

This paper was aiming at the challenges of EHR and genomic data sharing. The authors discussed the advantages and disadvantages of the blockchain technology implementation in genomics and healthcare applications. Furthermore, they proposed the general blockchain structure based on Ethereum, which is a more suitable technology for the genomic data sharing platforms.

Editorial Criteria

- **BASIC REPORTING**

The title, abstract, introduction, methods, results and discussion are appropriate for the content of the text. Furthermore, the article is well constructed, the experiments are well conducted, and analysis is well performed. The figures are relevant, high quality, well labelled and described.

- **EXPERIMENTAL DESIGN**

This is a review paper, so no experimental design. However, the discussion is original and the research is within the scope of the journal. Research question is well defined, relevant and meaningful. The overview and their proposal for a more suitable technology is highly technical, ethical and logistical.

- **VALIDITY OF THE FINDINGS**

The introduction is comprehensive. The findings are meaningful. The conclusions are well stated and relevant to the research questions.

Overall, I think this review paper is novel and will be of interest to others in the community of omics data and EHR data sharing. This review paper does an excellent job outlining the urgent need to better manage the genomics data and further discussed the pros and cons of blockchain technology utilization in the field. In general, the work is convincing except some major and minor comments below:

Major Comments:

1. I'm wondering if it is worth mentioning that one of the key disadvantages of blockchain technology is the inefficiency of storing and querying data. And the computational efficiency is also low compared to traditional centralized databases.
2. I'm wondering if blockchain-based technologies support cloud computing and commonly used software services, tools & apps?
3. The words "data commons", "data ecosystems", "data cloud architecture" are really popular in the field of genomics data sharing. And they sound similar and are really confusing to researchers. Do you think it is worth adding those terms and explain a little bit?

Minor Comments:

1. The Figure 5 is hollow, and it is a little bit hard for the readers to differentiate the colors. I would recommend making it solid, with colors filled in.