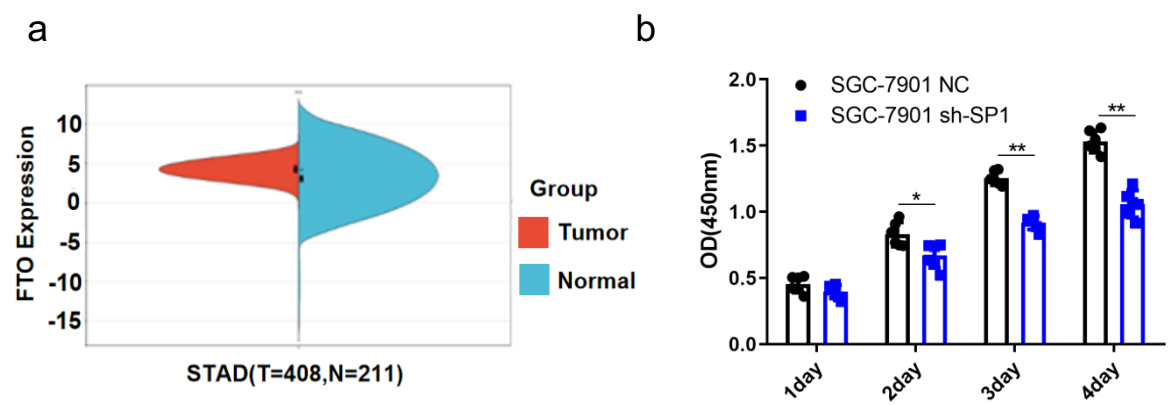
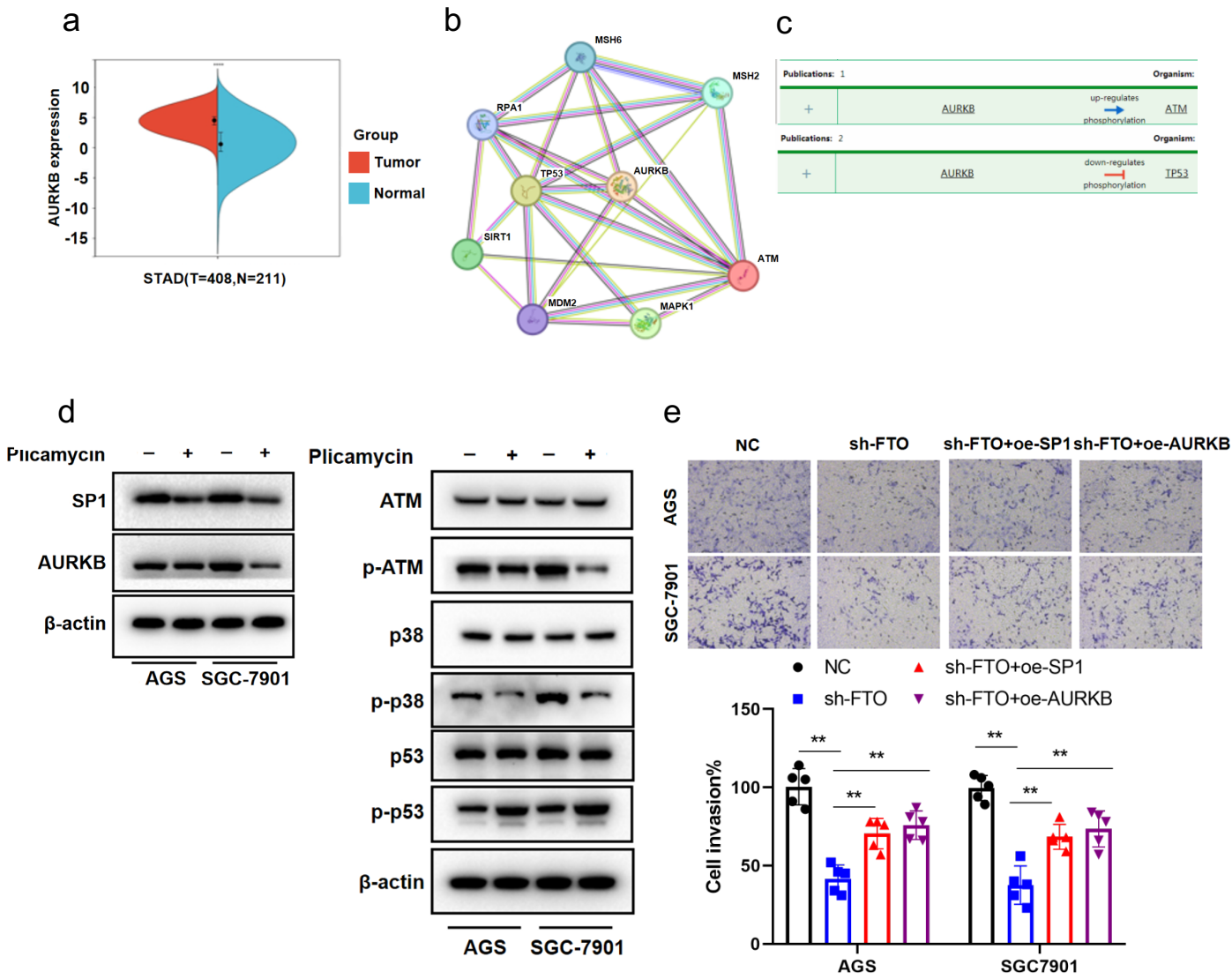


Supplementary Figure1



Supplementary Figure1.
FTO is highly expressed in gastric cancer. (a) FTO expression levels in STAD (stomach adenocarcinoma) and normal tissues from the TCGA database. (b) The cell viability of SGC7901 cells were tested by CCK-8. * $p < 0.05$, ** $p < 0.01$.

