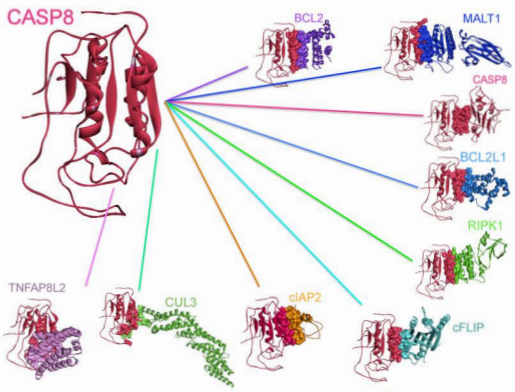
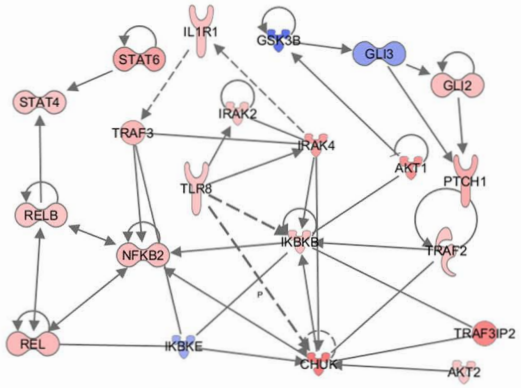
A. Protein Interaction with molecules identified in HNSCC TCGA



