

AKT Signature Validation with ICBP drugs and with CCLE CNV data

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Reading datasets in... and calling assign..

Now correlating AKT 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]
## adap150/pathway_activity_testset.csv 0.3452517
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
##                                [,1]
## adap150/pathway_activity_testset.csv 0.3155484
## [1] "correlation with Everolimus..an mtor inhibitor"
##                                [,1]
## adap150/pathway_activity_testset.csv 0.5375508
## [1] "correlation with Temsirolimus..an mtor inhibitor"
##                                [,1]
## adap150/pathway_activity_testset.csv 0.3395244
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                [,1]
## adap150/pathway_activity_testset.csv 0.6836356
## [1] "correlation with GSK2126458..an AKT inhibitor"
##                                [,1]
## adap150/pathway_activity_testset.csv 0.4618948
```

```

## [1] "correlation with TRICiribine..an AKT inhibitor"
## [1]
## adap150/pathway_activity_testset.csv 0.293473
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.3702612
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.3257964
## [1] "correlation with Everolimus..an mtor inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.5370155
## [1] "correlation with Temsirolimus..an mtor inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.3528568
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.6768158
## [1] "correlation with GSK2126458..an AKT inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.4610124
## [1] "correlation with TRICiribine..an AKT inhibitor"
## [1]
## adap200/pathway_activity_testset.csv 0.3141512
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.3834742
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.3467822
## [1] "correlation with Everolimus..an mtor inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.52832
## [1] "correlation with Temsirolimus..an mtor inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.3493714
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.6667035
## [1] "correlation with GSK2126458..an AKT inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.4349407
## [1] "correlation with TRICiribine..an AKT inhibitor"
## [1]
## adap250/pathway_activity_testset.csv 0.3121255
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
## [1]
## adap300/pathway_activity_testset.csv 0.4221425
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
## [1]
## adap300/pathway_activity_testset.csv 0.3530255
## [1] "correlation with Everolimus..an mtor inhibitor"
## [1]
## adap300/pathway_activity_testset.csv 0.5006169

```

```

## [1] "correlation with Temsirolimus..an mtor inhibitor"
##          [,1]
## adap300/pathway_activity_testset.csv 0.3393117
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##          [,1]
## adap300/pathway_activity_testset.csv 0.6383403
## [1] "correlation with GSK2126458..an AKT inhibitor"
##          [,1]
## adap300/pathway_activity_testset.csv 0.44684
## [1] "correlation with TRICiribine..an AKT inhibitor"
##          [,1]
## adap300/pathway_activity_testset.csv 0.3360668
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.3463457
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.3137697
## [1] "correlation with Everolimus..an mtor inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.5380552
## [1] "correlation with Temsirolimus..an mtor inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.3370438
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.6819068
## [1] "correlation with GSK2126458..an AKT inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.4625143
## [1] "correlation with TRICiribine..an AKT inhibitor"
##          [,1]
## nonadap150/pathway_activity_testset.csv 0.2898717
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.3721543
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.3284038
## [1] "correlation with Everolimus..an mtor inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.5335096
## [1] "correlation with Temsirolimus..an mtor inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.3540268
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.6751387
## [1] "correlation with GSK2126458..an AKT inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.4629945
## [1] "correlation with TRICiribine..an AKT inhibitor"
##          [,1]
## nonadap200/pathway_activity_testset.csv 0.3190478

```

```

## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.3811757
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.3465944
## [1] "correlation with Everolimus..an mtor inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.5269346
## [1] "correlation with Temsirolimus..an mtor inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.3485555
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.667281
## [1] "correlation with GSK2126458..an AKT inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.4350071
## [1] "correlation with TRICiribine..an AKT inhibitor"
##                                     [,1]
## nonadap250/pathway_activity_testset.csv 0.3131079
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.4209882
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.3553122
## [1] "correlation with Everolimus..an mtor inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.4982114
## [1] "correlation with Temsirolimus..an mtor inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.3379032
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.6354881
## [1] "correlation with GSK2126458..an AKT inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.4465106
## [1] "correlation with TRICiribine..an AKT inhibitor"
##                                     [,1]
## nonadap300/pathway_activity_testset.csv 0.3381358
## [1] "correlation with Lapatinib..an EGFR/HER2 inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv 0.2494252
## [1] "correlation with BEZ235..a pi3k/mtor inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv -0.1323808
## [1] "correlation with Everolimus..an mtor inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv 0.2461112
## [1] "correlation with Temsirolimus..an mtor inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv -0.01908804

```

```
## [1] "correlation with Sigma AKT1/2..an AKT inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv 0.2101094
## [1] "correlation with GSK2126458..an AKT inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv 0.3244531
## [1] "correlation with TRICiribine..an AKT inhibitor"
##                                     [,1]
## nonadap_cov150/pathway_activity_testset.csv 0.3169785
```

If you are interested in signature gene matrix...

Now correlating with CNV data...

```
## [1] "pearson's correlation between AKT1 CNV and adap150/pathway_activity_testset.csv"
## [1] 0.2581194
## [1] "pearson's correlation between AKT1 CNV and adap200/pathway_activity_testset.csv"
## [1] 0.2417857
## [1] "pearson's correlation between AKT1 CNV and adap250/pathway_activity_testset.csv"
## [1] 0.2428267
## [1] "pearson's correlation between AKT1 CNV and adap300/pathway_activity_testset.csv"
## [1] 0.2339479
## [1] "pearson's correlation between AKT1 CNV and nonadap150/pathway_activity_testset.csv"
## [1] 0.256422
## [1] "pearson's correlation between AKT1 CNV and nonadap200/pathway_activity_testset.csv"
## [1] 0.2409045
## [1] "pearson's correlation between AKT1 CNV and nonadap250/pathway_activity_testset.csv"
## [1] 0.2464751
## [1] "pearson's correlation between AKT1 CNV and nonadap300/pathway_activity_testset.csv"
## [1] 0.231156
## [1] "pearson's correlation between AKT1 CNV and nonadap_cov150/pathway_activity_testset.csv"
## [1] 0.04303052
```

This analysis was run on Thu Dec 18 17:07:20 2014