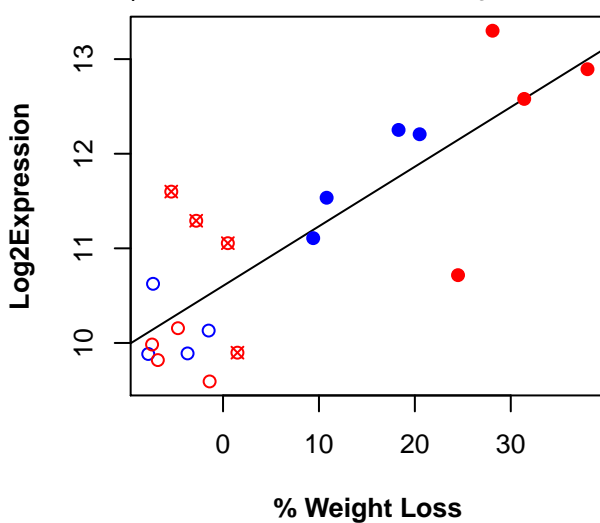
logFC = -0.065



Acot1

p-value = 0.00073945

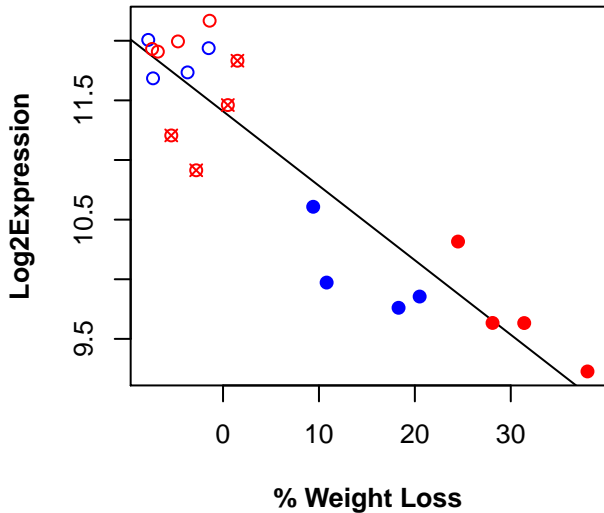
logFC = 0.063



Rdh16

p-value = 5.65e-06

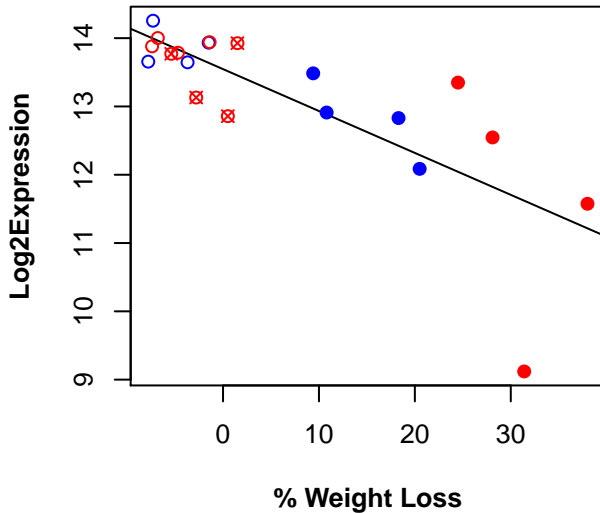
logFC = -0.062



Nnmt

p-value = 0.00252284

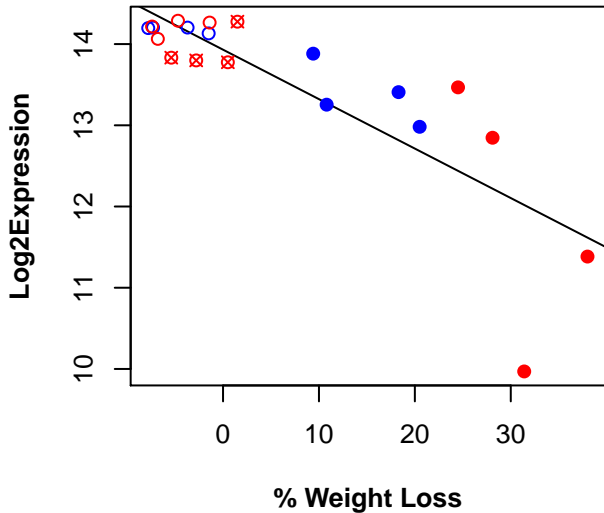
logFC = -0.061



Haoa

p-value = 0.00050194

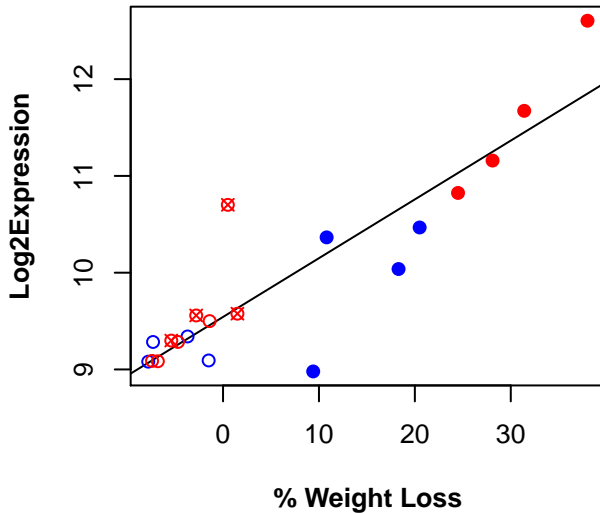
logFC = -0.061



Serpina7

p-value = 3.11e-05

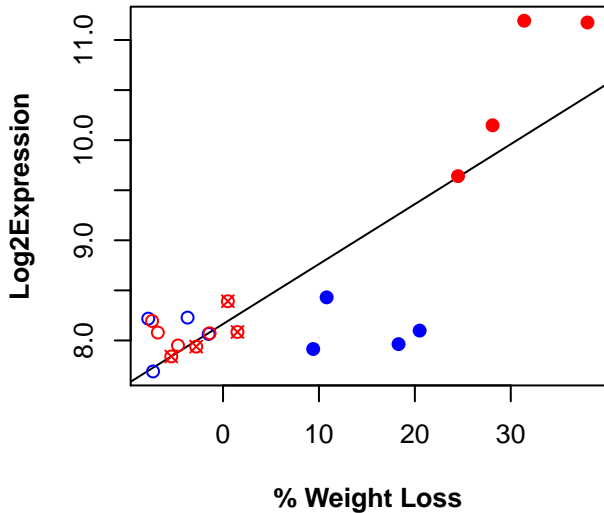
logFC = 0.061



Nupr1

p-value = 0.00049085

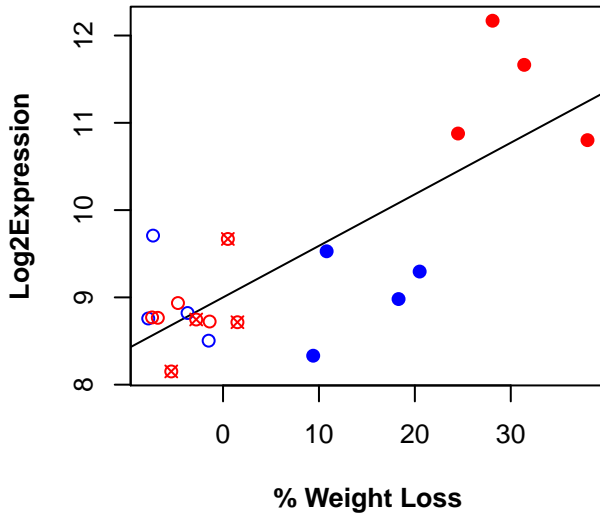
logFC = 0.06



Uap111

p-value = 0.00213121

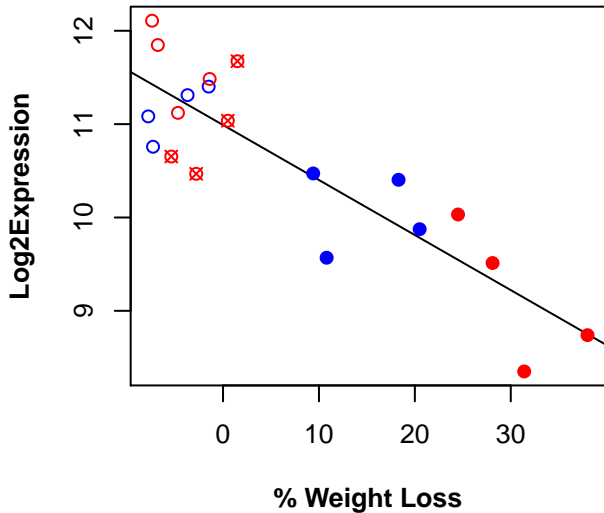
logFC = 0.059



Tmie

p-value = 0.00010935

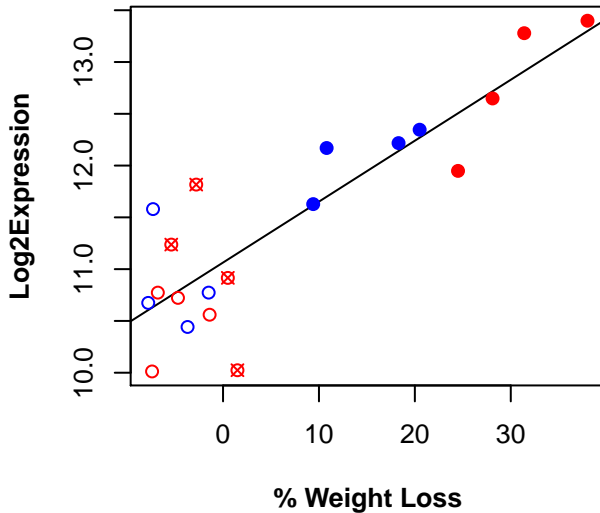
logFC = -0.059



Lyz

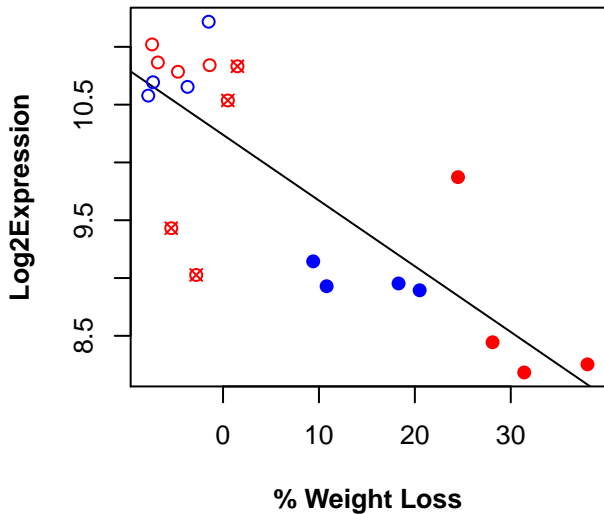
p-value = 0.00010733

logFC = 0.059



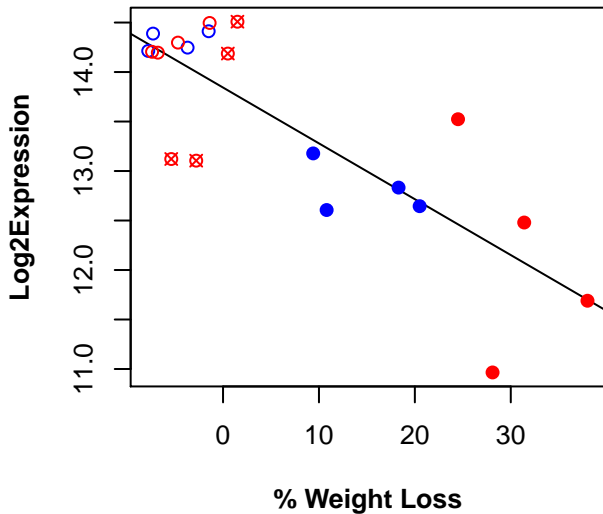
Aass

p-value = 0.00094204 logFC = -0.057



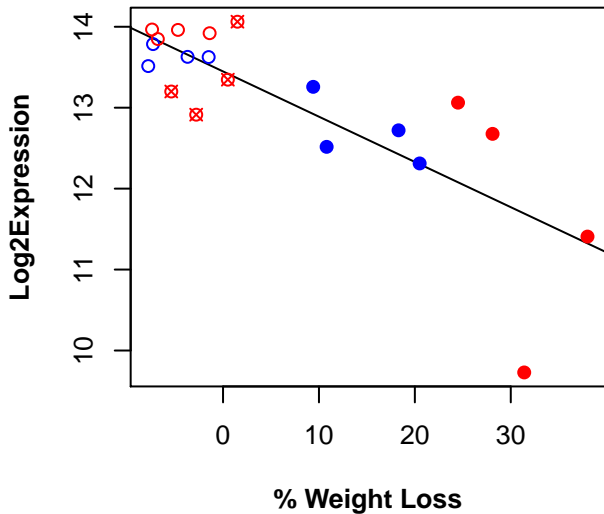
Bhmt

p-value = 0.00069618 logFC = -0.056



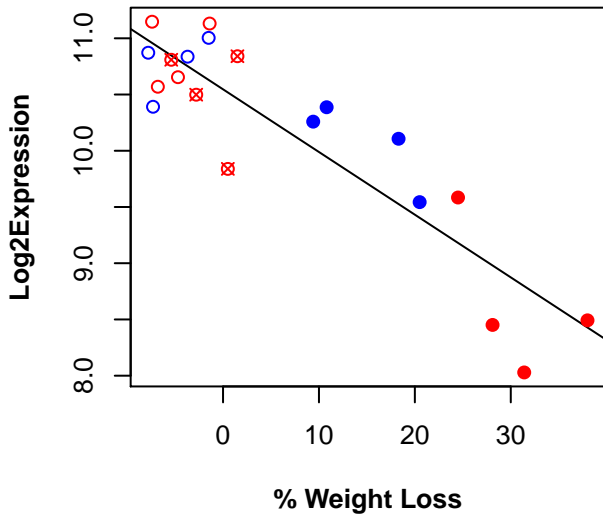
Hpd

p-value = 0.00123493 logFC = -0.056



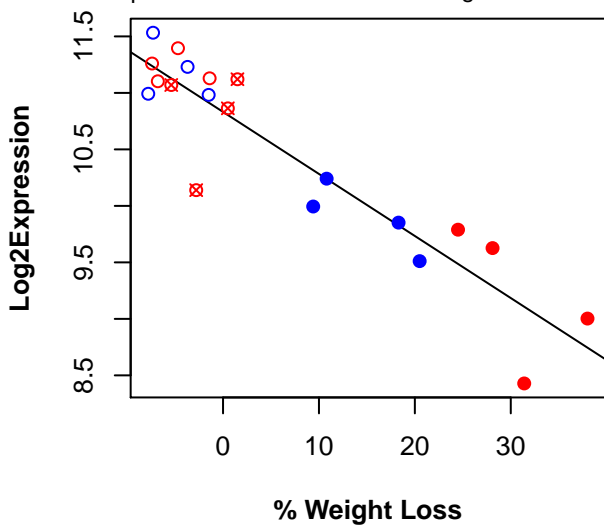
Prodh

p-value = 2.57e-05 logFC = -0.056



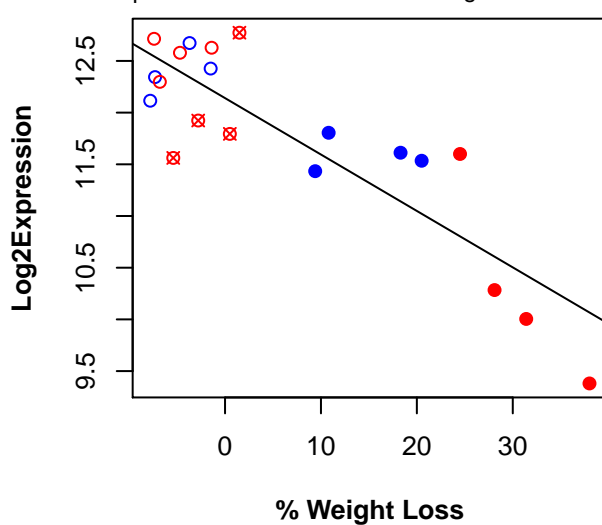
