Abstract

Viral RNA dependent RNA polymerases (RdRps) are enzymes which enable RNA viruses to replicate their genome and to prepare mRNA for translation of viral proteins. Due to its relative evolutionary conservation RdRps are good targets for drug design. In this work we present a structure of the RdRp ($3D^{pol}$) of Aichi virus, which has not been solved yet. Aichi virus is a human pathogen that causes gastroenteritis. Aichi virus is also used as a model organism for studying cognate viruses which virulence is more dangerous, for example: Rhinovirus, Hepatitis A virus, SARS virus, hepatitis C virus, yellow fever, and West-Nile virus.

In addition to structural studies of Aichi virus $3D^{pol}$ we also tested a previously published hypothesis that, $3D^{pol}$ is recruited to the membrane through phosphatidylinositol 4 phosphate (PI4P) - an important regulatory lipid. Membranes highly enriched in PI4P are formed in cells infected by single stranded positive sense RNA (plus ssRNA) viruses.

Finally we tested the influence of ribonucleotides on the $3D^{pol}$ protein stability.

(In Czech)