# Article information:

Spatial multi-omics analyses of the tumor immune microenvironment | Journal of Biomedical Science | Full Text  
<https://jbiomedsci.biomedcentral.com/articles/10.1186/s12929-022-00879-y>

# Article summary:

1. Single-cell technologies have revealed the heterogeneity of the tumor-immune microenvironment at the genomic, transcriptomic, and proteomic levels.

2. Spatial multi-omics technologies have been used to study transcriptomes, proteomes, and metabolomes of tumor-immune microenvironments in several types of cancer.

3. Immune checkpoint blockers (ICBs) such as anti-CTLA-4 antibody ipilimumab, anti-PD-1 antibodies nivolumab and pembrolizumab, and anti-PD-L1 antibody atezolizumab have been evaluated in the treatment of many different cancers.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy as it provides a comprehensive overview of current research on spatial multi-omics analyses of the tumor immune microenvironment. The article is well written with clear explanations of relevant concepts and techniques. It also provides detailed information about various single cell technologies that are being used to study the tumor immune microenvironment. Furthermore, it discusses potential biomarkers that can be identified using these technologies as well as potential therapeutic strategies for treating cancer.

However, there are some areas where the article could be improved upon. For example, while it does discuss potential therapeutic strategies for treating cancer such as ICBs, it does not provide any information about possible risks associated with these treatments or any counterarguments to their use. Additionally, while it does provide an overview of current research on spatial multi-omics analyses of the tumor immune microenvironment, it does not explore any unexplored avenues or present any new evidence for its claims made throughout the article. Finally, there is no mention of any promotional content or partiality in the article which could be seen as a potential bias in its reporting.

# Topics for further research:

* Risks associated with ICBs
* Potential therapeutic strategies for cancer
* Unexplored avenues in spatial multi-omics analyses
* Evidence for claims made in spatial multi-omics analyses
* Promotional content in spatial multi-omics analyses
* Partiality in reporting on spatial multi-omics analyses

# Report location:

<https://www.fullpicture.app/item/d19360ef462bc950a7e2f4870608ee9b>