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REVIEWER'S REPORT

Manuscript No.: IJAR-51529 Date: 14-05-2025

Title: Exploring Host Immune Modulation for the development of Effective Dengue Vaccine

Recommendation:
Accept as it is……YES……
Accept after minor revision……
Accept after major revision ……
Do not accept (*Reasons below*) ……

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

Reviewer's Name: Dr Aamina

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Abstract Evaluation:
The abstract effectively communicates the critical public health challenge posed by dengue virus (DENV) and frames the central issue—vaccine development—in the context of immunological complexity. The explanation of antibody-dependent enhancement (ADE) and the existence of four distinct serotypes illustrates the multifaceted difficulties associated with vaccine efficacy. The introduction of host modulation as a novel strategy offers a focused and current perspective. The abstract clearly outlines the direction of the paper, with attention to immune pathways, advanced technologies, and systems biology, providing a comprehensive summary of the topic's scope.

Keywords:
The keywords—*Dengue, Host modulation, Immune Responses, Vaccine development*—are precise and reflect the thematic focus of the paper, supporting indexing and research visibility.

Introduction Evaluation:
The introduction presents a clear and concise overview of dengue virus (DENV) as a significant global health burden, with emphasis on its distribution in tropical and subtropical regions. The discussion of the virus's immunopathology, particularly the ADE phenomenon, highlights the scientific complexity involved in developing a universally safe vaccine. The emergence of host modulation as a promising

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solution is well positioned within this context. The narrative transitions smoothly from the problem to the proposed approach, maintaining scientific coherence and thematic relevance throughout.

Section II – Dengue Virus Overview:
This section introduces the biological background of DENV effectively, identifying its classification within the flavivirus family and its transmission through mosquito vectors. The historical and etymological context of the flavivirus nomenclature enriches the reader's understanding. The inclusion of information regarding the diversity of species within the flavivirus genus and their relevance to human disease provides valuable comparative insight. The integration of references to foundational discoveries in virology adds depth and supports the paper's scientific rigor.

Content Quality and Organization:
The paper demonstrates a strong grasp of immunological and virological concepts, with a well-organized structure that logically progresses from the public health problem to the exploration of immunological intervention strategies. The writing is formal, technically sound, and appropriate for a scientific audience. Terminology is used accurately, and the content is grounded in current research trends.

Scientific Contribution:
The focus on host immune modulation as a strategic pathway for dengue vaccine development is timely and relevant. It reflects current efforts in immunotherapy and vaccine innovation. The paper promises to add value by reviewing the potential of immunological pathway manipulation, including cytokine signaling and T-cell polarization, in overcoming existing vaccine limitations. This thematic approach aligns with contemporary advances in vaccinology and immunomodulatory research.

Conclusion:
Overall, the manuscript presents a compelling scientific narrative. It integrates virological understanding with immunological strategy, offering a thoughtful examination of host modulation as a frontier in dengue vaccine development. The paper is coherent, well-researched, and contributes meaningfully to the ongoing discourse in infectious disease management and vaccine innovation.