B. Previous knowledge of NF-κB and TNF pathways



C. Generated gene list

61 gene list

D. Searched through data sets

HNSCC TCGA

E. Compared between cancer types

Pan TCGA

F. Experimental data

Cross validation

RNA-seq

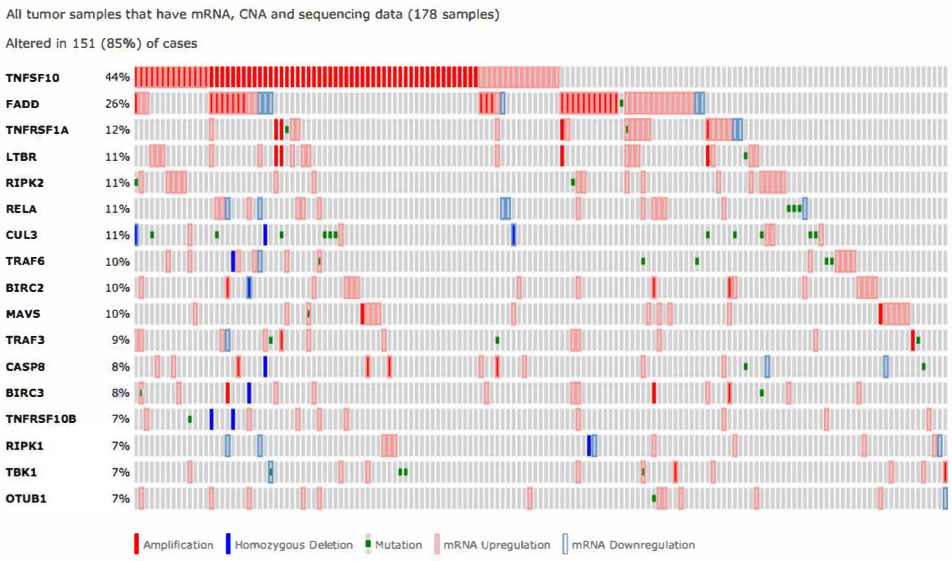
Microarray

Gene BLAzer

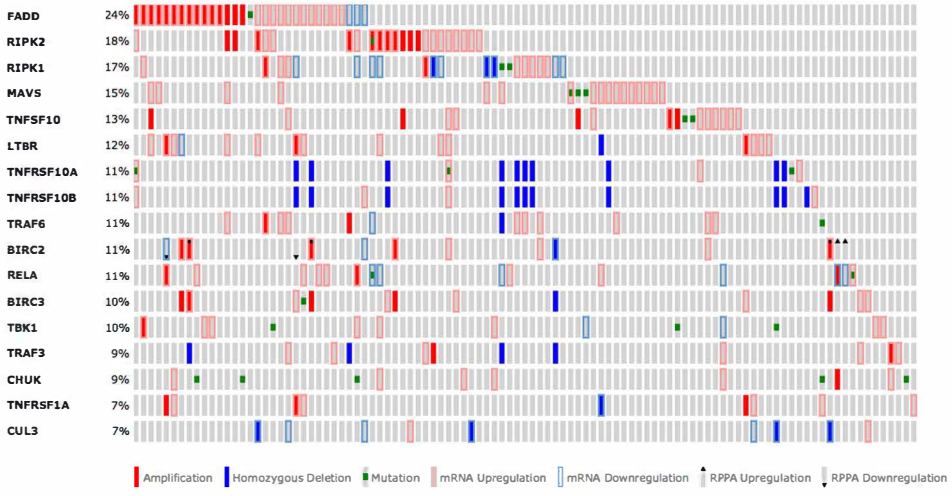
Function assay

Suppl Fig 1

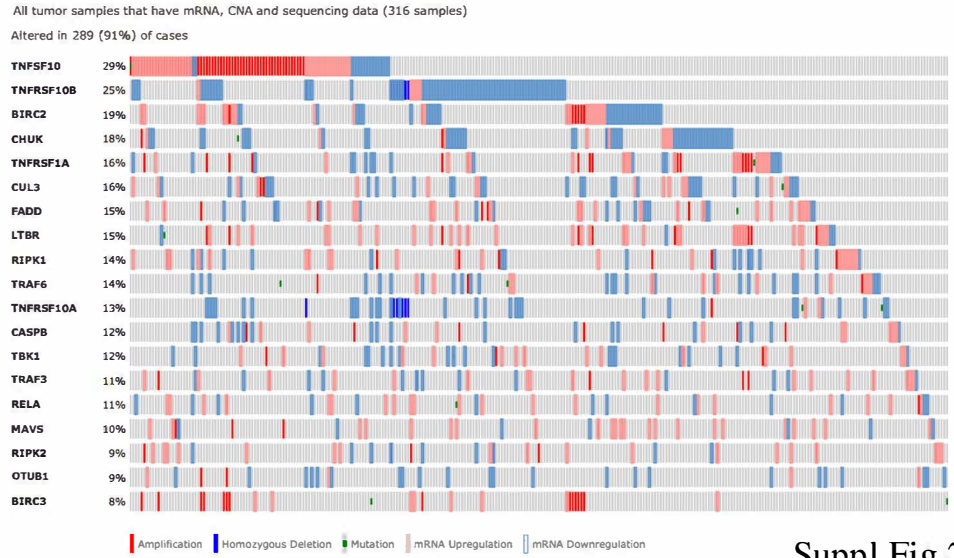
A Lung Squamous Cell Carcinoma



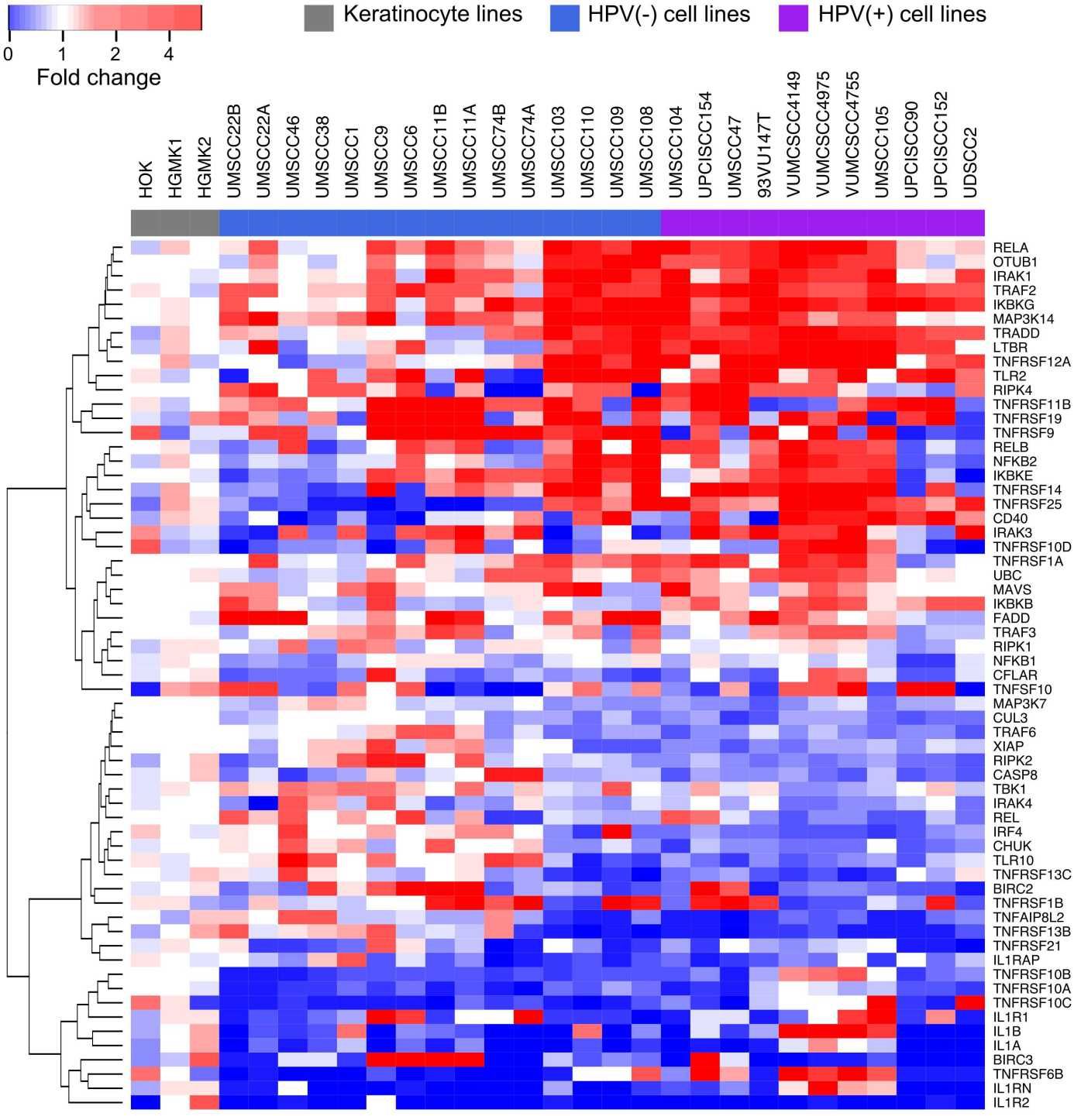
