Publications

Schreiber HA, Harding JS, Hunt O, Altamirano CJ, Hulseberg PD, Stewart D, Fabry Z, Sandor M, *Inflammatory dendritic cells migrate in and out of transplanted chronic mycobacterial granulomas in mice.*, Madison WI, 2011

Danielle M Stewart, Jozsef Prechl, Heidi A Schreiber, Matyas Sandor. *Cross presentation with epitope tagged antibodies targeted to different molecules on Dendritic Cell surface.* American Association of Immunology conference Honolulu, Hawaii, 2013

Danielle M Stewart, Sandor, M, *The Cross Presentation of antigenic epitopes delivery by DC targeting recombinant antibodies*

Danielle M Stewart, Sandor, M, *The effects of DC targeting recombinant antibodies on CD4 T cell differentiation.*

Danielle M Stewart, Sandor M *The effects of DC targeting recombinant antibodies on T cell memory and protection during muring model of mycobacterium tuberculosis infection.*

Presentations & Conferences

(2010-2014) Michael Hart Research Day annual Poster Session University of Wisconsin-Madison, Madison, WI

(2009-2014) SciMed GRS annual poster session, University of Wisconsin-Madison, Madison, WI

(2013) American Association of Immunology (AAI) Centennial Annual Meeting, Honolulu, HI

(2010) Annual Biomedical Research Conference for Minorities (ABRCMs), Charlotte, NC

(2010) Bridging the Career Gap for Underrepresented Minority Research Science Sponsored by NIAID/NIH, Bethesda, MD

Cellular and Molecular Pathology Graduate Program, Joanne Thornton, 3170-10K MFCB, 1685 Highland Avenue, Madison, WI 53705

CMP Cellular and Molecular Pathology

Danielle Stewart

Program of the Dissertation Defense Seminar for the Degree of Doctor of Philosophy in Cellular and Molecular Pathology

"Comparing T cell responses induced by recombinant antibodies targeting antigens to different dendritic cell receptor"

Wisconsin Institutes for Medical Research

Tuesday, July 7, 2015

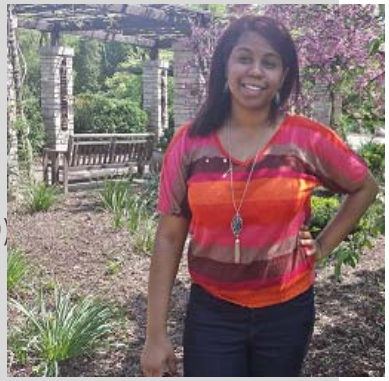
1:00pm Room 7001A

Research conducted in the lab of
Matyas Sandor, PhD
Department of Pathology and Laboratory Medicine

UNIVERSITY OF WISCONSIN – MADISON

Danielle Stewart

Education



University of Wisconsin-Madison
Doctorate in Philosophy, PhD: Cellular and Molecular Pathology Graduate Program

Delaware State Univeristy, Dover, DE (May 2009)
Bachelor of Science
Major: Biological Science

Research Experience

(2009-present) **University of Wisconsin-Madison Research Assistant**
Advisor: Matyas Sandor, PhD
Dendritic cell targeting strategies modify the effector function of T cells: application of efficient mycobacterial vaccination

(2008) **University of Wisconsin-Madison Summer Research Assistant**
Advisor: Dennis Halterman, PhD
Host rage of *Alternaria* subspecies on Wisconsin vegetable crops

(2007) **Delaware State University Summer Research Assistant**
Advisor: Venugopal KalavaCharla, PhD
Cloning of the *Arabidopsis thaliana-nipped-B like gene (NIPBL)*

Honors & Awards

(2012, 2015) **Advanced Opportunity Fellowship (AOF)**

(2013-2014) **Cellular and Molecular Pathology (CMP) T32 training grant**

(2010-2012) **National Institute of Health (NIH) Research Supplements to Promote Diversity in Health-related research**

(2007-2009) **Minority Access to Research Careers (MARC) scholarship**

(2005-2009) **MBNA Historically Black College and University scholarship**

DISSERTATION ABSTRACT

The CD4 + and CD8 + T cells interactions with dendritic cells are important factors in protection and homeostasis of the immune system. Surface receptors binding ligands, antigens, antibodies, and pathogens can initiate dendritic cells wide variety direct downstream responses. Our goal of this project is to understand targeting dendritic cells receptor with monoclonal antibodies fused with peptides can effect CD4 T cell lineages, cross presentation and ultimately, protective responses against CD8 T cells. To understand the how dendritic cells can effect CD4 + and CD8 + T cells, we have created dendritic cell receptor specific recombinant monoclonal antibodies fused with peptide (DC-POMs) which target DC receptors CD40,DEC205 and FcγR II/III. We first studied the DC-POMs ability to direct cross presentation by detecting CD8+ T cells responses. Through a series of in vivo and in vitro experiments, we found all of three DC-POMs are able to cross present. We observed that different DC surface receptors rely on different antigen processing and presentation pathway. In addition, we also demonstrate that various subsets of DC cross present differently to CD8 + T cells. Next, we examine the DC-POM ability to direct T cell lineages. To detect T cell lineages by DC-POMs, we crossed P25 TCR TG mice with reporter mice for Th1, Th17 and Tregs to generate P25 reporter mice. Our data demonstrate that DC-POMs direct Th17 without adjuvant. Treg and Th1 subsets require an adjuvant with DC-POM. Lastly, we addressed the protection capacity of the DC-POMs in an Mtb infection. DC-POMs were used as booster with BCG immunizes mice prior to Mtb infection. Our data has demonstrated a small amount of protection and decrease in bacterial burden by DC-POM immunized mice. These studies demonstrate targeting specific DC receptors can mediate a variety of T cells responses. This knowledge will contribute to creating better and more efficient immunotherapies.