

Table S1 A total of 257 glycosyltransferases related genes were sourced from related research

B3GALT1, B3GALT2, FUT4, FUT5, FUT6, FUT7, FUT9, MAN1A1, MAN1A2, MAN1C1, MAN2A2, MAN2B1, MAN2C1, ST3GAL4, ST8SIA4, ALG10B, ARFGEF1, CHP1, GOLGA2, IL15, POMT1, POMT2, RAMP1, SLC51B, DPM3, DPY19L1, DPY19L2, DPY19L3, DPY19L4, ALG1, ALG10, ALG11, ALG12, ALG14, ALG2, ALG3, ALG5, ALG6, ALG8, ALG9, B4GALNT2, B4GALT1, B4GALT7, DAD1, DDOST, DERL3, DHDDS, DOLK, DOLPP1, DPAGT1, ENTPD5, EXT2, FUT3, FUT8, GAL3ST1, GFPT1, GFPT2, GORASP1, KRTCAP2, MAGT1, MGAT1, MGAT2, MGAT3, MGAT4A, MGAT4B, MGAT4C, MGAT4D, MGAT5, MGAT5B, MLEC, MOGS, MPDU1, NUDT14, NUS1, OST4, OSTC, PGM3, PMM1, PMM2, RFT1, RPN1, RPN2, SLC39A8, SRD5A3, ST3GAL1, ST6GAL1, STT3A, STT3B, TMEM165, TMEM258, TUSC3, UBE2J1, UGGT1, UGGT2, A4GNT, B3GALNT2, B3GLCT, B3GNT2, B3GNT3, B3GNT4, B3GNT5, B3GNT6, B3GNT7, B3GNT8, B4GALT5, B4GAT1, C1GALT1, C1GALT1C1, C1GALT1C1L, CHST4, CRPPA, DPM1, DPM2, EOGT, FKRP, FKTN, GALNT1, GALNT10, GALNT11, GALNT12, GALNT13, GALNT14, GALNT15, GALNT16, GALNT18, GALNT2, GALNT3, GALNT4, GALNT5, GALNT6, GALNT7, GALNT8, GALNT9, GALNTL6, GCNT1, GCNT3, GCNT4, GXYLT1, GXYLT2, LARGE1, LARGE2, OGA, OGT, PLOD1, PLOD2, PLOD3, POFUT1, POFUT2, POGLUT1, POGLUT2, POGLUT3, POMGNT1, POMGNT2, POMK, RXYLT1, SLC35C1, SLC35C2, ST3GAL2, ST3GAL3, ST6GALNAC2, ST6GALNAC4, ST8SIA6, TET1, TET2, TET3, TMTC1, TMTC2, TMTC3, TMTC4, TRAK1, VEGFB, XXYLT1, ABCA2, ACER2, MT3, TMEM59, BET1, BET1L, GCC1, HID1, SGMS1, YIPF1, YIPF2, YIPF6, ADCYAP1R1, APP, ARL6IP1, ARSB, BAIAP2, BGLAP, CA4, CANX, CCDC47, CDKAL1, CKAP4, CYBB, EDN1, EPHA5, F12, GLUL, HCRT, HGFAC, HM13, HTR5A, KCNJ2, LIN28A, LRAT, LRPAP1, MACO1, MPZ, MTPP, MYOC, NAT8L, NCF1, P2RX3, PCSK1, PCSK9, PI4KB, PKM, PSEN1, PTGDS, RAB14, RANGRF, RP9, RPL18, RPL27, RPL4, RPL6, RPS21, RPS23, RPS26, RPS28, RPS29, SCGB1A1, SEC61A1, SEC61A2, SEC61B, SEC61G, SEC62, SEC63, SFTPA1, SFTPA2, SFTPD, SLC7A11, SPPL3, SRP9, SRPRB, SSR4, STAU1, STX17, SUCO, SYNE3, TMCC1, TMEM97, TP63, UBA1, ZC3H12A

