**Quantitative PCR analysis**

Trizol reagent (Invitrogen, CA, USA) was used to extract total RNA. ABScript II cDNA First-Strand Synthesis Kit (cat no. RK20400, ABclonal Biotechnology Co., Ltd, Wuhan, China) was used to reverse transcript cDNA from 500 ng of RNA according to the manufacturer’s protocol. The expression of miR-124 and miR-558 detected using a Hairpin-it TM miRNAs qPCR kit (Genepharma, Shanghai, China) and the expression of HIPK3 was measured by SsoFast EvaGreen supermix (Bio-Rad Laboratories (Shanghai) Co., Ltd. Shanghai, China) according to manufacturers’ instructions. Expression of β-actin was used as an endogenous control for HIPK3 expression and expression of RNU6B was used as an endogenous control for miRNAs expression. QPCR was performed at the condition: 95.0 °C for 3 min, and 39 circles of 95.0 °C for 10s and 60 °C for 30 s. The primers were used as following: 5′ TGCGGTAAGGCACGCGGTG-3′(forward) for miR-124. 5′- ACACTCCAGCTGGG TGAGCTGCTGTAC-3′(forward) for miR-558. 5′- GGCGACCTGAGGAGATCAAG -3′(forward), 5′-TGAGAGGAAACGGCGAAACA-3′(reverse) for HIPK3. 5′- TTGTTACAGGAAGTCCCTTGCC-3′(forward), 5′- ATGCTATCACCTCCCCTGTGTG-3′(reverse) for β-actin. 5′- CTCGCTTCGGCAGCACA-3′(forward), 5′-AACGCTTCACGAATTTGCGT-3′(reverse) for U6.