Olig1

p-value = 2.86e-06 logFC = -0.055



Gck

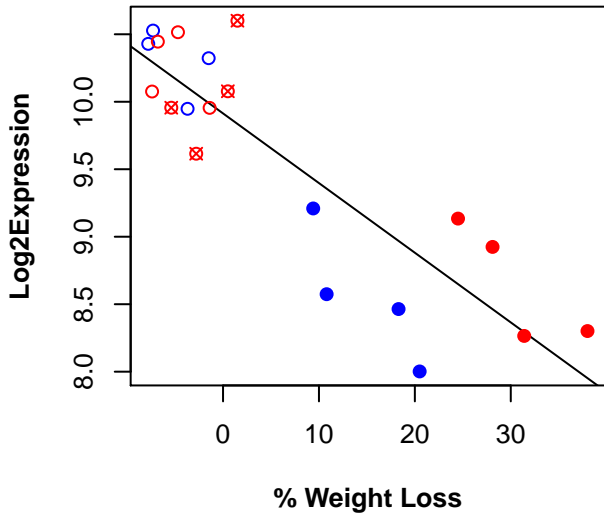
p-value = 0.00011358 logFC = -0.055



Rcan2

p-value = 8.09e-05

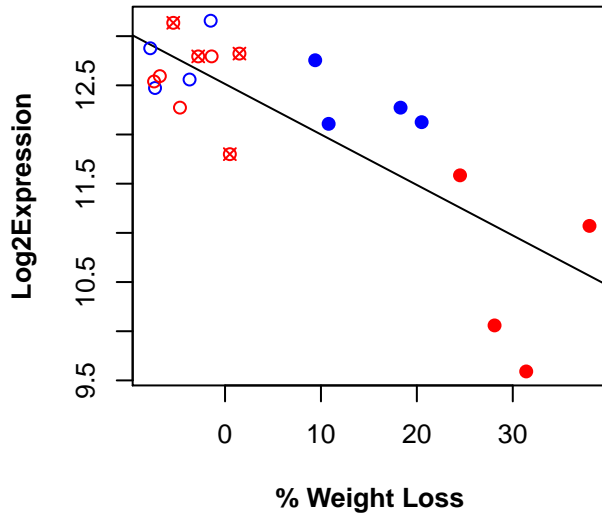
logFC = -0.052



Gls2

p-value = 0.00145

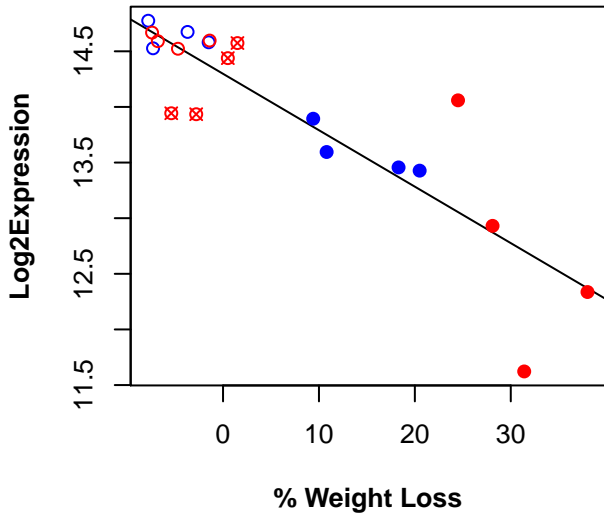
logFC = -0.051



Uroc1

p-value = 6.63e-05

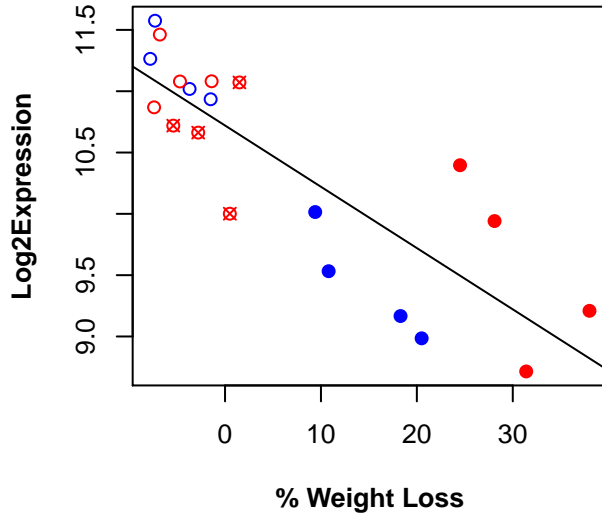
logFC = -0.051



Mmd2

p-value = 0.00030911

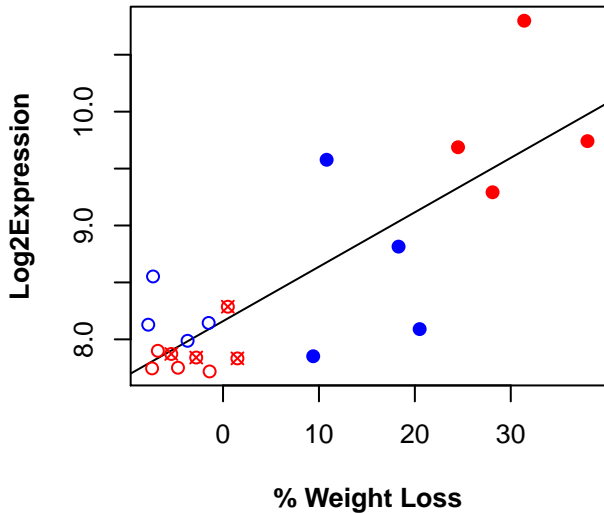
logFC = -0.05



Mmp12

p-value = 0.00098819

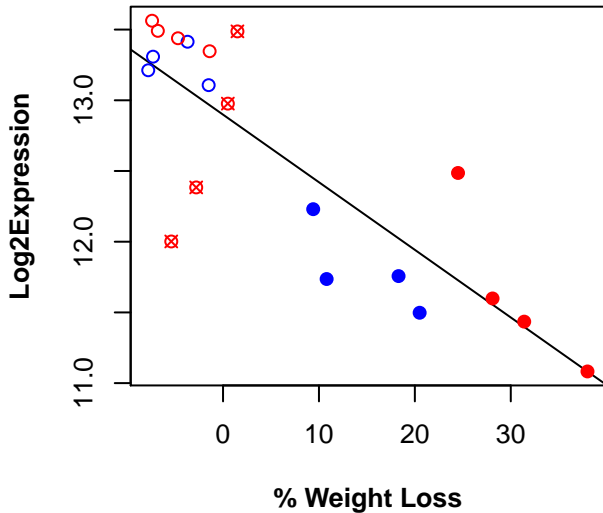
logFC = 0.048



Gamt

p-value = 0.00034435

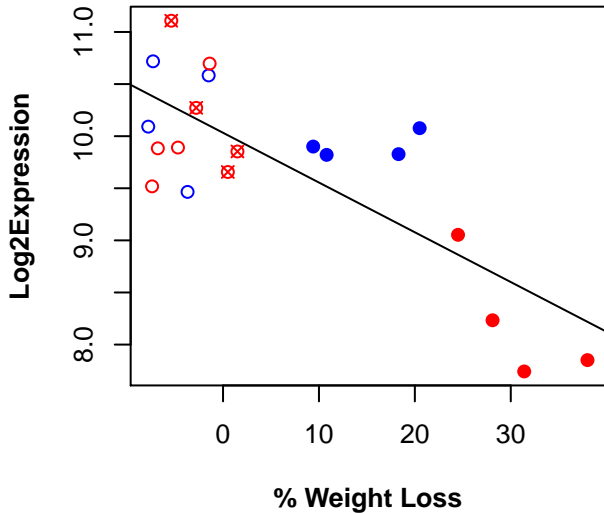
logFC = -0.048



Cyp2c29

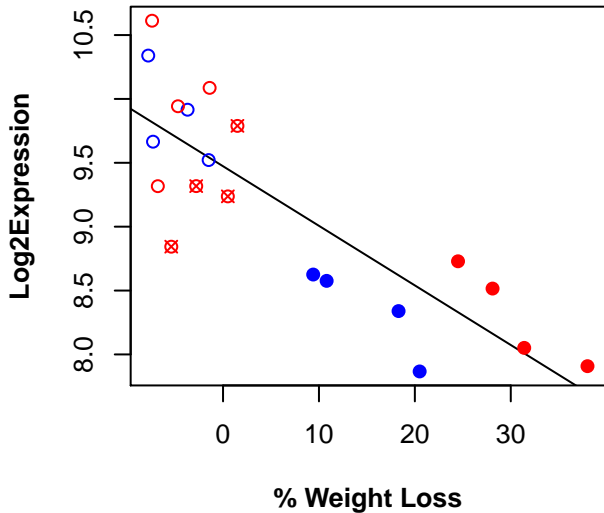
p-value = 0.00189248

logFC = -0.048



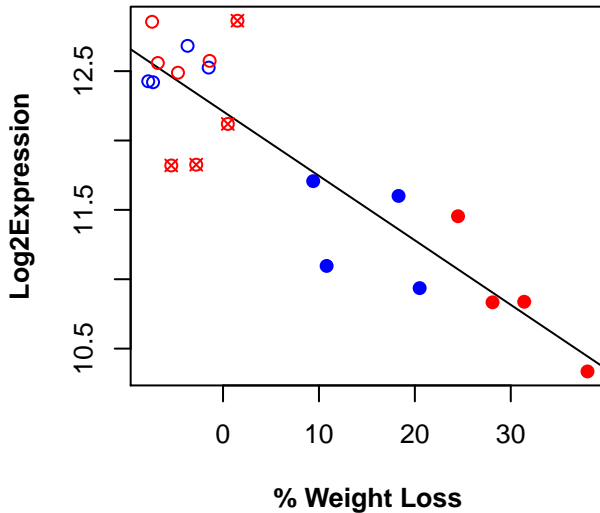
Snhg11

p-value = 0.00031384 logFC = -0.047



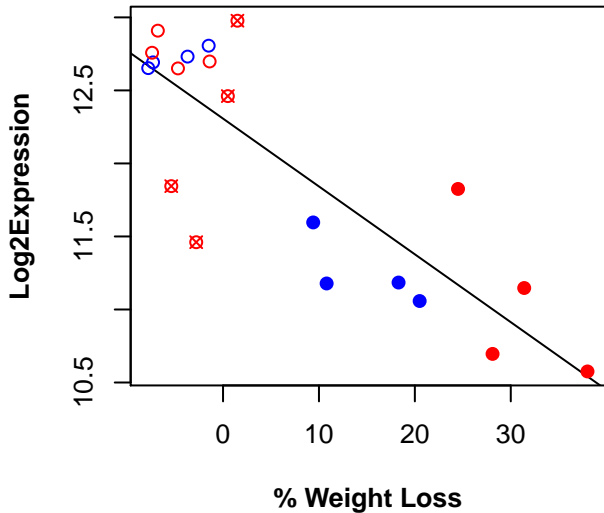
Slc25a1

p-value = 2.96e-05 logFC = -0.046



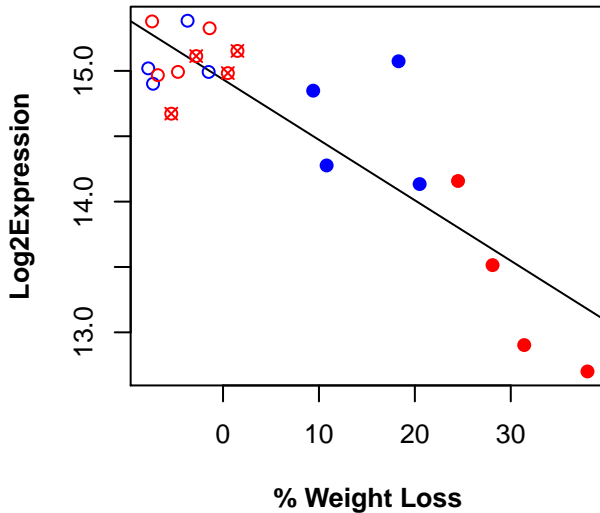
Aes

p-value = 0.00031538 logFC = -0.046



LOC100040592

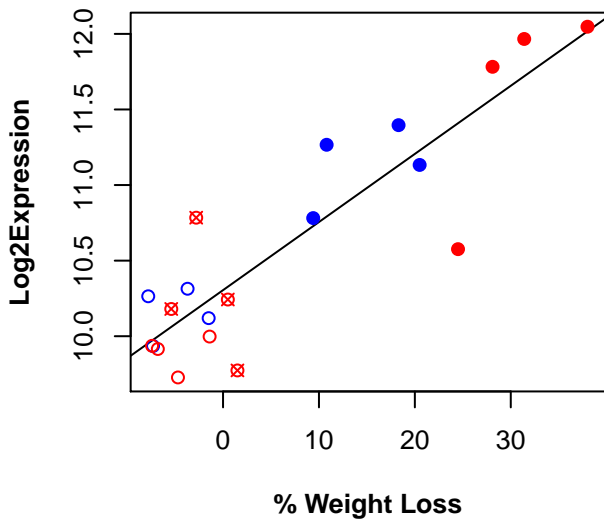
p-value = 6.89e-05 logFC = -0.046



Aadacl1

p-value = 3.25e-05

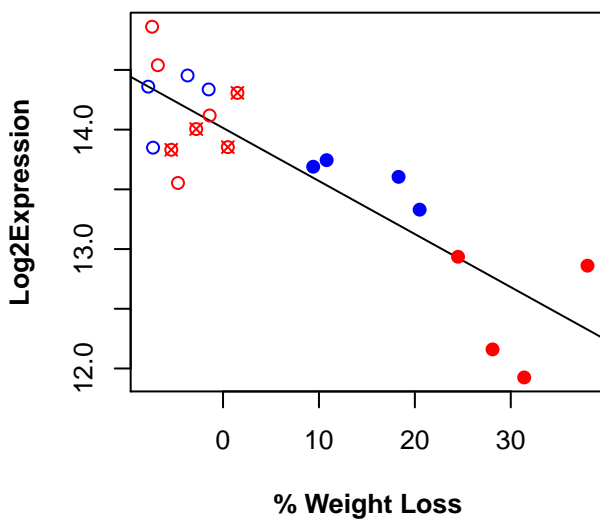
logFC = 0.045



Arg1

p-value = 0.00013648

