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Authors: Ramanjit Kaur, Rajat Mudgal, Manju Narwal, Shailly Tomar



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Development of an ELISA assay for screening inhibitors against divalent metal ion dependent alphavirus capping enzyme

Ramanjit Kaur, Rajat Mudgal, Manju Narwal, Shailly Tomar*

Department of Biotechnology, Indian Institute of Technology Roorkee, Roorkee-247667, India

*Corresponding author: S. Tomar

Email: shailfbt@iitr.ac.in, shaiprav@gmail.com

Tel: +91-1332-285849/ +91-1332-285803

Fax: 91-1332-273560

Highlights:

- Development of a non-radioactive ELISA assay for CHIKV nsP1 enzymatic activity.
- ICP-MS unraveled the presence of Mg^{2+} ions in purified nsP1.
- The D63A mutant was designed to confirm nsP1 enzymatic activity.
- Inhibitory effect of sinefungin, aurintricarboxylic acid and ribavirin was assessed.

Abstract

Alphavirus non-structural protein, nsP1 has a distinct molecular mechanism of capping the viral RNAs than the conventional capping mechanism of host. Thus, alphavirus capping enzyme nsP1 is a potential drug target. nsP1 catalyzes the methylation of guanosine triphosphate (GTP) by transferring the methyl group from S-adenosylmethionine (SAM) to a GTP molecule at

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