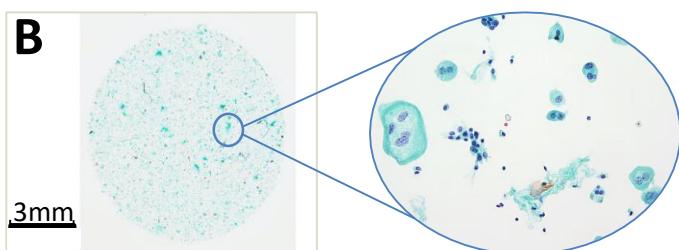
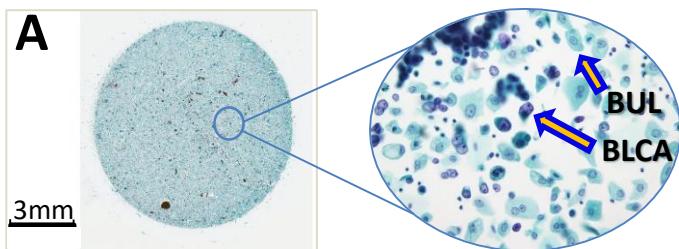


## Supplementary Figure. 1



## Supplementary Figure. 2

### Selection of protein markers candidates for immunostaining validation

#### Liquid-Based Cytology

BUL (n=10) vs BLCA (n=10)  
DEPs (adjusted p-value)  
: 112 proteins

Cross filtering

11 proteins

#### FFPE tissue

Cystitis cystica (n=3) vs BLCA (n=3)  
DEPs (adjusted p-value < 0.05, fold change 2.0)  
: 758 proteins

Cross filtering

#### TCGA mRNASeq

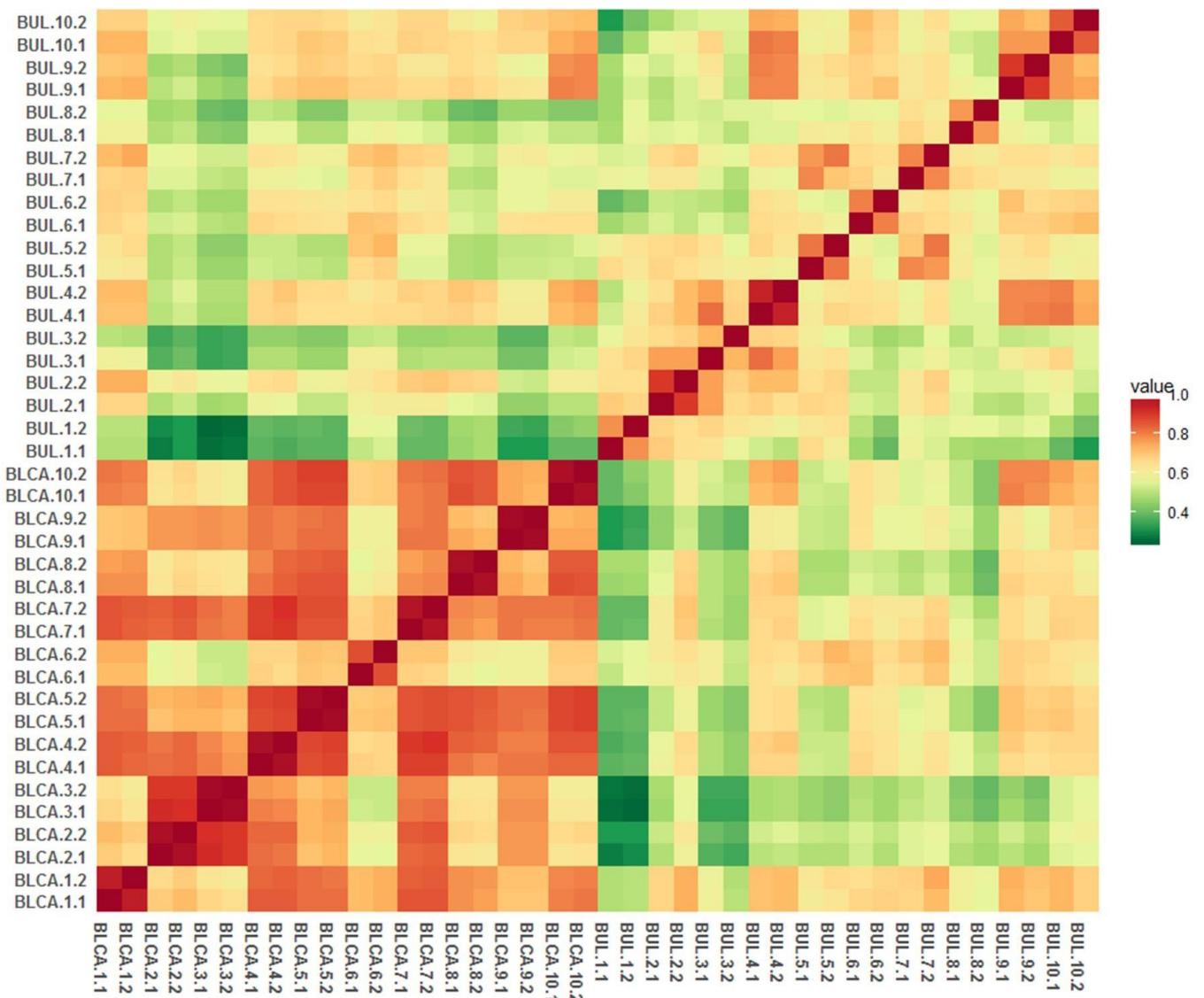
BUL (n=19) vs BLCA (n=408)  
DEGs (adjusted p-value <0.05)  
: 4,244 genes