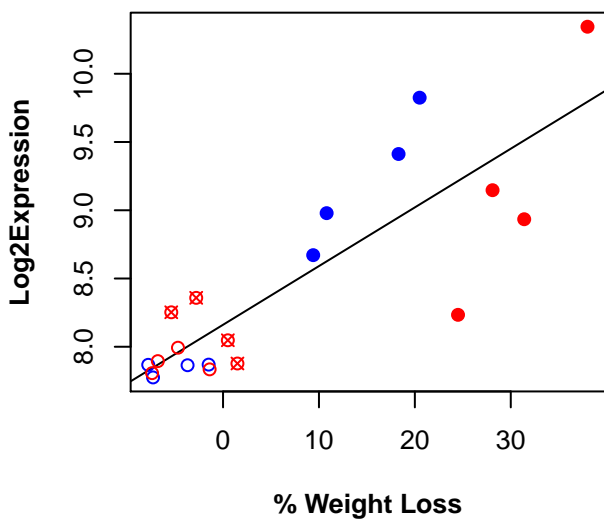
logFC = -0.044



Slc25a33

p-value = 0.00027052

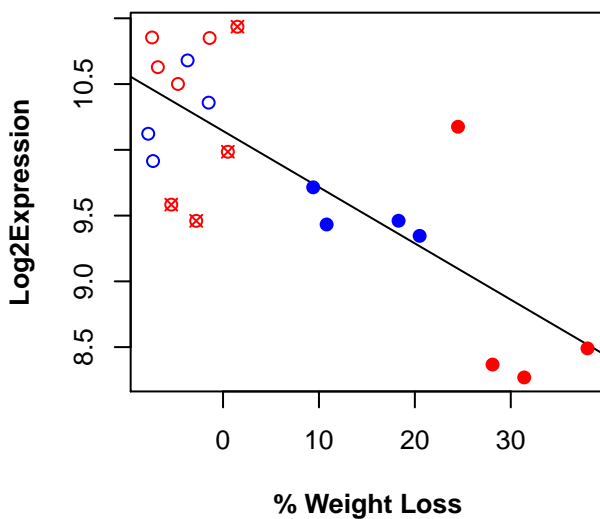
logFC = 0.043



Spata2L

p-value = 0.00252103

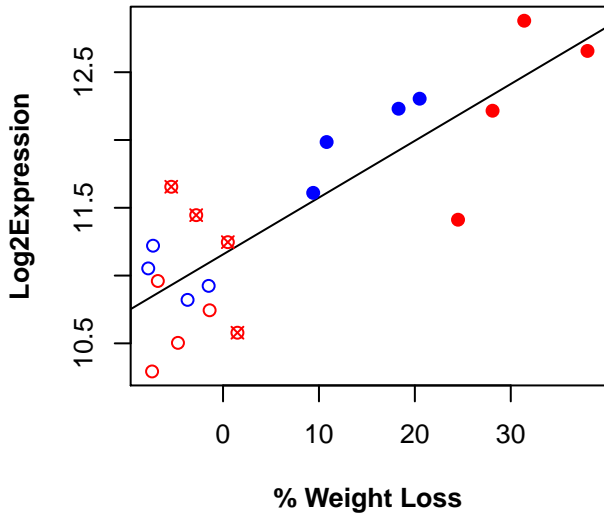
logFC = -0.043



Hadhb

p-value = 0.00034435

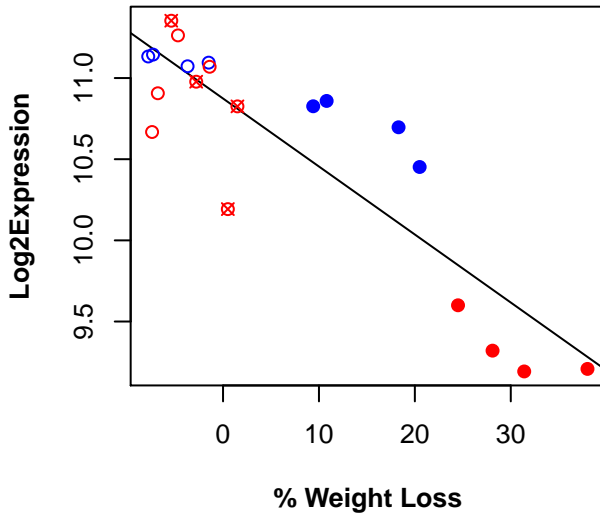
logFC = 0.042



Gsta3

p-value = 5.52e-05

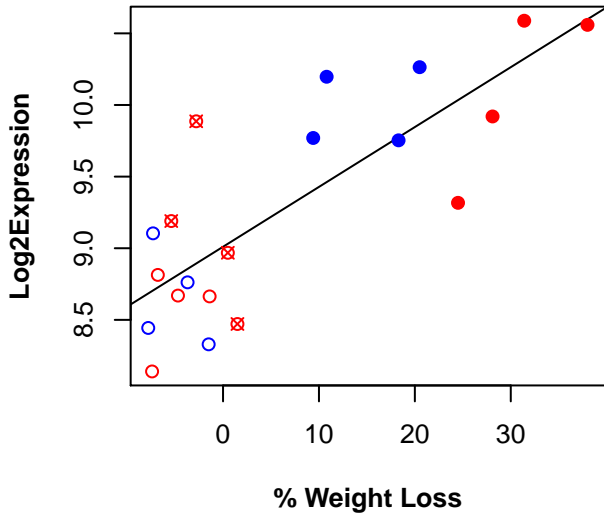
logFC = -0.042



H2-Ab1

p-value = 0.00153391

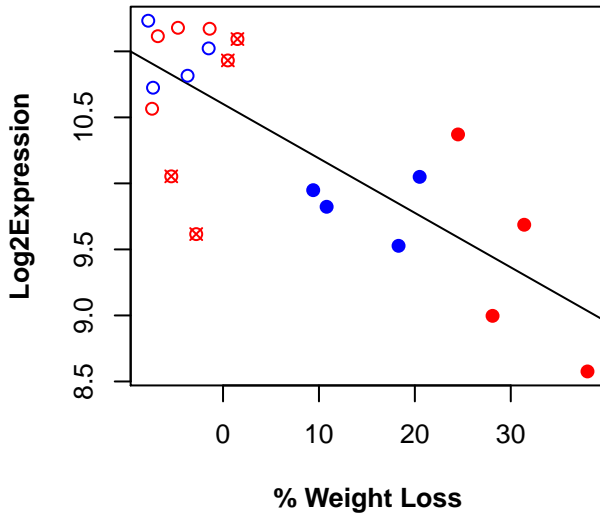
logFC = 0.042



Pls3

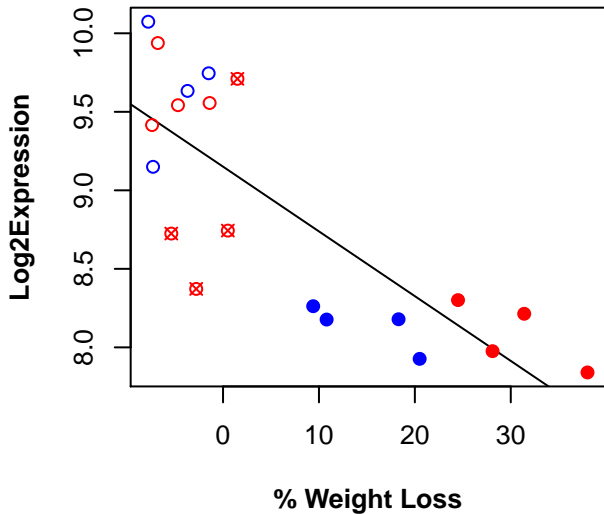
p-value = 0.00220641

logFC = -0.041



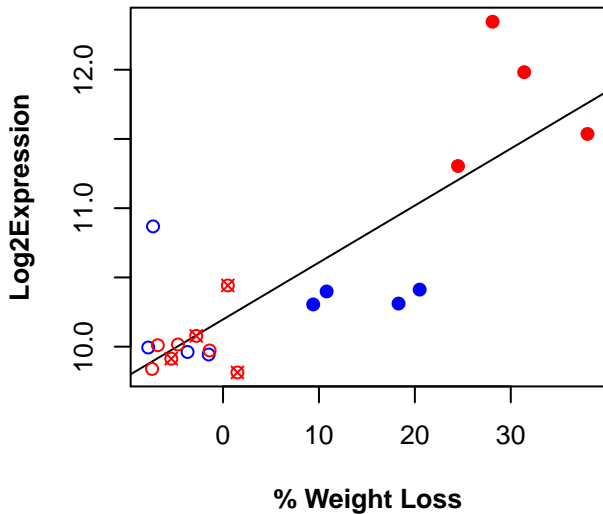
9130409I23Rik

p-value = 0.00115556 logFC = -0.041



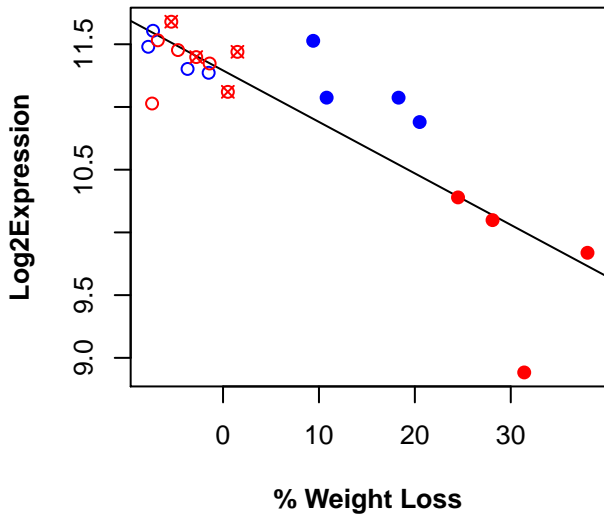
Dbndd2

p-value = 0.00070274 logFC = 0.041



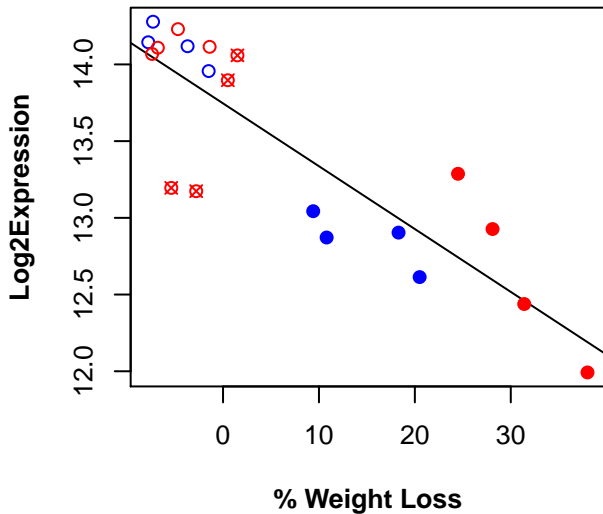
Dcxr

p-value = 0.00019154 logFC = -0.041



Hsd17b10

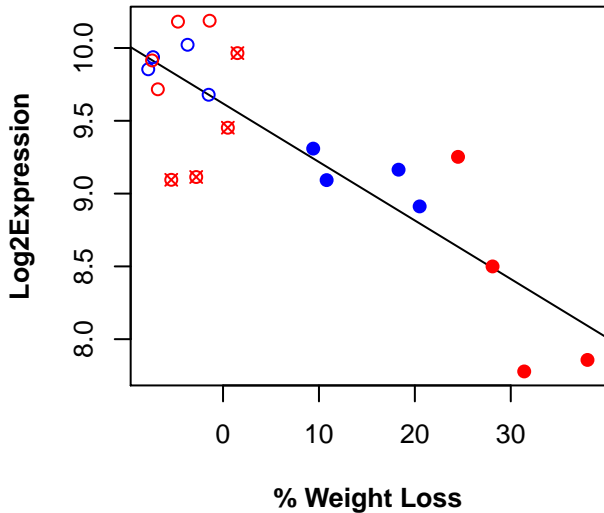
p-value = 0.00012523 logFC = -0.041



Fn3k

p-value = 0.00017901

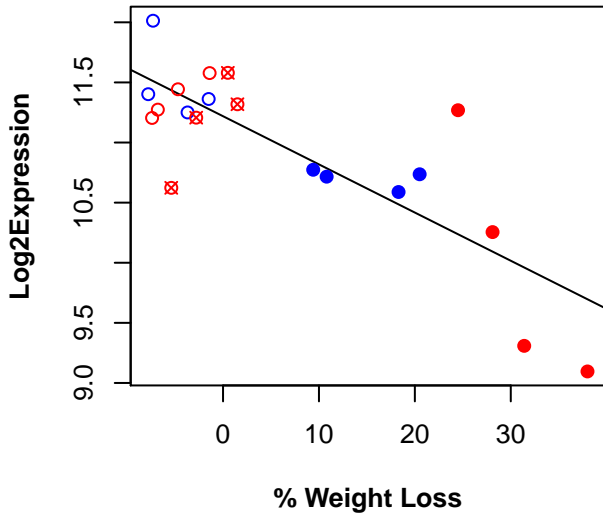
logFC = -0.04



Es22

p-value = 0.00073945

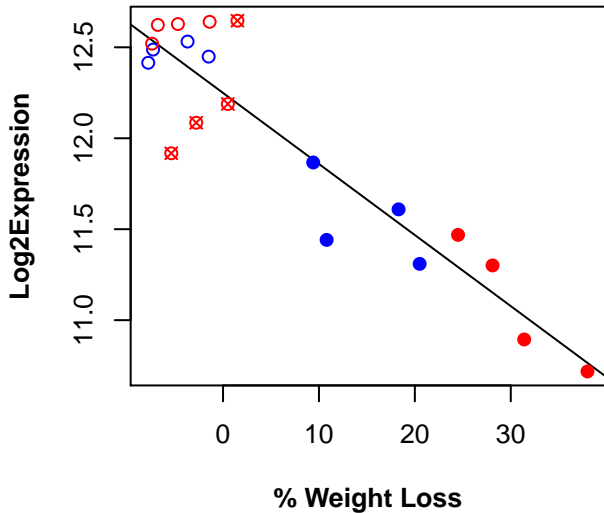
logFC = -0.04



Gpsn2

p-value = 6.14e-06

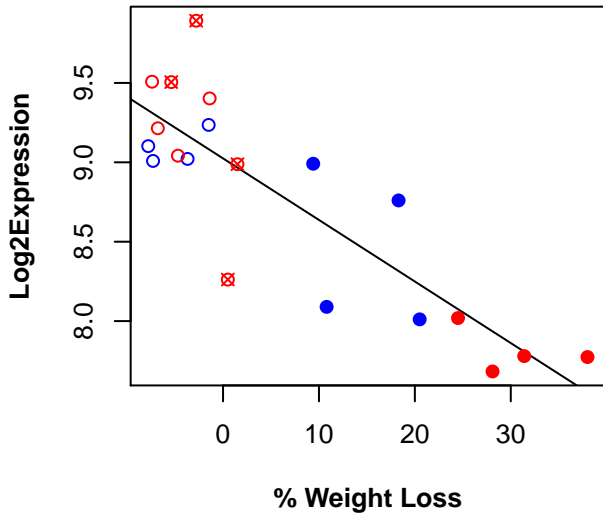
logFC = -0.039



Mvd

