



Apr 12th, 2:35 PM - 3:35 PM

## **Protective Qualities of Duck Carboxypeptidase D Against Adenovirus-Mediated Apoptosis in Primary Rat Hepatocytes**

Bridget Wall

*Illinois Wesleyan University*

Dr. Linda Griffith, Faculty Advisor

*Illinois Wesleyan University*

Dr. Alexandria Sams, Faculty Advisor

*The Massachusetts Institute of Technology*

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>

---

Wall, Bridget; Griffith, Faculty Advisor, Dr. Linda; and Sams, Faculty Advisor, Dr. Alexandria, "Protective Qualities of Duck Carboxypeptidase D Against Adenovirus-Mediated Apoptosis in Primary Rat Hepatocytes" (2008). *John Wesley Powell Student Research Conference*. 26.

<https://digitalcommons.iwu.edu/jwprc/2008/posters2/26>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

Poster Presentation P50

**PROTECTIVE QUALITIES OF DUCK CARBOXYPEPTIDASE D AGAINST  
ADENOVIRUS-MEDIATED APOPTOSIS IN PRIMARY RAT HEPATOCYTES**

Bridget Wall and Dr. Linda Griffith\* and Dr. Alexandria Sams\*

Biology Department, Illinois Wesleyan University  
The Massachusetts Institute of Technology

Duck carboxypeptidase D (DCPD) is a membrane-bound metalloenzyme of the secretory pathway that cleaves arginine or lysine from the carboxy terminus of a protein or peptide. In a prior study of DCPD, a known receptor for Hepatitis B, cells transfected with an adenovirus containing DCPD possessed a distinctly different morphology and vitality in comparison to the adenoviral constructs containing GFP or those lacking a transgene. In essence, DCPD protected the cells from adenovirus-mediated apoptosis, a self-destructive process which occurs upon viral DNA entry, incorporation, and translation. To investigate the mechanism by which DCPD prevents apoptosis, a variety of inhibitors and promoters were tested using primary rat hepatocytes to determine compounds relevant to the prevention pathway. In this pathway, arginine is used as a substrate by members of the nitric oxide synthase (NOS) family to synthesize nitric oxide. The elucidation of this mechanism may lead to further insight on the adenoviral response and perhaps eventual incorporation in a default adenoviral vector for use in gene therapy.