B Bladder Squamous Cell Carcinoma



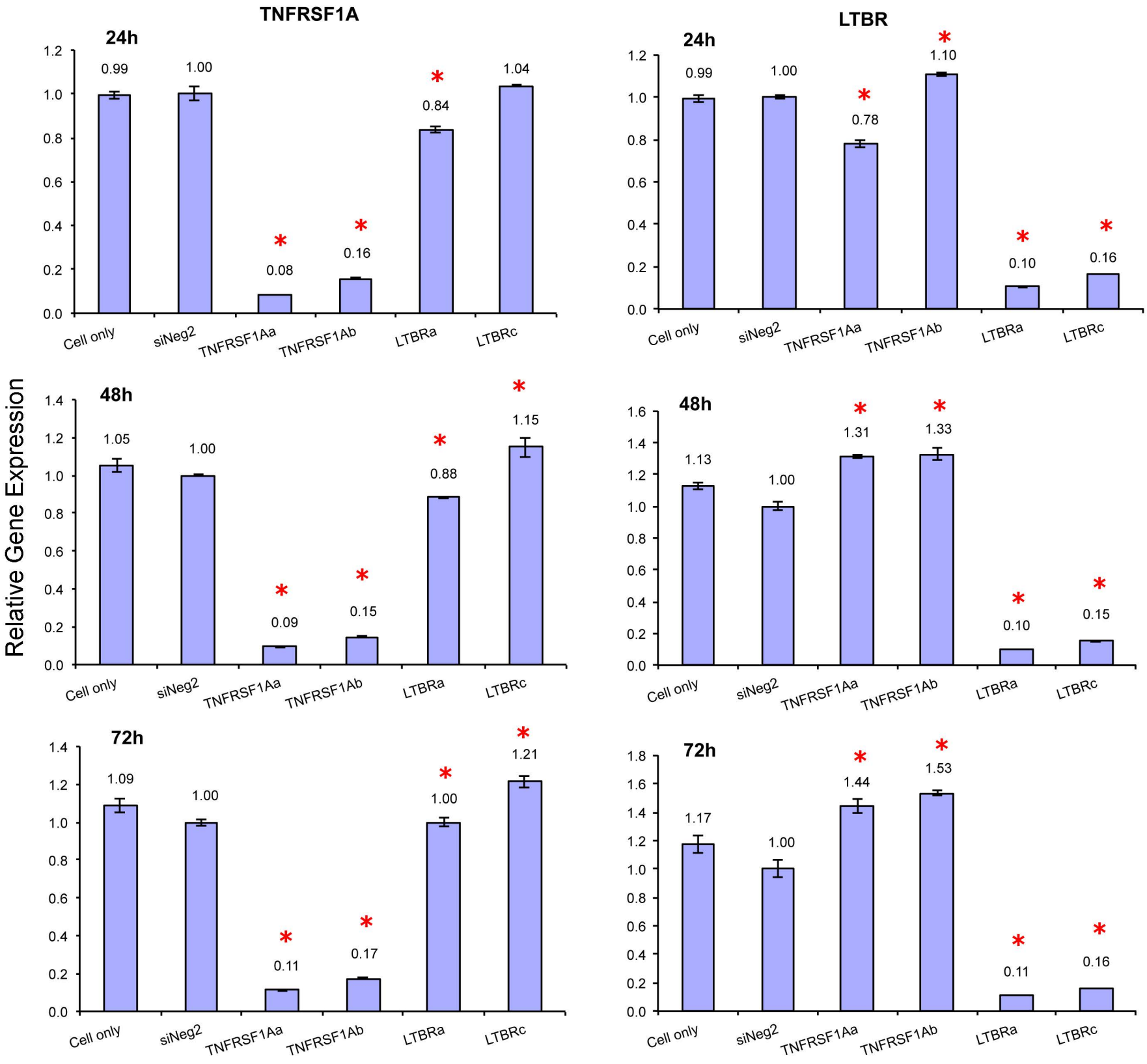
C Ovarian Cancer



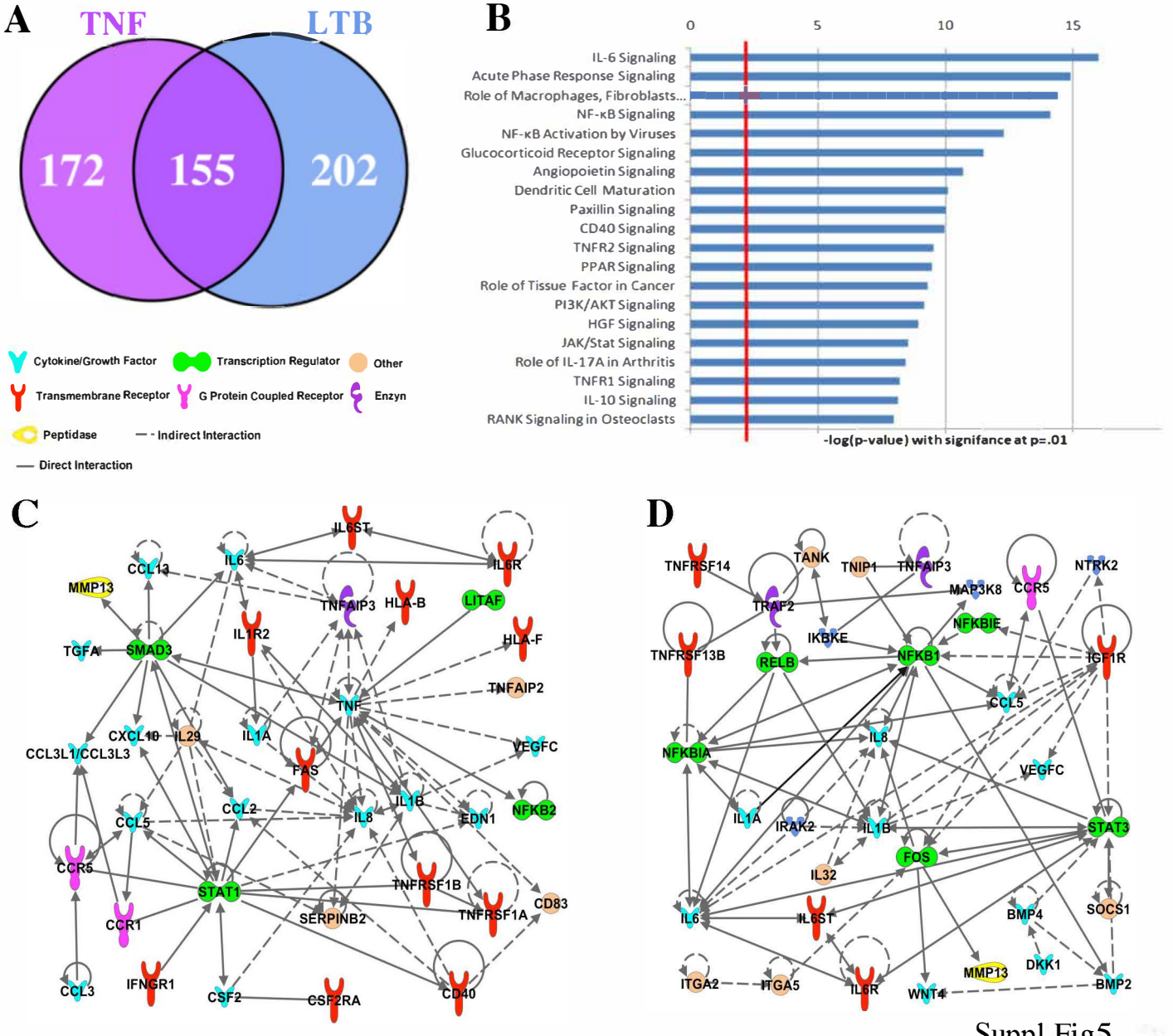
Suppl Fig 2


Keratinocyte lines
HPV(-) cell lines
HPV(+) cell lines
0
1
2
4
Fold change
HOK
HGMK1
HGMK2
UMSCC22B
UMSCC22A
UMSCC46
UMSCC38
UMSCC1
UMSCC9
UMSCC6
UMSCC11B
UMSCC11A
UMSCC74B
UMSCC74A
UMSCC103
UMSCC110
UMSCC109
UMSCC108
UMSCC104
UPCISCC154
UMSCC47
93VU147T
VUMCSCC4149
VUMCSCC4975
VUMCSCC4755
UMSCC105
UPCISCC90
UPCISCC152
UDSCC2
RELA
OTUB1
IRAK1
TRAF2
IKBKG
MAP3K14
TRADD
LTBR
TNFRSF12A
TLR2
RIPK4
TNFRSF11B
TNFRSF19
TNFRSF9
RELB
NFKB2
IKBKE
TNFRSF14
TNFRSF25
CD40
IRAK3
TNFRSF10D
TNFRSF1A
UBC
MAVS
IKBKB
FADD
TRAF3
RIPK1
NFKB1
CFLAR
TNFSF10
MAP3K7
CUL3
TRAF6
XIAP
RIPK2
CASP8
TBK1
IRAK4
REL
IRF4
CHUK
TLR10
TNFRSF13C
BIRC2
TNFRSF1B
TNFAIP8L2
TNFRSF13B
TNFRSF21
IL1RAP
TNFRSF10B
TNFRSF10A
TNFRSF10C
IL1R1
IL1B
IL1A
BIRC3
TNFRSF6B
IL1RN
IL1R2

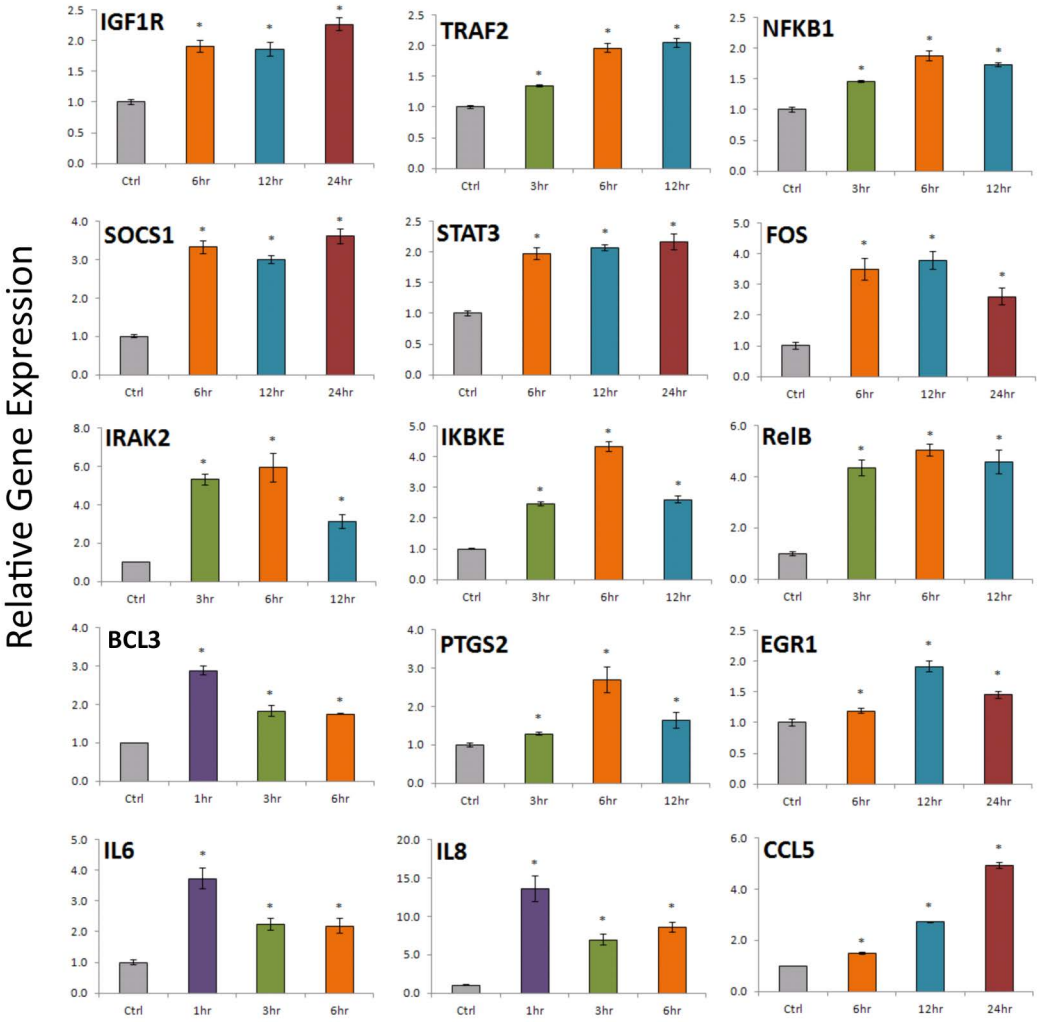
Suppl Fig 3


TNFRSF1A
24h
0.99
1.00
0.08
0.16
0.84
1.04
LTBR
24h
0.99
1.00
0.78
1.10
0.10
0.16
48h
1.05
1.00
0.09
0.15
0.88
1.15
48h
1.13
1.00
1.31
1.33
0.10
0.15
72h
1.09
1.00
0.11
0.17
1.00
1.21
72h
1.17
1.00
1.44
1.53
0.11
0.16
Cell only
siNeg2
TNFRSF1Aa
TNFRSF1Ab
LTBRa
LTBRc
Relative Gene Expression
siRNA

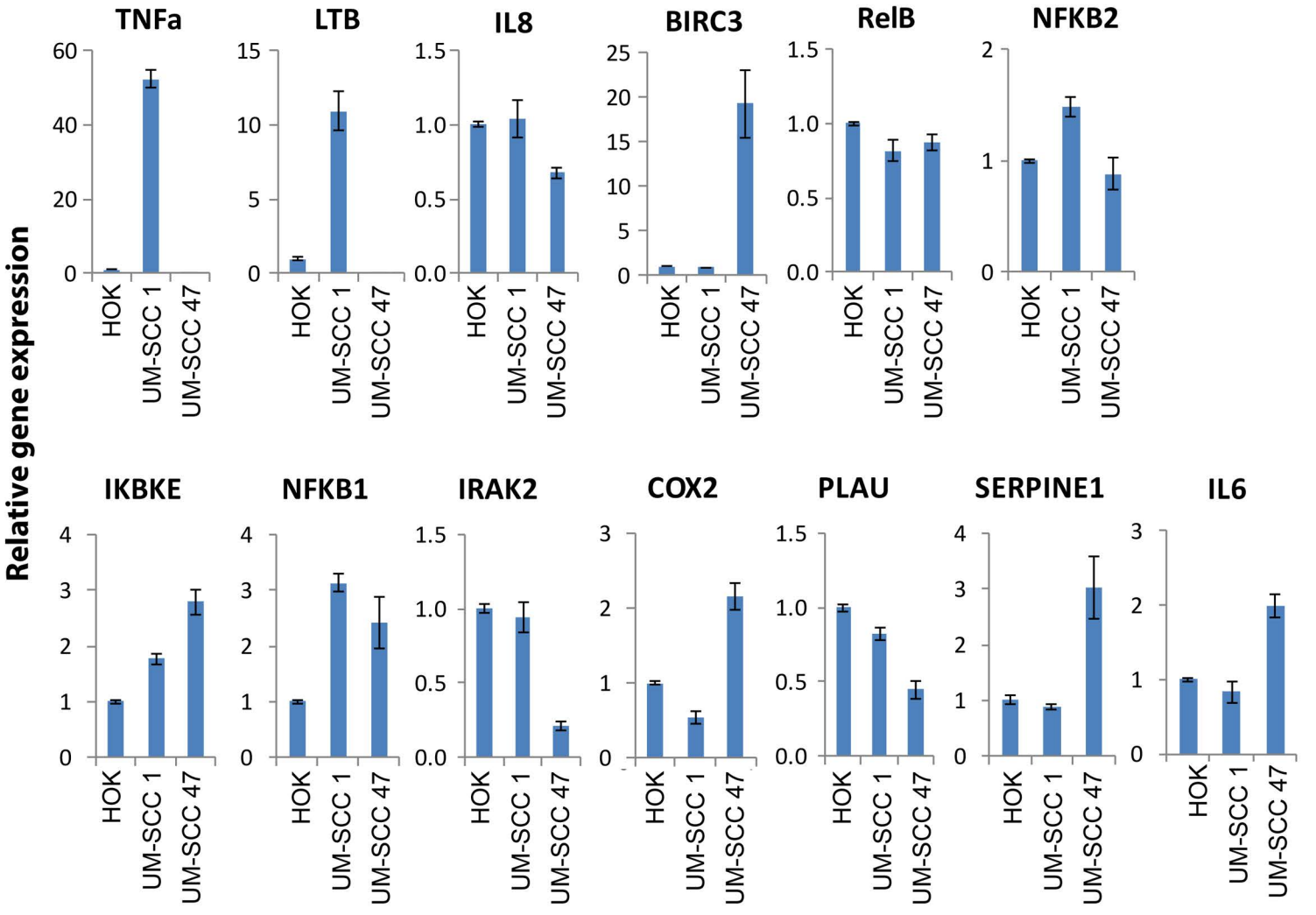
Suppl Fig 4


A
TNF
LTB
172
155
202
Cytokine/Growth Factor
Transcription Regulator
Other
Transmembrane Receptor
G Protein Coupled Receptor
Enzyn
Peptidase
Indirect Interaction
Direct Interaction
B
0
5
10
15
IL-6 Signaling
Acute Phase Response Signaling
Role of Macrophages, Fibroblasts...
NF-κB Signaling
NF-κB Activation by Viruses
Glucocorticoid Receptor Signaling
Angiopoietin Signaling
Dendritic Cell Maturation
Paxillin Signaling
CD40 Signaling
TNFR2 Signaling
PPAR Signaling
Role of Tissue Factor in Cancer
PI3K/AKT Signaling
HGF Signaling
JAK/Stat Signaling
Role of IL-17A in Arthritis
TNFR1 Signaling
IL-10 Signaling
RANK Signaling in Osteoclasts
-log(p-value) with signifance at p=.01
C
IL6ST
IL6
IL6R
CCL13
MMP13
TNFAIP3
HLA-B
LITAF
IL1R2
HLA-F
TGFA
SMAD3
TNFAIP2
TNF
CXCL10
IL29
IL1A
VEGFC
CCL3L1/CCL3L3
FAS
CCL2
IL1B
NFKB2
CCL5
IL8
EDN1
CCR5
STAT1
TNFRSF1B
CD83
CCR1
SERPINB2
TNFRSF1A
CCL3
IFNGR1
CSF2
CSF2RA
CD40
D
TNFRSF14
TANK
TNIP1
TNFAIP3
MAP3K8
CCR5
NTRK2
TRAF2
NFKBIE
IKBKE
TNFRSF13B
RELB
NFKB1
IGF1R
CCL5
NFKBIA
IL8
VEGFC
IL1A
IRAK2
IL1B
STAT3
FOS
IL32
IL6
IL6ST
BMP4
SOCS1
MMP13
DKK1
ITGA2
ITGA5
IL6R
WNT4
BMP2

