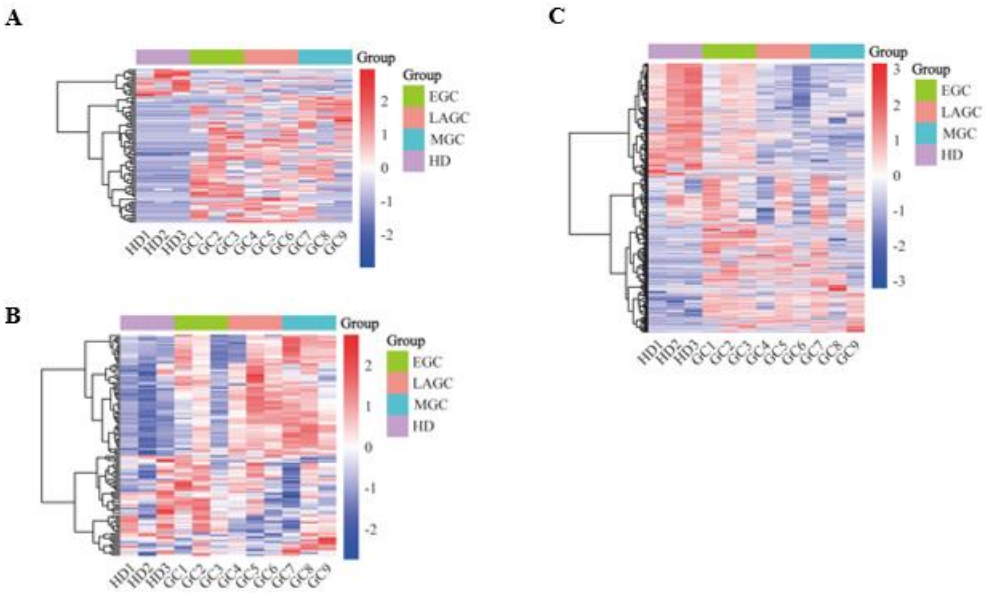
Supplementary Table 1 The culture methods of normal gastric epithelial cells and gastric cancer cells

Cell lines	Culture methods
NGEC	RPMI-1640 medium (Gibco) with 10% fetal bovine serum (Biological Industries)
AGS	F-12k Nutrient Mixture (Gibco) with 10% fetal bovine serum (Biological Industries)
MGC-803	RPMI-1640 medium (Gibco) with 10% fetal bovine serum (Biological Industries)
SGC-7901	RPMI-1640 medium (Gibco) with 10% fetal bovine serum (Biological Industries)
HGC-27	DMEM-high glucose medium (Gibco) with 10% fetal bovine serum (Biological Industries)
SNU-1	RPMI-1640 medium (Gibco) with 10% fetal bovine serum (Biological Industries).
KATO III	IMDM medium (HyClone) with 20% fetal bovine serum (Biological Industries)
BGC-823	DMEM-high glucose medium (Gibco) with 10% fetal bovine serum (Biological Industries)

