Review of: "Growing Confidence and Remaining Uncertainty About Animal Consciousness"

Marco Cavaglià[1]

1 Polytechnic Institute of Turin

Potential competing interests: No potential competing interests to declare.

Dear Louis Irwin,

Your manuscript, "Growing Confidence and Remaining Uncertainty About Animal Consciousness," presents an intriguing overview of the current state of consciousness studies within the neuroscientific community. The comprehensive delineation of consciousness into its phenomenological features, alongside the discussion on the neurological correlates and evolutionary aspects, provides a solid foundation for advancing our understanding of this complex subject.

Drawing from my recent work on a lipid-centric model of brain functioning and the holographic brain theory (https://www.frontiersin.org/articles/10.3389/fnins.2023.1302519/full), I would like to propose some avenues for deepening the discussion on the biological substrates of consciousness. Specifically, the potential role of lipid-mediated processes in modulating neural plasticity, signaling, and, ultimately, consciousness could enrich the current discourse on the neurological correlates of consciousness. The lipid composition of neuronal membranes influences membrane fluidity, which in turn can affect the functionality of membrane proteins, including receptors and ion channels that are pivotal for neural communication and plasticity. These mechanisms might offer additional layers of complexity to the hierarchical organization of nervous systems and their capacity for consciousness.

Moreover, considering the holographic brain theory, exploring the possibility that consciousness emerges not only from hierarchical neural processes but also from distributed networks that involve intricate lipid signaling pathways could provide a novel perspective. This approach might also shed light on the gap between phenomenological experience and its neurological correlates by suggesting that consciousness emerges from a more distributed and interactive process within the brain's architecture than currently appreciated.

In summary, integrating insights from lipid-centric models of brain functioning could offer new directions for understanding the material substrate of consciousness, particularly in how lipid dynamics contribute to the neural processes underlying consciousness. This perspective could complement existing models and theories, potentially leading to a more holistic understanding of consciousness across different species.

I look forward to seeing how your work continues to evolve and contribute to the collective endeavor to unravel the mysteries of consciousness.

Best regards,

Marco Cavaglià