

Table SI. The genes selected by the proposed method without redundant gene elimination.

AC			SCC					
Gene	P-value	RGs	Gene	P-value	RGs	Gene	P-value	RGs
RDH13	0.001	0	RDH13	0.002	0	OR1Q1	0.033	1
N4BP3	0.013	1	N4BP3	0.007	1	PTENP1	0.033	1
LDLRAP1	0.017	0	PRLHR	0.007	1	RNF167	0.033	1
CTNNA3	0.018	1	CTNNA3	0.008	1	TAS2R16	0.033	1
PRLHR	0.018	1	CCDC158	0.008	1	TOP3A	0.033	1
CCDC158	0.018	1	MRO	0.008	1	TRIM3	0.033	1
MRO	0.018	1	DBNDD1	0.015	0	UTP18	0.033	1
XIRP1	0.018	1	LENEP	0.015	1	ZNF233	0.033	1
LENEP	0.019	1	NF2	0.015	0	ZNF471	0.033	1
NF2	0.021	1	ALOXE3	0.015	1	FAM115A	0.033	1
UPK2	0.021	0	ZNF385D	0.015	0	OR10H2	0.033	1
BMP7	0.023	1	GALR1	0.017	0	TMEM62	0.033	1
SLC39A3	0.027	1	KCNB1	0.017	1	TMSB4Y	0.033	1
ALOXE3	0.029	1	PHOX2B	0.017	1	FANCC	0.034	1
ZNF385D	0.030	0	BMP7	0.017	1	NFIB	0.034	0
BMP10	0.034	1	SLC39A3	0.017	1	LCE1E	0.034	1
C2orf82	0.034	1	HRSP12	0.018	1	HLA-DRB6	0.034	1
HRSP12	0.034	1	KRT74	0.018	1	KRTAP3-3	0.034	1
KCNB1	0.034	1	LDLRAP1	0.018	1	PDE8B	0.034	1
LECT2	0.034	1	LECT2	0.018	0	APC	0.034	1
PHOX2B	0.034	0	LRP1B	0.018	1	OR2C1	0.034	1
PKN2	0.034	1	MPP2	0.018	1	FAM19A2	0.034	1
UBE3C	0.034	0	PKN2	0.018	1	T	0.034	1
USP42	0.034	1	UPK2	0.018	1	HS1BP3	0.034	1
KRT73	0.034	1	XIRP1	0.018	1	BHMT2	0.034	1
LMTK2	0.035	1	BMP10	0.019	1	FAM19A4	0.034	1
KRT74	0.035	1	SLC7A14	0.02	1	CLIP3	0.035	1
STRC	0.035	1	C2orf82	0.022	1	GPR26	0.035	1
ADPRHL2	0.035	1	VWA1	0.022	1	MFAP3	0.035	1
GALR1	0.035	1	PVR	0.023	1	TTTY12	0.035	1
LRRC37A3	0.035	1	COLEC10	0.024	1	ZDHHC14	0.035	1
POU3F3	0.035	1	COX5B	0.024	1	TMEM95	0.035	1
PVR	0.035	1	DAGLA	0.024	1	ANO10	0.035	1
SP8	0.035	1	GABRA2	0.024	1	C14orf183	0.035	1
TESK2	0.035	1	ZNF24	0.024	0	GRIK5	0.035	1
VWA1	0.035	1	KRT73	0.024	1	TCF3	0.035	1
SYNJ2	0.035	1	LRRC37A3	0.024	1	ANKRD52	0.035	1
ARHGAP30	0.036	0	UBE3C	0.024	1	ABI2	0.035	1
BTNL9	0.036	1	STRC	0.025	1	ASGR2	0.035	1
C4orf27	0.036	1	SP8	0.025	1	CLCN5	0.035	1
CDYL2	0.036	1	CDYL2	0.025	1	FBXL20	0.035	0
CIDEA	0.036	1	DR1	0.025	0	FLI1	0.035	1
COX5B	0.036	1	POU3F3	0.025	1	KIF24	0.035	1
DAGLA	0.036	1	USP42	0.025	1	LSM10	0.035	1
DCDC2	0.036	1	LMTK2	0.026	1	NUPL2	0.035	1
DR1	0.036	0	DCDC2	0.026	0	OR51I2	0.035	1
FTHL17	0.036	0	SAP30L	0.026	1	PCNX	0.035	1
LSM11	0.036	0	BTNL9	0.026	1	TRIM4	0.035	1
PARN	0.036	0	LSM11	0.026	0	CCBL1	0.035	1
TEDDM1	0.036	0	C5orf15	0.027	1	CD9	0.035	1
ZNF24	0.036	0	IBTK	0.028	1	EMR2	0.035	1
MT4	0.036	1	MT4	0.028	1	HHLA2	0.035	1
SAP30L	0.037	1	TEDDM1	0.028	1	KCNU1	0.035	1
ENG	0.040	1	CYSLTR2	0.029	1	KRTAP9-4	0.035	1
ENOX2	0.040	1	SYNJ2	0.029	1	MRPL50	0.035	1
LOC283856	0.040	0	SLC35D2	0.029	1	NR1I2	0.035	1

Table SI. Continued.