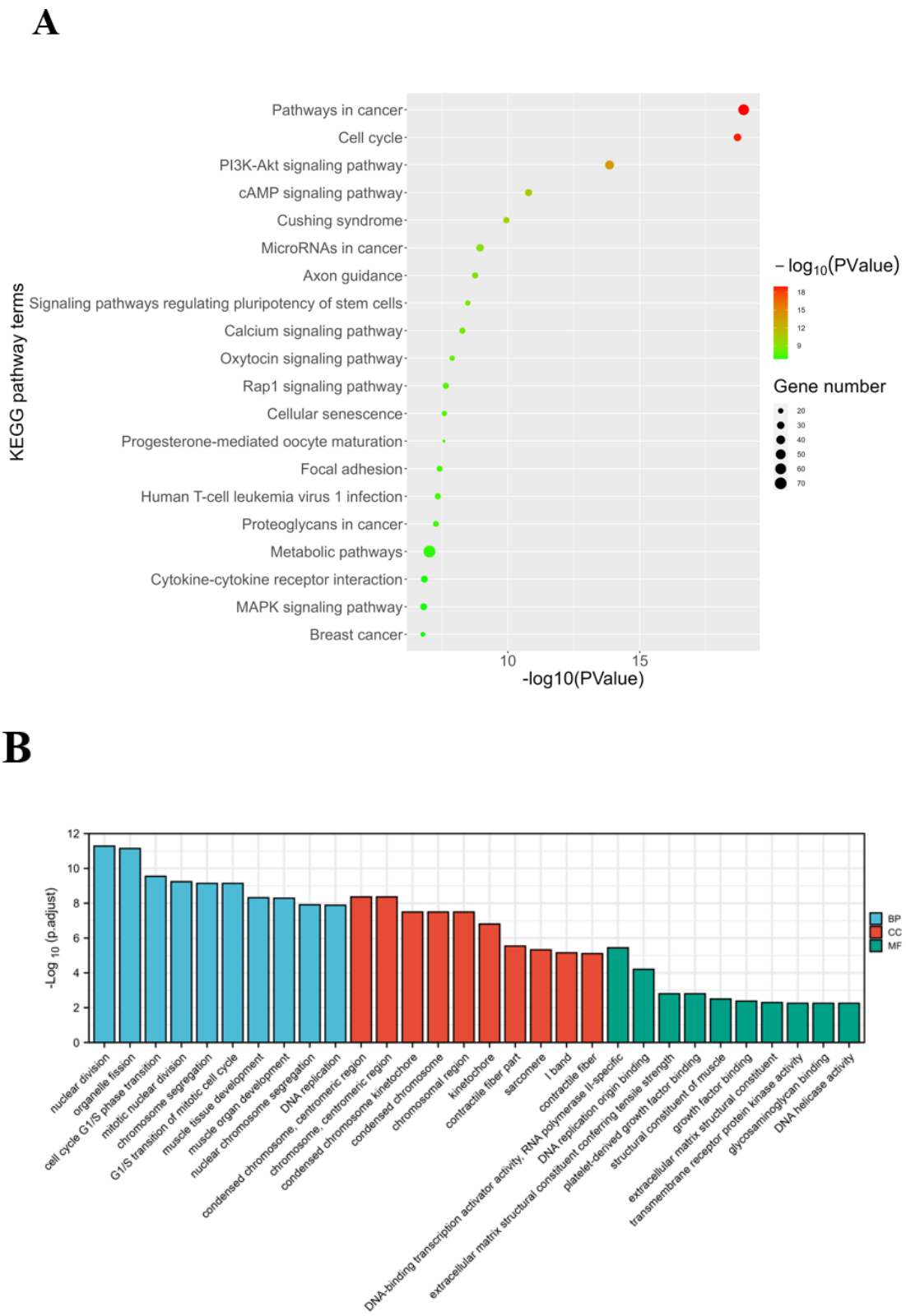
NGEC: Normal gastric epithelial cell.

Supplementary Table 2 The primers of circular RNAs for real-time PCR and droplet digital PCR

