Table S1 The clinical features of gastric cancer patients in three cohorts.

Character	TCGA (n=375)	GSE84437 (n=433)	GSE62254 (n=300)
Age			
≤65 years	164 (44.2%)	283 (65.4%)	172(57.3%)
>65 years	207 (55.8%)	150 (34.6%)	128 (42.7%)
Gender			
Female	134 (35.7%)	137 (31.6%)	101 (33.7%)
Male	241 (64.3%)	296 (68.4%)	199 (66.3%)
Stage			
I	53 (15.1%)	53 (15.1%)	30 (10.0%)
II	111 (31.5%)	–	97 (32.3%)
III	150 (42.6%)	–	96 (32.0%)
IV	38 (10.8%)	–	77 (25.7%)
T			
T1	19 (5.2%)	11 (2.5%)	0 (0%)
T2	80 (21.8%)	38 (8.8%)	188 (62.7%)
T3	168 (45.8%)	92 (21.2%)	91 (30.3%)
T4	100 (27.2%)	292 (67.4%)	21 (7.0%)
N			
N0	111 (31.1%)	80 (18.5%)	38 (12.7%)
N1	97 (27.2%)	188 (43.4%)	131 (43.6%)
N2	75 (21%)	132 (30.5%)	80 (26.7%)
N3	74 (20.7%)	33 (7.6%)	51 (17.0%)
M			
M0	330 (93.0%)	–	273 (91.0%)
M1	25 (7.0%)	–	27 (9.0%)

TCGA, The Cancer Genome Atlas.

https://dx.doi.org/10.21037/tcr-22-168

Table S2 1,118 glucose and lipid metabolism-related genes from public database.

