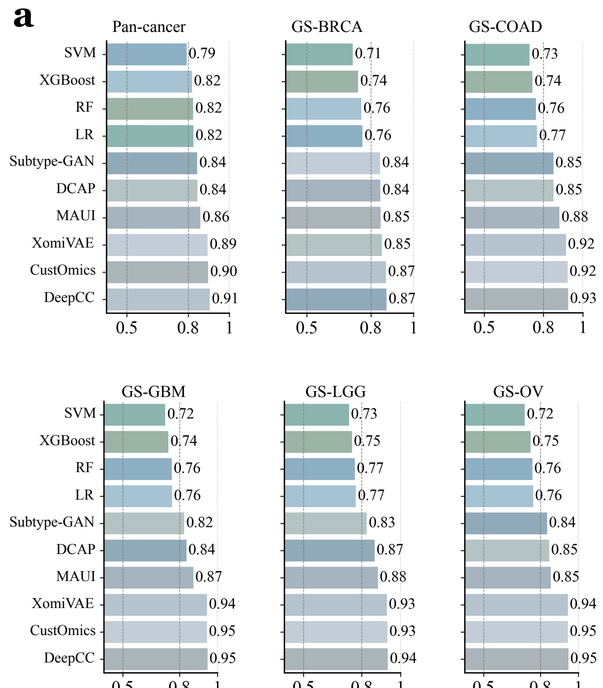
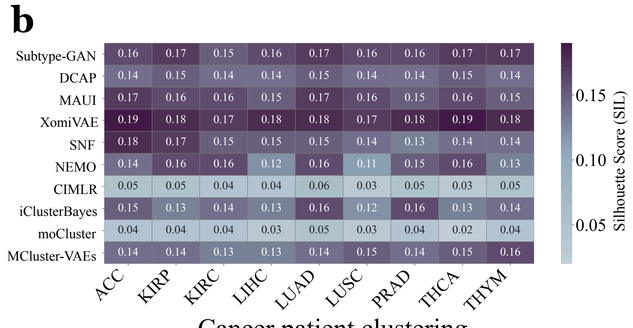
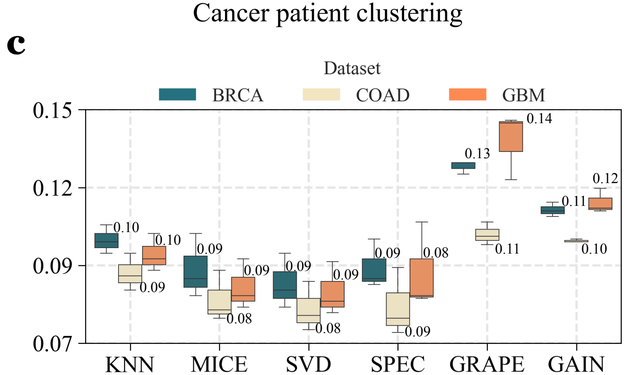
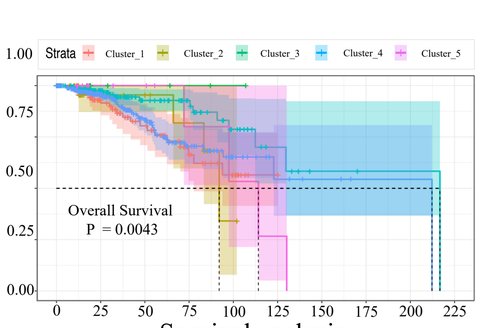
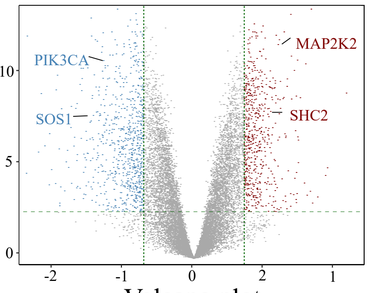
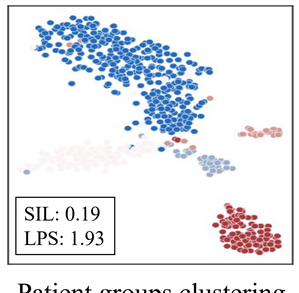

a
Pan-cancer
GS-BRCA
GS-COAD
GS-GBM
GS-LGG
GS-OV
SVM
XGBoost
RF
LR
Subtype-GAN
DCAP
MAUI
XomiVAE
CustOmics
DeepCC
0.5
0.8
1
Patient classification (Pan-cancer & GS subtypes)

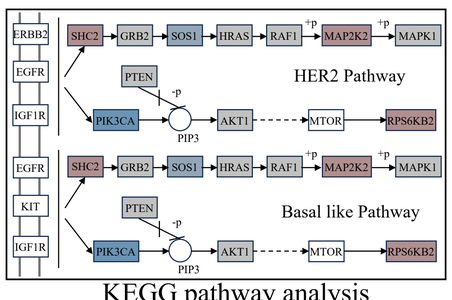

b
Subtype-GAN
DCAP
MAUI
XomiVAE
SNF
NEMO
CIMLR
iClusterBayes
moCluster
MCluster-VAEs
ACC
KIRP
KIRC
LIHC
LUAD
LUSC
PRAD
THCA
THYM
Silhouette Score (SIL)
Cancer patient clustering

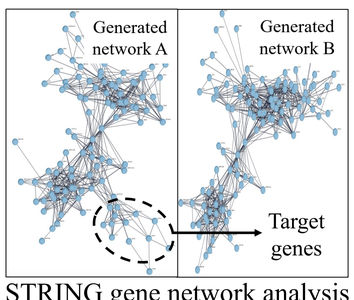

c
Dataset
BRCA
COAD
GBM
KNN
MICE
SVD
SPEC
GRAPE
GAIN
Missing data imputation

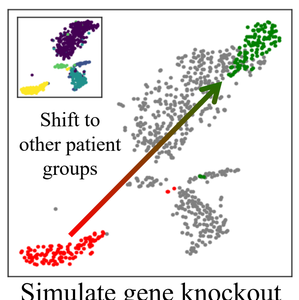

d
Strata
Cluster_1
Cluster_2
Cluster_3
Cluster_4
Cluster_5
Overall Survival
P = 0.0043
Survival analysis


PIK3CA
SOS1
MAP2K2
SHC2
Volcano plot


SIL: 0.19
LPS: 1.93
Patient groups clustering


e
ERBB2
EGFR
IGF1R
SHC2
GRB2
SOS1
HRAS
RAF1
MAP2K2
MAPK1
PTEN
PIK3CA
AKT1
MTOR
RPS6KB2
PIP3
HER2 Pathway
KIT
Basal like Pathway
KEGG pathway analysis


Generated network A
Generated network B
Target genes
STRING gene network analysis


Shift to other patient groups
Simulate gene knockout