



CIMD Newsletter



VOLUME VI, ISSUE II

JULY 2008

Dr. Fuller Awarded \$5.4M NIH Grant for Work on Universal Flu Vaccine

Deborah Fuller, Ph.D., has been awarded a \$5.4M grant from NIH's National Institute of Allergy and Infectious Diseases to explore the development of a "universal" vaccine for flu, including avian flu. The vaccine could protect individuals from all forms of influenza, regardless of the strain or mutation.

Three key concepts are being explored by Dr. Fuller's team. The first is to develop a DNA vaccine that will activate not only the antibody response, but also T-cells that identify

infected cells and shut them down before they replicate.

The second concept is to activate an immune response in the lungs. Conventional vaccines work only in the blood. This vaccine could also work in the lungs, typically the first site of the infection.

The third concept will use computer modeling to predict changes in the sequence of the vaccine to make it more effective.

Dean Verdile praised CIMD for, "...further solidi-



fying the Center's reputation as a leader in vaccine research."

For the complete story, see Albany Med Today (June 15, 2008). This work was also highlighted in the local press, including the Albany Times-Union, the Daily Gazette, and the Business Review.

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CIMD Researchers Published in *Nature Medicine*

Why do bacterial infections often follow the flu? That's one question that is being investigated in the lab of Dr. Dennis Metzger by Research Associate, Keer Sun, Ph.D. The results of their study were reported in the May issue of the journal *Nature Medicine*.

While many physicians know all too well that patients develop these secondary infections about a week after viral lung infec-

tion, which includes the flu, the reason has been elusive.

This research has led to the discovery that interferon, which is involved in the immune mechanism that the body uses to clear virus, inadvertently shuts down normal defenses against bacteria. Dr. Metzger states that as the body diverts all its attention towards fighting the virus, interferon actually changes the properties of

the bacterial fighting phagocytes in the lung, leaving them unable to recognize and kill bacteria. Although this is a temporary phenomenon, with things returning to normal in about a week or so, it has led to a window of opportunity for bacterial infections.

Drs. Metzger and Sun have also figured out a way to prevent interferon from shutting down the bacteria-fighting immune sys-

tem. This finding could potentially lead to medical treatment that would prevent secondary bacterial infections in humans.

This work was highlighted in the June 2008 issue of *Nature Immunology*, was cited by the Faculty of 1000 as recommended reading, and was the subject of a front page article in the Albany Times-Union.

Graduate Student Research and Awards Day Results

Several CIMD graduate students received awards at the 29th Annual Graduate Student Awards Day on April 3, 2008.



The Richard Miller Alumni Prize for the Most Outstanding Research Presentation

Sita Subbaram

(Mentor: J. Andrés Melendez, Ph.D.)

Richard H. Edmonds Alumni Leadership Award

Justin Wilson

President

Graduate Student Organization

(Mentor: James R. Drake, Ph.D.)

The Dean's Certificate and The Frank C. Ferguson, Jr. Award for Excellence in the Quality of Science

Sita Subbaram

(Mentor: J. Andrés Melendez, Ph.D.)

Dean's Certificates and Awards in Recognition of Excellence in Research

Jaya Dasgupta

(Mentor: J. Andrés Melendez, Ph.D.)

Douglas Durrant

(Mentor: Dennis W. Metzger, Ph.D.)

Bhuvana Katkere

(Mentor: James R. Drake, Ph.D.)

Sita Subbaram

(Mentor: J. Andrés Melendez, Ph.D.)

Congratulations to All!

CIMD Trainees Give Presentations at National Conference

Several trainees from the Center for Immunology and Microbial Disease were selected to give presentations at the 95th American Association of Immunologists Annual Meeting, Experimental Biology 2008, April 5-9, 2008, San Diego, CA.

Maninjay Atianand, graduate student, gave an oral and poster presentation entitled, "Regulation of NF- κ B and Inflam-

masome Function by Pypin Only Protein-2 (POP2). (Mentor: Jonathan A. Harton, Ph.D.)

James R. Drake, Ph.D., was invited to serve as Block Symposium Session Chair, *Cell Biology and Molecular Mechanisms of Antigen Processing and Presentation*.

Girish Kirimanjeshwara, D.V.M., Ph.D., gave an oral and poster presentation entitled, "Influence of IgA on TI-humoral Responses

to Polysaccharides." Dr. Kirimanjeshwara also received a \$500 Trainee Member Award. (Mentor: Dennis W. Metzger, Ph.D.)