AADAT	ACAA1	ACAA2	ACADL	ACADM	ACADS
ACADVL	ACAT2	ACO2	ACOT2	ACOT8	ACOX1
ACSL1	ACSL4	ACSL5	ACSM3	ACSS1	ADH1C
ADH7	ADIPOR2	ADSL	ALAD	ALDH1A1	ALDH3A1
ALDH3A2	ALDH9A1	ALDOA	AOC3	APEX1	AQP7
AUH	BCKDHB	BLVRA	BMPR1B	BPHL	CA2
CA4	CA6	CBR1	CBR3	CCDC58	CD1D
CD36	CEL	CIDEA	CPOX	CPT1A	CPT2
CRAT	CRYZ	CYP1A1	CYP4A11	CYP4A22	D2HGDH
DECR1	DHCR24	DLD	DLST	ECH1	ECHS1
ECI1	ECI2	EHHADH	ELOVL5	ENO2	ENO3
EPHX1	ERP29	ETFDH	FABP1	FABP2	FASN
FH	FMO1	GOS2	GABARAPL1	GAD2	GAPDHS
GCDH	GLUL	GPD1	GPD2	GRHPR	GSTZ1
HZAT1	HADH	HAD4B	HAO2	HCCS	HBCH
HMGCL	HMGCS1	HMGCS2	HPGD	HSD17B10	HSD17B11
HSD17B4	HSD17B7	HSDL2	HSP90AA1	HSPH1	IDH1
IDH3B	IDH3G	IDI1	IL4I1	INMT	KMT5A
LDHA	LGALS1	LTC4S	MAOA	MCEE	MDH1
MDH2	ME1	METAP1	MGLL	MIF	MLYCD
NBN	NCAPH2	NSDHL	NTHL1	ODC1	OSTC
PCBD1	PDHA1	PDHB	PPARA	PRDX6	PSME1
PTPRG	PTS	RAP1GDS1	RDH11	RDH16	REEP6
RETSAT	S100A10	SDHA	SDHC	SDHD	SERINC1
SLC22A5	SMS	SUCLA2	SUCLG1	SUCLG2	TDO2
TP53INP2	UBE2L6	UGDH	UROD	UROS	VNN1
XIST	YWHAH	ABCB6	ADORA2B	AGL	AGRN
AK3	AK4	AKR1A1	ALDH7A1	ALDOB	ALG1
ANG	ANGPTL4	ANKZF1	ARPP19	ARTN	AURKA
B3GALT6	B3GAT1	B3GAT3	B3GNT3	B4GALT1	B4GALT2
B4GALT4	B4GALT7	BIK	BPNT1	CACNA1H	CAPN5
CASP6	CD44	CDK1	CENPA	CHIFF	CHIFZ
CHST1	CHST12	CHST2	CHST4	CHST6	CITED2
CLDN3	CLDN9	CLN6	COG2	COL5A1	COPB2
CTH	CXCR4	CYB5A	DCN	DDIT4	DEPDC1
DPYSL4	DSC2	ECD	EFNA3	EGFR	EGLN3
ELF3	ENO1	ERO1A	EXT1	EXT2	FAM162A
FBP2	FKBP4	FUT8	G6PD	GAL3ST1	GALE
GALK1	GALK2	GCLC	GFPT1	GFUS	GLCE
GLRX	GMPPA	GMPPB	GNE	GNPDA1	GOT1
GOT2	GPC1	GPC3	GPC4	GPR87	GUSB
GYS1	GYS2	HAX1	HDLBP	HK2	HMMR
HOMER1	HS2ST1	HS6ST2	HSPA5	IDUA	IER3
IGFBP3	IL13RA1	IRS2	ISG20	KDELR3	KIF20A
KIF2A	LCT	LDHC	LHPP	LI49	ME2
MED24	MERTK	MET	MIOX	MPI	MX01
NANP	NASP	NDST3	NDUFV3	NOL3	NT5E
P4HA1	P4HA2	PAM	PAXIP1	PC	PDK3
PFKFB1	PFKP	PGAM1	PGAM2	PGK1	PGLS
