

P005 Herpes simplex virus 1 infection induces phosphorylation of PABP1

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PABP1 is a central regulator of mRNA translation and turnover via its complex interactions with the poly(A) tail, translation initiation factors (including PAIP-1, eIF4G and eIF3), translation termination factors (eRF3) and regulators of mRNA decay (PARN and PAN3). Significantly, a number of viruses have evolved strategies to disrupt PABP1 function as part of their host-cell-shutoff programs. These include disruption of PABP1-eIF4G interactions by the Rotavirus NSP3 protein, which causes PABP1 to accumulate in the nucleus, and cleavage of PABP1 by HIV-, Poliovirus- and Calicivirus-encoded proteases.

Unlike these other viruses Herpes Simplex virus 1 (HSV-1) does not execute a host-cell translational-shutoff program. Rather, since its mRNAs are both capped and polyadenylated, it encodes proteins that subvert the host cell's attempts to inactivate cap/poly(A)-dependent translation. We have observed a large increase in the steady-state phosphorylation status of PABP1 in HSV-1-infected HeLa cells. PABP1 is basally phosphorylated at a very low level in uninfected cells, with unknown functional consequences, and becomes hyperphosphorylated within 6 hours post-infection. Experiments to both map the *in vivo* sites of and identify the effects of HSV-1-induced PABP1 phosphorylation will be discussed.