



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

## The Expression of Recombinant Hemoglobin in *Escherichia Coli*

Christopher Miedema  
*Illinois Wesleyan University*

Evan Mason  
*Illinois Wesleyan University*

Brian Brennan, Faculty Advisor  
*Illinois Wesleyan University*

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

---

Miedema, Christopher; Mason, Evan; and Brennan, Faculty Advisor, Brian, "The Expression of Recombinant Hemoglobin in *Escherichia Coli*" (2008). *John Wesley Powell Student Research Conference*. 16.

<https://digitalcommons.iwu.edu/jwprc/2008/posters2/16>

This 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 P32

**THE EXPRESSION OF RECOMBINANT HEMOGLOBIN  
IN *ESCHERICHIA COLI***

Chris Miedema, Evan Mason and Brian Brennan\*

Chemistry and Biology Departments, Illinois Wesleyan University

Sickle-cell disease is a genetic blood disorder characterized by sickle shaped red blood cells. This is the result of a mutation present in hemoglobin that causes it to polymerize into long fibers. The “sickled” cells have restricted movement through the blood stream and often clog capillaries leading to periodic painful attacks, difficulty transporting oxygen, and organ damage. We would like to develop therapeutics for this disorder by discovering molecules that can bind to hemoglobin and prevent its polymerization.

In order to study this disease and develop therapeutics, it is necessary to express and purify normal adult hemoglobin (Hb) as well as the mutant sickle-cell hemoglobin (HbS). Thus far, we have successfully overexpressed recombinant hemoglobin in *Escherichia coli*. Additionally, we have used site directed mutagenesis to construct a plasmid capable of expressing hemoglobin with the sickle-cell mutation. With this work in place, we will be in a position to start screening for novel therapeutics.