

Peer Review

Review of: "Development of a Type 2 Diabetes Mellitus Model in Rats with Administration of High-Fat Diet and Streptozotocin"

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Journal: Qeios

Title of the article : Development of a Type 2 Diabetes Mellitus Model in Rats with Administration of High-Fat Diet and Streptozotocin

Manuscript category: Original article.

Title:

Does the title bring the main message of the study?: **Yes.** The title clearly indicates the focus on developing a T2DM model in rats using HFD and STZ:

Abstract:

- Is the abstract presented in structured form? **No.** The abstract is not formally structured (e.g., Background, Methods, Results, Conclusion). Suggest restructuring for clarity.
- Does the abstract give an adequate picture of the entire article? **Yes.** It covers objectives, methods, key results, and conclusions but could be more concise.

Introduction:

- Is the background of the study made clear and helpful to readers unfamiliar with the subject? **Yes.** The introduction provides context on T2DM, challenges in model development, and rationale for HFD/STZ.

Approved by IAEC; no mortality reported. Ethical compliance is addressed.

Results:

- **Is the data analysis systematic?**

Yes. Results are presented in a table with clear comparisons (NC vs. DC).

- **Are the results important?**

Yes. Significant metabolic changes (e.g., FBG, HbA1c, cholesterol) confirm successful T2DM induction.

Discussion:

- **Are results interpreted clearly and supported by evidence?**

Yes. Findings are linked to human T2DM features (insulin resistance, dyslipidemia).

- **Are claims contextualized with literature?**

Yes. References support the use of HFD/STZ and discuss mechanisms (e.g., β -cell dysfunction).

Conclusions:

Are the conclusions logically valid and justified by the evidence adduced? **Yes.** The model's reproducibility and relevance to T2DM are well-supported.

Graphics:

- Are all the figures and graphs adequate and necessary? **Yes.** Table 1 succinctly presents key outcomes.

No figures are included, but none are necessary.

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References:

- Are the references up-to-date?: **Yes**
- Have the most important previous studies been cited? **Yes**

Major Comments

1. **Abstract Structure:** Restructure into Background, Methods, Results, Conclusion.
2. **Sample Size Justification:** Clarify why n=6/group was chosen (e.g., power analysis or precedent).
3. **Statistical Details:** Specify tests used (e.g., t-tests) and exact p-values beyond "<0.05."

Minor Comments

1. **Typos:**

- "qcios.com" (p. 5, 6) → "Qeios.com."
- "Rats ere active" (p. 6) → "Rats were active."

2. **HOMA-IR Interpretation:** Briefly explain why HOMA-IR decreased in the DC group (unexpected for T2DM).

Decision

Request Minor Revision to address the above points. The study is well-executed and impactful but requires minor clarifications.

Declarations

Potential competing interests: No potential competing interests to declare.