Keer Sun, Ph.D., gave two oral and poster presentations entitled, "Inhibition of Pulmonary Anti-bacterial Defense by IFN γ Induced During Influenza Virus Infection," and "A Detrimental Role for IL-10 During Host Immune Responses to Influenza Virus Infection." Dr. Sun

received two \$500 Trainee Member Awards. (Mentor: Dennis W. Metzger, Ph.D.)

Justin Wilson, graduate student, gave an oral and poster presentation entitled, "*Francisella tularensis* Elicits a Soluble Factor that Induces Ubiquitin-dependent MHC Class II Endocytosis and Degradation in Macrophages." Justin received a \$500 Trainee Member Award. (Mentor: Dr. James R. Drake, Ph.D.)

CIMD Graduate Students Earn Ph.D. Degrees

Jaya Dasgupta

Ph.D. Thesis Title:

"Age-dependent Induction of MMP-1 is a Redox-sensitive Process Requiring the Activation of the C-Jun N-terminal Kinase Pathway"

Mentor: J. Andrés Melendez, Ph.D.

Sita Subbaram

Ph.D. Thesis Title:

"Redox Control of Co-activators and Repressors of MMP-1 Transcription"

Mentor: J. Andrés Melendez, Ph.D.



Sita and Jaya will remain with their mentor, Dr. Melendez, as Postdoctoral Fellows.

Conferences, Meetings and Study Sections

[Jing-Ren Zhang, Ph.D.](#), was invited to give a presentation at the 2008 Tularemia Workshop held at The Sagamore Resort, Bolton Landing, NY, March 30-April 1, 2008. His talk was entitled, "Screening for *Francisella* Virulence Factors: STM and Beyond,"

[Deborah L. Fuller, Ph.D.](#), was invited to give a seminar at the Sir Mark Oliphant International Frontiers of Science and Technology Vaccine and Immunotherapy Conference, April 9-11, 2008, in Canberra, Australia. Dr. Fuller's seminar was entitled, "Immunotherapeutic DNA Vaccines for HIV: Increased Immune Function and Viral Control in the Nonhuman Primate Model for AIDS."

[Edmund J. Gosselin, Ph.D.](#) was asked to serve on the National Institute of Allergy and Infectious Diseases

Adjuvant Development Program Study Section, April 21-22, 2008, in Bethesda, MD.

[Dana R. Crawford, Ph.D.](#), was invited to give a seminar at the Down Syndrome *Aim High* Annual Conference on April 26, 2008., in Albany, NY. Dr. Crawford's seminar was entitled, "The Current State of Down Syndrome Research and a Proposed Novel Dietary Approach." Students Amber Mitchell, Shazneen Hushmendy, Nicholas Latchana, and Shazaan Hushmendy served as Panel Discussion leaders.

[Dennis W. Metzger, Ph.D.](#), was invited to the University of Kentucky, Department of Microbiology & Immunology on April 28-29, 2008, and gave a seminar entitled, "Inhibition of Pulmonary Antibacterial Defense During Recovery from Influenza

Virus Infection." Dr. Metzger also gave a lecture in the *Special Topics in Mucosal Immunology* graduate course entitled, "Unique Aspects of Mucosal Immune Responses in the Respiratory Tract."

[Jing-Ren Zhang, Ph.D.](#), was invited to give a presentation at the Institute of Microbiology, Chinese Academy of Science on April 28-29, 2008 in Beijing, China. The talk was entitled, "High Throughput Screening Approaches for Bacterial Virulence Factors."

[James R. Drake, Ph.D.](#), served as a member of the site visit team that reviewed the National Cancer Institute *Experimental Immunology Branch Laboratory*, May 6-7, 2008, in Frederick, MD.

[Xiaoyun Wen](#), graduate student, was invited to give an oral presentation of her re-

search entitled, "HIV1 Vpr as a Mediator of Ubiquitination," at the 33rd Annual Cold Spring Harbor Meeting on Retroviruses, May 19-24, 2008, Cold Spring Harbor, NY. Selection for oral presentation at this meeting is highly competitive. Congratulations Xiaoyun! (Mentor: Carlos de Noronha, Sc.D.)

[Dennis W. Metzger, Ph.D.](#), was asked to serve on the National Institutes of Health Center for Scientific Review *Immunity and Host-Defense* Study Section, May 29-30, 2008, in Washington, DC.

[Edmund J. Gosselin, Ph.D.](#), served on the National Institutes of Health *Non-HIV Microbial Vaccine Development* Administrative Study Section, June 23, 2008, in Washington, DC.

Peer-reviewed Publications

Ting JP, Lovering RC, Alnemri ES, Bertin J, Boss JM, Davis BK, Flavell RA, Girardin SE, Godzik A, [Harton JA](#), et al. The NLR gene family: a standard nomenclature. *Immunity*. 28:285-7, 2008.