Supplementary Figure2



Supplementary Figure2.

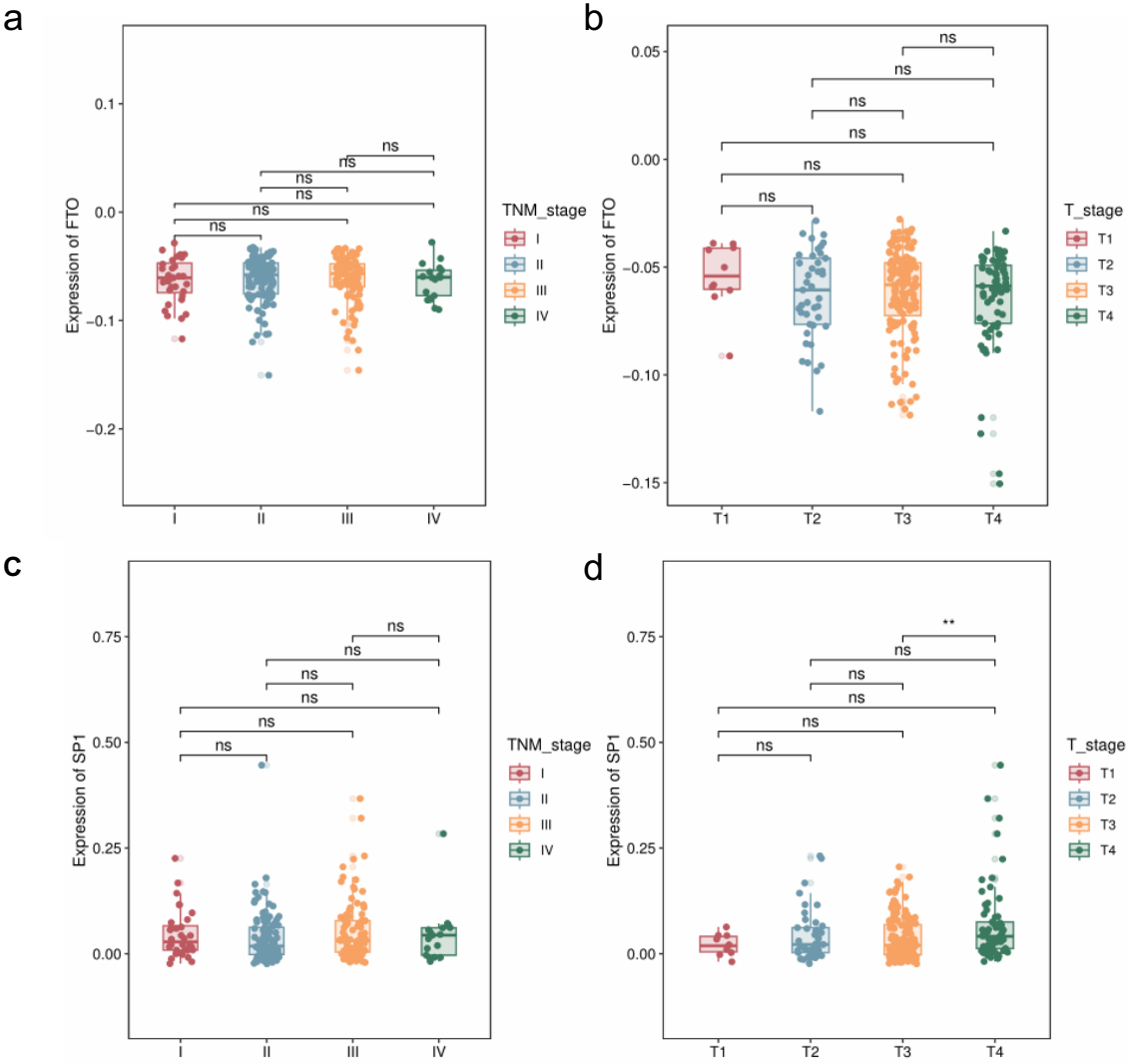
FTO promotes gastric cancer progression through the SP1-ATM signal axis. (a) AURKB expression levels in STAD (stomach adenocarcinoma) and normal tissues from the TCGA database. (b) The protein-to-protein interaction network was performed with STRING website. (c) The downstream analysis of AURKB was performed with SIGNOR website. (d) GC cells were treated with SP1 inhibitor Plicamycin to confirm the downstream pathway of SP1. (e) Invasion ability of GC were tested through Transwell assay. $*p < 0.05$, $**p < 0.01$.

