Point-by-point responses

Thank you for the editorial review. We have carefully addressed all the requested changes as detailed below:

R1.Q1 Please include a negative statement for other authors in the Competing interests section. "Other authors have no competing interests."

Response We have updated the Competing interests section to include the statement "Other authors have no competing interests." The revised section now reads:

RY has served as an advisor/consultant for Tempus AI, Inc. This relationship is unrelated to and did not influence the research presented in this study. Other authors have no competing interests.

R1.Q2 Please ensure the references [5, 7, 33, 35] are in the standard Nature format and follow the sequence: author list, title of paper, name of journal, volume number, initial-final page numbers or article number (year).

Response We have reformatted references [5, 7, 33, 35] to comply with Nature format standards:

[5] GitHub - nanoporetech/dorado: Oxford Nanopore's Basecaller. `https://github.com/nanoporetech/dorado`, 2023.

[7] GitHub - epi2me-labs/pychopper: cDNA read preprocessing. `https://github.com/epi2me-labs/pychopper`, 2024.

[33] Kingma, D. P. & Ba, J. Adam: A method for stochastic optimization. Proceedings of the 3rd International Conference on Learning Representations (ICLR), 1–15 (2015).

[35] GitHub - facebookresearch/hydra: A framework for elegantly configuring complex applications. `https://github.com/facebookresearch/hydra`, 2024.

Note: References [5, 7, 35] are software tools without formal publications, so we have cited them following Nature's standard format for software citations, consistent with recently published articles (e.g., `https://www.nature.com/articles/s41467-025-58576-x#Bib1`).

R1.Q3 Please ensure that the citation for BioRender provided in the license matches the citation used in the corresponding figure legend.

Response We have verified and updated the BioRender citation to ensure consistency between the license and the figure legend. The citation in the manuscript now reads: "Created in BioRender. Guo, Q. (2026) https://BioRender.com/zlls0nk".