



## Habilitation Thesis Reviewer's Report

<b>Masaryk University</b>	
<b>Faculty</b>	Faculty of Science
<b>Procedure field</b>	Biomolecular Chemistry
<b>Applicant</b>	Mgr. Pavel Plevka, Ph.D.
<b>Applicant's home unit, institution</b>	Masaryk University
<b>Habilitation thesis</b>	Virion Structures and Genome Release Mechanisms of Picorna-like Viruses
<b>Reviewer</b>	Doc. RNDr. Pavlína Maloy Řezáčová Ph.D.
<b>Reviewer's home unit, institution</b>	Institute of Organic Chemistry and Biochemistry, Czech Academy of Science

Habilitation thesis Virion Structures and Genome Release Mechanisms of Picorna-like Viruses summarizes structural studies of viral particles of picorna-like viruses. The study uses several members of Picornavirales order, belonging to human or honeybee pathogens, and focuses mainly on structural mechanism of viral genome release and delivery.

Thesis is based on eleven recent publications, published in years 2016-2019. All publications presented in the habilitation thesis represent a significant contribution to current scientific knowledge in the field of structural virology. Papers were published in high-profile international journals (7x J. Virol, 3x PNAS, 1x Nature Comm) with Pavel Plevka as a corresponding author.

Formally, the thesis is well-designed and coherent collection with very informative figures and extended reference section. It consists of 35 pages of original text and 11 attached publications. Introduction clearly summarize knowledge on individual viruses and methodology used for structure determination. Section Results and discussion is well structured with respect to attached publications and thoroughly summarizes and disuses achieved results.

I enjoyed reading this habilitation thesis very much and I would like to compliment the candidate for his accomplishments. The thesis clearly demonstrates ability of Pavel Plevka to perform an independent research and gain results with high impact in the field of structural biology and structural virology.

**Reviewer's questions for the habilitation thesis defence** (number of questions up to the reviewer)

1. Delivery of the genome to the cytoplasm of a cell is an essential event and provides a potential target for the development of antiviral treatments (page 28). Can candidate comment more on this issue and provide examples of compound or strategies used in clinic (or in clinical trials) to interfere with genome delivery of picornaviruses.
2. Putative ion in the structure of black queen cell virus was reported in paper VI (Figure 4). Did authors speculate about identity of this ion and perhaps try to identify it based anomalous signal or EXAFS scan?

### Conclusion

The habilitation thesis entitled "Virion Structures and Genome Release Mechanisms of Picorna-like Viruses" by Mgr. Pavel Plevka, Ph.D. *fulfils* requirements expected of a habilitation thesis in the field of Biomolecular Chemistry.

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