# Investigation of compounds with functional inhibition action of SARS CoV-2 non-structural protein Nsp13 (helicase)

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## Abstract

The emergence of a new type of coronavirus generated a pandemic that has lasted until now, so the investigation of drug candidates against SARS-CoV-2 has become a priority. The non-structural protein Nsp13 is a bifunctional viral protein, covering both ATPase and helicase activities that are essential for the viral replication. We describe overexpression and purification of Nsp13 and established biophysical and biochemical assays to screen compounds, initially focusing on the ATPase activity, since ATP hydrolysis is a prerequisite for the unwinding the RNA-duplex. We perform the screening of compounds through kits containing 560 compounds provided by Medicines for Malaria Venture. The activity assay was based on the reaction containing Nsp13, compounds, ATP and Kinase-Glo Plus kit where we determined the IC50 according to the luminescence reading corresponding to the ATP depletion. Analyzes are being conducted to evaluate the binding affinity and the RNA unwinding activity of the most promising compounds.



## Institutions

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## Keywords

drug candidates discovery

Nsp13

ATPase activity

SARS-CoV-2