Review of: "Critical Review on Carbon Nanomaterial Based Electrochemical Sensing of Dopamine the Vital Neurotransmitter"

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Potential competing interests: No potential competing interests to declare.

This review on carbon nanomaterial-based sensing of dopamine through electrochemical techniques is well-written and organized. A detailed analysis is provided below with some suggestions to improve the work.

Strengths:

Comprehensive Coverage of Techniques for Dopamine Sensing: The article provides a good overview of dopamine sensing techniques, focusing on both enzymatic and non-enzymatic electrochemical methods.

In-depth Discussion of Carbon Nanomaterials: The review extensively covers various carbon nanomaterials, detailing their advantages and challenges in electrochemical sensing, thereby strengthening the relevance of this area of research.

Good Structuring and Formatting: The article is well-written, with sections gradually progressing from dopamine's clinical significance to various sensing technologies, making it easy to understand the literature.

Future Perspectives and Challenges: The inclusion of a future challenges and perspectives section highlights gaps in current research, which provides valuable insight for researchers seeking to advance the field further.

Weaknesses:

Limited Discussion on Technique Comparison: The review lacks quantitative comparisons of different methods utilized for dopamine sensing with electrochemical techniques (e.g., sensitivity, detection limits), which could better illustrate the effectiveness of electrochemical sensing of dopamine over other strategies.

Interference from Other Analytes: While interferences from other neurotransmitters like ascorbic acid and uric acid are mentioned, the review needs to discuss strategies to overcome these challenges.

Limited Visual Graphics: The article contains minimal graphics, which could make it harder for readers to grasp complex concepts related to carbon nanomaterials or electrode structures or even published reports.

Limited Emphasis on Environmental and Material Stability: The review does not address the durability and long-term stability of the sensors, which are crucial for clinical applications.

Recommendation: It can be published after the improvements and minor restructuring following the suggestions mentioned above. Good luck.