Review of: "Is creeping abandon of human cancer defences evolutionarily favoured?"

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The manuscript titled “Is creeping abandon of human cancer defences evolutionarily favoured?” represent a hypothesis article focusing on the alleged evolutionary benefit that an age-dependent decrease in cancer surveillance may have had during the phylogeny of *Homo sapiens*. Starting from the higher cancer risk in humans compared to other animal species with comparable or greater body size and lifespan (the well-known Richard Peto’s paradox), and the ethnographic assumption that in hunter-gatherer tribes food resources and genetic pool were limited, the authors claim that a reduction in cancer defense mechanisms could have been beneficial in saving energies, reducing inbreeding and thus to partially explain the Peto’s paradox. The authors provided also some suggested experiments by which their hypothesis could be tested.

The paper is readable and the evolutionary perspective concerning the increasing cancer risk in aged individuals provides new insight to this topic. However, the suggested hypothesis remains speculative since some of the premises and assumptions (especially in the first two sections) advanced by the authors are not based on extensive and robust literature, thus further research is warranted to clarify this topic.

Specifically, some comments and suggestions will be listed below.

1. Context

In the paragraph, no mention is made on other species such as dogs and cats when setting the context. The long lifespan of some wild species (eg. whales) and the corresponding adaptive strategies to this long life during speciation have been pointed out as an explanation for Peto’s paradox. On the contrary, dogs and cats share with humans a comparable high cancer risk, susceptibility to carcinogenic pollutants, and a recent and significant increase in longevity thanks to better healthcare and controlled environments, leading some authors to suggest that there was no time in “allowing the time necessary for compensatory natural selection” (https://doi.org/10.1002/aac2.12046). I think that including these species (which are widely studied in a comparative scenario) in the discussion could improve the quality of the manuscript.

1. Setting of the hypothesis

While the first section of the paper is more well-supported, in this paragraph some claims lack citations to reliable sources of information, and sometimes inferences in key aspects of the depicted scenario (food resources, extended lifespan, patriarchal vs matriarchal social societies) are supposed starting from data on 20th-century tribes which are not

necessarily the same of pre-industrial and prehistorical ones. Thus, I suggest deepening the available literature on the topic and so strengthening the authors' statements.

Furthermore, the genus name should be capitalized (eg *Homo sapiens*) and reference #17 should be replaced with a more appropriate and scientifically relevant one.