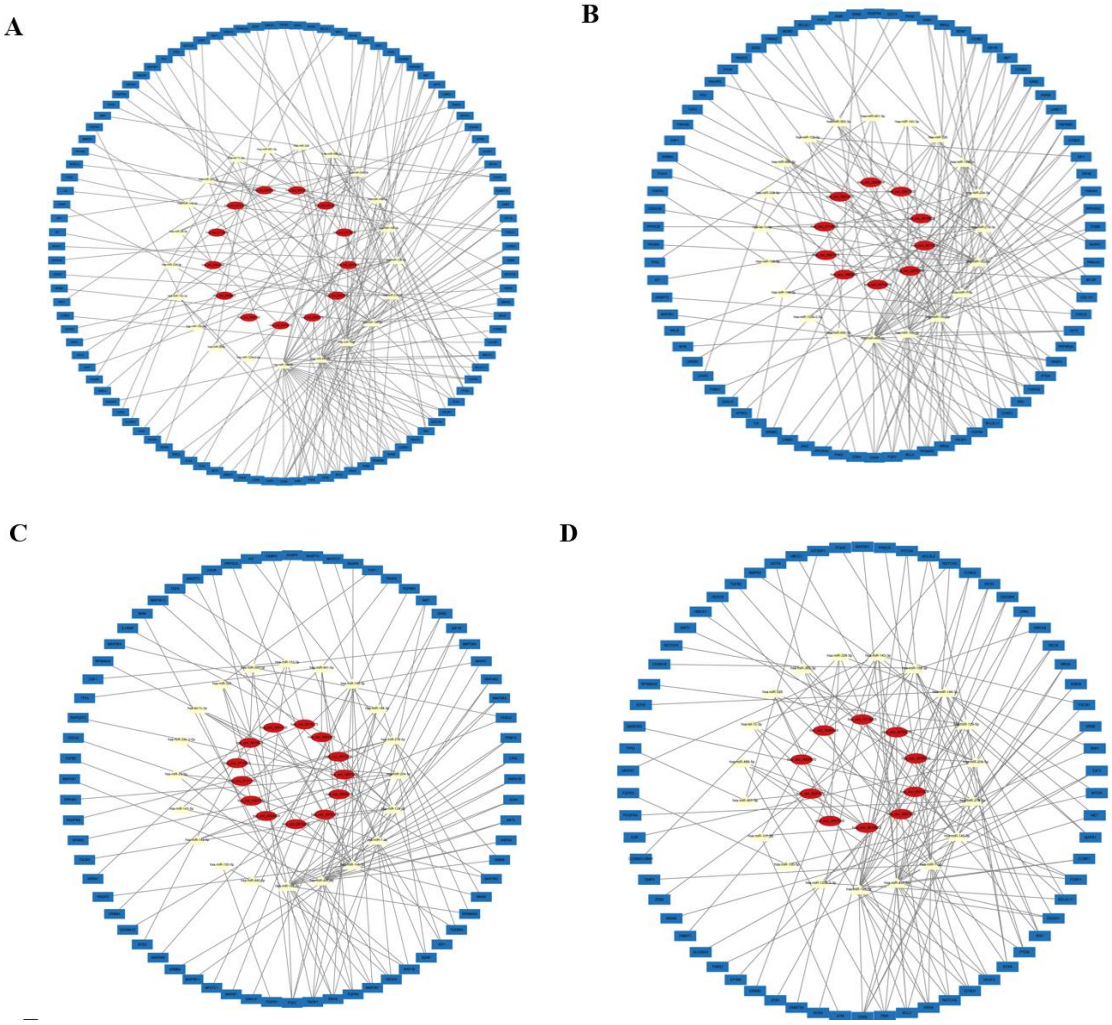
	Sense primer (5′ – 3′)	Antisense primer (5′ – 3′)
hsa_circ_0113953	CTGTTGCTTCTCAAGATGCCC	AATTGGCATGTCGCCTTCC
hsa_circ_0076179	TGCGAAAAGAACCTACAGAGAACT	CTGCCACACGTAACCCCG
hsa_circ_0007353	CGCTTGTAAGGAACTTGCCAT	AGCATCAAAAACATCAGTCCGA
hsa_circ_0012823	AGCAGTTGAAGAAGCAAGGCA	TCATCTGTTCCTGTAGCCTCCA
hsa_circ_0001470	AGGAAACTCAGCCTCCAGAAAC	CATACAGCCACGTAATCCAGATG
hsa_circ_0079439	GCAAAAGAAGCCCAAGGCT	AACTCTTTCCTCATGTTTTTCTTCC
GAPDH	TGAAGGTCGGAGTCAACGGAT	CTGGAAGATGGTGATGGGATT



