**Supplementary Data**

Table S1. The primer sequences

|  |  |
| --- | --- |
| RNA | Primer sequences |
| β-actin | F: 5' ACTTAGTTGCGTTACACCCTT 3'R: 5' CCACAGCCAGCAACAAGTC 3' |
| hsa\_circ\_0111707 | F: 5' GGCTCAGTGAAGGCCATCAT 3'R: 5' CCACAGCCAGCAACAAGTC 3' |
| *NR3C1* | F: 5' AAAACTATGGGAGGAAACC 3'R: 5' GGAGTGACCAGCCAAGATG 3' |
| miR-144-3p | 5′ TACAGTATAGATGATGTACT 3′ |
| miR‐451a | 5′ AAACCGTTACCATTACTGAGTT 3′ |

Table S2. The sequences of circRNA and miRNA fragments in the constructed plasmids

|  |  |
| --- | --- |
| Fragments | Sequences |
| hsa\_circ\_0111707-346bp-wt | ATTAAAGTATGGACAGCCAACCCCCAACAATTTGTAGAAGATGAAGATGATGATACATTCTCCTATACTGTTAGAATAGCAGCTCAAGACTTGTTGCTGGCTGTGGCCACAGATTTCCAGAATGAAAGTGCAGCAGCCCTGGCTGCTGCAGCCACTCGACATTTACAAGAAGCTGAGCAAACCAAAAACAGTGGCACTGAGCACTGGTGGAAGATCCATGAGGCATGCATGCTTGCCCTAGGCTCAGTGAAGGCCATCATCACTGACAGTGTGAAAAATGGCAGGATTCATTTTGACATGCATGGGTTCCTGACCAATGTCATCCTTGCAGACCTCAACCTCTCAG |
| hsa\_circ\_0111707-346bp-mut  | ATTAAAGTATGGACAGCCAACCCCCAACAATTTGTAGAAGATGAAGATGATGAATGTATCACGATATGACATAGAATAGCAGCTCAAGACTTGTTGCTGGCTGTGGCCACAGATTTCCAGAATGAAAGTGCAGCAGCCCTGGCTGCTGCAGCCACTCGACATTTACAAGAAGCTGAGCAAACCAAAAACAGTGGCACTGAGCACTGGTGGAAGATCCATGAGGCATGCATGCTTGCCCTAGGCTCAGTGAAGGCCATCATCACTGACAGTGTGAAAAATGGCAGGATTCATTTTGACATGCATGGGTTCCTGACCAATGTCATCCTTGCAGACCTCAACCTCTCAG |
| has-miR-144-3p | sense (5'-3'): UACAGUAUAGAUGAUGUACUantisense (5'-3'): UACAUCAUCUAUACUGUAUU |
| miRNA NC | sense (5'-3'): UUCUCCGAACGUGUCACGUTT antisense (5'-3'): ACGUGACACGUUCGGAGAATT |

Table S3. Fold changes of gene expression of the compared groups

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | T2D *vs*. Control  |  | IFG *vs*. Control |  | T2D *vs*. IFG |
| FCa | *P* |  | FCa | *P* |  | FCa | *P* |
| hsa\_circ\_0111707b | 0.615 | <0.001 |  | 0.759 | <0.001 |  | 0.811 | 0.002 |
| miR-144-3pc | 1.318 | <0.001  |  | 1.240 |  0.004 |  | 1.063 | 0.002 |
| *NR3C1*c | 0.804 | <0.001 |  | 0.893 |  0.001 |  | 0.900 | 0.005 |

T2D, type 2 diabetes; IFG, impaired fasting glucose; FC, Fold change.

a Fold change was analyzed by calculating the ratio of the median of the variables in the two compared groups. b Mann-Whitney U test. c least significant difference (LSD) test following one-way ANOVA.