PGM2	PHKA2	PKM	PKP2	PLOD1	PLOD2
PMM2	POLR3K	PPFIA4	PPIA	PPP2CB	PRPS1
PSMC4	PYGB	PYGL	QSOX1	RARS1	RBCK1
RPE	RRAGD	SAP30	SDC1	SDC2	SDC3
SLC16A3	SLC25A10	SLC25A13	SLC35A3	SLC37A4	SOD1
SOX9	SPAG4	SRD5A3	STC1	STC2	STMN1
TALDO1	TFF3	TGFA	TGFBI	TKTL1	TPI0
TPI1	TPST1	TXN	UGP2	VCAN	VEGFA
VLDLR	XYLT2	ZNF292	ACHE	ADYRM	AGPAT1
AGPAT2	AGPAT3	AGPAT4	CDIPT	CDS1	CDS2
CHAT	CHKA	CHKB	CHPT1	CRLS1	DGKA
DGKB	DGKD	DGKE	DGKG	DGKH	DGKI
DGKQ	DGKZ	ETNK1	ETNK2	GNPAT	GPAM
GPAT2	GPAT3	GPAT4	GPD1L	PLA2G4B	LCAT
LCLAT1	LPCAT1	LPCAT2	LPCAT3	LPCAT4	LPGAT1
LYPLA1	LYPLA2	MBOAT1	MBOAT2	MBOAT7	PCYT1A
PCYT1B	PCYT2	PEMT	PGS1	PHOSPHO1	PISD
PLA2G10	PLA2G12A	PLA2G12B	PLA2G15	PLA2G1B	PLA2G2A
PLA2G2C	PLA2G2D	PLA2G2E	PLA2G2F	PLA2G3	PLA2G4A
PLA2G4B	PLA2G4E	PLA2G5	PLA2G6	PLD1	PLD2
PLPP1	PLPP2	PLPP3	PTDSS1	PTDSS2	TAZ
ACSS2	ADH1A	ADH1B	ADH4	ADH5	ADH6
ALDH1A3	ALDH1B1	ALDH2	ALDH3B1	ALDH3B2	ALDOC
BPGM	DLAT	FBP1	G6PC	G6PC2	GALM
GARS1	GCK	GPI	HK1	HK3	LDHAL6A
LDHAL6B	LDHB	PCK1	PCK2	PDHA2	PFKL
PFKM	PGAM4	PGK2	PGM1	PKLR	AAAS
ADPGK	GCKR	GNPDA2	NDC1	NUP107	NUP133
NUP153	NUP155	NUP160	NUP188	NUP205	NUP210
NUP214	NUP35	NUP37	NUP42	NUP43	NUP50
NUP54	NUP58	NUP62	NUP85	NUP88	NUP93
NUP98	PFKFB2	PFKFB3	PFKFB4	PGM2L1	PGP
POM121	POM121C	PPP2CA	PPP2R1A	PPP2R1B	PPP2R5D
PRKACA	PRKACB	PRKACG	RAE1	RANBP2	SEC13
SEH1L	TPR	AACS	ABCA1	ABCB11	ABCB4
ABCC1	ABCC3	ABCD1	ABHD3	ABHD4	ABHD5
ACACA	ACACB	ACAD10	ACAD11	ACAT1	ACBD4
ACBD5	ACBD6	ACBD7	ACER1	ACER2	ACER3
ACLY	ACOT1	ACOT11	ACOT12	ACOT13	ACOT4
ACOT6	ACOT7	ACOT9	ACOX3	ACOX3	ACOXL
ACP6	ACSBG1	ACSBG2	ACSF2	ACSF3	ACSL3
ACSL6	ACSM6	ACSS3	AGK	AGMO	AGPAT5
AGPS	AGT	AHR	AHRR	AKR1B1	AKR1B15
AKR1C1	AKR1C2	AKR1C3	AKR1C4	AKR1D1	ALAS1
ALB	ALOX12	ALOX12B	ALOX15	ALOX15B	ALOX5
ALOX5AP	ALOXE3	ALPI	AMACR	ANKRD1	APOA1
APOA2	APOA5	ARF1	ARF3	ARNT	ARNT2
