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Characterization of the immune response against Testudinid herpesvirus 3.

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Abstract

Numerous infectious diseases have been documented in reptiles, however minimal information is available concerning their immunological response. One of the most diffuse and lethal reptile pathogen is *Testudinid herpesvirus 3* (TeHV3), a *Alphaherpesvirinae*. All species of tortoises (*Testudinide*) are considered susceptible to TeHV3, however the virus is over represented in the genus *Testudo*, which includes, among others, *T. graeca*, *T. hermanni*, *T. marginata*, and *T. horsfieldii*, that are popular pets in Europe. Incidence of TeHV3-associated disease is highest right after hibernation (Origgi, 2012).

The aim of this work is to partially characterize the immunological response of *T. graeca* against TeHV3. A bacteriophage library composed of about 5.000 clones containing genomic DNA fragments of TeHV3 was produced. Bacteriophages were amplified in a specific strain of *E. coli* and were screened with TeHV3-seropositive sera from *T. graeca*. Phagemids were excised from the positive bacteriophages, sequenced, and compare with the TeHV3 genome to identify the encoding genes. Six different structural and non-structural proteins have identified as immune relevant. Vero cells were transfected with phagemids of the positive clones, to confirm previous results. TeHV3's proteins expression was assessed by F.A.C.S using *T. graeca* seropositive sera. Of all the six selected clones, only that expressing the partial sequence of the glycoprotein B (gB) showed a positive signal in the F.A.C.S. analysis. This result is consistent with the well-known immunogenicity of gB of other herpesviruses including those infecting humans and with the highly conserved role that gB plays in host-pathogen interaction across species and evolution (Beals et al., 2016).

References

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