The molecular portraits of the Dengue virus replication machinery

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Specific drugs have yet to be approved to treat dengue or other conditions caused by related flaviviruses, such as Zika virus. In the absence of a vaccine conferring true and lasting cross-protection against the four serotypes of DENV, we need to rely on symptomatic treatment and specific antiviral molecules for outbreak control and patient care.

Several non-structural proteins of the virus replication complex - RC, including NS2b-NS3 protease, NS3 helicase, NS5 methyltransferase, and NS5 RNA dependent RNA polymerase, constitute validated drug targets because of their crucial functions during viral replication. Recent success of anti-HCV drugs – direct acting antivirals targeting viral proteins, NS3, NS5a, and NS5b, is both exciting and encouraging to us. We continue our long-standing adventure in studying the molecular mechanisms of virus replication [1,2,3,4]. Here we update the structural and functional studies on individual protein components of the RC to get better understanding the interplay between the molecular constituents and the precise molecular basis for viral RNA replication.

References

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