Review of: "AI-Generated Hallmarks of Aging and Cancer: A Computational Approach Using Causal Emergence and Dependency Networks"

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Potential competing interests: No potential competing interests to declare.

In this study, the author used computationally generated/ quantitative hallmarks to create a concise representation of multiple age-related diseases and understand common mechanisms across multiple diseases, offering an important approach for modelling multimorbidity. The study utilized the DNA methylation and ontology data and the AI-generated hallmarks and their evaluation framework, which led to certain findings, for example, across all (8) diseases, a significant positive correlation between the CE index and odds ratio was observed – pathways more predictive of the disease tend to show higher CE indices.

Strength of the study: The paper addresses an emerging field of study which focuses on developing, assessing, and refining the hallmarks knowledge framework, the Hallmarks engineering.
Weakness: The study appears to be ambitious and this has made it somewhat complex to comprehend, as for example, the role of the TCM in pathways aggregation is difficult to comprehend? The paper is difficult to comprehend by a biological scientist, who in such studies is the primary user of the information. The paper has a broad coverage and lacks specificity. Author should try to make the paper more understandable from a reader's point of view. In addition, I have a feeling after reading this paper. The paper seems to have been written using AI. Author may like to clarify, and if so add that s/he has carefully edited the AI version.
The paper needs to be checked for typos etc, such as HallmarksNeurodege-nerativedisease in Fig. 1 and other mistakes.

Recommendation: Reject