Riper DV, [Jayakumar L](#), [Latchana N](#), [Bhoiwala D](#), [Mitchell AN](#), and [Crawford DR](#). Regulation of vascular function by RCAN1 (ADAPT78). *Arch Biochem Biophys*. 472:43-50, 2008.

[Petti LM](#), Ricciardi EC, Page HJ, and [Porter KA](#). Transforming signals resulting from sustained activation of PDGF(beta) receptor in mortal human fibroblasts. *J Cell Sci*. 121:1172-82, 2008.

Lu L, Ma Z, Jokiranta TS, Whitney AR, DeLeo FR, and [Zhang JR](#). Species-specific interactions of *Streptococcus pneumoniae* with human complement factor H. *J Immunol*. In press.

[Chen H](#), Ma Y, [Yang J](#), [O'Brien C](#), Lee SL, Haataja S, and [Zhang JR](#). Genetic requirement for pneumococcal ear infection. *PLoS One*. In press.

Rawool D, [Bitsaktis C](#), [Li Y](#), Gosselin DR, [Metzger DW](#), and [Gosselin E](#). Utilization of Fc receptors as a mucosal vaccine strategy against an intracellular bacterium *Francisella tularensis*. *J Immunol*. 180:5548-5557, 2008.

[Sun K](#) and [Metzger DW](#). Inhibition of pulmonary anti-bacterial defense by IFN- γ produced during recovery from influenza virus infection. *Nature Med*. 14:558-564, 2008.



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*Knowledge is our goal,
Teamwork and Excellence
are our standards.*

If you have an item you would like considered for the next edition, please submit to Dawn Bellville at: Bellvid@mail.amc.edu
Thank you.

Deadline for submission: 9/15/08
Next issue: October 2008

Other News Items...

- [Girish Kirimanjeswara, D.V.M., Ph.D.](#) and [Keer Sun, Ph.D.](#), were recently promoted to Research Associates.
- [Deborah H. Fuller, Ph.D.](#), is co-investigator on a 3-year, \$42,500 NIH grant for research entitled, "Vaccine Regimens to Induce CD4+ and CD8+ T cells Against SIV Epitopes."
- Four graduate students will be joining CIMD for the 2008-2009 academic year. They are Nicole Flaherty and Lu Lu (Ph.D. students), and Supriya Kar and Tiffany Trynieszewski (M.S. students). WELCOME!
- **SAVE THE DATE...**the CIMD Annual Research Retreat and Picnic will be held at River Stone Manor on Thursday, August 21, 2008, 8 a.m.-5 p.m.
- The 2008 Theobald Smith Annual Lecture is scheduled for Friday, October 10, 2008, 4 p.m. in ME-700. This year's speaker is **Bruce Beutler, M.D.**, Professor and Chairman, Department of Genetics at The Scripps Research Institute, La Jolla, CA. Dr. Beutler is a member of the National Academy of Sciences and received the prestigious Balzan Prize in 2007 (together with Jules A. Hoffman) for his studies of innate immunity. Other notable honors have included the William B. Coley Award in 2006 (with Shizuo Akira) and the Robert Koch Prize in 2004 (with Jules Hoffman and Shizuo Akira).

Dr. Drake Receives Teaching Award

[James R. Drake, Ph.D.](#), was honored with *The Helen H. Molinari Graduate Encouragement & Merit Award* at the 29th Annual Graduate Student Awards Day on April 3, 2008.



Drs. Crawford and Melendez Receive Sosa Academy Awards

[Dana R. Crawford, Ph.D.](#), received a *Faculty Teaching Scholar Award* and [J. Andrés Melendez, Ph.D.](#), received the *Outstanding Mentor Award* from the Sosa Academy of Medical Sciences at the 2008 Albany Medical College Commencement ceremonies.



Dr. Crawford

Dr. Melendez



Upcoming CIMD Seminars

August 11, 2008

12 Noon, MS-316

Amanda Melillo, Host

Graduate Students' Distinguished Scientist

Kim Orth, Ph.D.

Professor, W. W. Caruth, Jr. Biomedical Scholar
Department of Molecular Biology
University of Texas Southwestern Medical Center
*"Black Spot, Black Death, Black Pearl:
The Tales of Bacterial Effectors"*

August 25, 2008

12 Noon, MS-316

J. Andrés Melendez, Host

Aparna Ranganathan, Ph.D.

Research Assistant Professor
Division of Hematology and Oncology
Mount Sinai School of Medicine
"TBA"