4 proteins

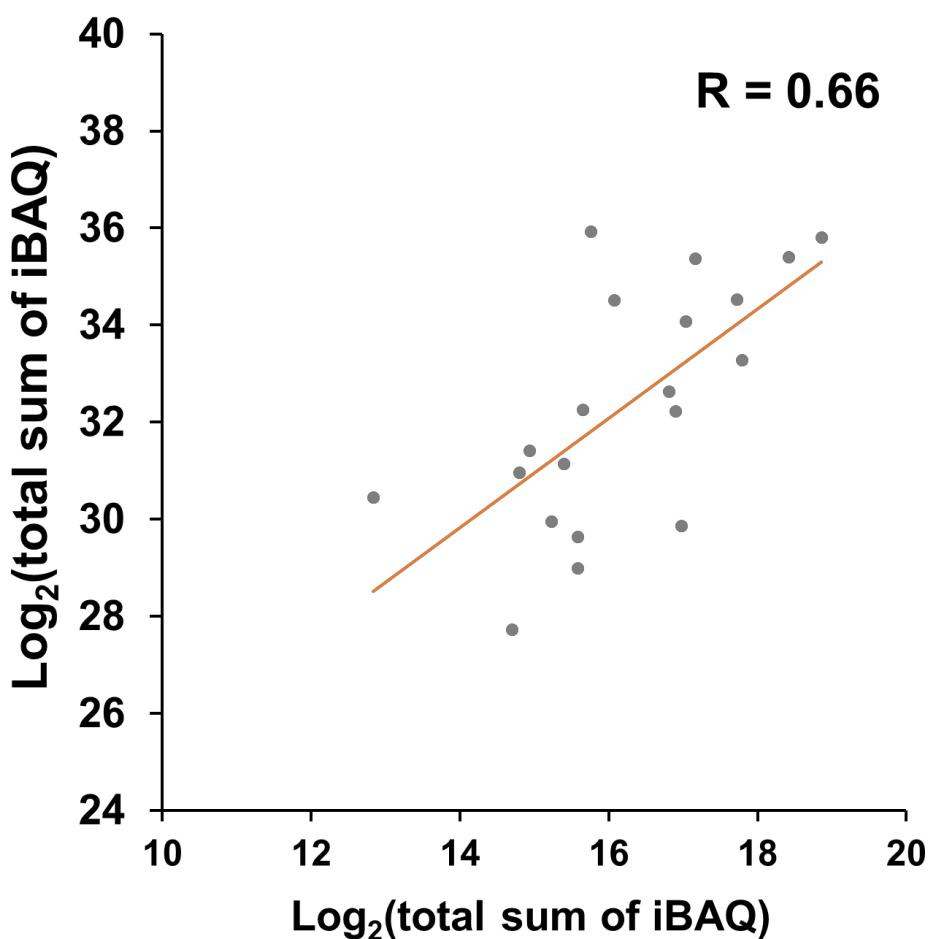
#### Additional selection criteria

1. Same protein expression patterns across 3 datasets
2. Assessment of discrimination power by ROC analysis (TCGA mRNASeq data)
3. Fold-change cut-off (2-fold changes in mRNASeq data)
4. Virtual validation of relationship between protein marker candidates and BLCA outcomes using Cancer database (SurvExpress & Human Protein Atlas database)
5. Evaluation of Immunohistochemical staining pattern using external source (Human Protein Atlas database)
6. Evaluation of Immunohistochemical staining pattern by experiments in LBC samples (n=5) and FFPE samples (n=25)

# Supplementary Figure. 3

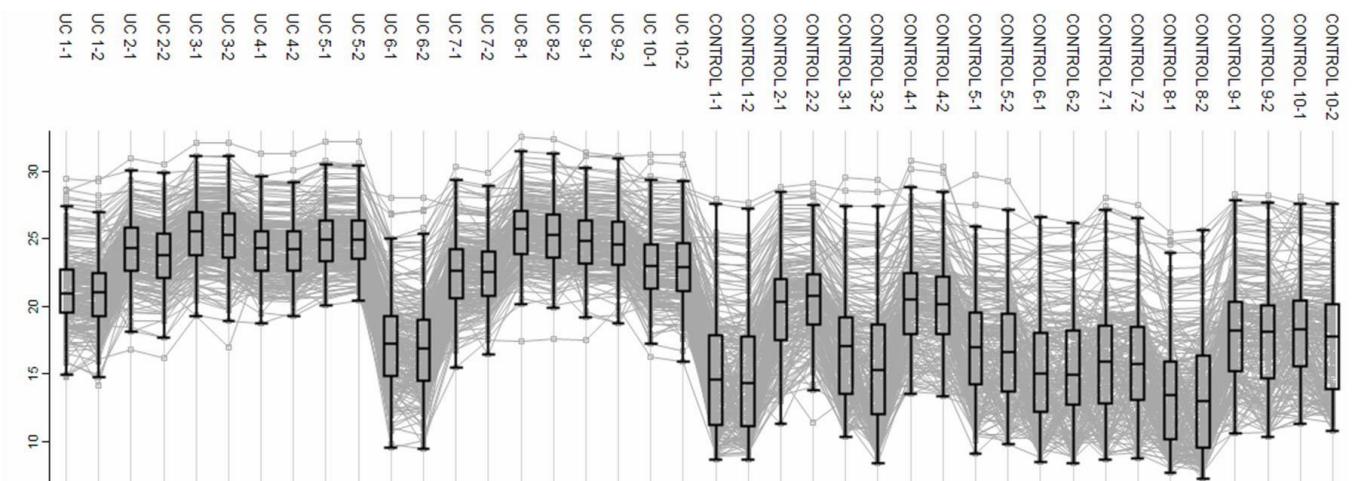


## Supplementary Figure. 4

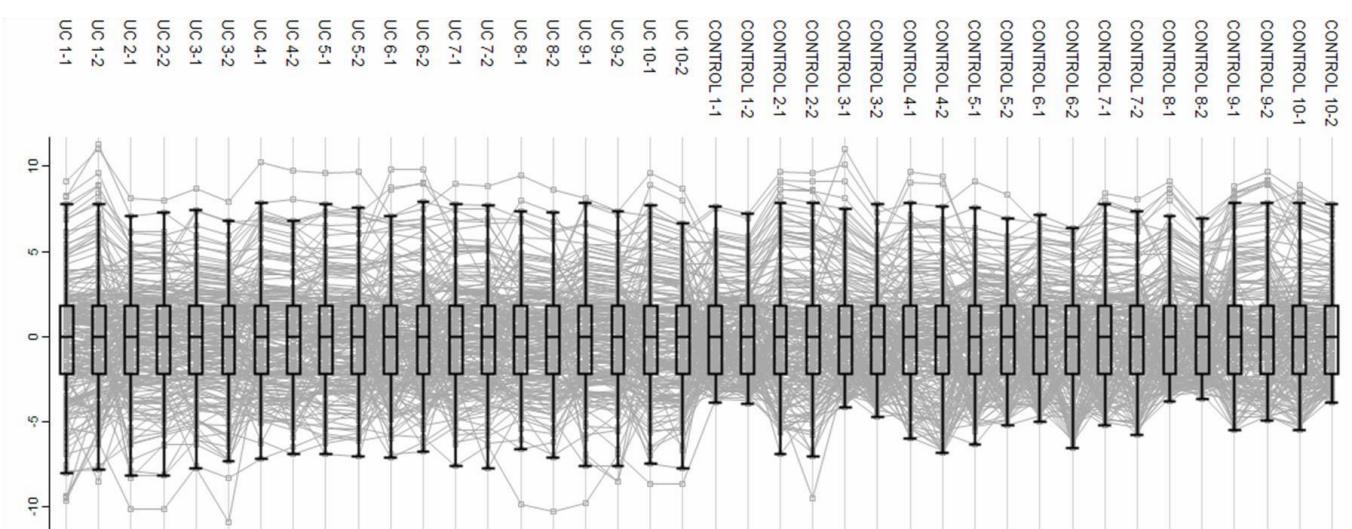


