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

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**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