Review of: "Leveraging Fine-Tuned Large Language Models in Bioinformatics: A Research Perspective"

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Potential competing interests: No potential competing interests to declare.

This research perspective discusses the growing use of fine-tuned language models in diverse applications and their potential to accelerate research and data-driven decision making. It notes limitations like data availability, lack of biological domain knowledge, biases, interpretability issues, computational efficiency, and ethical concerns. It states rigorous validation and cross-disciplinary collaboration is needed to address these challenges before real-world deployment, though the models offer tremendous opportunities to advance human health and scientific discovery. I have some concerns as follows,

1. The excerpt highlights the need for large, diverse, high-quality datasets to train these models effectively. However, it does not delve into the specific data challenges and gaps that exist currently in bioinformatics.

2. In the 'Interpretability and explainability' part, if the author provide specific examples of interpretability methods in the context of bioinformatics applications could be enrich this analysis.

3. The domain-specific knowledge is noted in this paper, but details on effective methods to incorporate biological ontology, expert knowledge etc into models are limited. I suggest to expand on some approaches and best practices here.

In summary, this research perspective provides broad information on fine-tuned models in bioinformatics. However, it requires more additional details and evidence. I suggest major revisions are needed before it can be considered for publication.