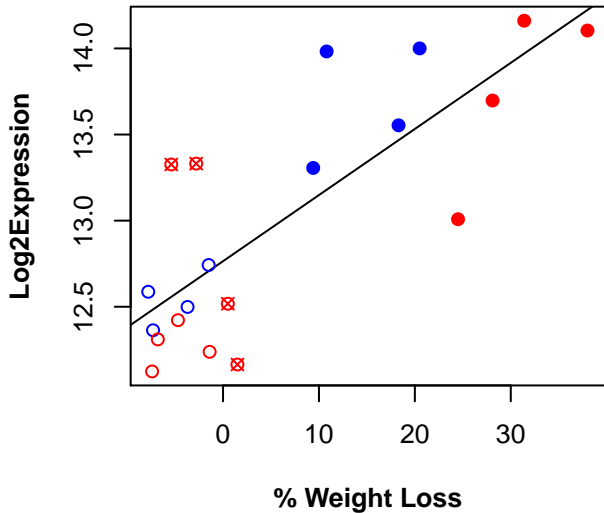
p-value = 0.00017351

logFC = -0.039



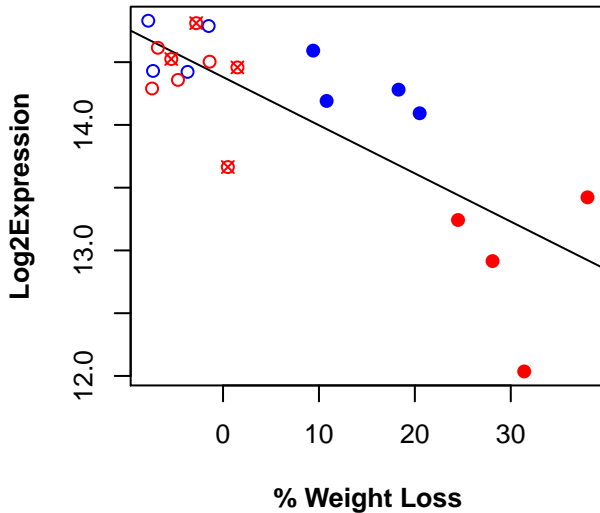
Slc40a1

p-value = 0.00116607 logFC = 0.038



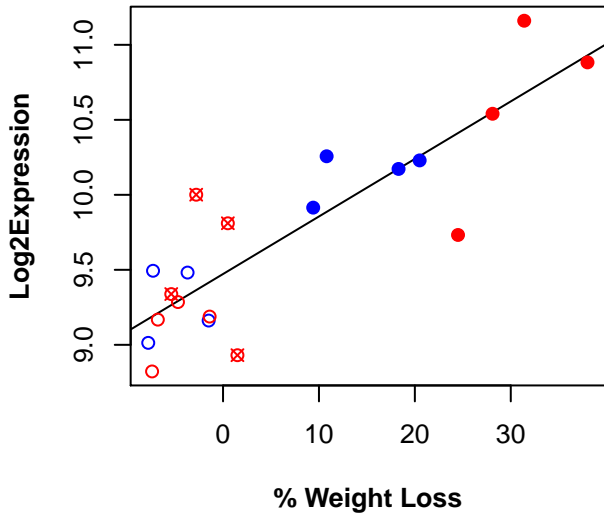
Ass1

p-value = 0.00166364 logFC = -0.038



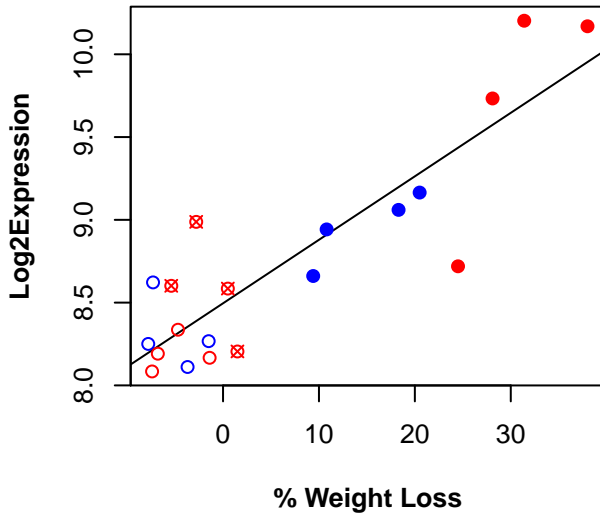
Tgfb1

p-value = 0.00012755 logFC = 0.038



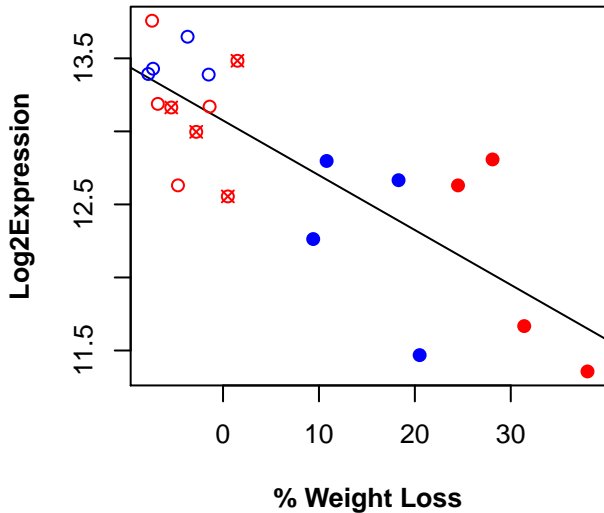
Serpinb6a

p-value = 6.76e-05 logFC = 0.038



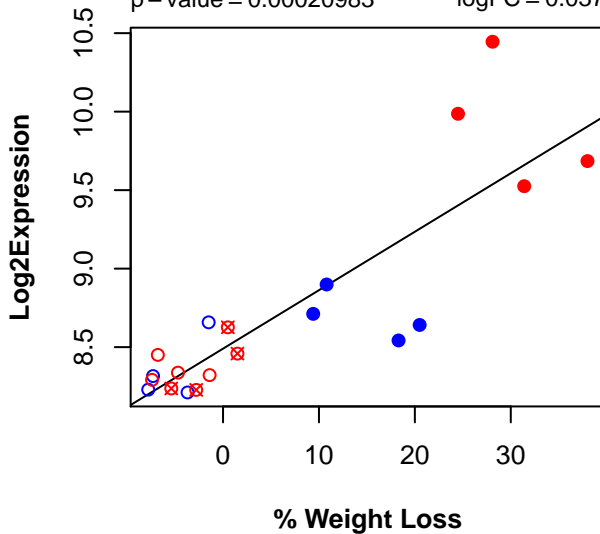
Mfsd2

p-value = 0.00122645 logFC = -0.038



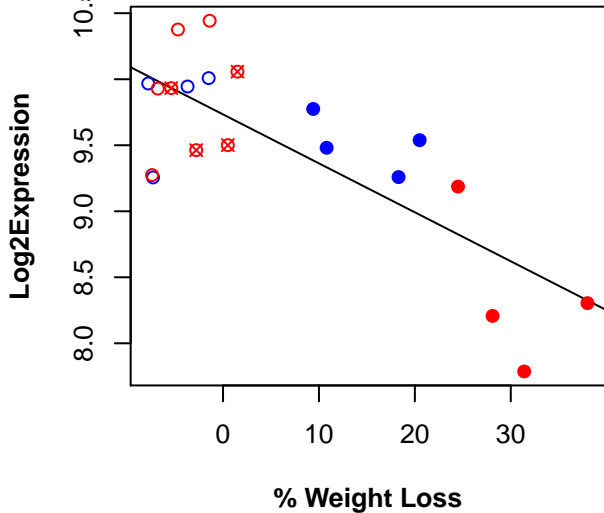
Ung

p-value = 0.00020983 logFC = 0.037



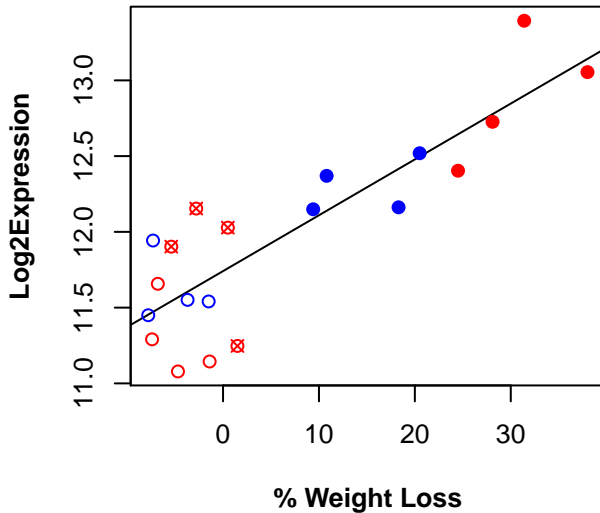
Otc

p-value = 0.00202876 logFC = -0.037



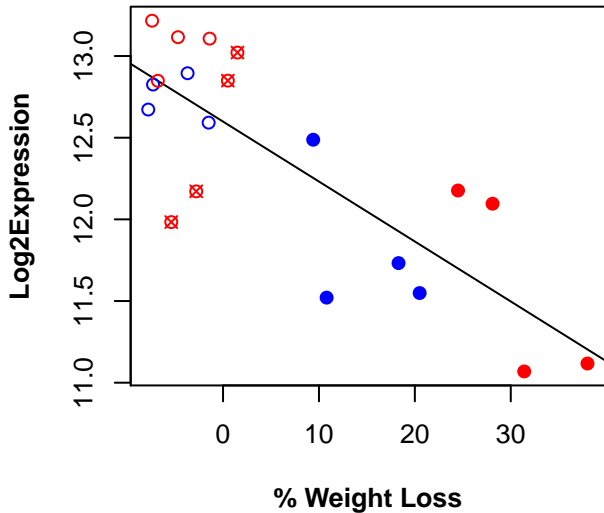
Tmsb4x

p-value = 0.00016065 logFC = 0.037



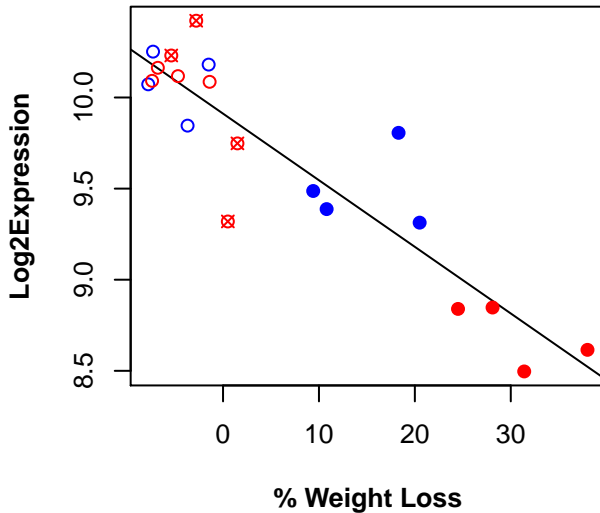
Slc6a12

p-value = 0.00107959 logFC = -0.037



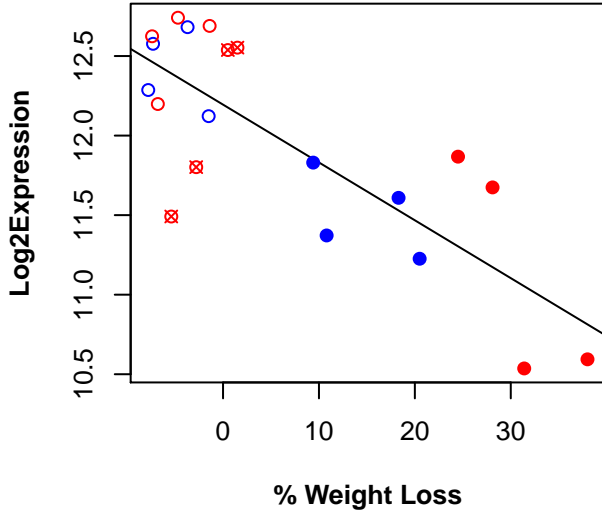
Acat2

p-value = 8.77e-06 logFC = -0.037



Cisd1

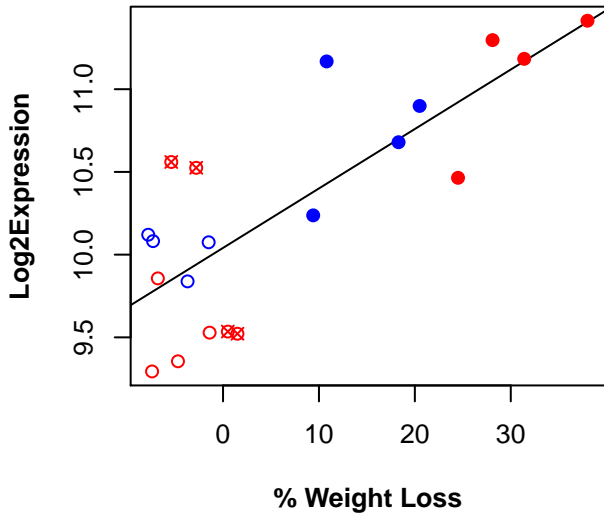
p-value = 0.00116607 logFC = -0.036



Snx10

p-value = 0.00161689

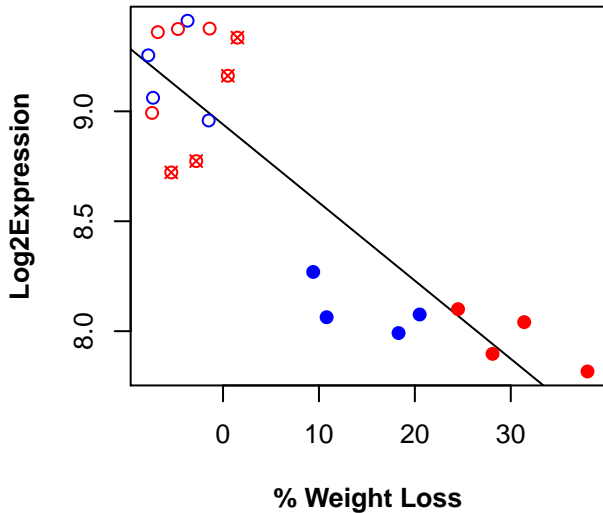
logFC = 0.036



Slc44a1

p-value = 5.28e-05

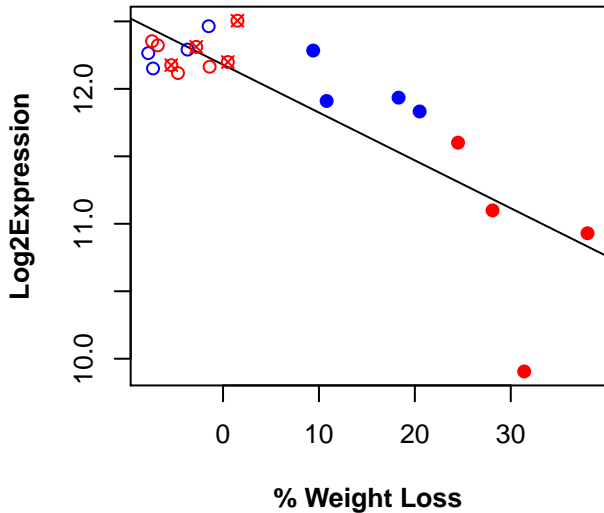
logFC = -0.036



Ttc36

p-value = 0.00048058