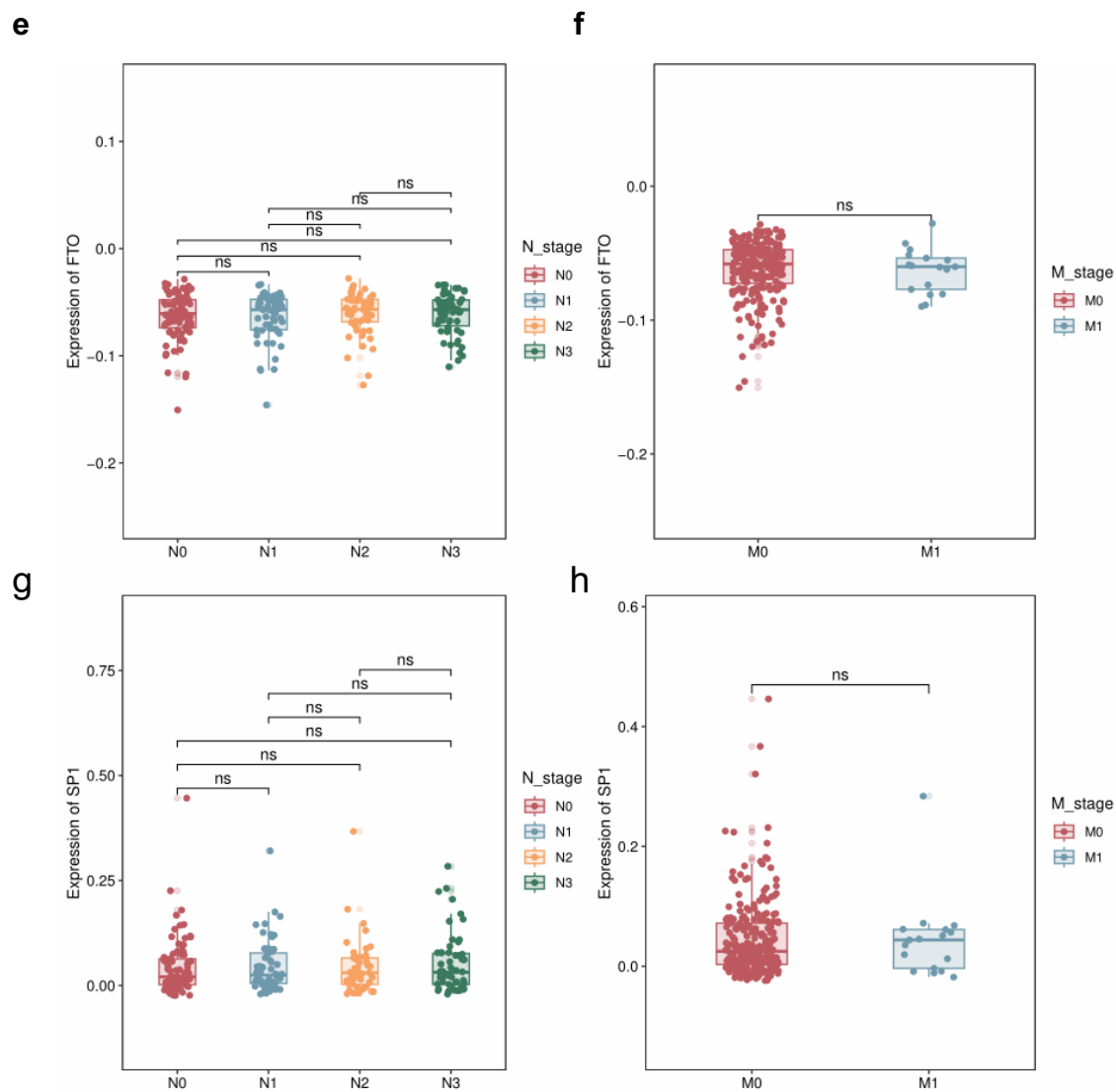
a

b

FTO regulates SP1 expression. (a) List of differential genes by methylation sequencing (pIKO.1 vs. shFTO); (b) KEGG analysis of differential genes; (c) KEGG analysis of SP1.