# Supplementary Figure. 5

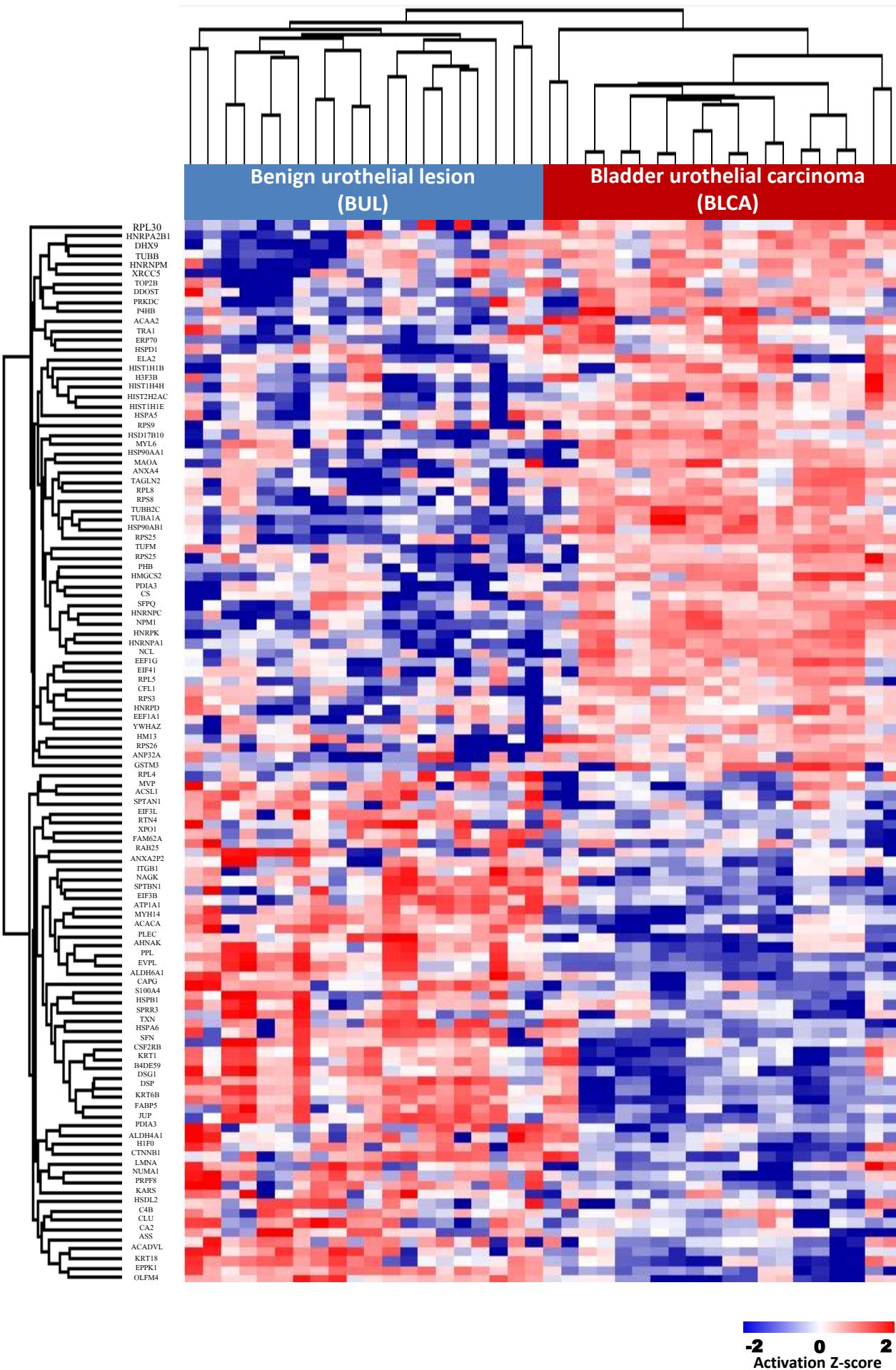
## A Before normalization