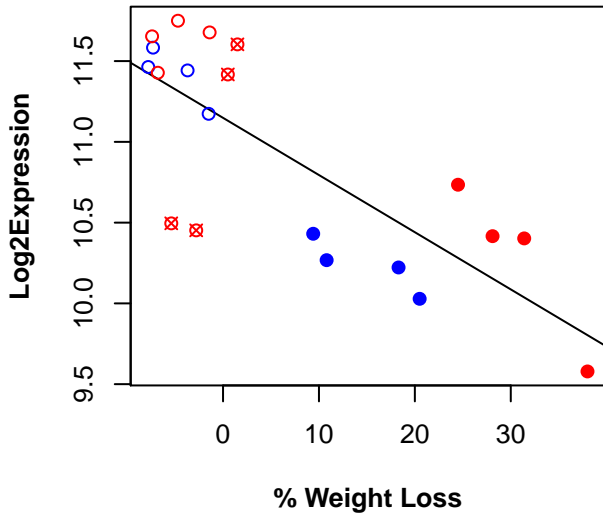
logFC = -0.035



Fam158a

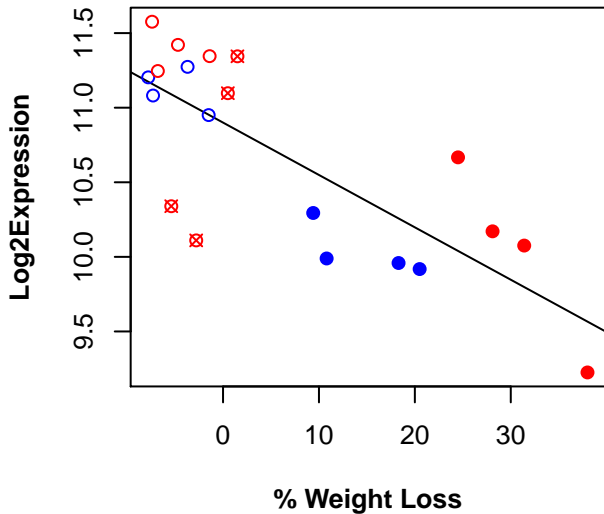
p-value = 0.00198001

logFC = -0.035



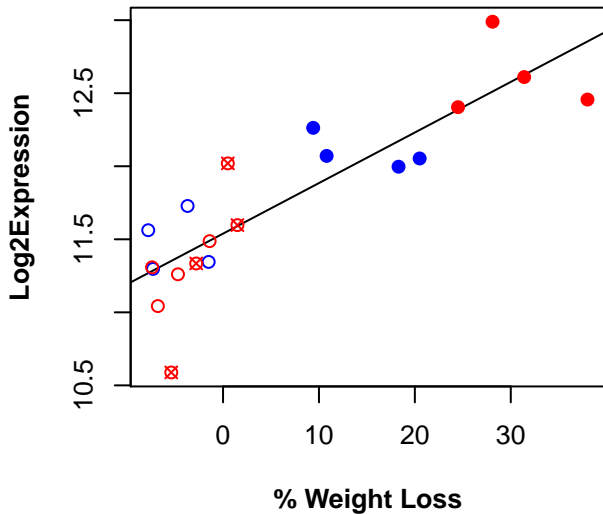
C530044N13Rik

p-value = 0.00223245 logFC = -0.035



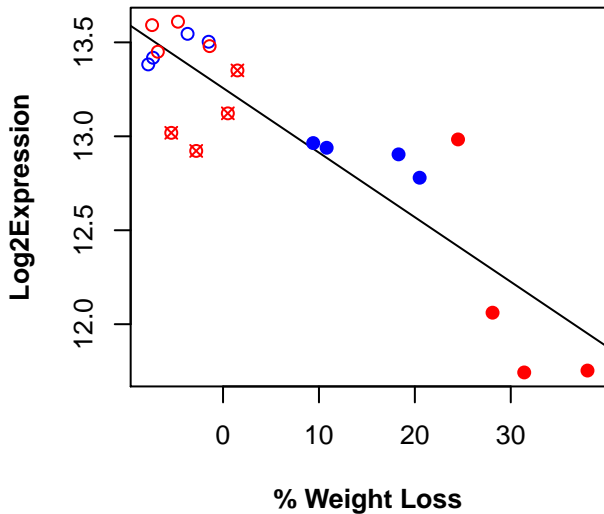
Dusp6

p-value = 0.00013148 logFC = 0.035



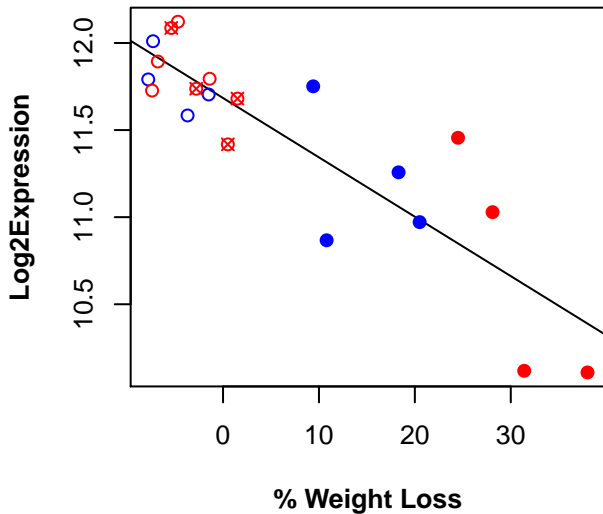
Slco2b1

p-value = 3.51e-05 logFC = -0.034



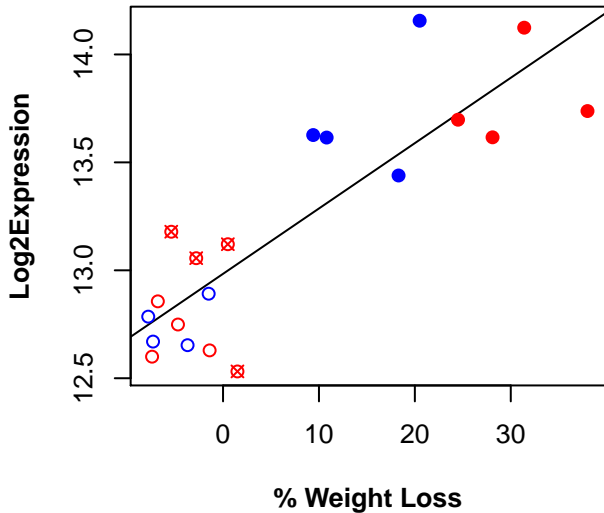
Psen2

p-value = 7.47e-05 logFC = -0.034



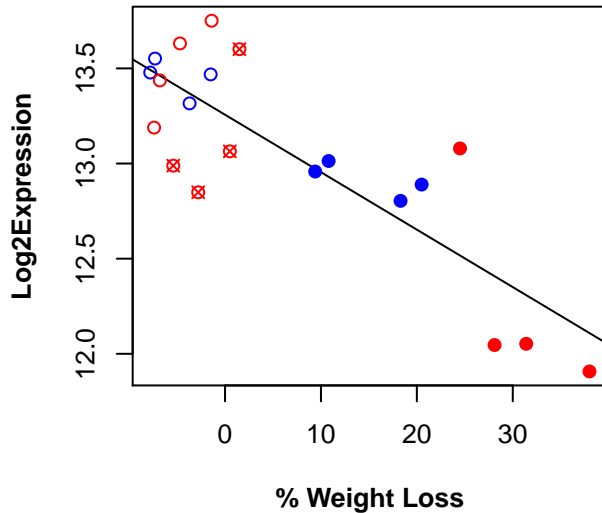
Hsp90b1

p-value = 0.00016672 logFC = 0.03



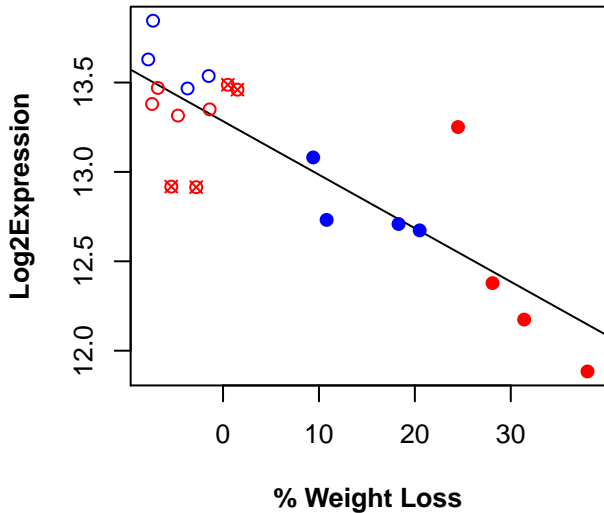
Aldh6a1

p-value = 0.00036181 logFC = -0.03



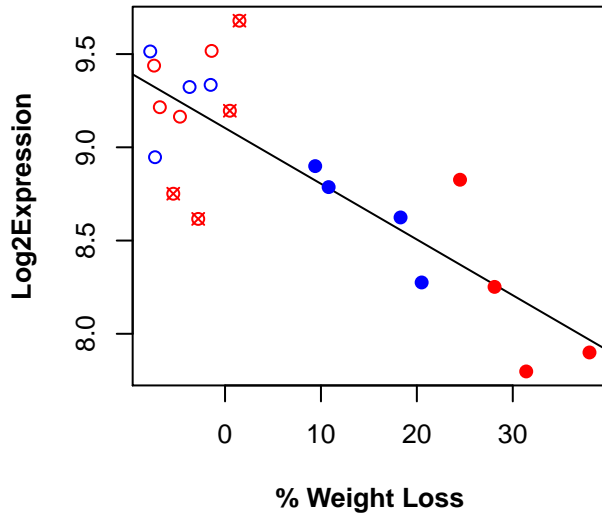
Gcdh

p-value = 0.00021122 logFC = -0.03



Clcn2

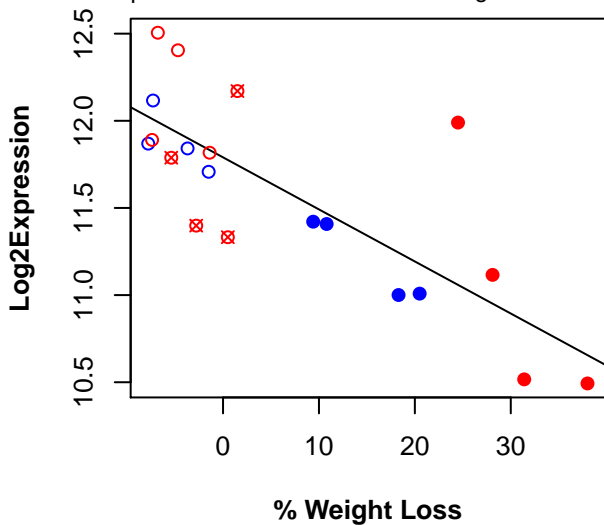
p-value = 0.0005838 logFC = -0.03



Tsc22d3

p-value = 0.00185965

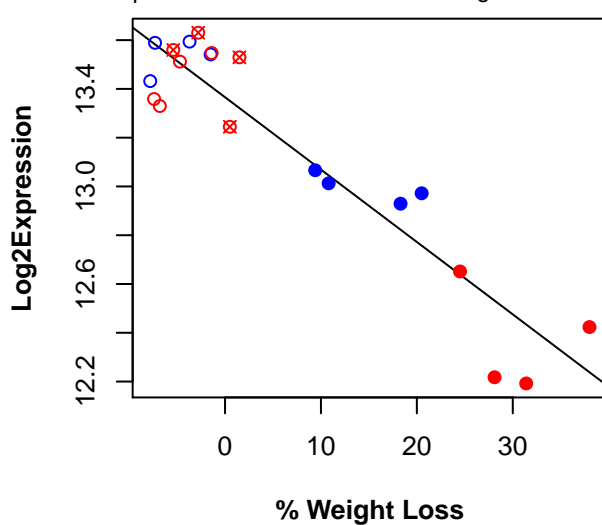
logFC = -0.03



Nipsnap1

p-value = 1.01e-06

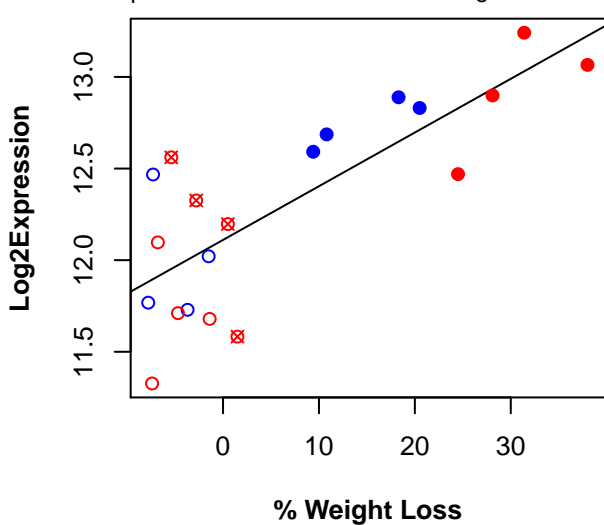
logFC = -0.03



Hsp90ab1

p-value = 0.0016255

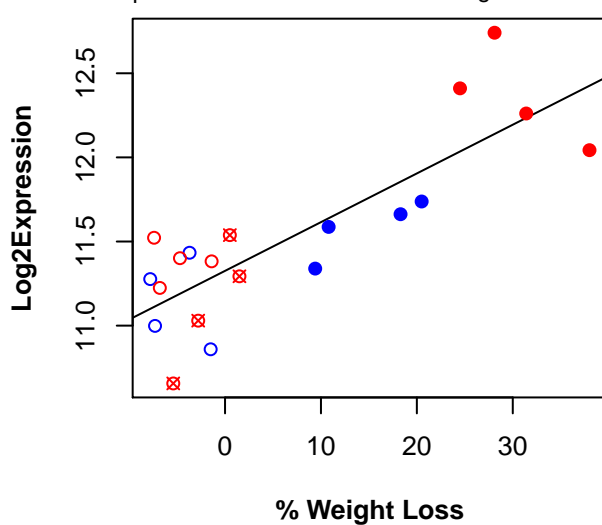
logFC = 0.029



Dpp7

p-value = 0.0005486

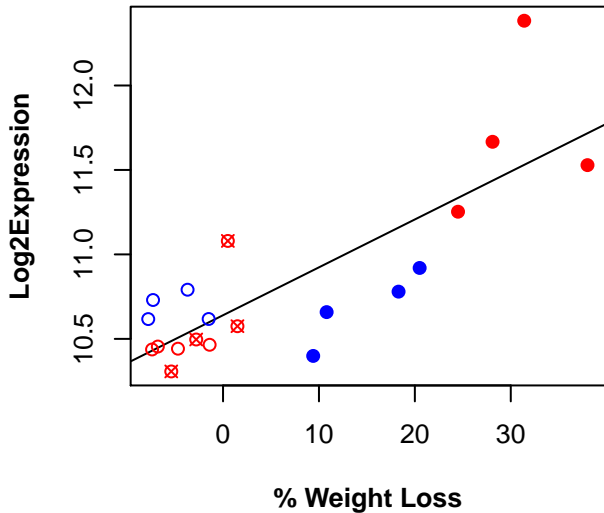
logFC = 0.029



Ets2

p-value = 0.00111114

