

## Reviewer Report

**Title: Enhancing Bovine Genome Annotation Through Integration of Transcriptomics and Epi-Transcriptomics Datasets Facilitates Genomic Biology**

**Version: Revision 1**      **Date: 9/5/2023**

**Reviewer name: Pablo Augusto de Souza Fonseca**

### Reviewer Comments to Author:

The authors provided detailed answers to all my comments and questions.

I have just minor comments regarding the manuscript.

The authors updated the manuscript title to "Improved annotation of the bovine genome identifies relationships between phenotypic traits". The study just searches for overlapping between the transcripts and publicly available QTL information. This approach helps to better understand the putative function of this transcript. However, it was not tested real associations between these transcripts and the traits. I would suggest the authors review the title of the manuscript. In my opinion, the study is much more focused on the improved annotation of the bovine genome and a screening of transcript isoforms than on the relationship between traits.

The changes in the discussion section were not tracked, which resulted in difficulty in following the edits.

In the conclusion, the authors mentioned that: "The integrated transcriptome data with publicly available QTL data revealed putative molecular pathways that may underlie tissue-tissue communication mechanisms and candidate genes responsible for the genetic mechanisms that may underlie genetic correlations between traits". It is not clear how the authors found this relationship between the QTLs and molecular pathways. The authors mentioned in the discussion section the analysis of the interconnection between testis and pituitary tissues with respect to the "percentage of normal sperm" and a potential association with a specific GO term. First, not necessarily a GO term represents a molecular pathway. Additionally, the authors mention only this example in the discussion section. The authors should provide a more comprehensive discussion about this approach and how the other results support potential associations between traits, mainly in the light of the next paragraph, where the results of the trait similarity results are discussed.

### Methods

Are the methods appropriate to the aims of the study, are they well described, and are necessary controls included? Choose an item.

### Conclusions

Are the conclusions adequately supported by the data shown? Choose an item.

## Reporting Standards

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Choose an item.

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Are you able to assess all statistics in the manuscript, including the appropriateness of statistical tests used? Choose an item.

## Quality of Written English

Please indicate the quality of language in the manuscript: Choose an item.

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