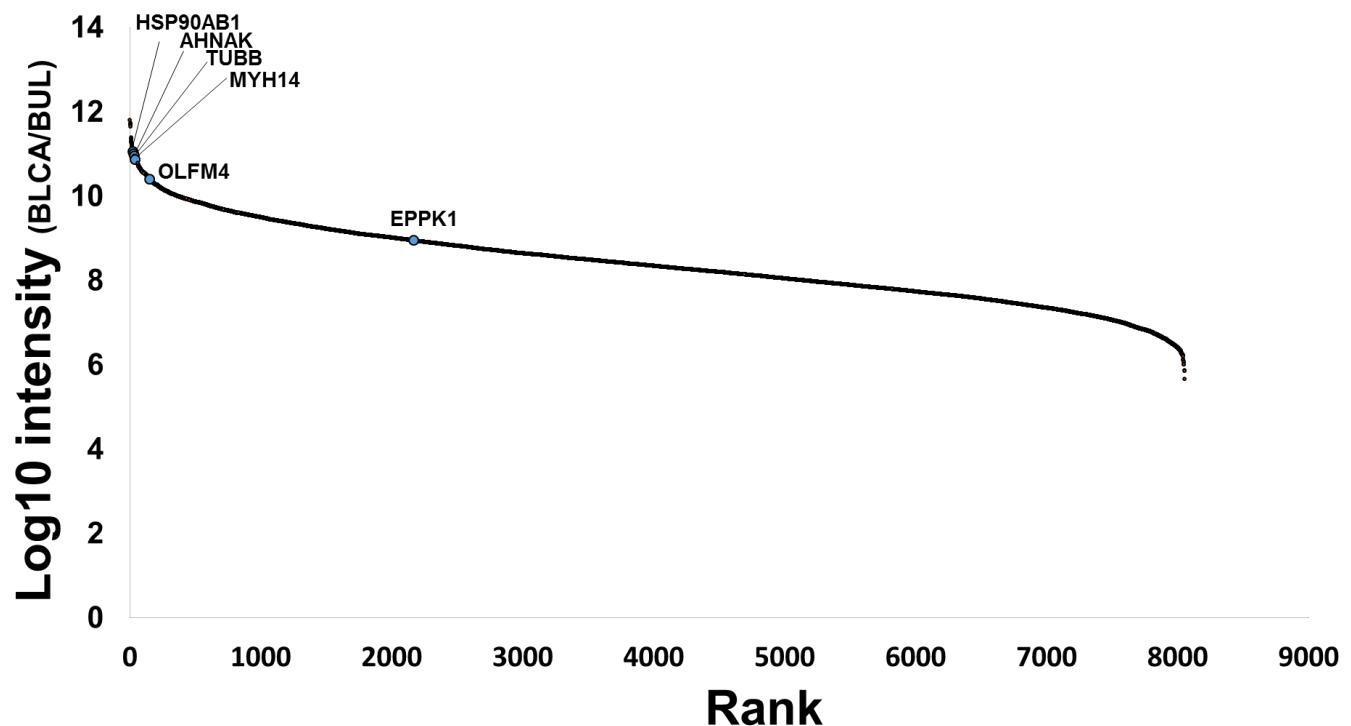
## B After normalization



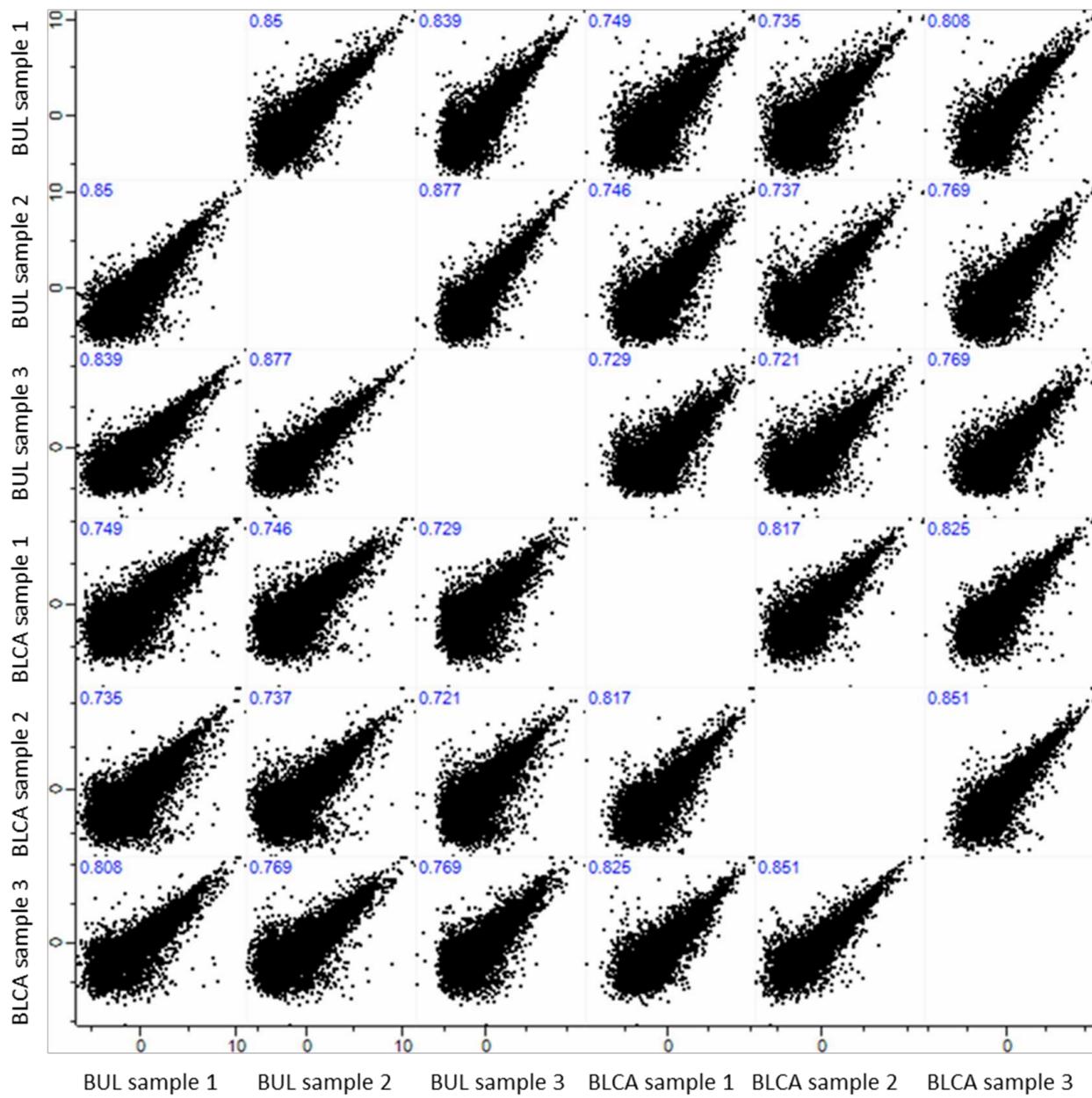
# Supplementary Figure. 