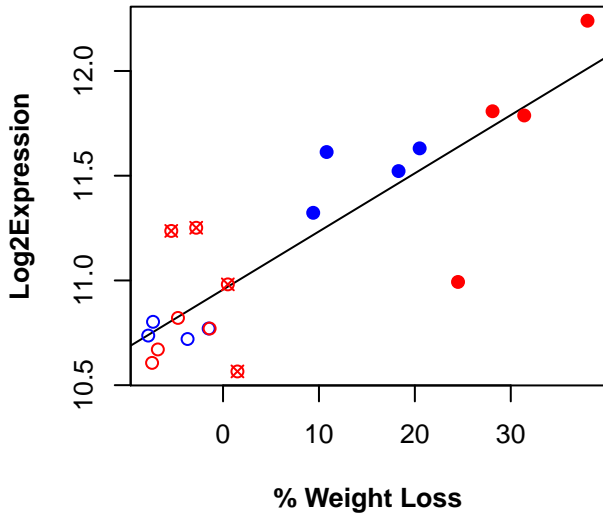
logFC = 0.028



Klhdc2

p-value = 0.00020983

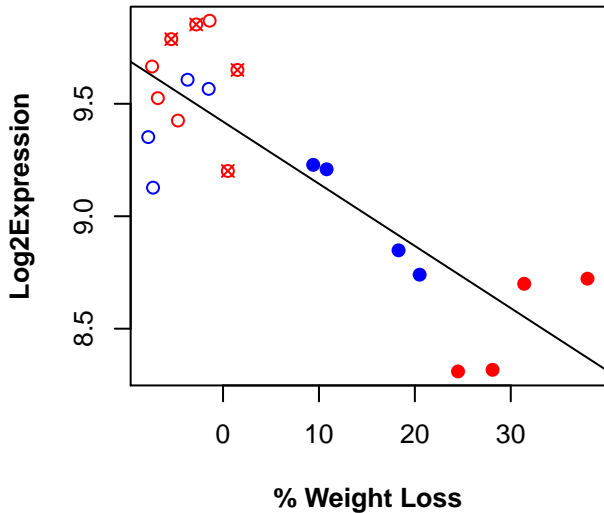
logFC = 0.028



Robo1

p-value = 0.00028569

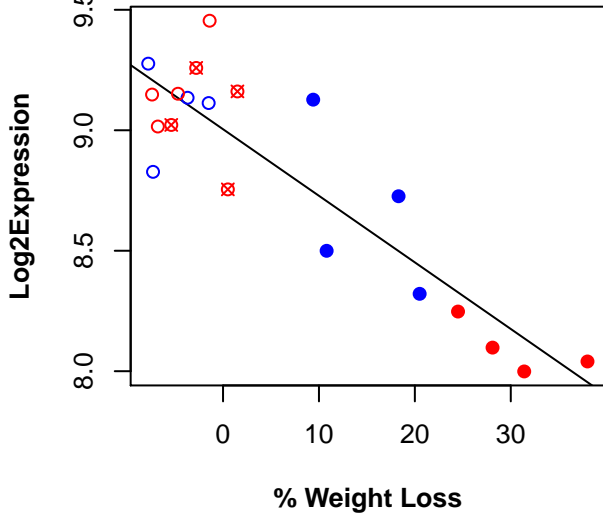
logFC = -0.028



Mmab

p-value = 2.96e-05

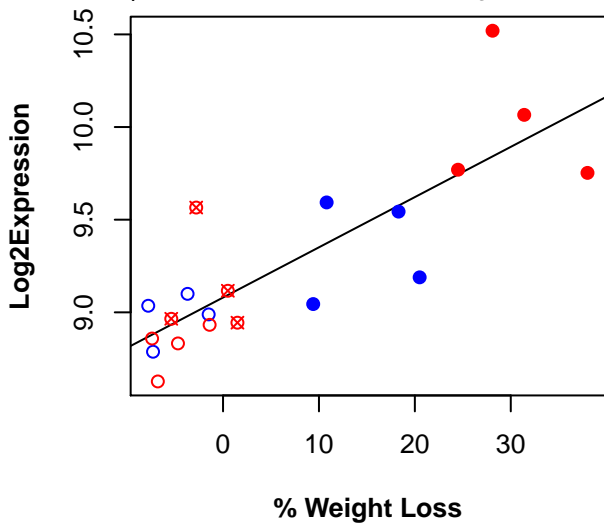
logFC = -0.028



1500012F01Rik

p-value = 0.0005486

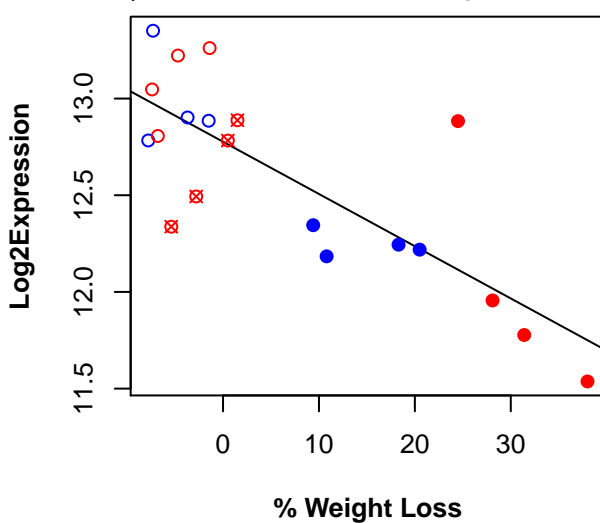
logFC = 0.027



Baat

p-value = 0.00146023

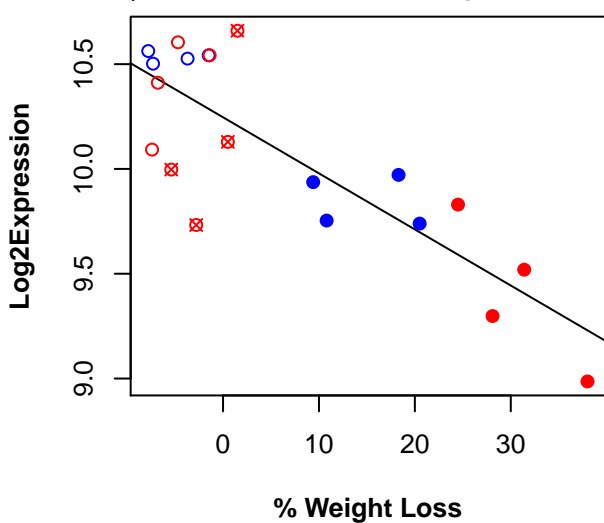
logFC = -0.027



Tcea3

p-value = 0.00044423

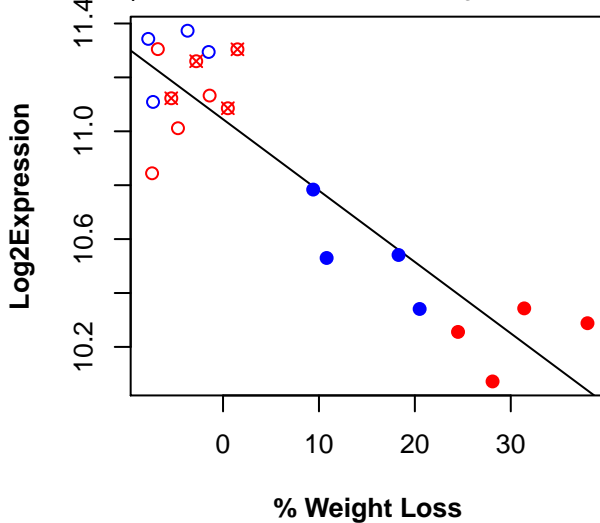
logFC = -0.027



Cyb5r3

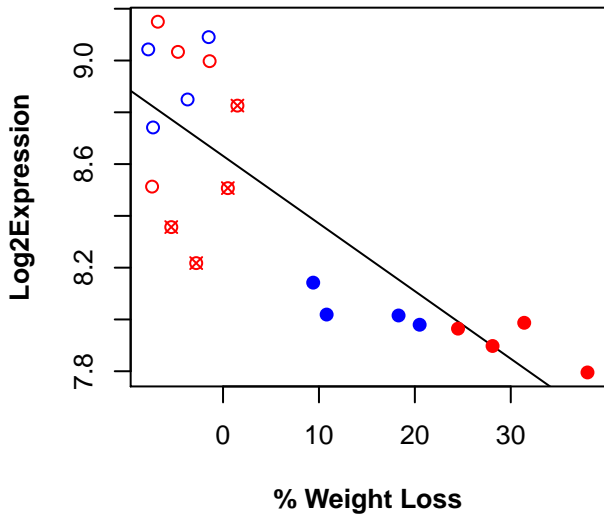
p-value = 0.00013666

logFC = -0.026



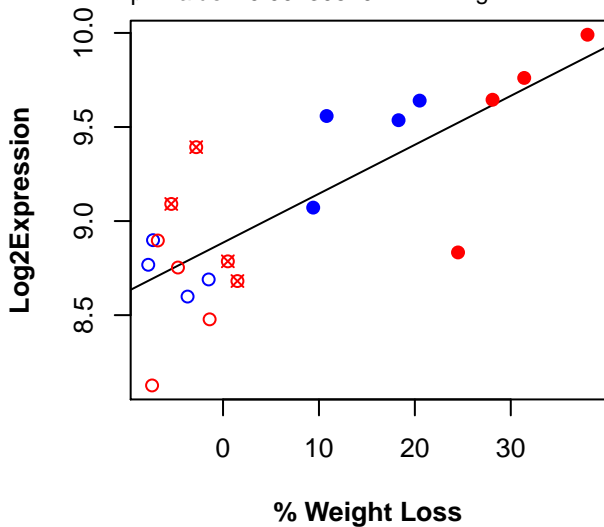
Tpmt

p-value = 0.00063122 logFC = -0.026



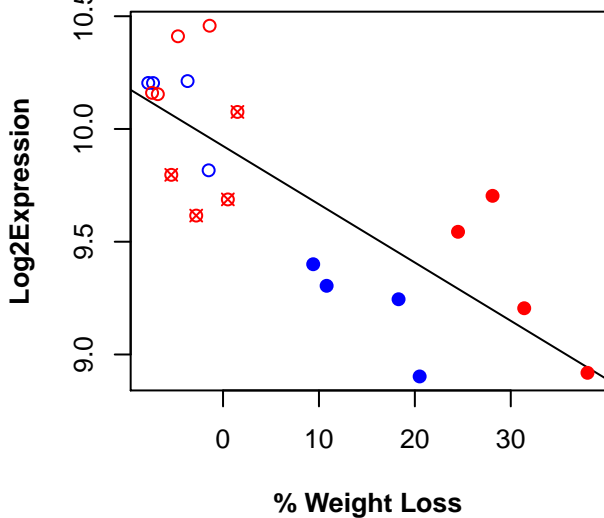
Srd5a3

p-value = 0.00239549 logFC = 0.026



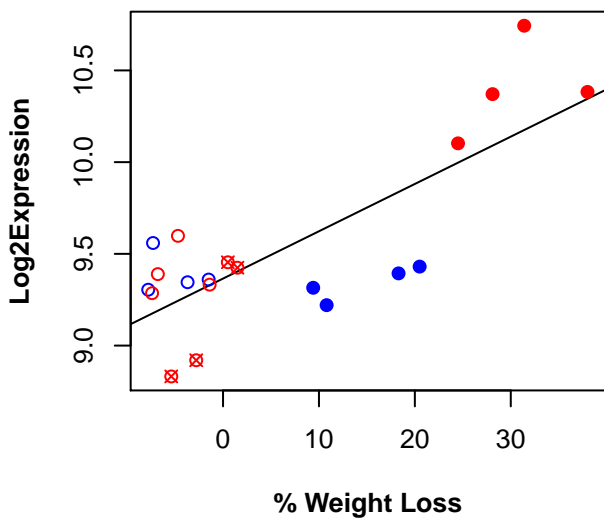
D730039F16Rik

p-value = 0.00119153 logFC = -0.026



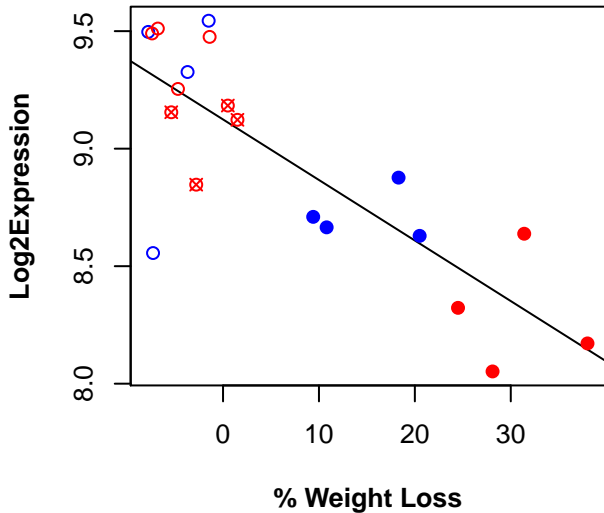
Rpl13a

p-value = 0.00189688 logFC = 0.026



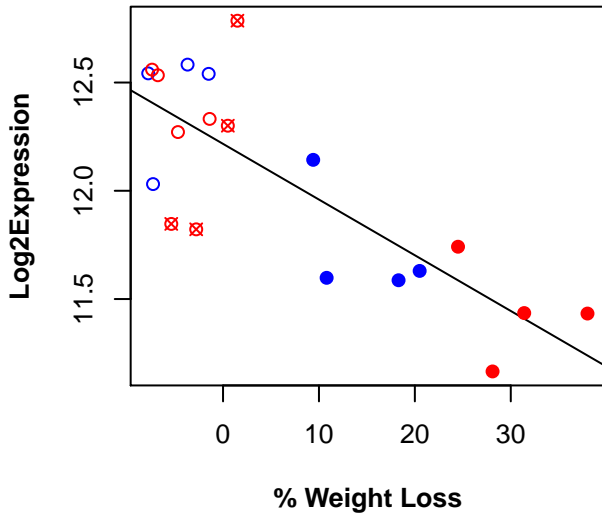
Plscr2

p-value = 0.00088279 logFC = -0.026



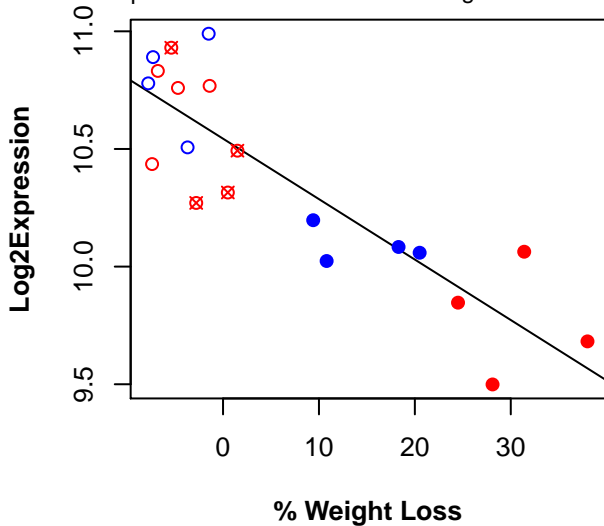
Ndufs8

p-value = 0.00121674 logFC = -0.026