Table S4. Spearman correlation among the relative expression of miR-144-3p, *NR3C1* and cortisol concentration

|  |  |  |
| --- | --- | --- |
|  | *NR3C1* | Cortisol |
| All the subjects |  |  |
| miR-144-3p  | -0.342\*\* | 0.275\*\* |
| NR3C1 | 1.000 | -0.334\*\* |
| T2D group |  |  |
| miR-144-3p  | -0.283\*\* | 0.251\*\* |
| NR3C1 | 1.000 | -0.311\*\* |
| IFG group |  |  |
| miR-144-3p  | -0.285\*\* | 0.177 |
| NR3C1 | 1.000 | -0.293\*\* |
| Control group |  |  |
| miR-144-3p  | -0.247\* | 0.051 |
| NR3C1 | 1.000 | -0.017 |

\**P*<0.05, \*\**P*<0.01.

Table S5. Stepwise multiple linear regression analysis of the relationship between hsa\_circ\_0111707 expression and HOMA-IR

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Adjusted for BMI  |  | Adjusted for WC |
| *β* coefficient | *P* |  | *β* coefficient | *P* |
| BMI/WC |  0.093 |  0.022  |  |  0.042  |  0.003  |
| TG |  0.380  | <0.001  |  |  0.385  | <0.001 |
| LDLC | 0.081 | 0.032 |  | 0.084 | 0.041 |
| hsa\_circ\_0111707 | -0.467  | <0.001 |  | -0.470  | <0.001 |

Variables entered in step 1: age, gender, smoking, drinking, physical activity, BMI/WC, TCH, TG, HDLC, LDLC, SBP and DBP. HOMA-IR, homeostasis model assessment of insulin; BMI, body mass index; WC, waist circumference; TG, triglyceride; LDLC, low-density lipoprotein cholesterol.

Table S6. Baseline of demographic and clinical characteristics of subjects

 in the second part of study

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | T2D(n=95) | Control (n=95) | *P*  |
| Age(year) | 52.43 ± 6.97 | 52.43 ± 6.97 | 1.000c |
| Gender(male/female) | 52/43 | 52/43 | - |
| BMI (kg/m2) | 27.53 ± 3.97 | 26.37 ± 2.81 | 0.021a |
| WC (cm) | 88.87 ± 9.60 | 84.29 ± 7.84 | 0.002a |
| SBP (mmHg) | 128.16 ± 15.09 | 126.03 ± 13.49 | 0.307a |
| DBP (mmHg) | 77.04 ± 11.05 | 76.38 ± 9.31 | 0.564c |
| TC (mmol/L) | 4.82 ± 0.87 | 4.69 ± 0.79 | 0.302a |
| TG (mmol/L) | 1.94 ± 1.21 | 1.47 ± 0.74 | 0.002c |
| HDLC (mmol/L) | 1.58 ± 0.36 | 1.62 ± 0.41 | 0.474a |
| LDLC (mmol/L) | 3.06 ± 0.88 | 3.01 ± 069 | 0.945c |
| FPG (mmol/L) | 5.42 ± 0.39 | 5.22 ± 0.41 | 0.001a |
| HbA1c (%) | 5.56 ± 0.29 | 5.52 ± 0.35 | 0.306c |
| hsa\_circ\_00111707 | 4.99 ± 1.69 | 6.21 ± 2.11 | <0.001a |
| Smoking (*n*, %) | 10, 10.53 | 12, 12.63 | 0.650b |
| Drinking (n, %) | 10, 10.53 | 9, 9.47 | 0.809b |
| Physical activity (*n*, %) | 62, 65.26 | 68, 71.58 | 0.349b |

T2D, type 2 diabetes; IFG, impaired fasting glucose; BMI, body mass index; WC, waist circumference; SBP, systolic blood pressure; DBP, diastolic blood pressure; TCH, total cholesterol; TG, triglyceride; LDLC, low-density lipoprotein cholesterol; HDLC, high-density lipoprotein cholesterol; FPG, fast plasma glucose; HbA1c, glycated haemoglobin.

a Student’s t-test; b Chi-square test; c Mann-Whitney U test