ARNTL	ARSA	ARSB	ARSD	ARSF	ARSG
ARSH	ARSI	ARSJ	ARSK	ARSL	ARV1
ASAH1	ASAH2	AWAT1	AWAT2	B3GALNT1	B4GALNT1
BAAT	BCHE	BDH1	BDH2	BMX	CARM1
CAV1	CBR4	CCNC	CDK19	CDK8	CEPT1
CERK	CERS1	CERS2	CERS3	CERS4	CERS5
CERS6	CERT1	CGA	CHDH	CHD9	CIDEC
CLOCK	CPNE1	CPNE3	CPNE6	CPNE7	CPT1B
CPTP	CREBBP	CROT	CSNK1G2	CSNK2A1	CSNK2A2
CSNK2B	CTSA	CUBN	CYP11A1	CYP11B1	CYP11B2
CYP17A1	CYP19A1	CYP1A2	CYP1B1	CYP21A2	CYP24A1
CYP27A1	CYP27B1	CYP2C19	CYP2C8	CYP2C9	CYP2D6
CYP2E1	CYP2J2	CYP2R1	CYP2U1	CYP39A1	CYP3A4
CYP46A1	CYP4B1	CYP4F11	CYP4F2	CYP4F22	CYP4F3
CYP4F8	CYP51A1	CYP7A1	CYP7B1	CYP8B1	DBI
DDHD1	DDHD2	DECR2	DEGS1	DEGS2	DGAT1
DGAT2	DGAT2L6	DHCR7	DHRS7B	DPEP1	DPEP2
DPEP3	EBP	ELOVL1	ELOVL2	ELOVL3	ELOVL4
ELOVL6	ELOVL7	ENPP6	ENPP7	EP300	EPHX2
ESRRA	ESYT1	ESYT2	ESYT3	ETNPL	FA2H
FAAH	FAAH2	FABP12	FABP3	FABP4	FABP5
FABP6	FABP7	FABP9	FADS1	FADS2	FAM108B
FAR1	FAR2	FDFT1	FDPS	FDX1	FDX2
FDXR	FHL2	FIG4	FITM1	FITM2	GALC
GBA	GBA2	GC	GDE1	GDPD1	GDPD3
GDPD5	GGPS1	GGT1	GGT5	GK	GK2
GK3P	GLA	GLB1	GLB1L	GLIPR1	GLTP
GM2A	GPCPD1	GPS2	GPX1	GPX2	GPX4
GRHL1	GSTM4	HACD1	HACD2	HACD3	HACD4
HACL1	HADHA	HDAC3	HELZ2	HEXA	HEXB
HILPDA	HMGCLL1	HMGCR	HPGDS	HSD11B1	HSD11B2
HSD17B1	HSD17B12	HSD17B13	HSD17B14	HSD17B2	HSD17B3
HSD17B8	HSD3B1	HSD3B2	HSD3B7	HTD2	IDI2
INPP4A	INPP4B	INPP5D	INPP5E	INPP5F	INPP5J
INPP5K	INPPL1	INSIG1	INSIG2	KDSR	KPNB1
LBR	LGMN	LHB	LIPE	LIPH	LIPI
LPIN1	LPIN2	LPIN3	LRP2	LSS	LTA4H
MAPKAPK2	MBTPS1	MBTPS2	MCAT	MECR	MED1
MED10	MED11	MED12	MED13	MED13L	MED14
MED15	MED16	MED17	MED18	MED19	MED20
MED21	MED22	MED23	MED25	MED26	MED27
MED28	MED29	MED30	MED31	MED4	MED6
MED7	MED8	MED9	MFSD2A	MID1IP1	MIGA1
MIGA2	MMAA	MMUT	MOGAT1	MOGAT2	MOGAT3
MORC2	MSMO1	MTF1	MTM1	MTMR1	MTMR10
MTMR12	MTMR14	MTMR2	MTMR3	MTMR4	MTMR6
MTMR7	MTMR8	MTMR9	MVD	MVK	NCOA1