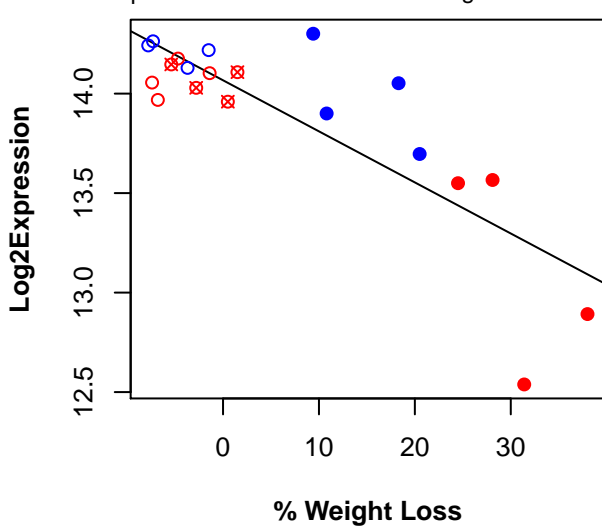
2210418O10Rik

p-value = 9.28e-05 logFC = -0.026



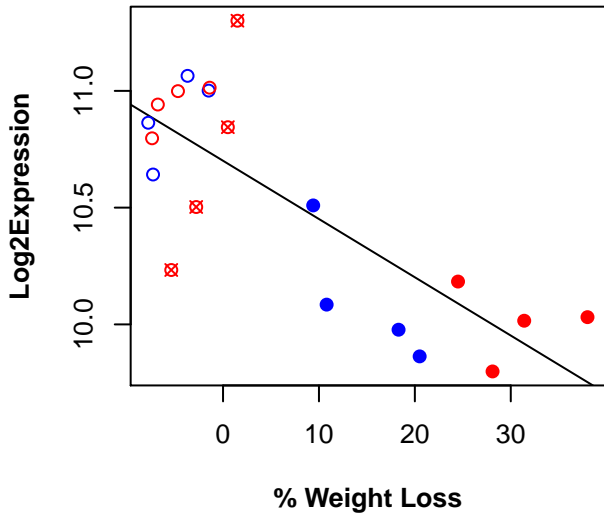
C8g

p-value = 0.00048109 logFC = -0.026



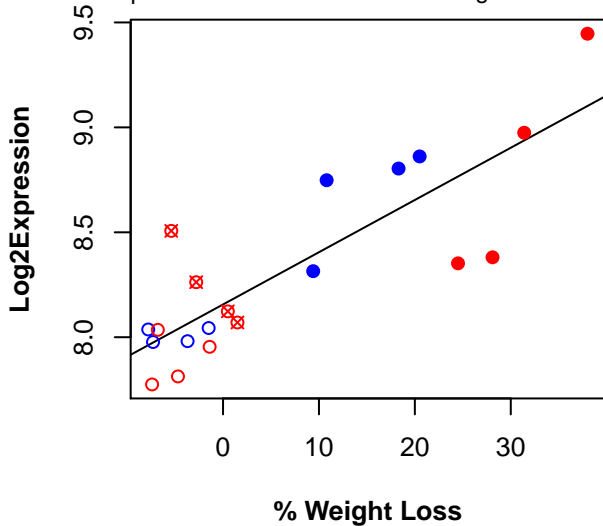
Bloc1s1

p-value = 0.00189248 logFC = -0.025



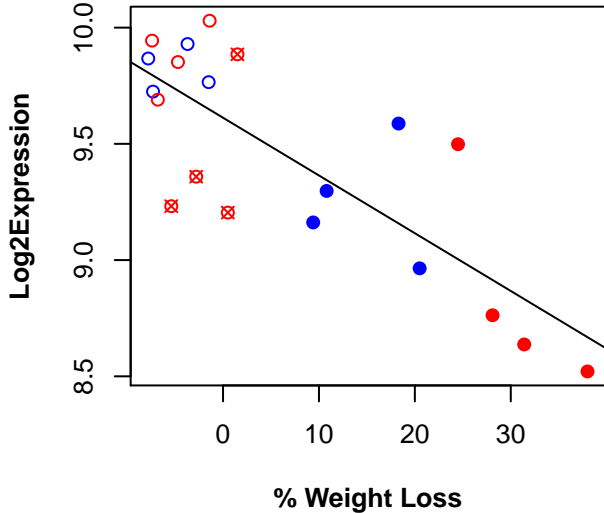
Hmga1

p-value = 0.0003954 logFC = 0.025



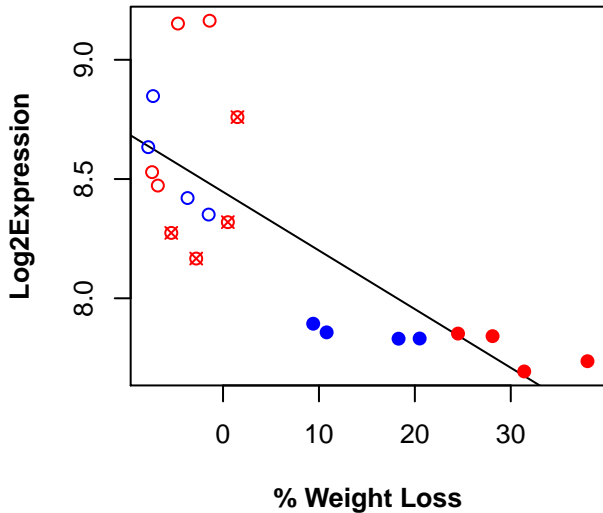
2810439F02Rik

p-value = 0.0012429 logFC = -0.025



Kik1b4

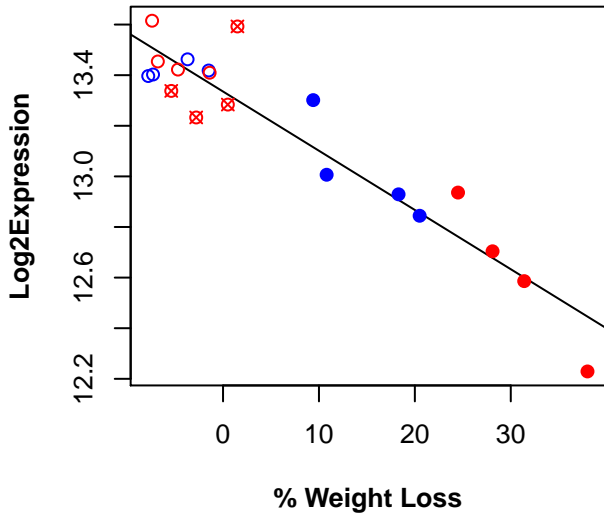
p-value = 0.00189688 logFC = -0.025



Sfxn1

p-value = 1.606e-05

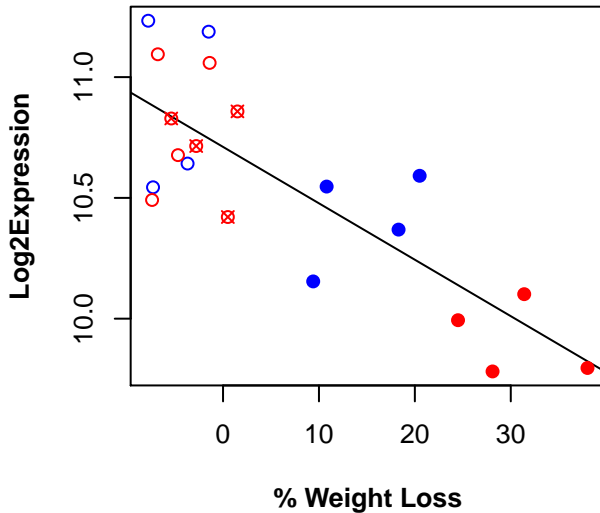
logFC = -0.023



1110002B05Rik

p-value = 0.00113587

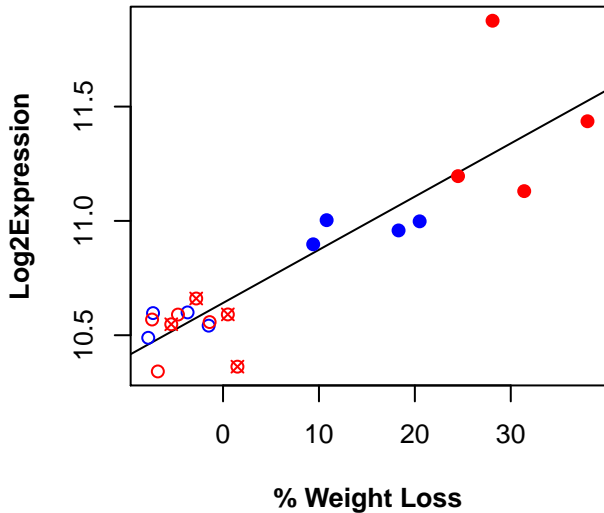
logFC = -0.023



Uhrf2

p-value = 3.95e-05

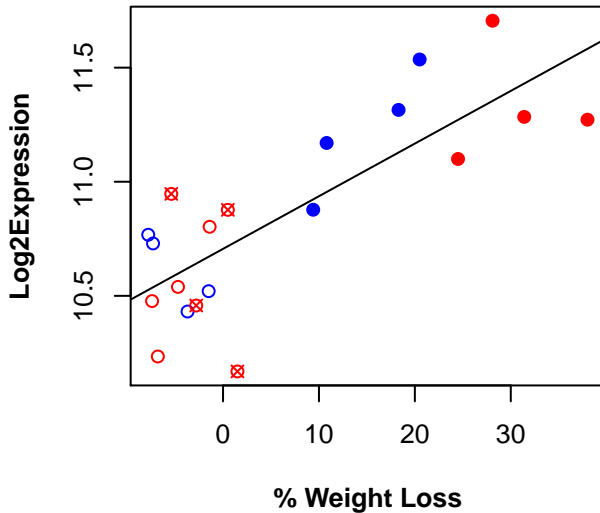
logFC = 0.023



Gcnt2

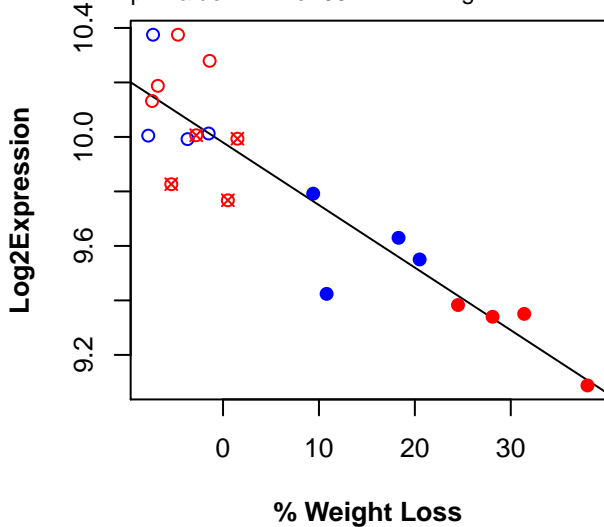
p-value = 0.00130217

logFC = 0.023



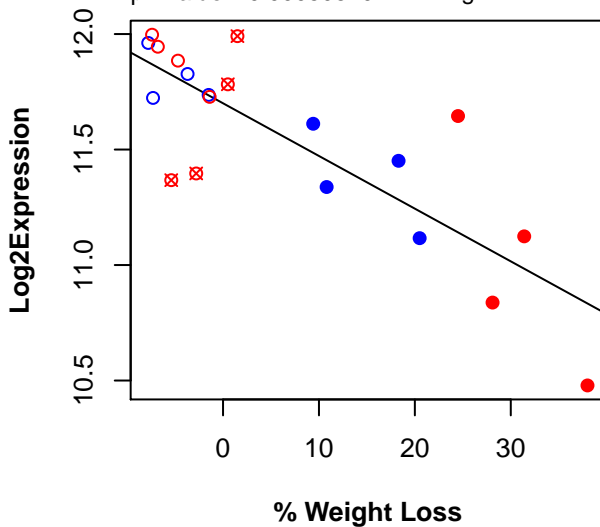
Olfml1

p-value = 1.14e-05 logFC = -0.023



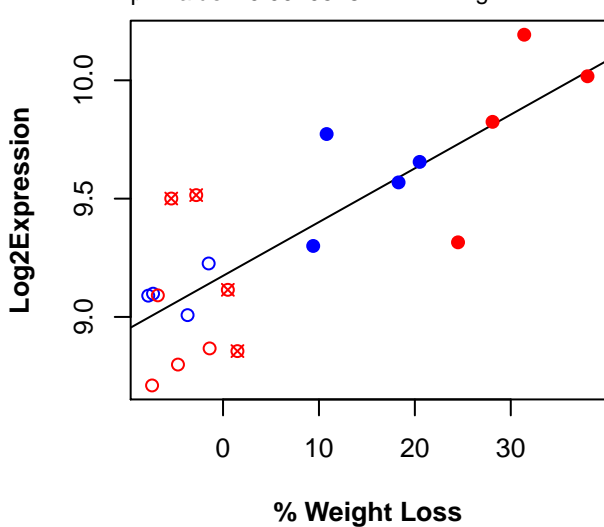
Faah

p-value = 0.00059529 logFC = -0.023



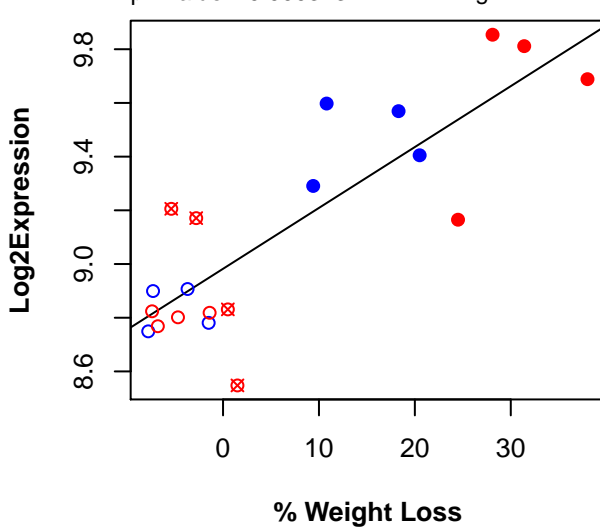
Tmem55a

p-value = 0.0010518 logFC = 0.023



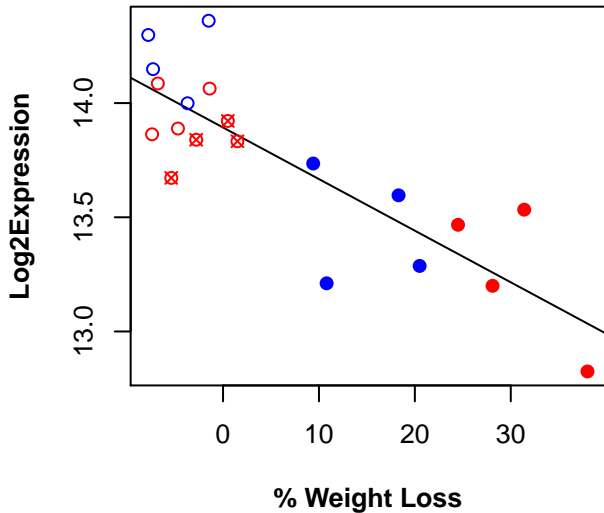
Manba

p-value = 0.0003434 logFC = 0.023



