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| Journal Name: | [**Journal of Cancer and Tumor International**](https://journaljcti.com/index.php/JCTI) |
| Manuscript Number: | **Ms\_JCTI\_139435** |
| Title of the Manuscript: | **Decoding Tumor Heterogeneity: Multi-Omics Approaches to Track Cancer Evolution and Therapy Resistance** |
| Type of the Article | **Review Article** |

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | I think this manuscript is highly relevant and timely, considering the increasing demand for systems-level approaches in oncology. The integration of multi-omics to understand tumor heterogeneity, resistance mechanisms, and clonal evolution is a pressing research need. I particularly appreciate the breadth of technologies and case studies discussed—this will be a valuable resource for both early-career and seasoned cancer researchers. What stands out is the manuscript’s ability to connect the basic biology of tumor heterogeneity with translational and clinical implications. | Noted |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The title is largely appropriate and informative. It clearly reflects the scope of the manuscript. However, I think a slight refinement could make it more precise. I suggest:  Suggested Alternative Title: “Decoding Tumor Heterogeneity Through Multi-Omics: Insights into Cancer Evolution, Microenvironment, and Therapy Resistance”  This better emphasizes the breadth of systems-level insights provided. | Noted, correction was effected. |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | I find the abstract comprehensive, though slightly dense. It touches on all major themes but could benefit from clearer structure and focus. For instance:  I suggest breaking it into more digestible segments: background, methods/tools, key insights, and conclusion.  Minor typo: "muli-omics" should be corrected to "multi-omics".  I think the abstract could mention a few of the technological platforms by name, such as spatial transcriptomics or CITE-seq, to give a clearer sense of the novelty. | Noted, correction was effected |
| Is the manuscript scientifically, correct? Please write here. | I find the manuscript scientifically sound. The discussions are well-supported by references and include balanced interpretations. Each concept—from clonal evolution to microenvironmental remodeling—is adequately explained. I particularly appreciated the section on integrating longitudinal data and lineage tracing to capture tumor dynamics. The authors demonstrate a clear understanding of both the biological and computational frameworks. | Noted |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references are thorough and up-to-date, with many from 2023–2025, which is impressive. However, I suggest the addition of one or two more studies that have demonstrated real-time clinical implementation of multi-omics-based decision-making in trials, such as:   * Bedard et al., Nature (2016), NCI-MATCH study foundational paper. * Tannock et al., JCO Precision Oncology (2023), on barriers to implementing integrative diagnostics. | Noted |
| Is the language/English quality of the article suitable for scholarly communications? | The language is generally fluent and well-suited for scholarly communication. Still, there are sporadic issues with punctuation, run-on sentences, and occasional awkward phrasing (e.g., “immunological tone” might be better stated as “immune landscape”). A careful copyedit would enhance clarity and flow. | Noted |
| Optional/General comments |  |  |

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| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* | There are no ethical issues |