

REVIEWER'S REPORT

Manuscript No.: IJAR-52472

Date: 25/06/2025

Title: Human Chimerism: A Systematic Review of Mechanisms, Cases, and Clinical Implications

Recommendation:

- ✓ Accept as it is
- Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr. S. K. Nath

Date: 25/06/2025

Reviewer's Comment for Publication:

This systematic review provides a well-structured overview of human chimerism, emphasizing its diverse forms, mechanisms, and significant implications across medicine and forensic science. It illustrates that while chimerism was once considered rare, advances in molecular techniques reveal its broader occurrence and importance. The review successfully alerts clinicians, forensic scientists, and researchers to the diagnostic challenges and societal implications of this phenomenon. Future research enhancing detection methods and understanding long-term health effects is essential to fully harness the implications of human chimerism.

Reviewer's Comment / Report

Strengths

- Comprehensive Literature Search:** The review employs a systematic search across multiple databases including PubMed, Scopus, Web of Science, and Google Scholar, which enhances the thoroughness and credibility of the findings.
- Clear Classification System:** The paper categorizes chimerism into four main types, providing clarity in understanding the mechanisms, presentations, and implications of each.
- Clinical and Forensic Relevance:** It effectively integrates clinical case examples with forensic implications, demonstrating the broad impact of chimerism on medicine, law, and forensic science.
- Discussion of Diagnostic Challenges:** By highlighting the limitations of current detection methods and the complexities in diagnosing chimerism, the review underscores crucial areas for future development.
- Future Directions:** The paper points toward emerging technologies like single-cell sequencing, indicating ongoing advancements that could improve detection and understanding.

Weaknesses

- Limited Quantitative Data:** While the review discusses the prevalence and implications qualitatively, it lacks extensive quantitative data or statistical analysis about the incidence or outcomes associated with different types of chimerism.
- Methodological Details:** Though the search strategy is described, details on how case studies were selected, assessed, or synthesized are minimal, limiting reproducibility and clarity in the review process.
- Depth of Case Analysis:** The case descriptions are brief and could benefit from more detailed analysis, including diagnostic approaches, management strategies, and long-term outcomes.
- Potential Bias in Case Selection:** The reliance on published cases may introduce publication bias, leaning toward unusual or novel presentations, which may not reflect the typical spectrum of chimeric individuals.
- Limited Discussion on Therapeutic Interventions:** While potential therapeutic avenues are mentioned, the review offers limited insights into current or experimental treatment options for conditions related to chimerism.