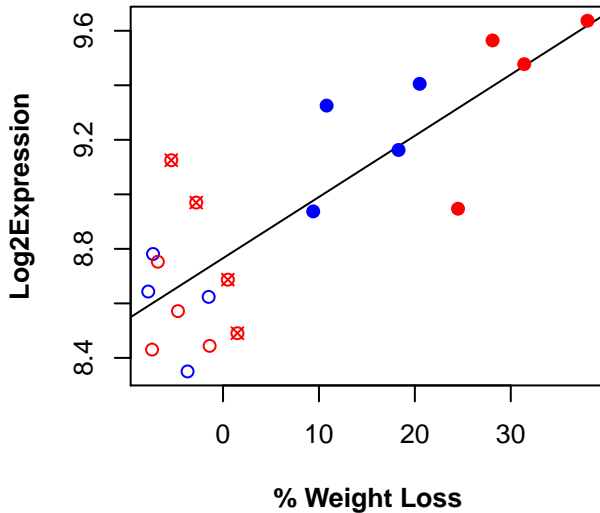
Dbi

p-value = 0.00029249 logFC = -0.023



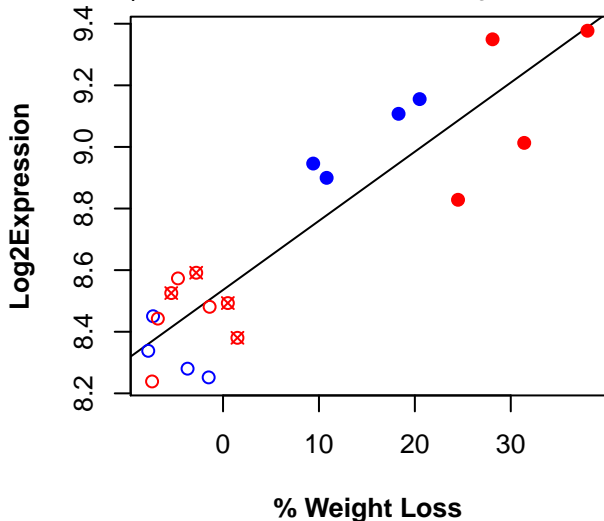
Sap30

p-value = 0.00058951 logFC = 0.022



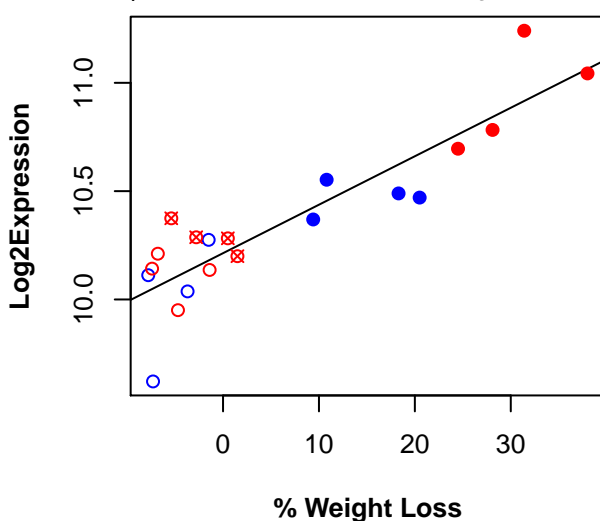
Lman2l

p-value = 1.35e-05 logFC = 0.022



AW555464

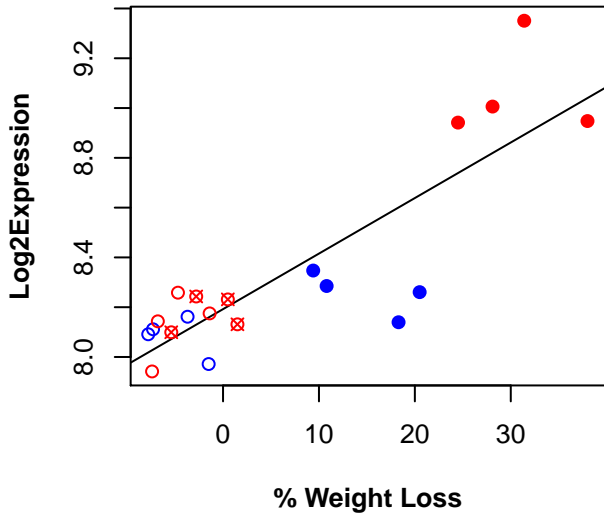
p-value = 3.55e-05 logFC = 0.022



Nckap11

p-value = 0.00021912

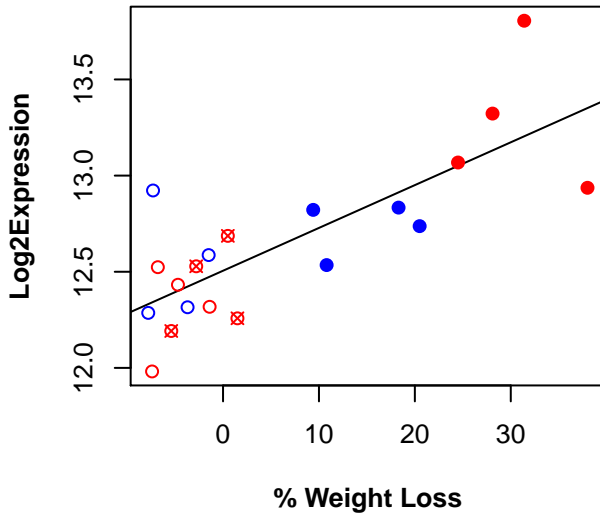
logFC = 0.022



Rps21

p-value = 0.00252547

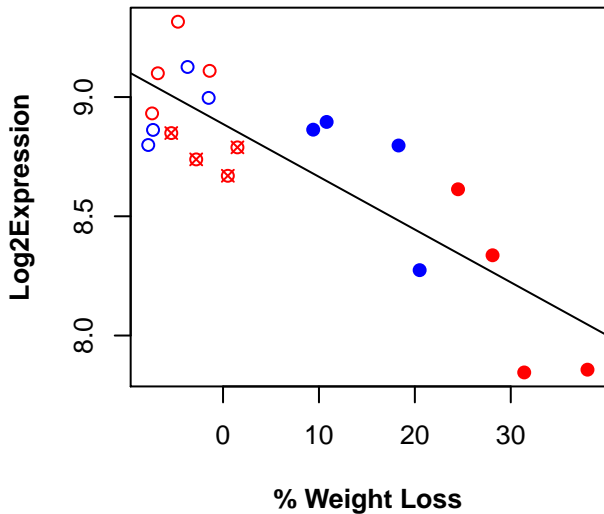
logFC = 0.022



Gna14

p-value = 0.00034435

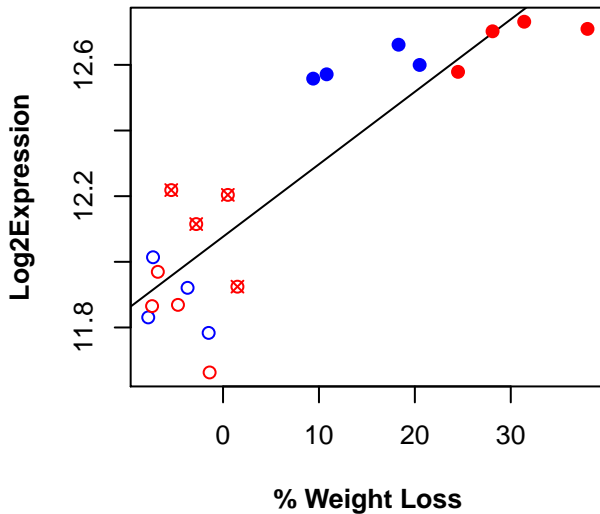
logFC = -0.022



Xbp1

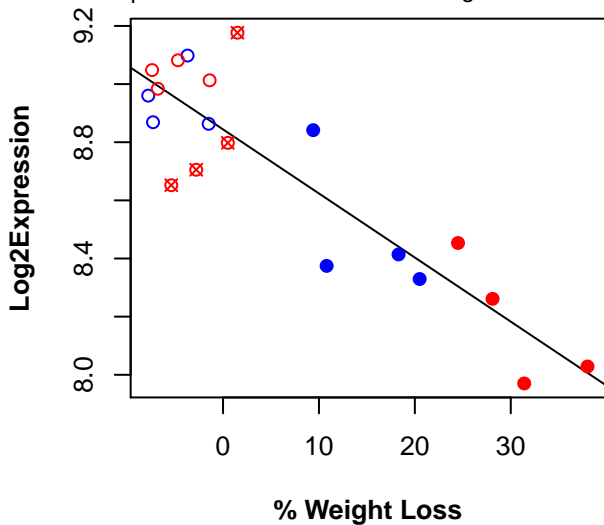
p-value = 6.46e-05

logFC = 0.022



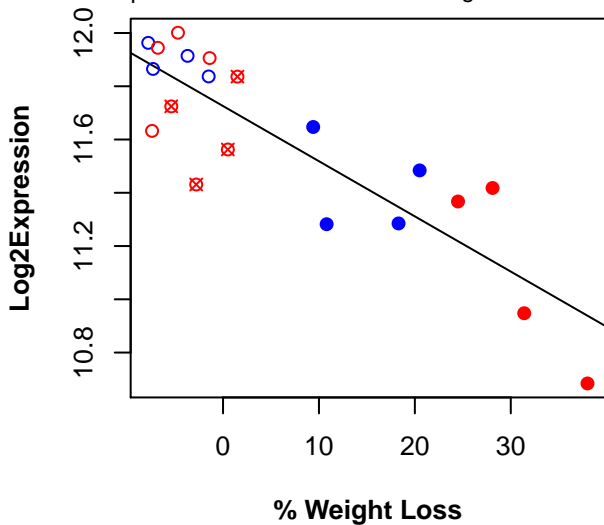
Sat2

p-value = 3.19e-05 logFC = -0.022



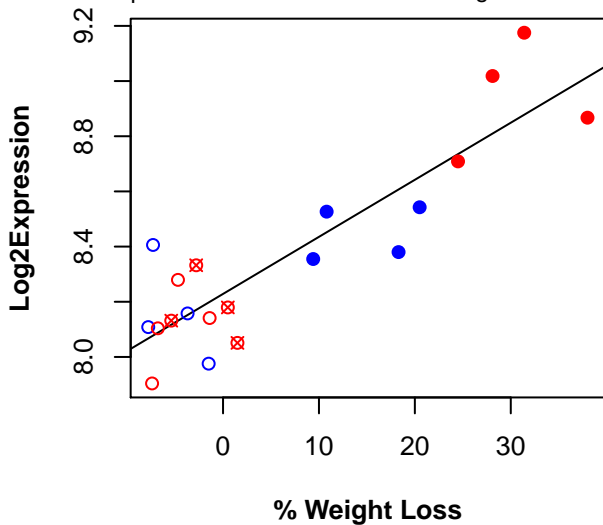
Atg5

p-value = 0.00012523 logFC = -0.021



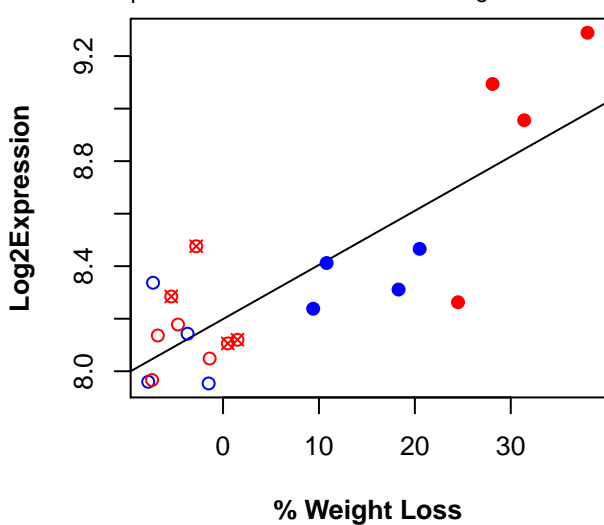
Slc15a3

p-value = 5.78e-05 logFC = 0.021



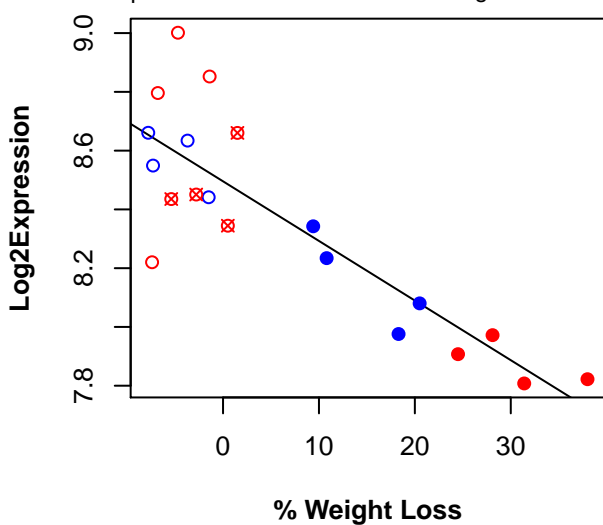
Nedd9

p-value = 0.000645 logFC = 0.021



Fbxo36

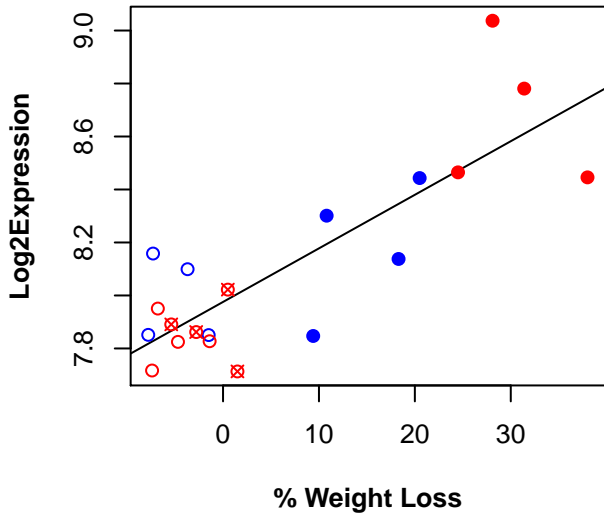
p-value = 0.00020558 logFC = -0.02



Ccl4

p-value = 0.00058951

logFC = 0.02



Uqcr1

p-value = 0.0009025

logFC = -0.02

