

10th International Virology Summit
&
4th International Conference on Influenza & Zoonotic Diseases
July 02-04, 2018 | Vienna, Austria

Replication of EHV-1 after modulation of autophagy process – *in vitro* research

Izabela Serafinska, Joanna Cymerys, Anna Golke, Marcin Chodkowski, Joanna Brzezicka, Anna Słońska and Marcin W Bańbura
Warsaw University of Life Sciences, Poland

Autophagy is an evolutionary conservative, intracellular process. It plays an important role in maintaining homeostasis in cell through degradation of their own components such as proteins or organelles via lysosomes. Viral infection can modulate this process. During infection autophagy may be stimulated or inhibited, because virions can be degraded in autophagolysosomes. Some viruses can utilize this process for replication. To investigate the influence of this process on the level of viral replication, stimulators or inhibitors of autophagy can be applied. Primary cultures of murine neurons were treated with autophagy inducers (rapamycin and temozolomide) and inhibitors (wortmannin and chloroquine) for 24 h. After incubation neurons were infected with equine herpesvirus type 1 (EHV-1) for 2, 24 and 48 h. In experiments non-neuropathogenic Jan-E EHV-1 strain was used. Level of viral replication was analyzed using real-time PCR. Presence and localization of viral antigens and LC3B protein (autophagy marker) were detected using confocal microscopy. Results obtained from real-time PCR showed an increase of level of viral DNA in control. At 2 h p.i., after chemical treatment, increase in EHV-1 DNA amount was observed. At 24 h p.i. this level was decreased and then at 48 h p.i. increased again, except sample treated with rapamycin. In this cells level of viral DNA also decreased at 48 h p.i. Immunofluorescence staining showed that LC3B protein was presented inside neurons during EHV-1 infections. In neurons at 2 and 48 h p.i. higher number of viral particles was observed in comparison to 24 h p.i. Results showed changes in replication kinetics during EHV-1 infection after using autophagy modulators which can be useful in antiviral therapy.

Biography

Izabela Serafinska is a PhD candidate in the Division of the Veterinary Medicine in Warsaw University of Life Sciences, Poland. Her main research topic is autophagy in neurons during EHV-1 infection. Her scientific interests include neuroinfections and microscopy. This work was supported by grant from the KNOW (Leading National Research Centre) Scientific Consortium „Healthy Animal – Safe Food”, decision of Ministry of Science and Higher Education No. 05-1/KNOW2/2015

iza.serafinska@gmail.com

Notes: