

**Table S1. 284 overlapped DEGs.**

<b>Up-regulated genes</b>	<b>Down-regulated genes</b>
ADM	ABAT
ANLN	ABLIM1
ARL4C	ACAD8
ASF1B	ACADL
AURKA	ACADSB
AVEN	ADCY9
BLM	ADD3
BUB1	ANK2
BUB1B	ARG2
CA12	ARHGAP6
CCNA2	ARL4D
CCNB2	ASS1
CD86	BBS1
CDC6	BCL2
CDC7	BDH2
CDCA8	BEX1
CDH13	BMP7
CENPE	BSPRY
CENPF	CBX7
CENPI	CCL28
CEP55	CD9
CHSY1	CDH1
CKS2	CDKL2
COL5A1	CDS1
CTSC	CHKA
DKK1	CIRBP
DNM1	CLN5
DNMT1	CLUL1
DTL	CMTM4
ELF4	CRABP1
ENO1	CROT
ESM1	CXADR
ESPL1	CYBRD1
EZH2	CYP7B1
F2R	DAPK2
FAM83D	DIO1
FANCA	DMXL1

FCGR2A	DPP6
FEN1	DPT
FN1	DZIP3
FOXM1	EDN3
GARS	ENOSF1
GGH	EPB41L4B
GLRX	EPHB1
GNA15	EPM2AIP1
HAPLN1	ERLIN2
HELLS	EXOC6
HMMR	FAAH
HMOX1	FBXL3
HOXB6	FGFR2
HPSE	FMOD
IL1RAP	FOS
IRAK1	GFRA2
ITGB5	GNAL
KCNN4	GPD1L
KIAA0101	GPM6A
KIF11	GPRC5C
KIF14	HDHD2
KIF23	HGD
KIF2C	HHEX
LAIR1	HSD17B6
LCP2	INTS10
LGALS1	IRS1
LMNB2	ITPR1
LOXL2	IVD
LTBP1	KCNAB1
MAD2L1	KCNJ15
MAP4K4	KIAA1217
MCM4	KIAA1324
MCM6	KIT
MICAL2	KLHDC8B
MKI67	LMOD1
MMP12	LRP1B
MTHFD2	LRP2
NCAPH	LRRN3
NDC80	MAGI1
NEK2	MAL
NEK6	MAL2
NUSAP1	MAN1C1
PBK	MAOA

PLAUR	MAP7
PLOD1	MDM1
PLP2	METTTL7A
POLE2	MLLT3
PRC1	MMRN1
PROCR	MTCH1
RAD51	MYLIP
RAD54L	MYO5C
RAI14	MYOC
S100A11	NDUFA5
SACS	NEBL
SCD	NELL2
SERPINE1	NFIA
SERPINH1	NT5DC1
SFXN3	NTRK2
SHMT2	OBSL1
SLC16A1	OCA2
SLC1A5	OMD
SLC2A1	PAX8
SLC4A7	PBX1
SLC7A5	PCP4
SMC4	PCYOX1
SRM	PDE1A
STMN1	PEBP1
TIMP1	PLA2R1
TMEM51	PLCH1
TNFSF4	PLEKHH1
TPX2	PLLP
TREM1	POLI
TREM2	PPARGC1A
TRIP13	PPFIBP2
TTK	PPP1R13B
TYMS	PREPL
UBE2C	PRKCQ
UBE2S	PROX1
UBE2T	RALGPS1
UGCG	RAPGEF3
UHRF1	RGN
UPP1	RORC
WDHD1	RUFY3
ZWILCH	RYR2
	SALL2
	SCPEP1

	SDC2
	SELENBP1
	SGCD
	SH3BGRL2
	SHANK2
	SLC1A1
	SLC26A4
	SLC4A4
	SLCO2A1
	SLIT3
	SMOC2
	SNTB1
	SNURF///SNRPN
	SNX4
	SORBS2
	SPINT2
	SSBP2
	SULT1C2
	TBC1D4
	TDRD9
	TFCP2L1
	TFF3
	TM7SF2
	TMED4
	TMEM27
	TMEM30B
	TOB1
	TPMT
	TRIB1
	TSPAN1
	TTC30A
	UNC5C
	UST
	VSIG2
	XPA
	ZNF135
	ZNF254
	ZNF44
	ZNF536
	ZNF91

**Table S2. 50 hub genes**

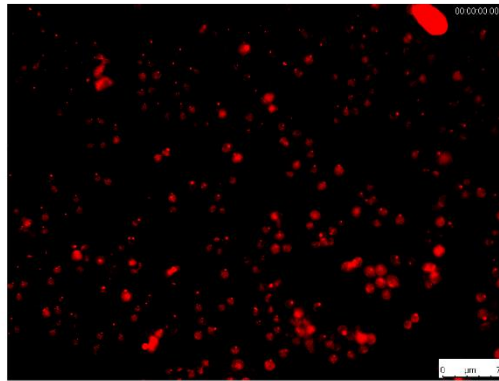
Gene/logFC	GSE9115	GSE29265	GSE33630	GSE53072	GSE65144
ANLN	4.249501	3.586486	4.5310279	4.5112437	3.8349291
ASF1B	1.731463	1.069791	1.5568269	2.5955777	1.37685
AURKA	2.486107	2.003158	2.1283003	3.1507348	2.3053874
BLM	1.544973	1.338236	1.4803289	2.0387852	1.4703683
BUB1	4.166422	1.714786	1.4445203	3.722185	2.1383404
BUB1B	3.204029	3.662895	3.3222085	2.7242366	2.6633887
CCNA2	2.281094	2.402771	2.5566741	3.6408431	2.4453877
CCNB2	2.631069	3.022442	1.627931	3.1989046	2.8048965
CDC6	2.834243	2.146476	2.2222622	3.3885052	2.1507279
CDCA8	1.979445	1.430122	1.4808024	1.9921946	1.6368409
CENPE	3.00808	1.567566	2.8211352	3.4042924	2.7502676
CENPF	2.9567997	2.782508	2.2863712	3.9466146	2.4685136
CEP55	4.628617	3.965919	3.8667539	3.6555611	3.3066677
CKS2	2.8608215	3.022551	2.789164	3.048534	2.1129076
DTL	2.576828	2.292387	2.5118814	2.4307324	2.1421259
ESPL1	1.466805	1.207385	1.4046968	1.564921	1.9361152
EZH2	1.660323	2.370737	2.9053579	2.456863	2.3742056
FAM83D	2.739142	2.802078	3.7329583	2.9453276	2.6111049
FEN1	1.141809	1.351084	1.7638414	1.163661	1.5123178
FOXM1	1.557227	2.838813	2.6943389	3.4934012	3.3484878
HELLS	1.4780855	1.724095	1.3162236	1.9640106	2.0179173
HMMR	3.601786	2.333873	2.9900392	2.7985331	3.0090259
KIAA0101	3.06985	2.165673	2.5075124	3.5304685	1.8241483
KIF11	1.782614	2.55194	2.4637236	2.7403372	2.1195404
KIF14	2.613853	2.40131	3.4513603	2.6023249	2.4159658
KIF23	3.880478	1.934646	2.6858734	3.0401416	3.0962976
KIF2C	2.369108	2.030461	2.4964531	2.1822401	2.243311
MAD2L1	2.549783	2.089006	2.2477245	1.6970916	1.7820331
MCM4	1.100063	1.722287	1.5847566	1.8338984	1.4544475
MCM6	1.586613	0.98913	1.0929989	1.6414528	1.2283414
MKI67	2.174624	1.982597	2.2528588	4.4259125	2.3905061
NCAPH	2.212522	1.587435	2.0004828	3.5447868	3.022846
NDC80	2.373855	2.481798	3.7940561	2.9485379	2.2488158
NEK2	3.253339	3.686941	2.5192857	2.1410378	2.1331192
NUSAP1	2.865943	2.822654	3.0859718	3.5900072	3.6111257
PBK	4.926901	3.314425	4.0682591	4.1464874	3.0812362

POLE2	1.00793	1.457533	2.1860227	2.4314599	2.1090108
PRC1	1.459825	2.710694	3.3092053	3.256522	3.160202
RAD51	1.481896	2.220105	1.0901954	2.1899965	1.8388686
RAD54L	1.182757	1.840828	1.5110594	1.0058979	1.9481534
SMC4	1.828578	1.130175	1.4330523	2.0178649	1.5570346
TPX2	2.721865	2.911223	4.0280186	4.3894214	2.7885271
TRIP13	1.583707	3.313628	3.3736047	3.012225	2.7134467
TTK	3.596659	2.481306	3.5385101	3.3480037	2.4721329
TYMS	1.952929	2.40001	3.3449321	2.4922739	2.167154
UBE2C	1.871799	2.344126	3.597978	2.8941807	3.2683942
UBE2T	1.702408	1.712369	2.3860268	2.3266844	2.1628955
UHRF1	2.26861	4.071723	4.200046	3.4860135	2.967154
WDHD1	2.365355	1.878088	1.8920953	1.7902375	1.6990958
ZWILCH	1.671318	1.490308	1.5934354	1.8585233	2.0443023