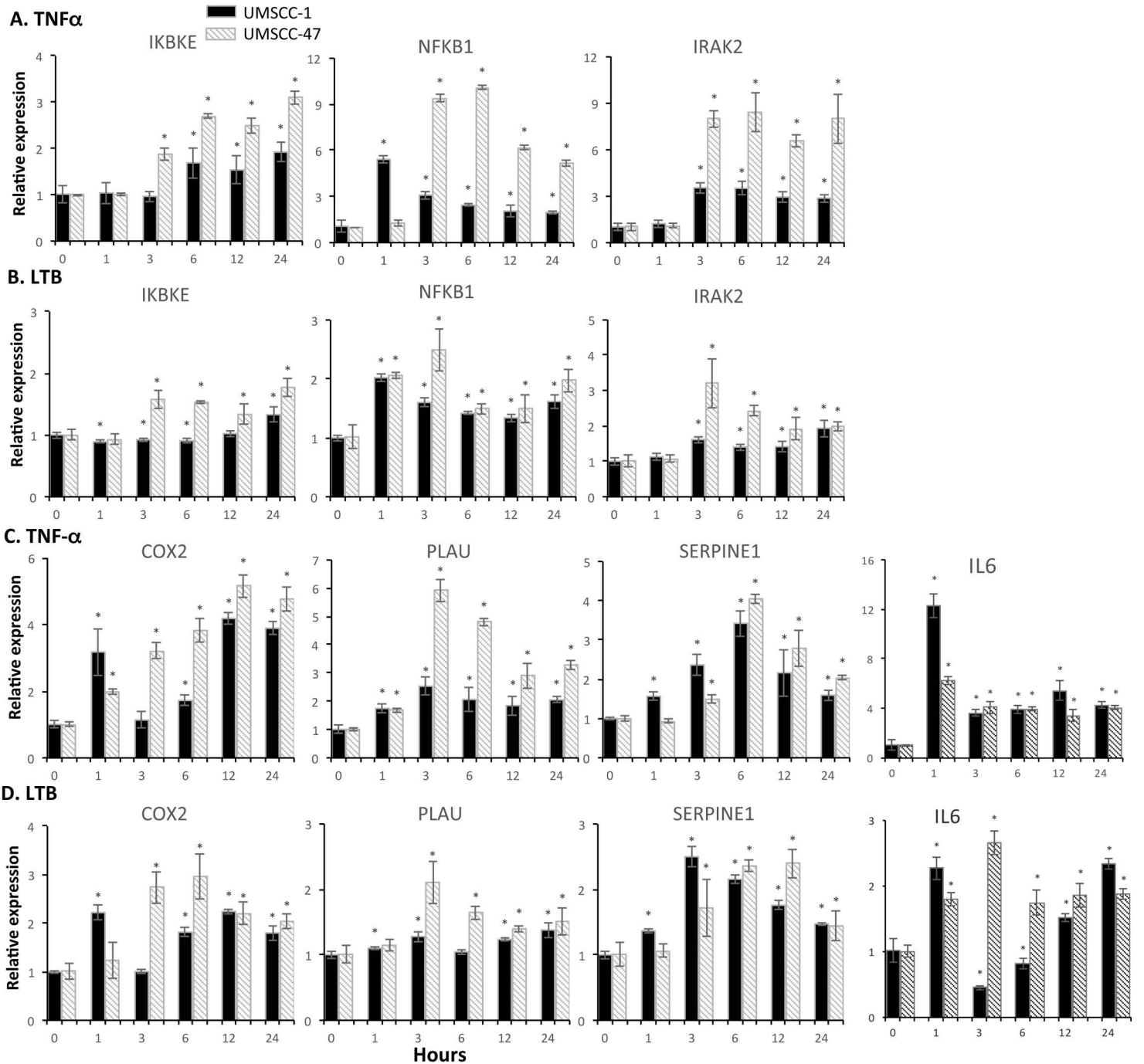
Suppl Fig5


Relative Gene Expression
IGF1R
Ctrl
6hr
12hr
24hr
TRAF2
Ctrl
3hr
6hr
12hr
NFKB1
Ctrl
3hr
6hr
12hr
SOCS1
Ctrl
6hr
12hr
24hr
STAT3
Ctrl
6hr
12hr
24hr
FOS
Ctrl
6hr
12hr
24hr
IRAK2
Ctrl
3hr
6hr
12hr
IKBKE
Ctrl
3hr
6hr
12hr
RelB
Ctrl
3hr
6hr
12hr
BCL3
Ctrl
1hr
3hr
6hr
PTGS2
Ctrl
3hr
6hr
12hr
EGR1
Ctrl
6hr
12hr
24hr
IL6
Ctrl
1hr
3hr
6hr
IL8
Ctrl
1hr
3hr
6hr
CCL5
Ctrl
6hr
12hr
24hr
Hours

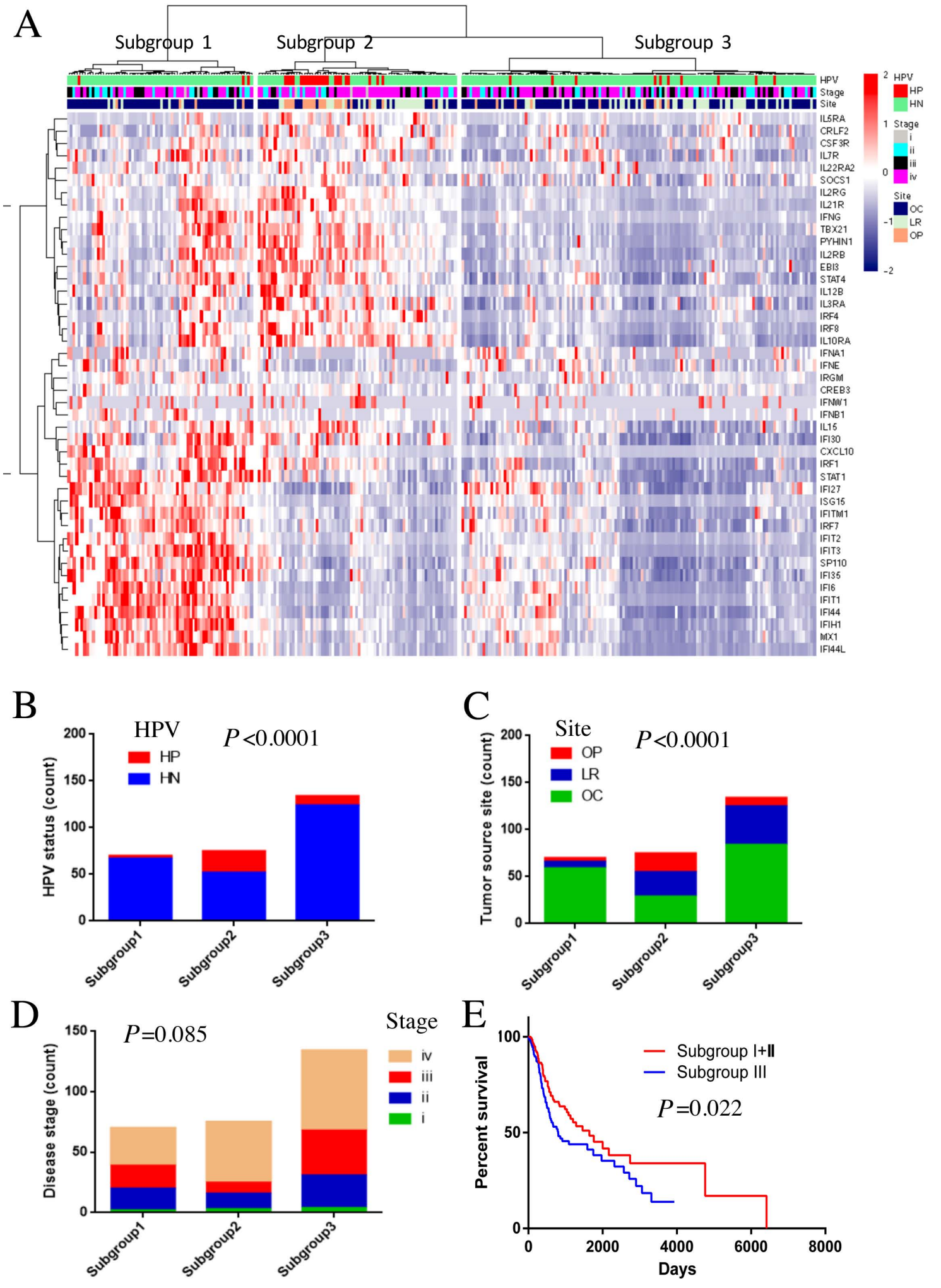
Suppl Fig 6


Relative gene expression
TNFa
LTB
IL8
BIRC3
RelB
NFKB2
IKBKE
NFKB1
IRAK2
COX2
PLAU
SERPINE1
IL6
HOK
UM-SCC 1
UM-SCC 47