6



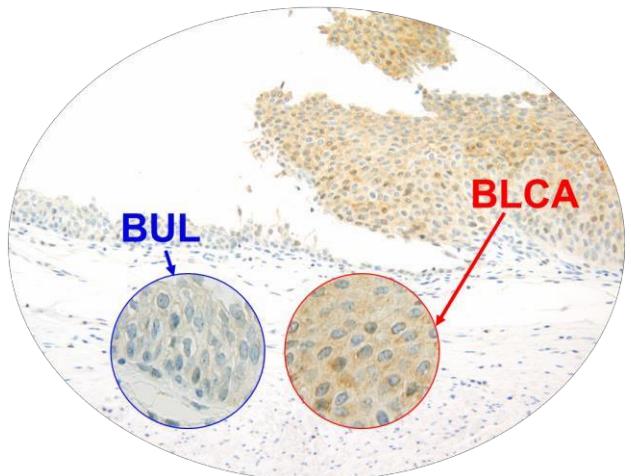
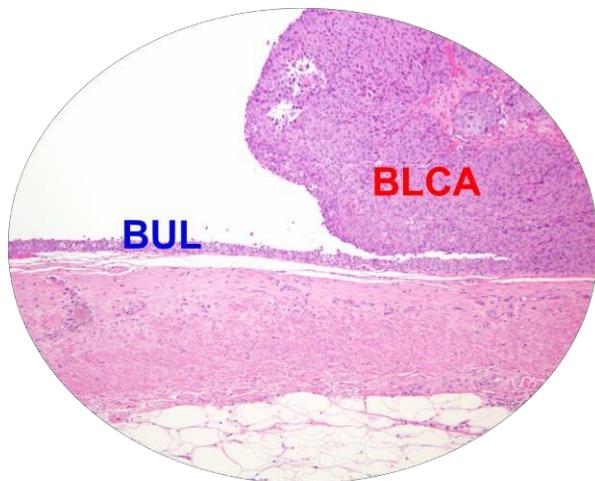
## Supplementary Figure. 7



