**Supplementary Table S1.** The primers sequences used in this study.

|  |  |
| --- | --- |
| Name | Sequence |
| mir373-RT | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACGGGACA |
| mir373-Forward | GAAGTGCTTCGATTTTGGGG |
| mir372-RT | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACGTGACG |
| mir372-Forward | GAAAGTGCTGCGACATTTGAG |
| mir371a-RT | GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACGTAACA |
| mir371a-Forward | AGTGCCGCCATCTTTTGAG |
| Reverse primer | AGTGCAGGGTCCGAGGTATT |

**Supplementary Table S2.** The correlation between the mir-373 and the clinicopathological characteristics.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristics | has-mir-373 (n=404) | | |  |
| Low | High | p |
| Age(y) |  |  |  |  |
| < 50 | 30 | 1 | 0.613 |  |
| 50-65 | 140 | 9 |  |  |
| > 65 | 213 | 9 |  |  |
| Gender |  |  |  |  |
| Female | 144 | 6 | 0.608 |  |
| Male | 241 | 13 |  |  |
| T Stage |  |  |  |  |
| T1+T2 | 104 | 5 | 0.991 |  |
| T3+T4 | 272 | 13 |  |  |
| N Stage |  |  |  |  |
| N1+N2 | 221 | 11 | 0.663 |  |
| N3+N4 | 151 | 6 |  |  |
| M Stage |  |  |  |  |
| M0 | 341 | 16 | 0.383 |  |
| M1 | 26 | 2 |  |  |
| AJCC Stage |  |  |  |  |
| Stage 1+2 | 176 | 7 | 0.471 |  |
| Stage 3+4 | 194 | 11 |  |  |
| Grade |  |  |  |  |
| Low | 148 | 8 | 0.647 |  |
| High | 231 | 10 |  |  |
| Tumor location |  |  |  |  |
| Antrum/Distal | 136 | 7 | 0.829 |  |
| Fundus/Body | 133 | 7 |  |  |
| Cardia/Proximal | 58 | 2 |  |  |
| Gastroesophageal Junction | 37 | 3 |  |  |
| **Tumor Recurrence** |  |  |  |  |
| Negative | 270 | 9 | **0.036** |  |
| Positive | 115 | 10 |  |  |
| **Survival Event** |  |  |  |  |
| Alive | 238 | 6 | **0.007** |  |
| Death | 142 | 13 |  |  |
| **Cancer Status** |  |  |  |  |
| Tumor free | 233 | 31 | **0.021** |  |
| With tumor | 64 | 18 |  |  |

Some patients' information from mirna sequencing is missing in the TCGA database

**Supplementary Table S3.** The correlation between ZFP91 and the clinicopathological characteristics (n=343).

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristics | Low | High | p |
| Age(y) |  |  |  |
| ≤50 | 20 | 7 | 0.005 |
| 50-65 | 101 | 23 |  |
| ≥65 | 123 | 68 |  |
| Gender |  |  |  |
| Female | 89 | 39 | 0.548 |
| Male | 156 | 59 |  |
| Tumor Subdivision |  |  |  |
| Antrum/Distal | 80 | 38 | 0.608 |
| Fundus/Body | 88 | 32 |  |
| Cardia/Proximal | 39 | 13 |  |
| Gastroesophageal Junction | 27 | 8 |  |
| T-stage |  |  |  |
| T1+T2 | 69 | 25 | 0.766 |
| T3+T4 | 173 | 68 |  |
| **T-stage** |  |  |  |
| **T1-T3** | **189** | **59** | **0.006** |
| **T4** | **53** | **34** |  |
| **N-Stage** |  |  |  |
| N0+N1 | 187 | 77 | 0.327 |
| N2+N3 | 50 | 15 |  |
| M-Stage |  |  |  |
| M0 | 215 | 88 | 0.336 |
| M1 | 19 | 4 |  |
| Tumor Stage |  |  |  |
| Stage1+2 | 119 | 41 | 0.442 |
| Stage3+4 | 120 | 50 |  |
| Tumor Grade |  |  |  |
| Grade1+2 | 98 | 37 | 0.699 |
| Grade3 | 142 | 59 |  |
| **Status** |  |  |  |
| **Alive** | **140** | **67** | **0.017** |
| **Death** | **105** | **27** |  |
| **Recurrence** |  |  |  |
| **Negative** | **159** | **76** | **0.023** |
| **Positive** | **86** | **22** |  |

Some patients' information from RNA sequencing is missing in the TCGA database



**Supplementary Figure S1.** The expression levels of mir-373, mir-372 and mir-371a detected from 25 paired gastric cancer and the adjacent nontumor samples.



**Supplementary Figure S2.** CCK-8 and transwell assay showed mir-373 increased the proliferation, invasion and migration of MGC-803 *in vitro*. Data were from three independent experiments.



**Supplementary Figure S3.** A) Kaplan-Meier with log-rank test confirmed low expression of ZFP91 distinguished the poor overall survival (n=339). B) Multivariate COX proportional hazards model demonstrated that ZFP91was the protective factor of gastric cancer mortality.



**Supplementary Figure S4.** Transwell assay showed the change of invasion and migration capacity of AGS and MGC-803 which were co-transfected with mir-373 or mir-ctrl and ZFP91 or its control. Data were from three independent experiments.