NCOA2	NCOA3	NCOA6	NCOR1	NCOR2	NDUFAB1
NEU1	NEU2	NEU3	NEU4	NFYA	NFYB
NFYC	NPAS2	NR1D1	NR1H2	NR1H3	NR1H4
NSF1	NUDT19	NUDT7	OCRL	OLAH	ORMDL1
ORMDL2	ORMDL3	OSBP	OSBPL10	OSBPL1A	OSBPL2
OSBPL3	OSBPL5	OSBPL6	OSBPL7	OSBPL8	OSBPL9
OXCT1	OXCT2	PCCA	PCCB	PCTP	PDCD6
PECR	PEX11A	PHYH	P4HX2A	P4HX2B	P4HXA
P4HXB	PIAS4	PIK3C2A	PIK3C2B	PIK3C2G	PIK3C3
PIK3CA	PIK3CB	PIK3CD	PIK3CG	PIK3R1	PIK3R2
PIK3R3	PIK3R4	PIK3R5	PIK3R6	PIKFYVE	PIP4K2A
PIP4K2B	PIP4K2C	PIP4P1	PIP5K1A	PIP5K1B	PIP5K1C
PITPNB	PITPNM1	PITPNM2	PITPNM3	PLA1A	PLA2G4C
PLA2G4D	PLA2G4F	PLA2R1	PLAAT1	PLAAT2	PLAAT3
PLAAT4	PLAA75	PLB1	PLBD1	PLD3	PLD4
PLD6	PLEKHA1	PLEKHA2	PLEKHA3	PLEKHA4	PLEKHA5
PLEKHA6	PLEKHA8	PLIN1	PLIN2	PLIN3	PLPP6
PMVK	PNPLA2	PNPLA3	PNPLA4	PNPLA6	PNPLA7
PNPLA7	PNPLA8	PQMC	PQN1	PQN2	PQN3
PRAID	PRARG	PPARGC1A	PPARGC1B	PPM1L	PPP1CA
PPP1CB	PPP1CC	PPT1	PPT2	PRKAA2	PRKAB2
PRKAG2	PRKD1	PRKD2	PRKD3	PRKL2B	PSAP
PTEN	PTGDS	PTGES	PTGES2	PTGES3	PTGIS
PTGR1	PTGR2	PTGS1	PTGS2	PTPMT1	PTPN13
RAB14	RAB4A	RABSA	RAN	RGL1	RORA
RUFY1	RXRA	RXRB	SACM1L	SAMD8	SAR1B
SBF1	SBF2	SC5D	SCAP	SCD	SCD5
SCP2	SEC23A	SEC24A	SEC24B	SEC24C	SEC24D
SELENOI	SERPINA6	SGMS1	SGMS2	SGPL1	SGPP1
SGPP2	SIN3A	SIN3B	SLC10A1	SLC10A2	SLC25A1
SLC25A17	SLC25A20	SLC27A1	SLC27A2	SLC27A3	SLC27A5
SLC44A1	SLC44A2	SLC44A3	SLC44A4	SLC44A5	SLCO1A2
SLCO1B1	SLCO1B3	SMARCD3	SMPD1	SMPD3	SMPD4
SMPD4	SP1	SPHK1	SPHK2	SPWS2	SPTLC1
SPTLC2	SPTLC3	SPTSSA	SPTSSB	SQLE	SRD5A1
SRD5A2	SREBF1	SREBF2	STAR	STARD10	STARD3
STARD3NL	STARD4	STARD5	STARD6	STARD7	STS
SULT2A1	SUMF1	SUMF2	SUMO2	SYNJ1	SYNJ2
TBL1X	TBL1XR1	TBXAS1	TECR	TECRL	TGS1
THEM4	THEM5	THRAP3	THRSP	TIAM2	TM7SF2
TMEM86B	TNFAIP8	TNFAIP8L1	TNFAIP8L2	TNFAIP8L3	TNFRSF21
TPTE	TPTE2	TRIB3	TSPO	TSPOAP1	TXNRD1
UBE2I	UGCG	UGT1A9	UGT8	VAC14	VAPA
VAPB	VDR				

