

ORAL PRESENTATIONS

DESIGN, SYNTHESIS, AND BIOLOGICAL EVALUATION OF NOVEL NUCLEOSIDE ANALOGUES AS ANTIVIRAL AGENTS AGAINST DENGUE

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Dengue virus (DENV) is a rapidly spreading mosquito-borne pathogen responsible for tens of millions of symptomatic infections and thousands of deaths globally each year. Despite its severe public health burden, there are currently no approved, effective direct-acting antiviral drugs available for clinical treatment. To address this critical therapeutic gap, the viral RNA-dependent RNA polymerase (RdRp)—encoded within the nonstructural protein 5 (NS5)—was chosen as a primary drug target. RdRp is exceptionally well-suited for selective antiviral intervention because it is highly conserved across flaviviruses, plays an indispensable role in viral replication, and lacks a human host homolog. Guided by established lead scaffolds featuring key structural modifications such as 2'-fluoro, 4'-azido, and 2,4-thiouridine, 6-azauracil substitutions, we have designed and successfully synthesized a series of novel nucleoside derivatives. The ongoing synthesis of expanded novel candidate libraries and comprehensive biological evaluations (including antiviral inhibition assays and host cell cytotoxicity screenings) are currently underway. These combined efforts aim to establish crucial structure activity relationships (SAR) to pave the way for next-generation anti-dengue therapeutics.

References:

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