AC			SCC					
Gene	P-value	RGs	Gene	P-value	RGs	Gene	P-value	RGs
ULK4	0.040	1	CHMP1A	0.029	1	PPP2R4	0.035	1
CHMP1A	0.040	1	SLC17A1	0.029	1	SPRED3	0.035	1
DEFB118	0.040	1	ANKLE2	0.029	1	SYCE1L	0.035	1
TGM2	0.040	0	PCDHGA1	0.029	1	TMEM106A	0.035	1
CBL	0.041	1	CBL	0.029	1	TOR1AIP2	0.035	1
OR10H3	0.042	1	CIDEA	0.029	1	TSPYL6	0.035	1
ANKLE2	0.042	1	CRYGA	0.029	1	TTPA	0.035	1
SIRPB1	0.042	1	FA2H	0.029	1	TYR	0.035	1
SLC17A1	0.042	1	LOC283856	0.029	1	CSMD2	0.035	1
PCDHGA1	0.042	1	MC1R	0.029	1	AAK1	0.035	1
C5orf24	0.044	1	NPY5R	0.029	1	DDX41	0.035	1
CRYGA	0.044	1	NXPH2	0.029	1	GRM6	0.035	1
MC1R	0.044	1	OR10H3	0.029	1	NLRP10	0.035	1
POLR2L	0.044	1	SIRPB1	0.029	1	SLC6A11	0.035	1
SH3TC1	0.044	1	ULK4	0.029	1	TMEM198	0.035	1
SLC35D2	0.044	1	ENG	0.029	1	CLASP1	0.035	1
ADAM18	0.044	1	DEFB118	0.030	1			
LSM10	0.046	1	TGM2	0.030	1			
AP4E1	0.046	1	SH3TC1	0.030	1			
BCL2L1	0.046	0	FGA	0.031	1			
BHMT2	0.046	1	COL22A1	0.031	1			
C1orf180	0.046	1	MRE11A	0.031	1			
C5orf15	0.046	1	OR51E2	0.031	1			
CCDC54	0.046	0	ADPRHL2	0.031	1			
CCRN4L	0.046	1	C5orf24	0.031	1			
CD300LG	0.046	1	PCDHGC3	0.031	1			
CDH6	0.046	1	ARHGAP30	0.031	1			
CMIP	0.046	1	HAO1	0.031	1			
COLEC10	0.046	1	KRBA2	0.031	1			
DLEU7	0.046	1	RHO	0.031	1			
EMR2	0.046	1	TESK2	0.031	1			
EVPLL	0.046	1	DNAJC28	0.032	1			
FA2H	0.046	1	TAS2R8	0.032	1			
FANCC	0.046	0	TMPRSS5	0.032	1			
FGA	0.046	1	CDH6	0.032	1			
FLI1	0.046	1	CMIP	0.032	1			
GGT1	0.046	1	PARN	0.032	1			
GPR137	0.046	1	TMPRSS15	0.032	1			
GPR26	0.046	1	AP4E1	0.032	1			
GPR3	0.046	1	SPINT3	0.032	1			
HLA-DRB6	0.046	1	ADAM18	0.032	1			
IBTK	0.046	1	BCL2L1	0.032	1			
ISCU	0.046	1	GPR3	0.032	1			
KIF24	0.046	1	OR1D2	0.032	1			
KRTAP3-3	0.046	1	RIMKLB	0.032	1			
KRTAP4-9	0.046	1	SLC25A13	0.032	1			
LRP1B	0.046	1	ASZ1	0.032	1			
MAPT	0.046	1	C1orf180	0.032	1			
NFIB	0.046	1	CCDC54	0.032	1			
NFKB2	0.046	0	CD300LG	0.032	1			
NKAIN4	0.046	1	FTHL17	0.032	1			
NPY5R	0.046	1	GPHN	0.032	1			
NUPL2	0.046	1	MAPT	0.032	1			
NXPH2	0.046	1	NEURL2	0.032	1			
OLAH	0.046	0	NFKB2	0.032	1			
OR10H2	0.046	1	SHANK3	0.032	1			
OR12D2	0.046	1	SNORA37	0.032	1			

Table SI. Continued.

AC			SCC					
Gene	P-value	RGs	Gene	P-value	RGs	Gene	P-value	RGs
OR1D2	0.046	1	ZPBP2	0.032	1			
OR1Q1	0.046	1	NKAIN4	0.033	1			
OR2C1	0.046	1	GGT1	0.033	1			
OR51E2	0.046	1	C2orf72	0.033	1			
RHO	0.046	1	CCRN4L	0.033	1			
RNF167	0.046	1	CGA	0.033	1			
SHANK3	0.046	0	DLEU7	0.033	1			
SLC25A13	0.046	1	FAM135B	0.033	1			
SNORA37	0.046	0	FBXO44	0.033	1			
SPINT3	0.046	1	GPR137	0.033	1			
SYCE1L	0.046	0	HIPK2	0.033	1			
TAS2R16	0.046	1	IFNA14	0.033	1			
TAS2R8	0.046	1	ISX	0.033	1			
TMPRSS15	0.046	1	KRTAP4-9	0.033	1			
TMPRSS5	0.046	1	LOC728024	0.033	1			
WDR63	0.046	0	LYG2	0.033	1			
ZDHHC14	0.046	1	MIA2	0.033	1			
ZPBP2	0.046	1	OR12D2	0.033	1			

AC, adenocarcinoma; SCC, squamous cell carcinoma; RGs, redundant genes; 1, redundant; 0, not redundant.