Q1: The key deficiency is that the review lacks solid experimental data support in the mechanism discussion, mainly based on the following points: The statements about the mechanisms are more theoretical and overview in nature, without providing too many specific experimental results. For example, in the bile acid mechanism part, no specific data are given on the impacts of FXR and TGR5 activation on glucose/lipid metabolism; in the short-chain fatty acids section, data are also lacking, such as the effects of different fatty acids on GLP-1 and PYY hormone secretion. The mechanisms mentioned in the article do not list the specific research literature that supports these views. Normally, it should be pointed out which literature first reported a certain mechanism, or which subsequent studies further verified this point.

A1: Thank you for your positive feedback on my review. According to your suggestions, I have included additional experimental information pertaining to the discovery of TGR5 and its impact on sugar and fat metabolism in lines 166-173. Furthermore, lines 200-208 now cover the effects of various fatty acids on the secretion of GLP-1 and PYY hormones. The paragraphs from line 173 to line 182 have delineated its effects on sugar metabolism and gut microbiota.

Q2: The content in this regard is relatively small in this paper. The elaboration of some mechanisms is too brief, needing expanded discussion and experimental data to support

it. For example, the endotoxin mechanism is summarized in just one sentence, without specific results; the obesity relationship is just simply mentioned, without data support.

A2: Thank you very much for your valuable input. The section from line 250 to line 274 in the manuscript discusses the endotoxin theory. In light of your suggestions, I have included additional information regarding the discovery of endotoxins and relevant experimental details within the paragraph. Regarding the portion of your content about obesity, specifically lines 131-142 in the manuscript which covers the main mechanisms, I did not extensively describe it as it is just one contributing factor in diabetes. Following your suggestions, I have made linguistic revisions and embellishments.

Q3: Lack of clear data charts. Usually, the discussion of mechanisms is accompanied by experimental data charts for illustration, but this article also lacks in this aspect.

A3: Thank you very much for your suggestion. I have incorporated visuals such as images and tables into the manuscript.

Q4: No specific experimental data are provided in aspects like carbohydrate metabolism and glycogen synthesis, which should be the key processes of intestinal

bacterial action.

A4: Thank you for your guidance. As per your advice, I have expanded upon the role of gut bacteria in lines 87-102 of the manuscript, specifically focusing on sugar metabolism. I truly appreciate your meticulous attention to detail and the constructive comments provided throughout the review process. I am particularly grateful for the thought-provoking questions you raised and the suggestions for further exploration in certain areas. Your recommendations have inspired me to delve deeper into the subject matter, thereby enriching the content of my research.