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Contemporary Strategies and Current Trends in Designing Antiviral Drugs against Dengue Fever via Targeting Host-Based Approaches

By: [Ahammad, F](#) (Ahammad, Foysal)^[1]; [Abd Rashid, TRT](#) (Abd Rashid, Tengku Rogayah Tengku)^[2]; [Mohamed, M](#) (Mohamed, Maizan)^[3]; [Tanbin, S](#) (Tanbin, Suriyea)^[1]; [Fuad, FAA](#) (Fuad, Fazia Adyani Ahmad)^[1]

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Abstract

Dengue virus (DENV) is an arboviral human pathogen transmitted through mosquito bite that infects an estimated similar to 400 million humans (similar to 5% of the global population) annually. To date, no specific therapeutics have been developed that can prevent or treat infections resulting from this pathogen. DENV utilizes numerous host molecules and factors for transcribing the single-stranded similar to 11 kb positive-sense RNA genome. For example, the glycosylation machinery of the host is required for viral particles to assemble in the endoplasmic reticulum. Since a variety of host factors seem to be utilized by the pathogens, targeting these factors may result in DENV inhibitors, and will play an important role in attenuating the rapid emergence of other flaviviruses. Many experimental studies have yielded findings indicating that host factors facilitate infection, indicating that the focus should be given to targeting the processes contributing to pathogenesis along with many other immune responses. Here, we provide an extensive literature review in order to elucidate the progress made in the development of host-based approaches for DENV viral infections, focusing on host cellular mechanisms and factors responsible for viral replication, aiming to aid the potential development of host-dependent antiviral therapeutics.

Keywords

Author Keywords: dengue virus (DENV); antiviral drugs; drug targets; DENV host factors; host metabolism; DENV inhibitors; arthropod-borne viruses
KeyWords Plus: WEST-NILE-VIRUS; INNATE IMMUNE-RESPONSES; FATTY-ACID SYNTHASE; DC-SIGN; DENDRITIC CELLS; YELLOW-FEVER; HEPATITIS-C; IN-VITRO; VIRAL REPLICATION; NS2B-NS3 PROTEASE

Author Information

Reprint Address: Fuad, FAA (reprint author)

+ Int Islamic Univ Malaysia, Dept Biotechnol Engn, Kuala Lumpur 50728, Malaysia.

Addresses:

+ [1] Int Islamic Univ Malaysia, Dept Biotechnol Engn, Kuala Lumpur 50728, Malaysia

+ [2] Inst Med Res, Virol Unit, Jalan Pahang, Kuala Lumpur 50588, Malaysia

+ [3] Univ Malaysia Kelantan, Fac Vet Med, Locked Bag 36, Kota Baharu 16100, Kelantan, Malaysia

E-mail Addresses: fazia_adyani@iium.edu.my

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