Review of: "The role of pH in cancer biology and its impact on cellular repair, tumor markers, tumor stages, isoenzymes, and therapeutics"

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Potential competing interests: No potential competing interests to declare.

The issue of how canonical and aberrant DNA mutations arise, and the role of protons in maintaining genetic stability, is a crucial topic in molecular biology. Based on empirical evidence, recently, we have re-examined canonical and tautomeric mutations in light of the two-fluid model of quantum physics. Our hypothesis is that changes in pH, caused by the (quantum) pressure of protons (H^+) in the DNA environment, could affect the ratio of canonical and tautomeric base pairs. These base pairs have been found to exhibit differences at and beyond the criticality level. We predicted that if the cellular system deviates from a specific (critical) temperature, at which dynamic entropy reaches its minimum and a critical pH occurs, this could lead to tautomerization and point mutations.

I think that the authors may also reconsider the role of pH in cancer biology in the context that is presented in paragraph 2.1. “Two paths of mutagenesis: the proton pressure hypothesis” in Pietruszka and Lipowczan (2023), and delve into Zhang and Yin's (2023) article, where the authors show that quantum pressure generally exists in a non-uniform superfluid.

References

Mariusz Pietruszka, Marcin Lipowczan (2023) Phase coherent quasi-particle formation in biological systems. Biosystems 233, 105020. https://doi.org/10.1016/j.biosystems.2023.105020

Fan Zhang, Lan Yin (2023) Hydrodynamics of a multi-component bosonic superfluid. Chin. Phys. Lett. 40, 066701.