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Microorganisms

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Contemporary strategies and current trends in designing antiviral drugs against dengue fever via targeting host-based approaches

(Article) (Open Access)

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Abstract

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Dengue virus (DENV) is an arboviral human pathogen transmitted through mosquito bite that infects an estimated ~400 million humans (~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 ~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. © MDPI AG. All rights reserved.

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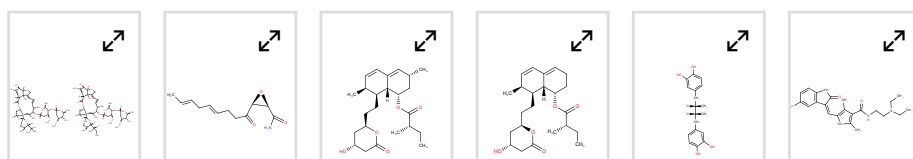
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