https://dx.doi.org/10.21037/tcr-22-168

Table S3 Eight glucose and lipid metabolism-related datasets

HALLMARK_FATTY_ACID_METABOLISM
HALLMARK_GLYCOLYSIS
KEGG_GLYCEROPHOSPHOLIPID_METABOLISM
KEGG_GLYCOLYSIS_GLUCONEOGENESIS
KEGG_GLYCOLYSIS_GLUCONEOGENESIS
REACTOME_GLYCOLYSIS
REACTOME_METABOLISM_OF_LIPIDS
REACTOME_PHOSPHOLIPID_METABOLISM
REACTOME_REGULATION_OF_GLYCOLYSIS_BY_FRUCTOSE_2_6_BISPHOSPHATE_METABOLISM

KEGG, Kyoto Encyclopedia of Genes and Genomes.

https://dx.doi.org/10.21037/tcr-22-168

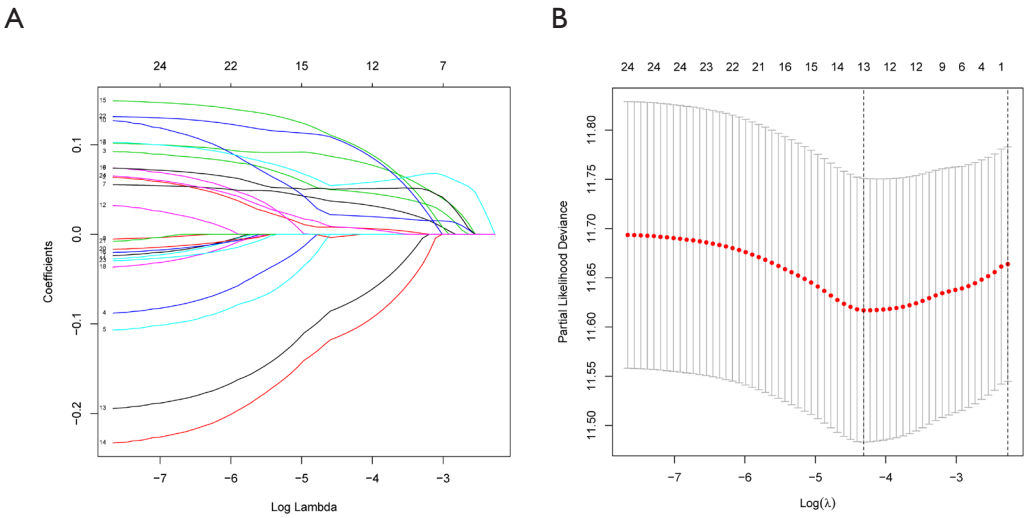

Figure S1 Screening of glucose and lipid metabolism-related genes and construction of risk model. (A) The change trajectory of each independent candidate variable, with the vertical axis represents the coefficient of the independent variable and the horizontal axis represents the log value of the independent variable lambda. (B) Confidence interval under each lambda. The theoretically optimal model was determined when λ=13.

https://dx.doi.org/10.21037/tcr-22-168

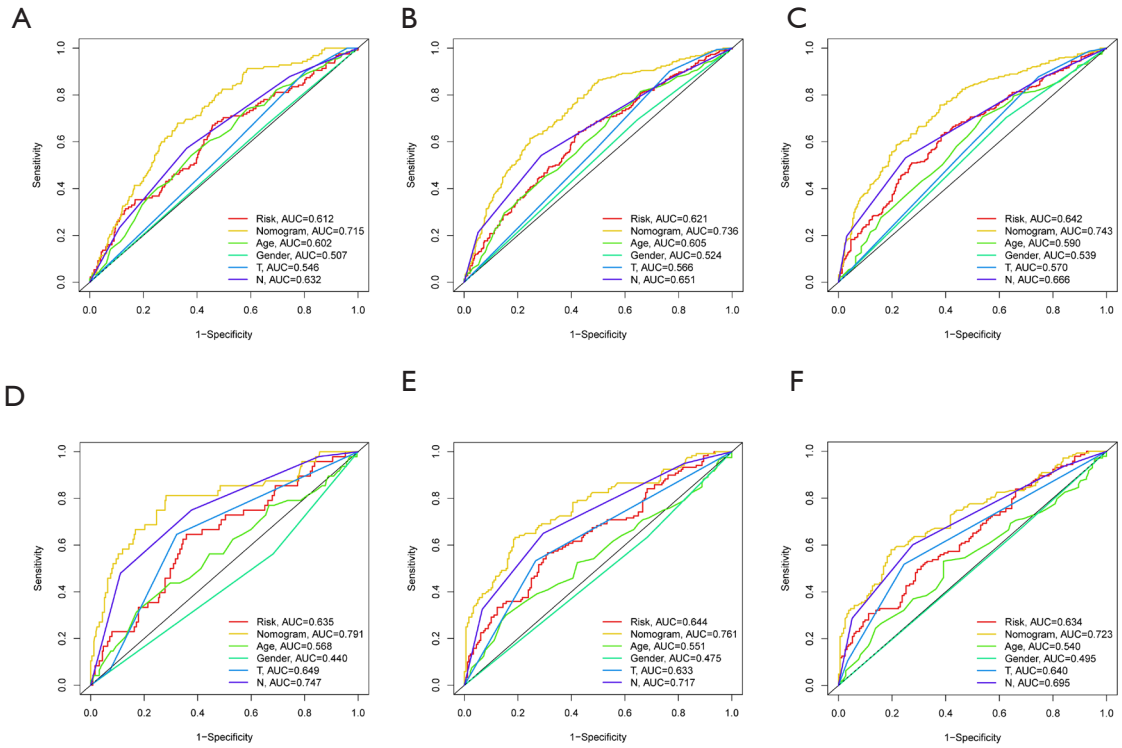

Figure S2 ROC analysis of the specificity and sensitivity of the OS for the Nomogram model. (A-C) The AUC values of 1-, 3-, 5-year in the training cohort. (D-F) The AUC values of 1-, 3-, 5-year in the validation cohort. AUC, area under the curve; ROC, receiver operating characteristic curve; OS, overall survival.

https://dx.doi.org/10.21037/tcr-22-168