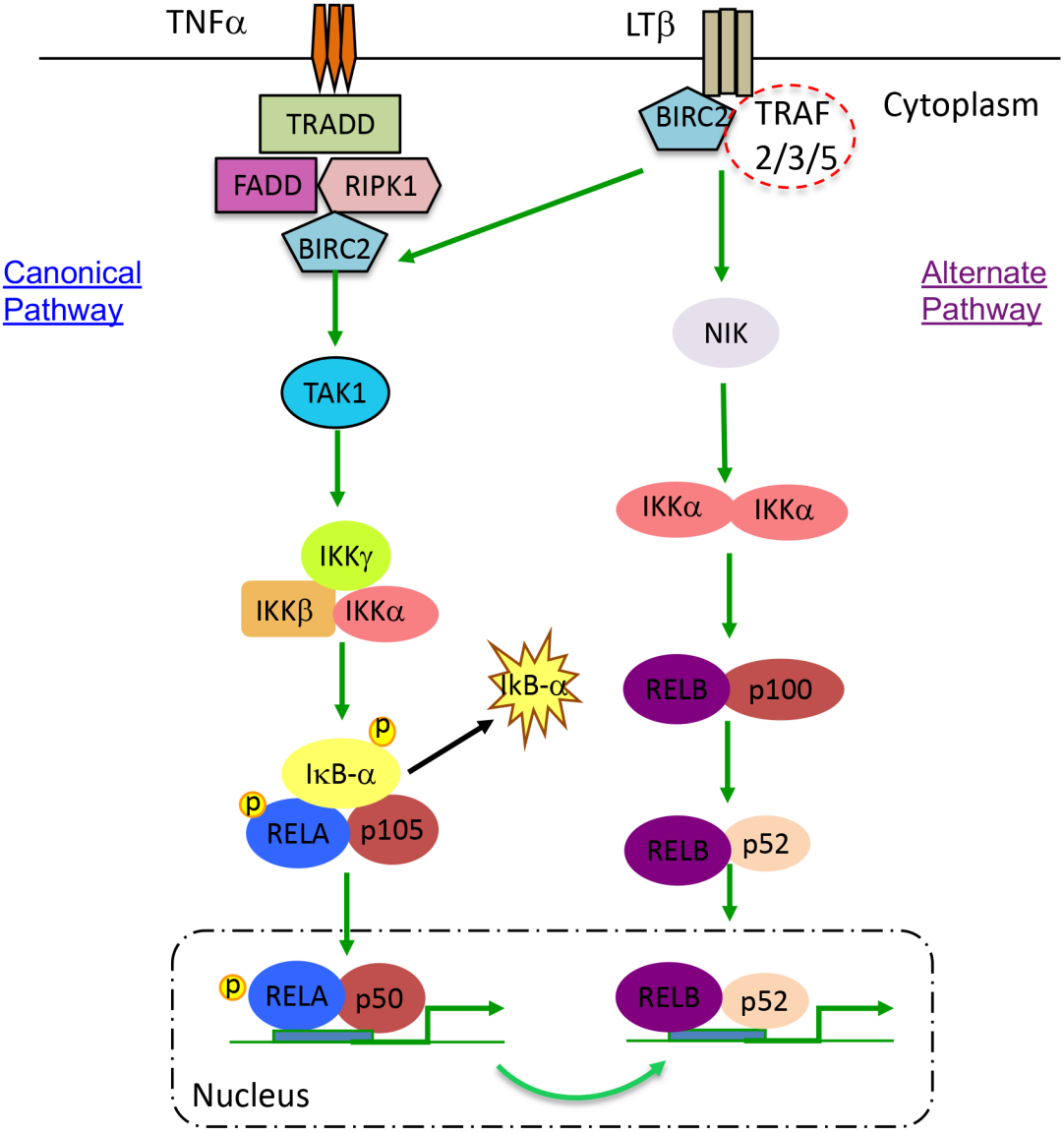
Suppl Fig 7


A. TNFα
UMSCC-1
UMSCC-47
IKBKE
NFKB1
IRAK2
Relative expression
B. LTB
IKBKE
NFKB1
IRAK2
Relative expression
C. TNF-α
COX2
PLAU
SERPINE1
IL6
Relative expression
D. LTB
COX2
PLAU
SERPINE1
IL6
Relative expression
0 1 3 6 12 24
Hours

Suppl Fig 8


A
Subgroup 1
Subgroup 2
Subgroup 3
HPV
Stage
Site
IL5RA
CRLF2
CSF3R
IL7R
IL22RA2
SOCS1
IL2RG
IL21R
IFNG
TBX21
PYHIN1
IL2RB
EBI3
STAT4
IL12B
IL3RA
IRF4
IRF8
IL10RA
IFNA1
IFNE
IRGM
CREB3
IFNW1
IFNB1
IL15
IFI30
CXCL10
IRF1
STAT1
IFI27
ISG15
IFITM1
IRF7
IFIT2
IFIT3
SP110
IFI35
IFI6
IFIT1
IFI44
IFIH1
MX1
IFI44L
2
1
0
-1
-2
HP
HN
i
ii
iii
iv
OC
LR
OP
B
HPV
HP
HN
P <0.0001
HPV status (count)
200
150
100
50
0
Subgroup1
Subgroup2
Subgroup3
C
Site
OP
LR
OC
P <0.0001
Tumor source site (count)
D
P =0.085
Stage
iv
iii
ii
i
Disease stage (count)
E
Subgroup I+II
Subgroup III
P =0.022
Percent survival
100
50
0
2000
4000
6000
8000
Days

Suppl Fig 9



Suppl Figure 10