## Supplementary Figure. 8



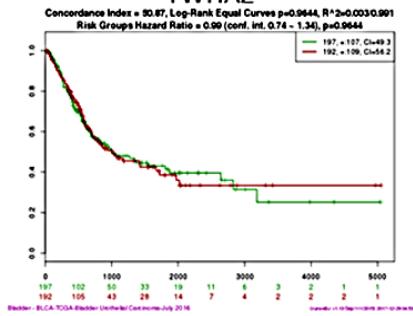
## Supplementary Figure. 9



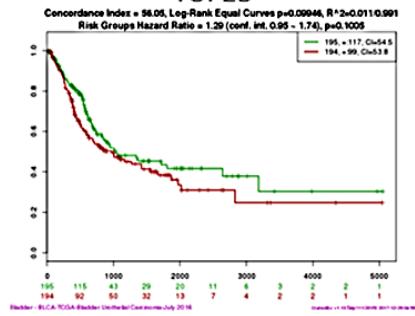
# Supplementary Figure. 10

## SurvExpress dataset

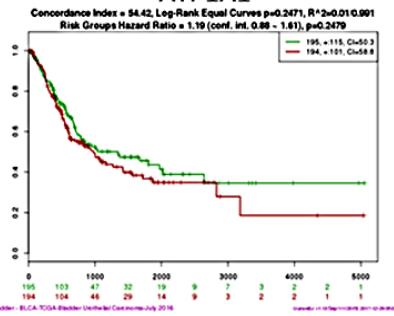
**YWHAZ**



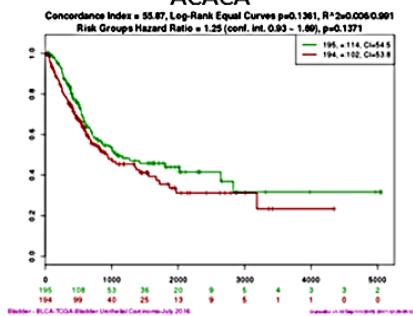
**TOP2B**



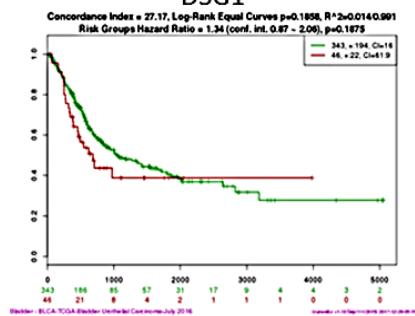
**ATP1A1**



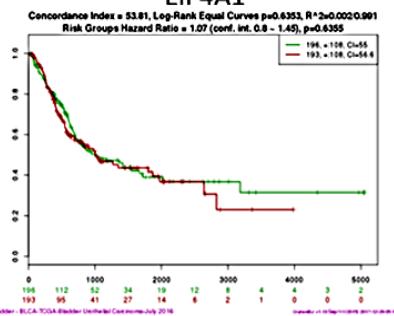