Table S2 Univariate regression result of 21 candidate genes

Gene	HR	HR.95L	HR.95H	z	P value
<i>ST8SIA4</i>	0.999873909885124	0.999791736971982	0.99995608955206	-3.007150883	0.0026370883719731
<i>PLOD3</i>	1.00005822042249	1.00002348414058	1.00009295791098	3.28507441904603	0.00101955438555513
<i>NCF1</i>	1.00112706816991	1.00026964729574	1.00198522401645	2.57669348343358	0.00997503615979674
<i>MGAT5</i>	0.999851297983686	0.99974510345455	0.999957503792976	-2.744147475	0.0060668276165076
<i>POGLUT2</i>	1.00023653977652	1.0001087019156	1.00036439397818	3.62673965073302	0.000287022429557936
<i>GCNT4</i>	0.999116987254094	0.998548271601356	0.999686026814551	-3.040915875	0.00235859719336605
<i>MAN2B1</i>	1.00014437289241	1.00004560404351	1.00024315149615	2.86499361495006	0.00417017650639238
<i>PLOD2</i>	1.000008617	1.00000368532106	1.00001354909327	3.42454474061575	0.000615830435015517
<i>ST3GAL3</i>	1.00227528597333	1.00074746775909	1.00380543667261	2.9199444934232	0.00350093735592816
<i>POGLUT3</i>	0.999865162412818	0.999766405067548	0.99996392951338	-2.675709287	0.00745712979573598
<i>LARGE2</i>	0.999327654837992	0.998921747490984	0.99973372712362	-3.24473469	0.0011756009868324
<i>DERL3</i>	1.00087785517103	1.00027946066733	1.00147660765068	2.87570303022142	0.00403128792218877
<i>GXYLT2</i>	1.00040836470114	1.00015509765055	1.00066169588599	3.1604670549172	0.0015751641745205
<i>GALNT14</i>	0.999956112319037	0.999927848858576	0.999984376578379	-3.043334731	0.00233971919371355
<i>TP63</i>	1.00373280915017	1.00146357772604	1.00600718246001	3.2264319455476	0.00125344036070387
<i>ENTPD5</i>	0.999876282119415	0.999782213107114	0.999970359982622	-2.577428826	0.00995383781850378
<i>MAN2C1</i>	1.00012337609738	1.00003076819992	1.0002159925708	2.6111858062776	0.00902288557766396
<i>GALNT2</i>	1.00004429816164	1.00001627867093	1.00007231843743	3.09868259114575	0.00194383149690968
<i>MGAT5B</i>	1.0016437319989	1.00067006047367	1.00261835092555	3.30987850689241	0.000933364746831154
<i>CHST4</i>	1.0090278299241	1.00383704564471	1.01424545545383	3.41530196736871	0.000637113381132151
<i>HGFAC</i>	1.00185878500523	1.00072341789432	1.00299544024277	3.209947535	0.00132759201457121

Table S3 Seven characteristic genes were obtained by LASSO analysis

Gene	Coef
<i>ST8SIA4</i>	-5.44E-06
<i>POGLUT2</i>	6.31E-05
<i>GCNT4</i>	-0.000101939
<i>ST3GAL3</i>	0.000170049
<i>LARGE2</i>	-7.67E-05
<i>GALNT14</i>	-4.13E-06
<i>GALNT2</i>	4.93E-06

Table S4 Multivariate Cox regression analysis result of 4 signature genes

id	coef	HR	HR.95L	HR.95H	P value
<i>ST8SIA4</i>	-0.000144392	0.999855618742933	0.999763847260107	0.999947398649753	0.00204796379179774
<i>GCNT4</i>	-0.000768551	0.999231744146042	0.998699069150693	0.999764703253652	0.00472897129529226
<i>LARGE2</i>	-0.000605652	0.999394531477933	0.999002346059278	0.999786870859592	0.00249171332261247
<i>GALNT14</i>	-4.91E-05	0.999950869547597	0.999921737425932	0.999980002518009	0.000948777250862364