

HER2 Signature Validation with ICBP drugs and with CCLE CNV data

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Reading datasets in... and calling assign..

Now correlating HER2 predictions with ICBP drugs..

```
drugs<-read.delim("~/Dropbox/ICBP/ICBP_drugs_1.txt", header=1, sep='\t',row.names=1)
pred_drug<-merge_drop(data,drugs,by=0)
#dim(pred_drug)
for(i in 1:length(colnames(data)))
{
  #print(colnames(data)[i])
  print("correlation with Lapatinib..an EGFR/HER2 inhibitor")
  print(cor(pred_drug[i],pred_drug$Lapatinib,use="na.or.complete"))
  # print("correlation with BEZ235..a pi3k/mtor inhibitor")
  # print(cor(pred_drug[i],pred_drug$BEZ235,use="na.or.complete"))
  # print("correlation with Everolimus..an mtor inhibitor")
  # print(cor(pred_drug[i],pred_drug$Everolimus,use="na.or.complete"))
  # print("correlation with Temsirolimus..an mtor inhibitor")
  # print(cor(pred_drug[i],pred_drug$Temsirolimus,use="na.or.complete"))
  print("correlation with Sigma AKT1/2..an AKT inhibitor")
  print(cor(pred_drug[i],pred_drug$Sigma.AKT1.2.inhibitor,use="na.or.complete"))
  # print("correlation with GSK2126458..an AKT inhibitor")
  # print(cor(pred_drug[i],pred_drug$GSK2126458,use="na.or.complete"))
  # print("correlation with TRICiribine..an AKT inhibitor")
  # print(cor(pred_drug[i],pred_drug$Triciribine,use="na.or.complete"))
  #
}
```

```
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
## [1]
## adap10/pathway_activity_testset.csv 0.5376608
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
## [1]
## adap10/pathway_activity_testset.csv 0.527393
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
## [1]
## adap15/pathway_activity_testset.csv 0.4477123
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
## [1]
## adap15/pathway_activity_testset.csv 0.2941977
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
## [1]
## adap20/pathway_activity_testset.csv 0.3852105
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
## [1]
## adap20/pathway_activity_testset.csv 0.1213293
```

```

## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## adap25/pathway_activity_testset.csv 0.2103633
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## adap25/pathway_activity_testset.csv -0.1783313
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## adap5/pathway_activity_testset.csv 0.603829
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## adap5/pathway_activity_testset.csv 0.5560013
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## adap50/pathway_activity_testset.csv 0.2190749
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## adap50/pathway_activity_testset.csv -0.09822732
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## adap_cov25/pathway_activity_testset.csv -0.1118015
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## adap_cov25/pathway_activity_testset.csv 0.09921599
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## adap_cov50/pathway_activity_testset.csv -0.147567
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## adap_cov50/pathway_activity_testset.csv 0.06116462
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## her2_single_100_adap_cov/pathway_activity_testset.csv -0.08604707
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## her2_single_100_adap_cov/pathway_activity_testset.csv -0.4107512
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## her2_single_100_genelist/pathway_activity_testset.csv 0.2568492
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## her2_single_100_genelist/pathway_activity_testset.csv 0.1351935
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## her2_single_100_genelist_cov/pathway_activity_testset.csv 0.3170618
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## her2_single_100_genelist_cov/pathway_activity_testset.csv 0.6370592
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## her2_single_100_nonadap_cov/pathway_activity_testset.csv -0.08238842
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## her2_single_100_nonadap_cov/pathway_activity_testset.csv -0.4019674

```

```

## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap10/pathway_activity_testset.csv 0.5688866
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap10/pathway_activity_testset.csv 0.5218312
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap15/pathway_activity_testset.csv 0.4317214
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap15/pathway_activity_testset.csv 0.2715857
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap20/pathway_activity_testset.csv 0.3914037
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap20/pathway_activity_testset.csv 0.1166532
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap25/pathway_activity_testset.csv 0.1970008
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap25/pathway_activity_testset.csv -0.1790336
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap5/pathway_activity_testset.csv 0.6297045
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap5/pathway_activity_testset.csv 0.5508027
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap50/pathway_activity_testset.csv 0.2168602
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap50/pathway_activity_testset.csv -0.1190696
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap_cov25/pathway_activity_testset.csv 0.01065613
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap_cov25/pathway_activity_testset.csv 0.06666822
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap_cov50/pathway_activity_testset.csv 0.002556769
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap_cov50/pathway_activity_testset.csv 0.04065726

```

If you are interested in signature gene matrix...

Now correlating with CNV data...

```
## [1] "pearson's correlation between ERBB2 CNV and adap10/pathway_activity_testset.csv"
```

```

## [1] 0.6222795
## [1] "pearson's correlation between ERBB2 CNV and adap15/pathway_activity_testset.csv"
## [1] 0.5877312
## [1] "pearson's correlation between ERBB2 CNV and adap20/pathway_activity_testset.csv"
## [1] 0.5333872
## [1] "pearson's correlation between ERBB2 CNV and adap25/pathway_activity_testset.csv"
## [1] 0.3546191
## [1] "pearson's correlation between ERBB2 CNV and adap5/pathway_activity_testset.csv"
## [1] 0.714186
## [1] "pearson's correlation between ERBB2 CNV and adap50/pathway_activity_testset.csv"
## [1] 0.4315872
## [1] "pearson's correlation between ERBB2 CNV and adap_cov25/pathway_activity_testset.csv"
## [1] 0.0143415
## [1] "pearson's correlation between ERBB2 CNV and adap_cov50/pathway_activity_testset.csv"
## [1] -0.007055362
## [1] "pearson's correlation between ERBB2 CNV and her2_single_100_adap_cov/pathway_activity_testset.csv"
## [1] 0.1911781
## [1] "pearson's correlation between ERBB2 CNV and her2_single_100_genelist/pathway_activity_testset.csv"
## [1] 0.176159
## [1] "pearson's correlation between ERBB2 CNV and her2_single_100_genelist_cov/pathway_activity_testset.csv"
## [1] 0.2893002
## [1] "pearson's correlation between ERBB2 CNV and her2_single_100_nonadap_cov/pathway_activity_testset.csv"
## [1] 0.1950199
## [1] "pearson's correlation between ERBB2 CNV and nonadap10/pathway_activity_testset.csv"
## [1] 0.6138575
## [1] "pearson's correlation between ERBB2 CNV and nonadap15/pathway_activity_testset.csv"
## [1] 0.5678368
## [1] "pearson's correlation between ERBB2 CNV and nonadap20/pathway_activity_testset.csv"
## [1] 0.5328561
## [1] "pearson's correlation between ERBB2 CNV and nonadap25/pathway_activity_testset.csv"
## [1] 0.3516236
## [1] "pearson's correlation between ERBB2 CNV and nonadap5/pathway_activity_testset.csv"
## [1] 0.7055447
## [1] "pearson's correlation between ERBB2 CNV and nonadap50/pathway_activity_testset.csv"
## [1] 0.4312361
## [1] "pearson's correlation between ERBB2 CNV and nonadap_cov25/pathway_activity_testset.csv"
## [1] 0.1318385
## [1] "pearson's correlation between ERBB2 CNV and nonadap_cov50/pathway_activity_testset.csv"
## [1] 0.1398252

```

This analysis was run on Wed Dec 17 14:59:23 2014