

**Supplementary Table S1** Pathological characteristics and high-frequency genes for patients in GC

Parameters	N(%)	Parameters	N(%)	Parameters	N(%)	Parameters	N(%)
<b>HER2</b>		<b>PD-L1</b>		<b>KMT2D</b>		<b>RAD50</b>	
Negative	87(87.00)	Negative	47(47.00)	WT	82(82.00)	WT	95(95.00)
Positive	13(13.00)	Positive	53(53.00)	MUT	18(18.00)	MUT	5(5.00)
<b>Ki67</b>		<b>EBV</b>		<b>GLI3</b>		<b>HNF1A</b>	
<50	24(24.00)	Negative	58(58.00)	WT	85(85.00)	WT	98(98.00)
≥50	67(67.00)	Positive	42(42.00)	MUT	15(15.00)	MUT	2(2.00)
NA <sup>a</sup>	9(9.00)	<b>TMB</b>		<b>ERBB3</b>		<b>TFE3</b>	
<b>P53</b>		TMB-L	68(68.00)	WT	72(72.00)	WT	72(72.00)
0	21(21.00)	TMB-H	32(32.00)	MUT	28(28.00)	MUT	28(28.00)
0.5	25(25.00)	<b>MSI</b>		<b>PIK3CA</b>		<b>FGFR2</b>	
1	39(39.00)	MSS	89(89.00)	WT	72(72.00)	WT	94(94.00)
NA	15(15.00)	MSI-H	11(11.00)	MUT	28(28.00)	MUT	6(6.00)
<b>Stat3</b>		<b>LRP1B</b>		<b>ACVR2A</b>			
Negative	9(9.00)	WT	77(77.00)	WT	89(89.00)		
Positive	83(83.00)	MUT	23(23.00)	MUT	11(11.00)		
NA	8(8.00)	<b>ARID1A</b>		<b>ERBB2</b>			
<b>PTBP3</b>		WT	72(72.00)	WT	89(89.00)		
Negative	7(7.00)	MUT	28(28.00)	MUT	11(11.00)		
Positive	85(85.00)	<b>TP53</b>		<b>TGFBR2</b>			
NA	8(8.00)	WT	37(37.00)	WT	90(90.00)		
<b>RUFY3</b>		MUT	63(63.00)	MUT	10(10.00)		
Negative	51(51.00)	<b>FAT4</b>		<b>PTEN</b>			
Positive	41(41.00)	WT	83(83.00)	WT	93(93.00)		
NA	8(8.00)	MUT	17(17.00)	MUT	7(7.00)		
<b>Bcl2</b>		<b>FAT3</b>		<b>TGFBR1</b>			
Negative	76(76.00)	WT	84(84.00)	WT	95(95.00)		
Positive	16(16.00)	MUT	16(16.00)	MUT	5(5.00)		
NA	8(8.00)						

*N*, number; *NA*, not available; *HER-2*, human epidermal growth factor receptor 2; *stat3*, signal

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*transducer and activator of transcription 3; PTBP3, Polypyrimidine tract binding protein 3; RUFY3, RUN and FYVE domain-containing protein 3; Bcl2, B cell lymphoma-2; PD-L1, programmed cell death ligand 1; EBA, Epstein-Barr virus; TMB, tumor mutation burden; MSS, microsatellite stability; MSI, microsatellite instability; WT, wild type; MUT, mutation type.*