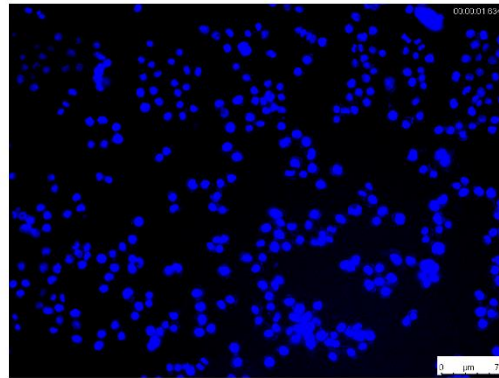
# Figure S1

A

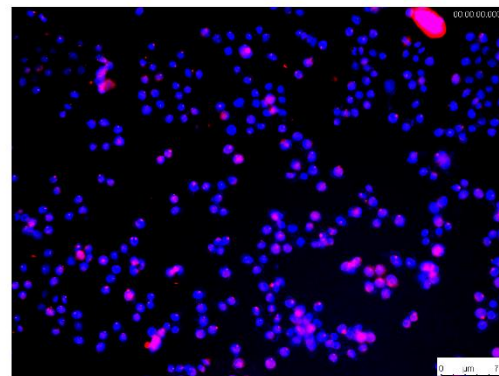
TG



DAPI

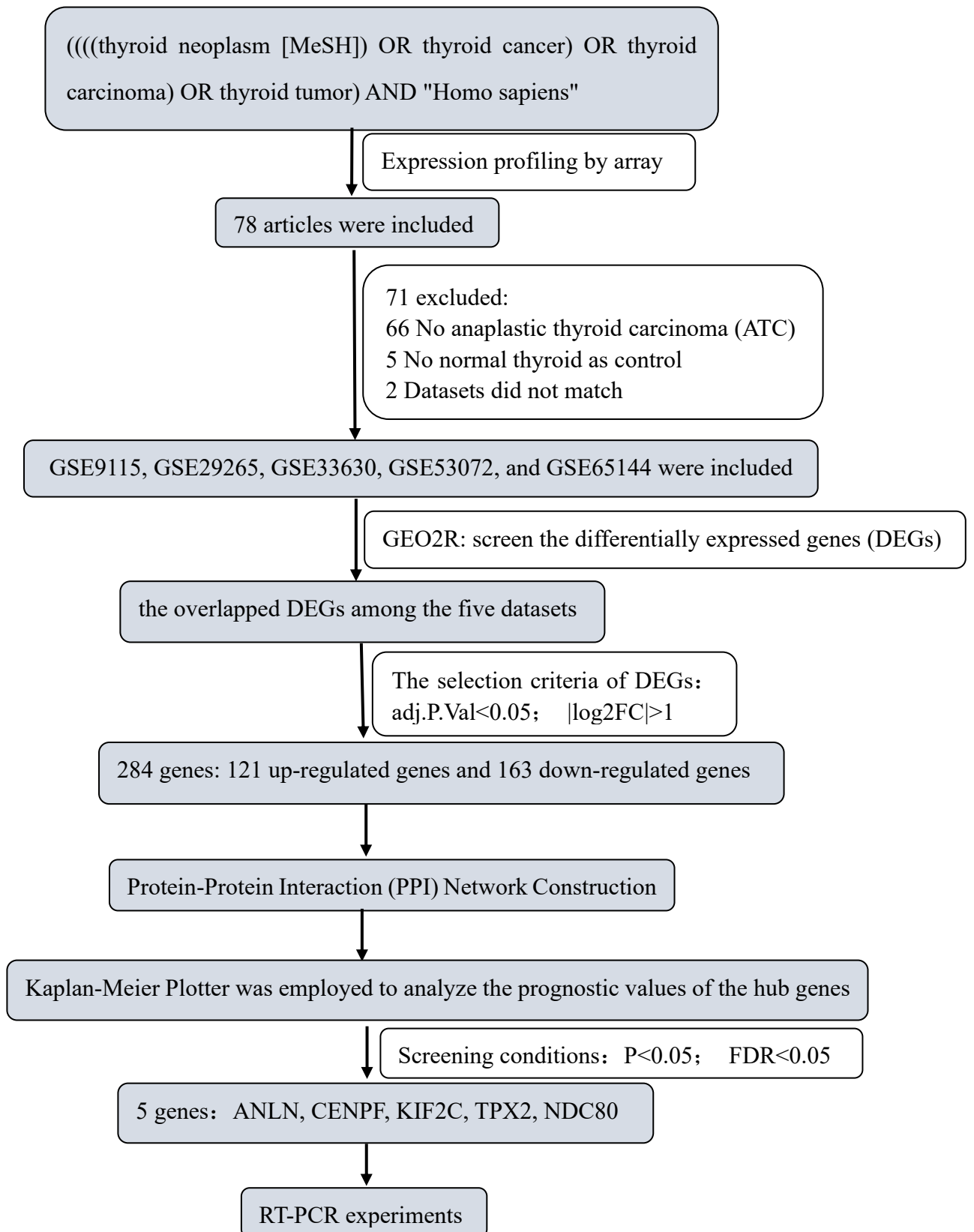


Merge



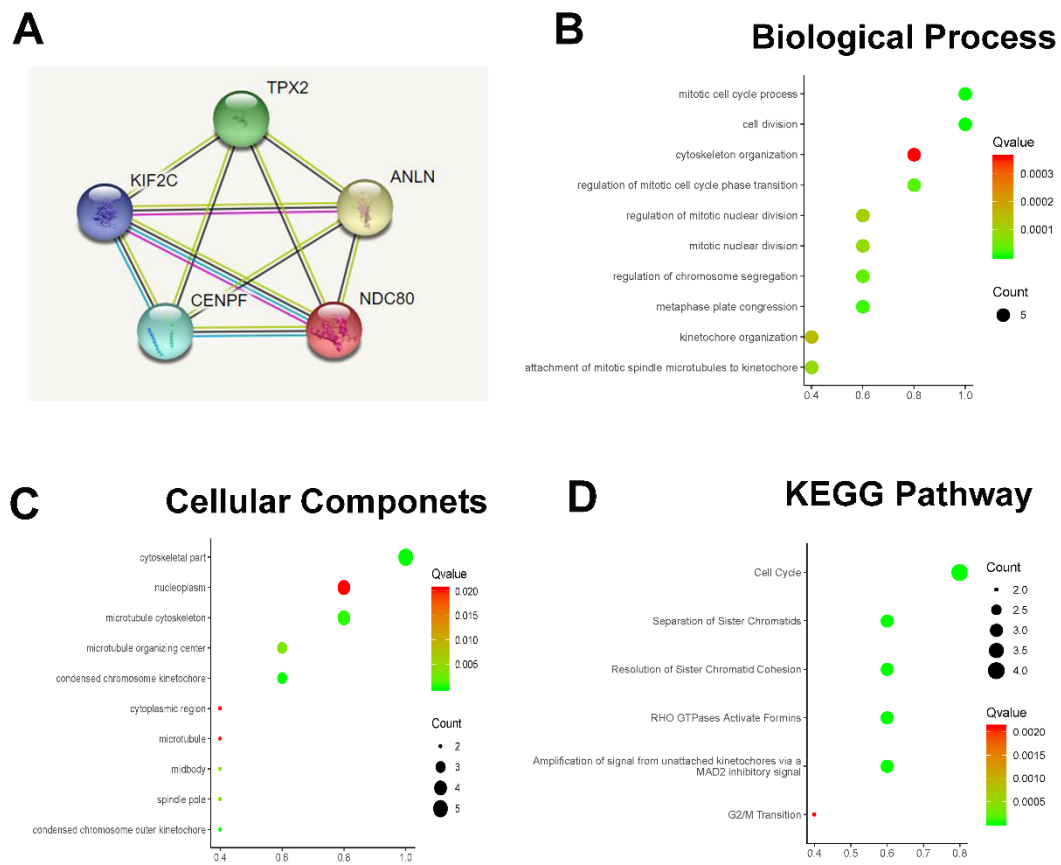
**Figure S1.** (A) Thyroglobulin (TG) expression was detected by immunofluorescence. The red fluorescence represents TG expression, and the blue fluorescence represents nuclei.

**Figure S2** the flowchart of the work





**Figure S3**



**Figure S3. Functional and pathway enrichment analyses of the five genes in ATC**

(A) PPI network of the five genes. (B) Biological Process (BP), (C) Cellular Component (CC), (D) and KEGG pathway analyses. The x-axis represents the Q value, and the y-axis represents the GO term. The GO terms were measured by the rich factor, Q value, and number of genes enriched.