Public Abstract

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Graduation Term:FS 2012
Department:Microbiology- Medicine
Degree:PhD

Title:CHARACTERIZATION OF THE NON-STRUCTURAL PROTEINS OF ADENO-ASSOCIATED VIRUS (AAV) AND MINUTE VIRUS OF CANINE (MVC)

Parvoviruses are among the smallest of the animal DNA viruses. Due to their compact genome, these viruses display immense heterogeneity both in the mechanisms involved in gene expression and the functions of the encoded proteins.
The rep gene of adeno-associated virus type 2 (AAV2) encodes four non-structural proteins that provide a myriad of functions that are essential for AAV replication, surprisingly, our knowledge of how the AAV large Rep protein is modified post-translationally is incomplete. Five adenovirus (Ad) gene products are required for efficient replication of co-infecting AAV. Research presented in this thesis revealed that AAV2 large Rep protein is targeted for ubiquitination and degradation by the Ad E3 ubiquitin ligase complex.
The bocavirus minute virus of canine (MVC) provides an excellent model to study infection and pathogenesis of members of the bocavirus genus in particular to the closely related, potentially pathogenic human bocavirus (HBoV). We have identified a previously unreported smaller NS protein that is derived from a novel spliced mRNA within the larger NS gene. In addition, we also identified a role for the viral NP1 protein during infection. NP1 is required for read-through of the MVC internal polyadenylation site and thus, access to the capsid transcripts VP1 and VP2.