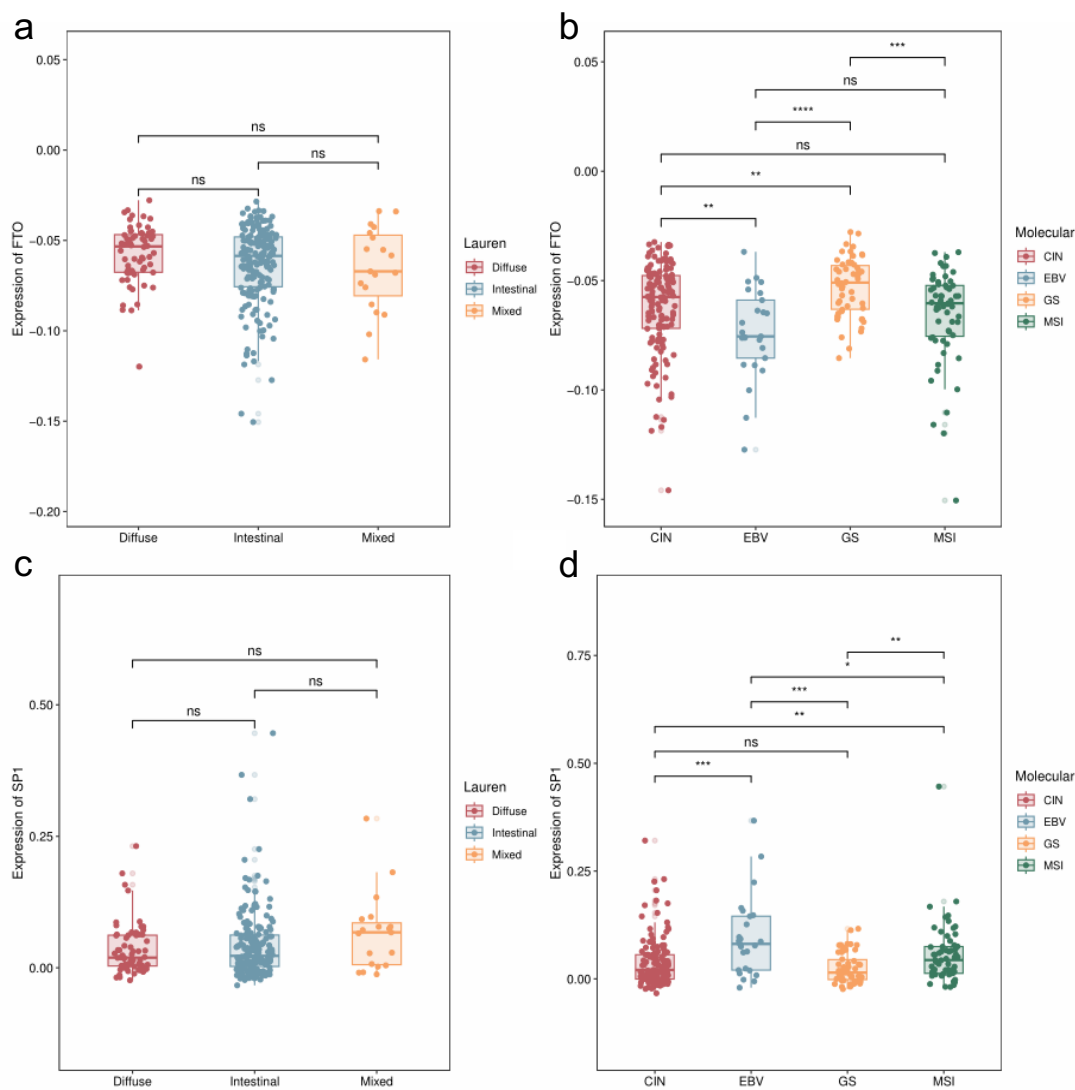
Supplementary Figure4





Supplementary Figure4.

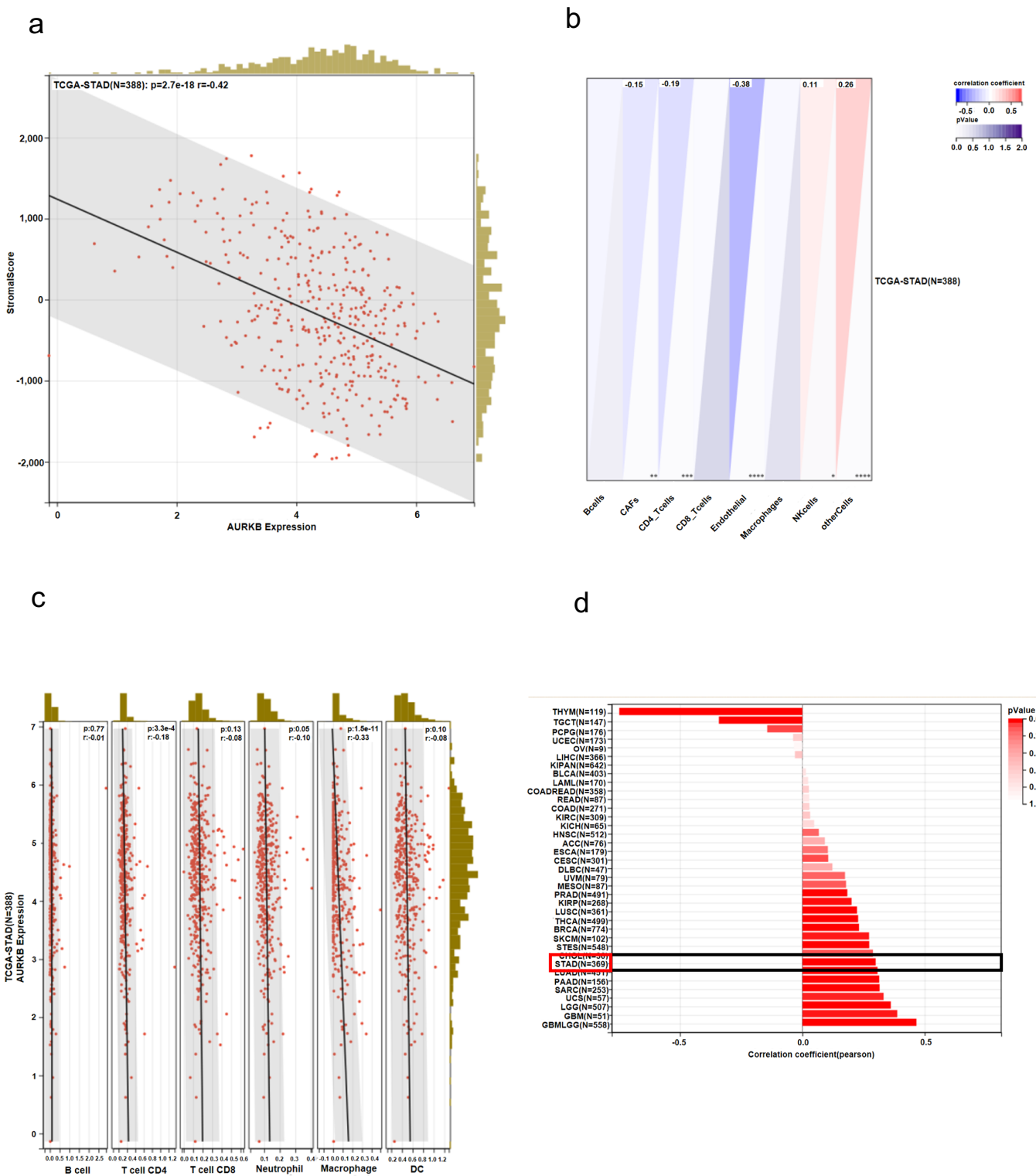
Expression of FTO and SP1 in different stages of gastric cancer. (a) No statistical significance was observed in correlation between the FTO expression and TNM stage; (b) There were no associations between FTO expression and T stage; (c) No statistical significance was observed in correlation between the SP1 expression and TNM stage; (d) There were no associations between SP1 expression and T stage; (e) There was no significant correlation between expression of FTO and N stage classification; (f) FTO expression was not significantly associated with M stage; (g) There was no significant correlation between expression of SP1 and N stage classification; (h) SP1 expression was not significantly associated with M stage.