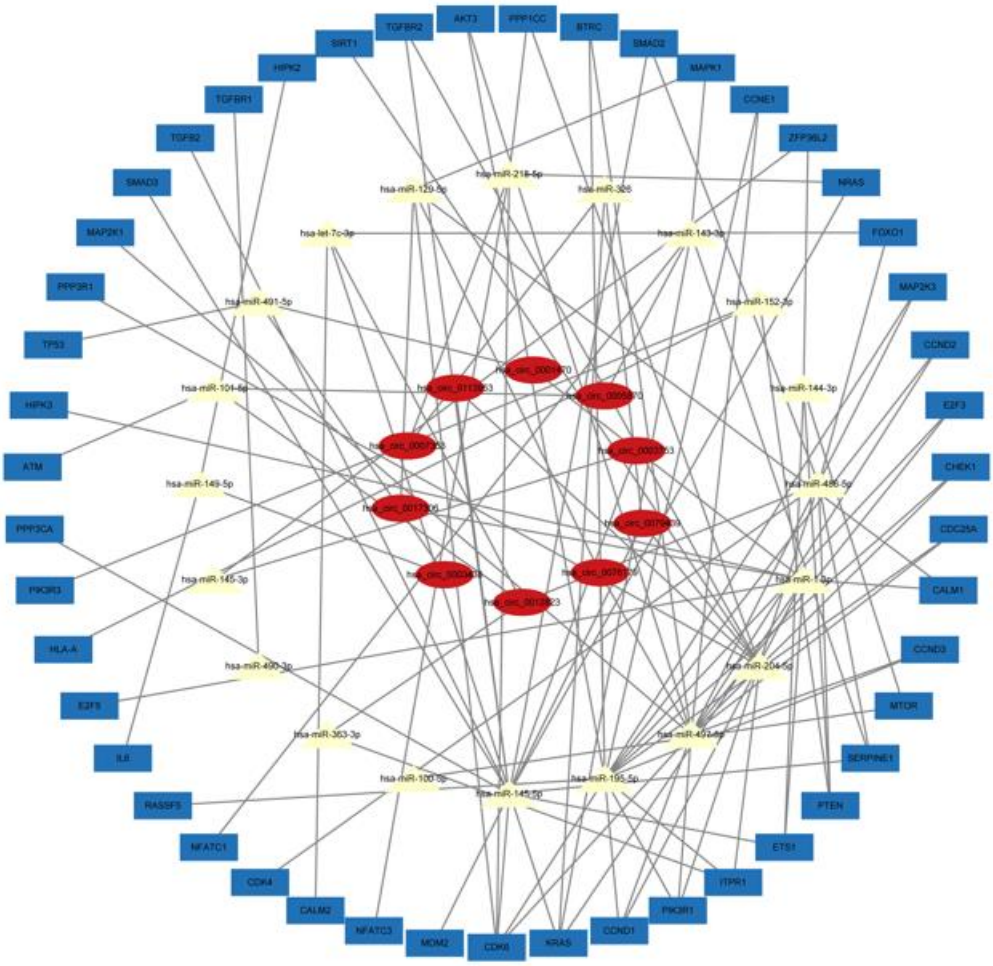
Supplementary Figure 1. Clustering analysis of long noncoding RNAs (A), microRNAs (B) and messenger RNAs (C).



