

Peer Review

Review of: "Do We Understand Heredity and Evolution? No"

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Dear Editor/Author,

The present manuscript represents valuable stimulation for debate regarding the role of genetics in heredity and consequently in evolution. The historical approach is also laudable. The manuscript is of appropriate length, which is commendable. Therefore, I may recommend this manuscript for publication. However, before final approval of the manuscript for publication is granted, I am suggesting some revisions – additions:

- The author should be more clear about what kind of mechanisms he proposes as alternative,
- Basic principles of thermodynamic processes, which according to the author drive evolution, should be briefly presented to make the manuscript more easily readable,
- If epigenetics is more important than classical genetics, the Lamarckism should be briefly discussed,
- The author is stating ... *addressing the phenomenon of regression to the mean*... here, in my opinion, further explanation of the term *mean* is needed,
- Increase of complexity through evolution by alternative to Darwinism mechanisms should be briefly discussed, including the author's view on LTEE in this sense,
- Moreover, how can some of the 25,000 genes generate such a rich complexity in the human phenotype and what are the theoretical reasons for the vastly greater phenotypic complexity of humans compared to a round worm *Caenorhabditis elegans*, with about 20,000 gene coding sequences?

In this sense, the author states: *Numerous organelles in the eukaryotic cell can be transmitted between generations along the femaleline, most notably mitochondrial DNA, but sperm carry little else than the chromosomes and proteins; yet intergenerational resemblance is not confined to the female line. Logic, therefore, demands that cells, including both male and female gametes, contain another transmissible entity. Baverstock and Rönkkö have proposed that this is a material entity that would be described as a gene*

*product interactome in today's terminology and embodies the cellular phenotype. It can be seen as a cellular partner to the genotype and the phenotype in its manifestation as a noun. As this is rather intriguing, the author should further clarify and discuss the terms *another transmissible entity* and *interactome*.*

In the context of the presented manuscript/debate, I am also recommending this publication:

<https://doi.org/10.1016/j.biosystems.2023.105031>

Declarations

Potential competing interests: No potential competing interests to declare.