

ORIGINAL ARTICLE

Exosomal miR-23a and miR-192, Potential Diagnostic Biomarkers for Type 2 Diabetes

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SUMMARY

Background: Type 2 diabetes mellitus (T2D) is a common chronic disease, which lacks a specific diagnostic method. A substantial body of literature has demonstrated that the molecular constituents of extracellular vesicles (EV) are promising as a novel biomarker for clinical diagnosis, especially exosomal miRNAs in biological fluids.

Methods: To find a diagnostic biomarker for T2D, we isolated exosomes from plasma and then quantitative PCR (qPCR) was used to detect the miRNA expression in plasma and exosomes from control subjects and T2D subjects. The ROC (receiver operating characteristic) curve and AUC (area under curve) were used to evaluate the diagnostic value of exosomal miRNAs.

Results: We found the exosomal levels of miR-23a and miR-192 were both significantly higher in T2D subjects. The AUC of miR-23a and miR-192 were 0.828 and 0.717, respectively. Further bioinformatics analysis was performed to speculate possible mechanisms.

Conclusions: In conclusion, exosomal miR-23a and miR-192 have good potential as diagnostic biomarkers for type 2 diabetes.

(Clin. Lab. 2021;67:xx-xx. DOI: 10.7754/Clin.Lab.2020.200612)

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Supplementary Tables and Figures

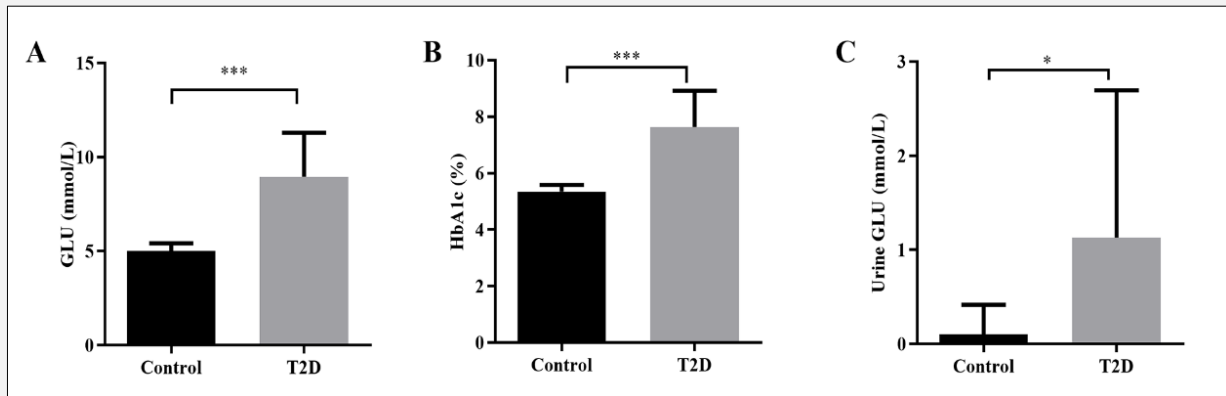


Figure S1. The level of GLU, HbA1c, and urine GLU in controls and T2D subjects.

A - The GLU level in controls and T2D subjects. B - The HbA1c level in controls and T2D subjects. C - The urine GLU level in control and T2D subjects. *** - $p < 0.001$, * - $p < 0.05$.

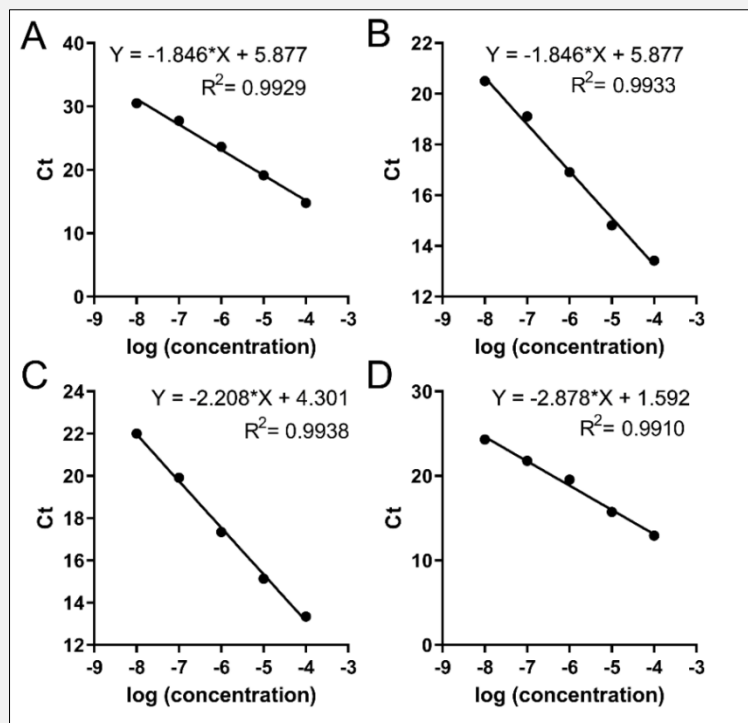


Figure S2. The standard curves of miRNAs.

A - The standard curve of miR-23a. B - The standard curve of miR-192. C - The standard curve of miR-146. D - The standard curve of miR-155.