**ACACA**



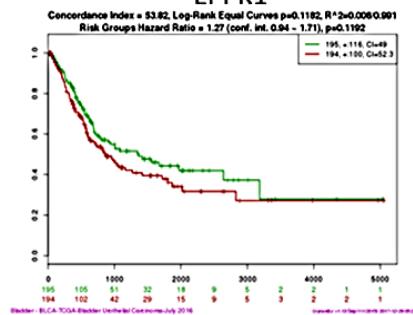
**DSG1**



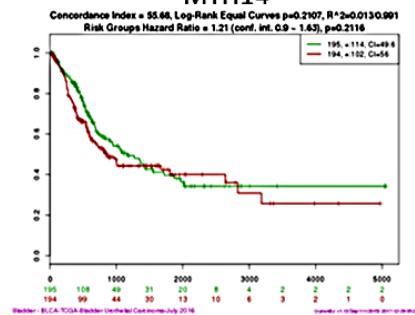
**EIF4A1**



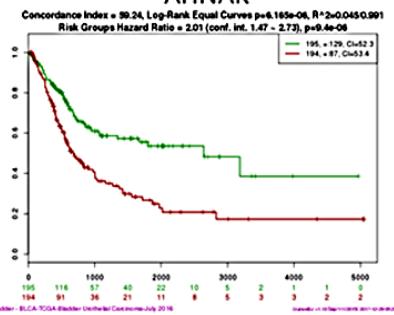
**EPPK1**



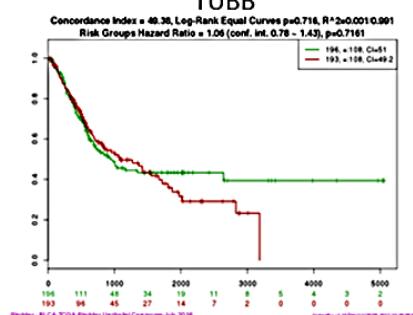
**MYH14**



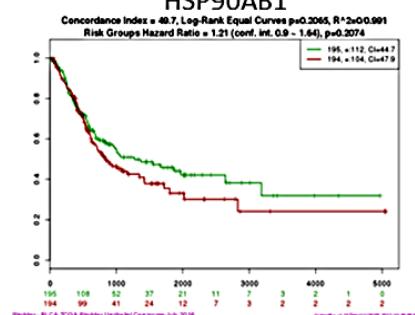
**AHNAK**



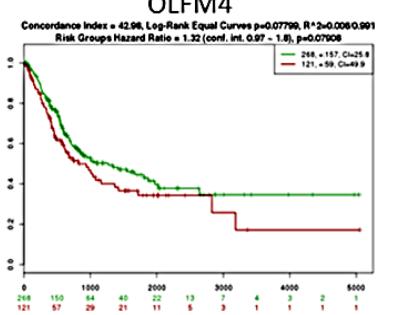
**TUBB**



**HSP90AB1**



**OLFM4**



# Supplementary Figure. 11

## Human Protein Atlas data set