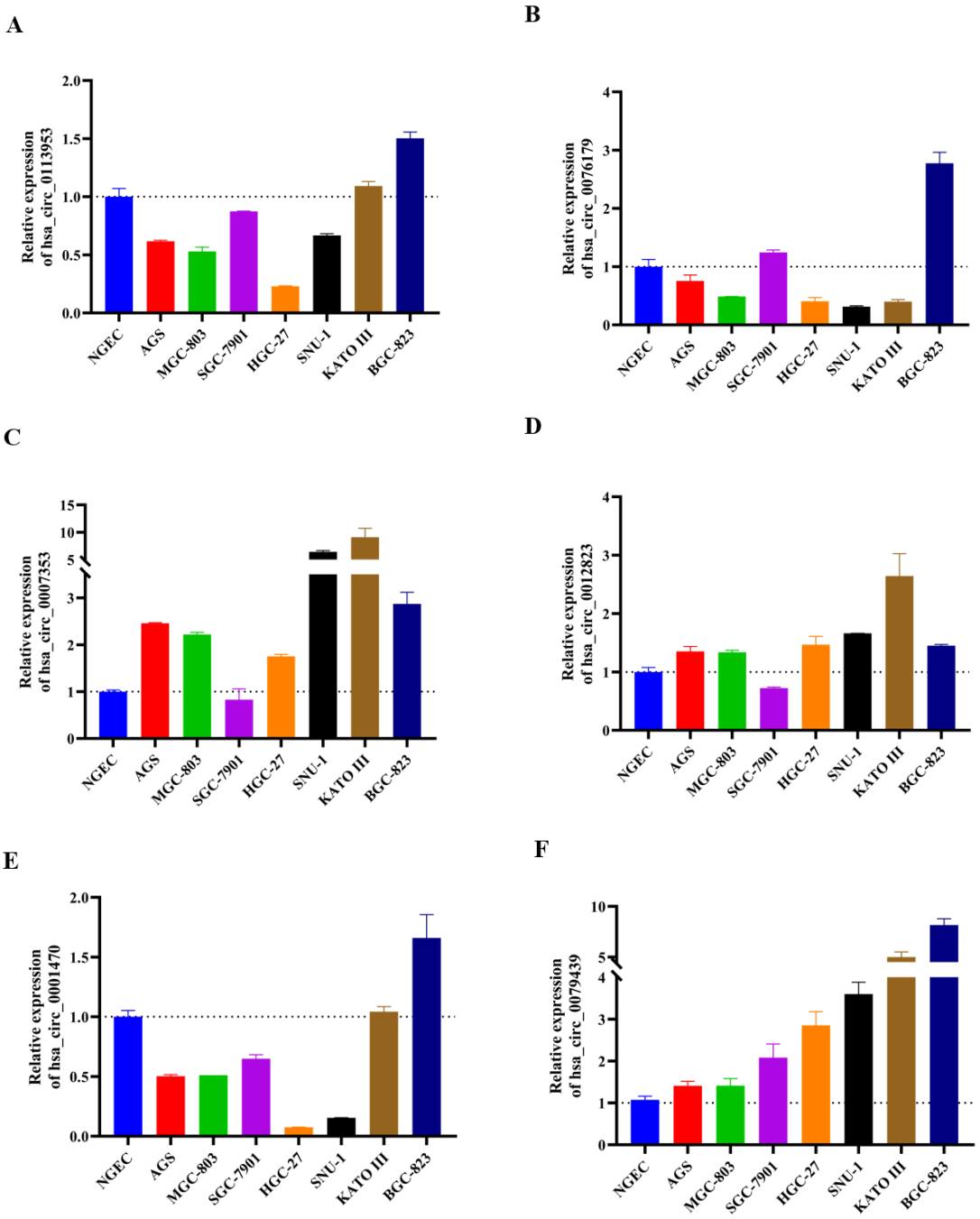
Supplementary Figure 2 KEGG pathway analysis (A) and GO (B) enrichment analysis of differently expressed circular RNAs based on the differently expressed genes of The Cancer Genome Atlas.


A
B
C
D

E



Supplementary Figure 3 The circular RNAs-microRNA-messenger RNA regulatory network related to the genes enriched in the top 5 KEGG pathways: pathways in cancer (A), PI3K-Akt signaling pathway (B), MAPK signaling pathway (C), microRNAs in cancer (D) and cellular senescence (E).



Supplementary Figure 4. The expression levels of 6 circular RNAs in the Normal gastric epithelial cells and Gastric cancer cells (AGS, MGC-803, SGC-7901, HGC-27, SNU-1, KATO III and BGC-823). (A) The expression levels of hsa_circ_0113953 in normal gastric epithelial cells (NGEC) and gastric cancer cells (GCCs). (B) The expression levels of hsa_circ_0076179 in NGEC and GCCs. (C) The expression levels of hsa_circ_0007535 in NGEC and GCCs. (D) The expression levels of hsa_circ_0012823 in NGEC and GCCs. (E) The expression levels of hsa_circ_0001470 in NGEC and GCCs. (F) The expression

levels of hsa_circ_0079439 in NGEC and GCCs.