Supplemental information

Circular RNA circRAB31 acts as a miR-885-5p sponge to suppress gastric cancer progression via the PTEN/PI3K/AKT pathway

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### Supplementary Table 1: nucleotide sequences of siRNAs and probes

| Name             | sequences                                                                 |
|------------------|---------------------------------------------------------------------------|
| Si-circRAB31-1   | CCTCTCAGATATAGGACA                                                        |
| Si-circRAB31-2   | TCTCAGATATAGGACACT                                                       |
| Si-circRAB31-3   | CTCAGATATAGGACACTG                                                       |
| MiR-885-5p mimic | UCCAUUACUACUACCCAUGCACUC                                                  |
| MiR-520h mimic   | ACAAAGUCUUCUUCUUAGGU                                                    |
| MiR-885-5p inhibitor | AGGUAAUGUAUGGAACGGAGA                                                |
| Mimic NC         | UUUUGUAACUACAAAAGUACUG                                                   |
| Inhibitor NC     | CAGUACUUUUGUGUAGUACAAA                                                   |
| Fish probe of circRAB31 | CCAACCCCGAG+TGTCCTAATA+TCTGA                                    |
| Fish probe of miR-885-5p | AGAGGCAGGG+TAGTGTA+TGGGA                                           |
| Biotin labeled circRAB31 probes 1 | /5bio/-AACCCCAGTGCCTATATATC                                       |
| Biotin labeled circRAB31 probes 2 | /5bio/-CCAACCCAGTGCCTATATATC                                      |

### Supplementary Table 2: quantitative real-time PCR primer sequences

| Name     | Primer                                                                 |
|----------|------------------------------------------------------------------------|
| circRAB31 | F:CCATGTACTATCGAGGCTCAG   R:CCCAACCCCAGTGCTCCTAAT                        |
| RAB31    | F:TACTATCGAGGCTCAGCTGC   R:TCTGAGAGGTCGACCTGTT                           |
| RICTOR   | F:ACAAACAGAGCAACCGAGGTA   R:GGTCACAGAACTAGGAAACAA                         |
| MIOS     | F:AAAGGAACGGATGTAGACG   R:TCCAAGTTGAAACATGGCC                            |
| WNT5A    | F:GCAGCAGGGGTTGGTGAAC   R:TCCCTGGAACCGGAGTAG                              |
| CASP3    | F:AAACCTCAGGGAAACATT   R:TTTAGAAGAATCACGCATC                            |
| YWHAE    | F:CGATACGACGAAATGGTG   R:TCCAAGTTGAAACATGGCC                            |
| MAP4K3   | F:AAACCTCAGGGAAACATT   R:TTTAGAAGAATCACGCATC                            |
| CTNNB1   | F:CCATGTACTATCGAGGCTCAG   R:CCCAACCCCAGTGCTCCTAAT                        |
| GAPDH    | F:CTTTGGTGATCGGAGGACTC   R:GTAGAGGCAGGGATGTGTCTCT                      |
| hsa-miR-485-3p | F:GUCAUACACCGUCUCUCUCUCU                                                  |
| hsa-miR-520h   | F:ACAAAGUCUUCUUCUUAGAGU                                                  |
| hsa-miR-885-5p   | F:UCCAUUACACUACCCUGCCUC                                                  |
Supplementary Figure 1. (A) Survival analysis was conducted between circRAB31 low group and circRAB31 high group. (B) CircRAB31 is derived from exon2, exon3, exon4 and exon5 of its parental genes RAB31. (C) qRT-PCR was performed to detect the expression of circRAB31 and mRAB31 in the presence and absence of RNase R (**P<0.01). (D) The distribution of circRAB31, mRAB31, GAPDH and U6 in MGC803 cells were assessed by using qRT-PCR. (E) The distribution of circRAB31, mRAB31, GAPDH and U6 in AGS cells were assessed by using qRT-PCR. (F) qRT-PCR was performed to detect the expression of mRAB31 after transfected with siRNA of circRAB31.
Supplementary Figure 2. (A and B) Flow cytometry and TUNEL assays were performed to detect the apoptosis function of MGC803 and AGS. (C) The luciferase activity of pmirGLO-circRAB31-WT or pmirGLO-circRAB31-MUT in MGC803 cells after co-transfection with miR-520h mimics. (D) Correlation between circRAB31 and miR-885-5p in 41 tumor tissues (E) Luciferase reporter assay was performed to determine the effect of miR-885-5p on PTEN 3’ UTR in MGC803 cells (*P < 0.05). (F) qRT-PCR was performed to detect the effect of miR-885-5p mimics and inhibitors on PTEN mRNA expression in MGC803 and AGS cells (**P<0.01).