

ROLE PLAYED BY THE HOST FACTOR EGR-1 DURING THE LIFE CYCLE  
OF *ORTHOPOXVIRUS COWPOX*

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The *Poxviridae* family comprises complex and large double strand DNA animal viruses, which replicate in the cytoplasm of host cells. The *orthopoxvirus Cowpox virus* (CPXV) modifies the host cell environment to achieve favorable replicative conditions. The 82-kDa phosphoprotein EGR-1 (early growth response gene) is a host factor that belongs to a family of zinc-fingered transcription factors that includes EGR-2-4 and NGF-B. Here we showed that *egr-1* is strongly regulated during CPXV infection. CPXV stimulated EGR-1 expression in MEFs (Murine Embryonic Fibroblasts), from 3 up to 18 hours post-infection, via the MEK/ERK pathway. Fluorescence microscopy analysis revealed that during CPXV infection EGR-1 concentrated in the nucleus. Even though CPXV replication or the expression of viral genes such as H3L, D8L, A13, A14 and *crmA*, was not affected when the infection was carried out with the knockout of *egr-1*, under this circumstance, however, a small plaque phenotype was verified. This latter finding is in line with a ~80% decrease in the release of enveloped virus particles found in the supernatant of *egr-1* *-/-* MEFs. Taken together our results showed that the MEK/ERK/EGR-1 pathway plays a critical role in the release of CPXV.