Supplementary Figure5.

Expression of FTO and SP1 in different types of gastric cance. (a) No significant association of FTO expression with Lauren classification; (b) There was no obvious correlation between the expression of FTO and the molecular classification of GC; (c) No significant association of SP1 expression with Lauren classification; (d) There was no obvious correlation between the expression of FTO and the molecular classification of GC.

Supplementary Figure6



Supplementary Figure6.

Relationship between AURKB expression and microenvironment of gastric cancer. (a) StromalScore of AURKB expression in STAD. (b-c) Differential analysis of immune cell components in high AURKB expression GC tumors. (d) The correlation between AURKB expression and tumor stemness index.

Figure 1c FTO

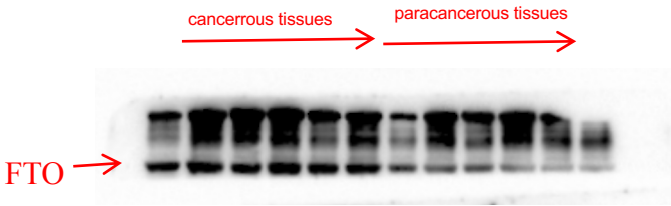
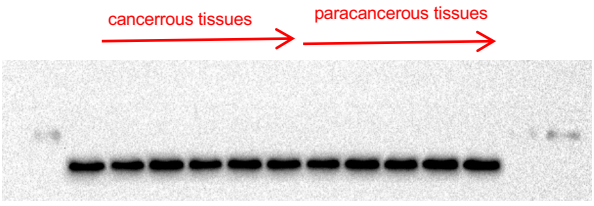


Figure 1c β -actin



GES-1
HGC27
SGC-7901
AGS
MKN-45

Figure 1c FTO

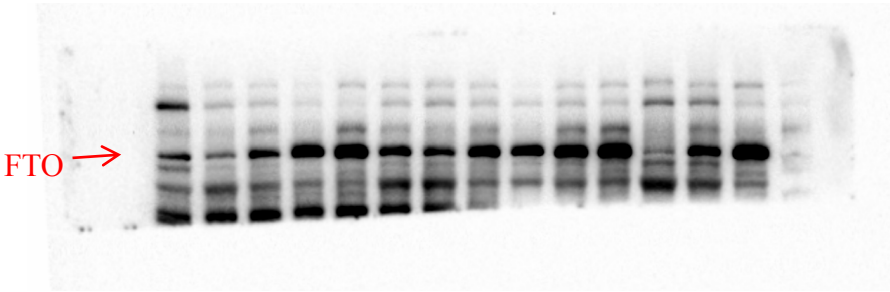


Figure 1c β -actin

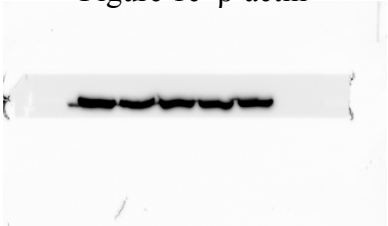


Figure 2b FTO

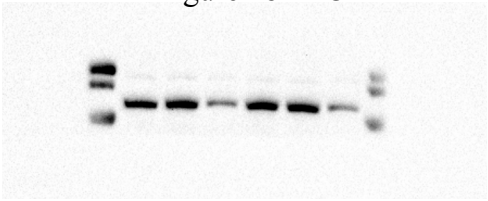


Figure 2b β -actin

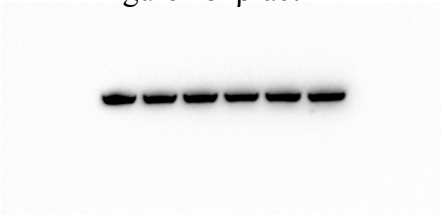


Figure 3g SP1

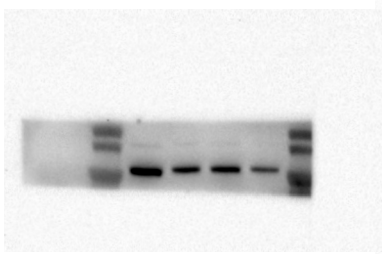


Figure 3g β -actin

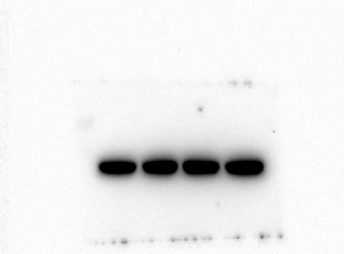


Figure 3j SP1

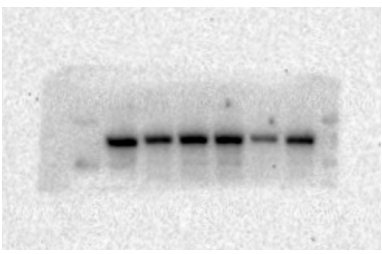


Figure 3j β -actin

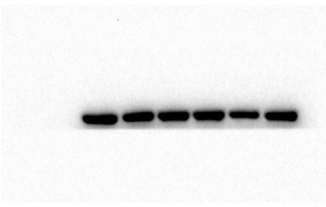


Figure 4d SP1

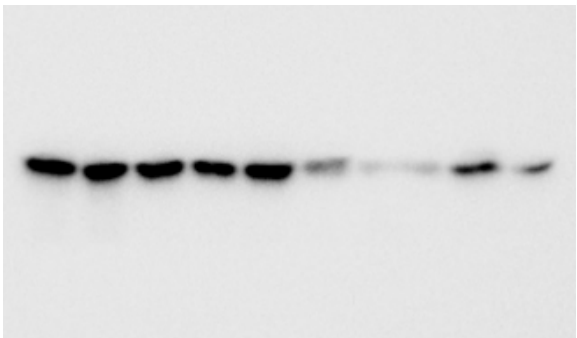


Figure 4d β -actin

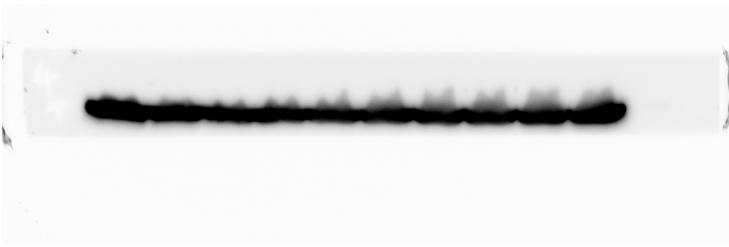


Figure 6c SP1

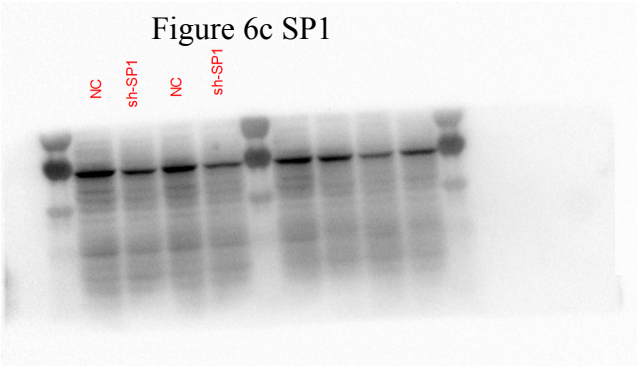


Figure 6c AURKB

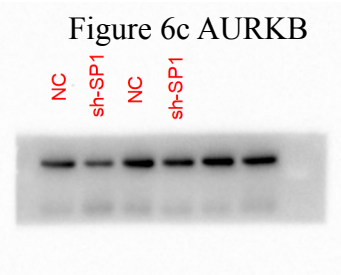


Figure 6c β -actin

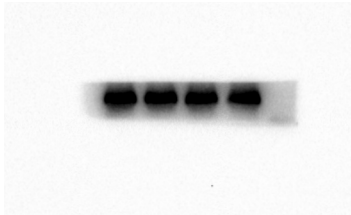


Figure 6e AURKB

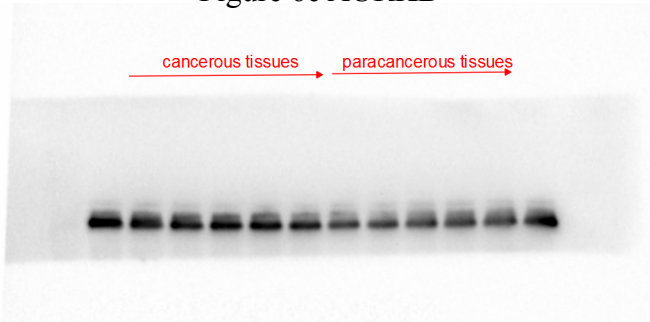


Figure 6e β -actin

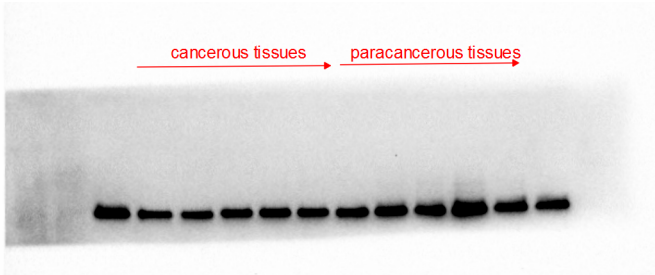


Figure 6h FTO

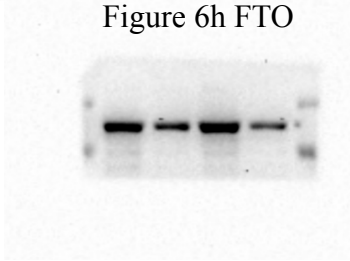


Figure 6h β -actin

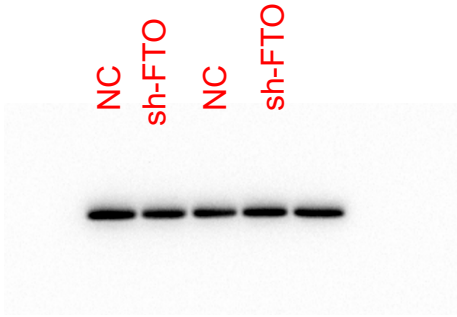


Figure 6j ATM
(AURKB-knockdown)

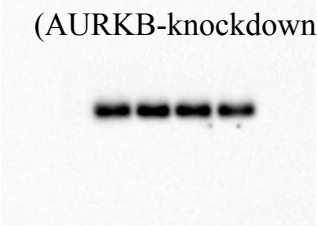


Figure 6j p38
(AURKB-knockdown)

