

Virus-Induced FOXO Protein Facilitates Viral Replication of Human Cytomegalovirus

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***Abstract*:** Human cytomegalovirus (HCMV) can establish a latent and productive infection. The productive HCMV infection can induce various changes in the cellular environment to establish viral replication and infection especially through its interaction with the various cellular components. Forkhead box O (FOXO) is an important cellular transcription factor that plays a critical role in many biological processes e.g. cell cycle arrest, autophagy, apoptosis.. etc. It is also found to participate in the pathogenesis of the herpesvirus family but the effect of the virus on the expression of this cellular protein is not well studied yet. In this report, we found that human cytomegalovirus (HCMV), a beta herpesvirus member, could dramatically induce the expression of FOXOs in the infected human fibroblasts. The induced FOXOs were recruited into the viral replication compartments (vRC) in the nucleus, especially at the late stage of infection. Suppression of FOXO expression by RNA interference significantly inhibited HCMV replication, and the production of progeny virus was reduced remarkably. Mechanistically, FOXO knockdown intensively crippled viral late gene expression at the transcriptional level, while it only marginally affected viral DNA synthesis. These results indicated an especially important role of FOXOs in HCMV replication, highlighting the attractive idea of antagonizing FOXOs as a potential drug target against HCMV infection. Our data uncovered the potential role of host transcription factor FOXO in HCMV replication which needs further study in the future.

***Keywords*-** FoxO and Human Cytomegalovirus, FoxO transcription Factor, HCMV Late Viral Gene Expression, HCMV Viral Proteins

Biography

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