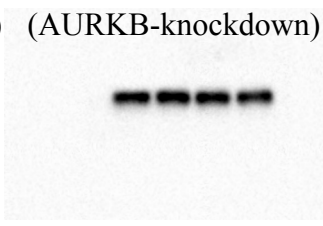


Figure 6j p53
(AURKB-knockdown)

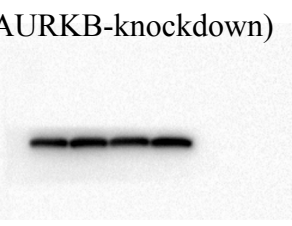


Figure 6j p-ATM
(AURKB-knockdown)

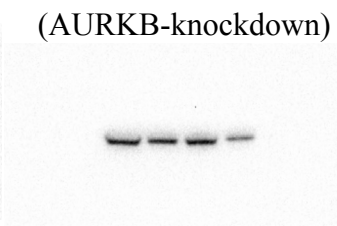


Figure 6j p-p38
(AURKB-knockdown)

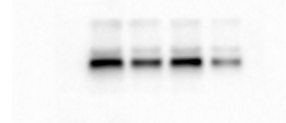


Figure 6j p-p53
(AURKB-knockdown)

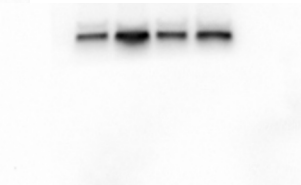
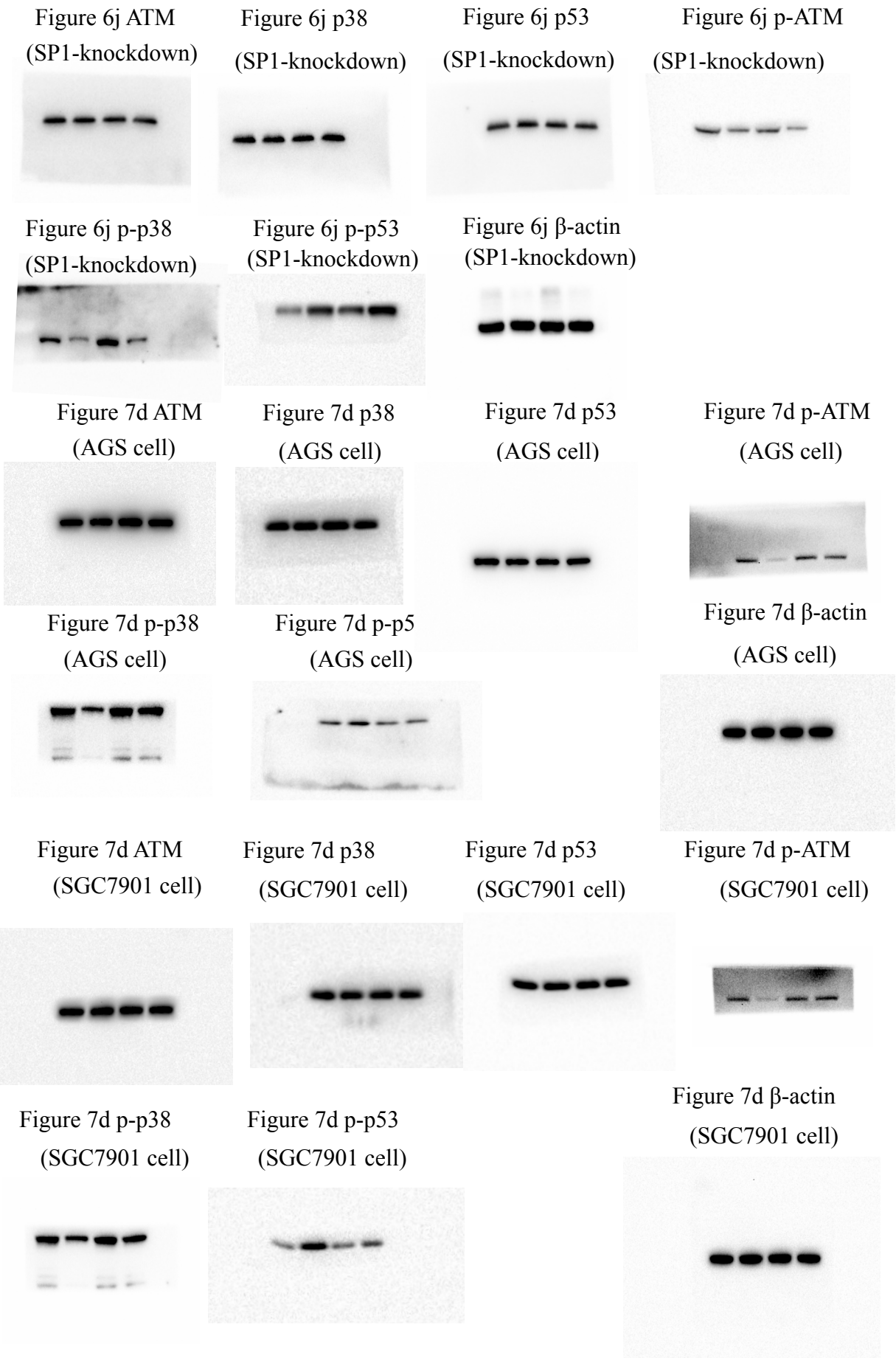
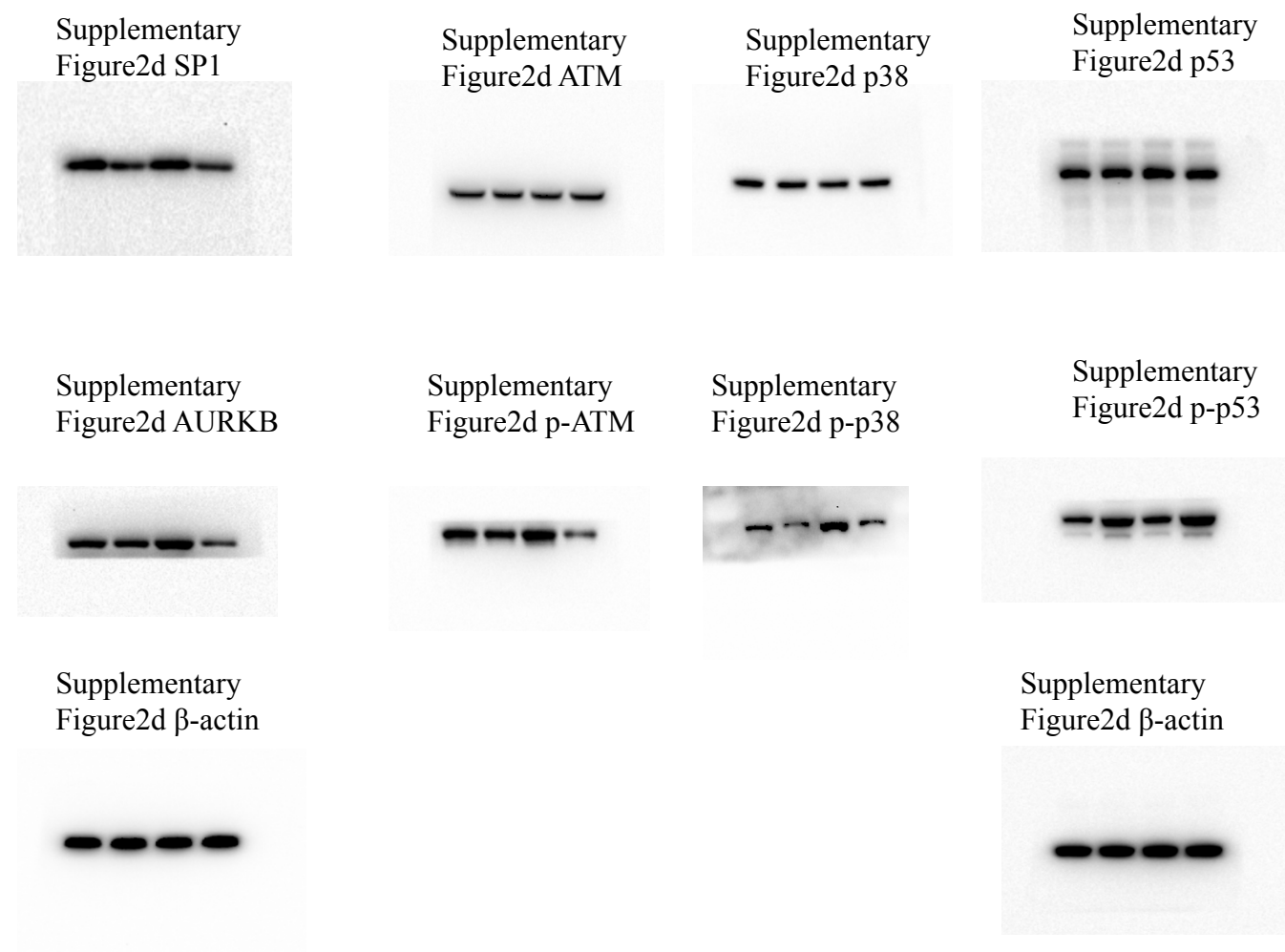


Figure 6j β -actin
(AURKB-knockdown)





Supplementary Figure7



Supplementary Figure7.
Unprocessed scans of blots in article

Supplementary table1

The statistics of GC cases

Number	Gender	Age	Nerve invasion	Tumor differentiation	Tumor size(cm)	LNМ
1	F	82	P	L	4	2
2	M	56	N	M	1.5	0
3	M	61	P	L	6	26
4	M	70	N	L	6.5	1
5	M	63	N	L	5	0
6	M	65	P	L	1	7
7	M	63	P	M	6.5	21
8	M	68	P	L	5	0
9	M	67	P	M	6	3
10	F	65	P	L	5	0
11	M	66	P	M	3	6
12	F	47	P	L	2	10
13	M	56	N	L	3.5	0
14	M	44	P	L	6	6
15	F	55	P	M	8	1
16	M	65	P	M	1.5	0
17	M	53	N	L	3	1
18	M	75	N	M	3	0
19	M	65	P	L	6	25
20	F	58	P	L	7	5

Supplementary table2

PCR primers and shRNA sequences

Primers	Sequences
FTO Forward primer	TTGCATGGATGAGCCAGCTT
FTO Reverse primer	TCTCCAACCCTGTTGCACAT
SP1 Forward primer	CCACCATGAGCGACCAAGA
SP1 Reverse primer	GGTACTGCTGCCACTCTGTT
AURKB Forward primer	GGAGAGTAGCAGTGCCTTGG
AURKB Reverse primer	GACAAGTGCAGATGGGGTGA
YTHDF2 Forward primer	GTGTCAGGGACAAAAGCCTCC
YTHDF2 Reverse primer	GCCGACATGGCTCTCAGAT
sequence of FTO shRNA	TCACCAAGGAGACTGCTATTT
sequence of SP1 shRNA	GCTGGTGGTGATGGAATACAT
sequence of YTHDF2 shRNA	GATGGATTAAACGATGATGAT