

## UAB Microbiology vs Pneumonia By Kanupriya Gupta

**S***treptococcus pneumoniae* (pneumococcus) is a major human pathogen that can cause significant diseases such as pneumonia, bacteremia, meningitis, and otitis media. According to the World Health Organization (WHO), *S. pneumoniae* causes an estimated 14.5 million cases of illness and 826,000 deaths in children under age 5 each year, thus posing a major global health problem. High risk factors for invasive pneumococcal pneumonia include age (younger than 2 or older than 65 years), influenza and other respiratory diseases, defects in humoral immunity, HIV infection, and diabetes mellitus.

Growing antibiotic resistance of pneumococci underscores the urgent need for effective vaccines. Currently, the Center for Disease Control and Prevention (CDC) recommends the pneumococcal conjugate vaccine (PCV) for all children younger than 5 years, and PCV and/or pneumococcal polysaccharide vaccine (PPV) for all adults 65 years or older. While these vaccines have been shown to be effective, the high manufacturing costs and serotype replacement resulting from limited serotypic coverage of the current vaccines necessitates further research into pneumococcal vaccines, especially when targeting resource-poor countries.

With these concerns in mind, faculty and students in the UAB Department of Microbiology are in-

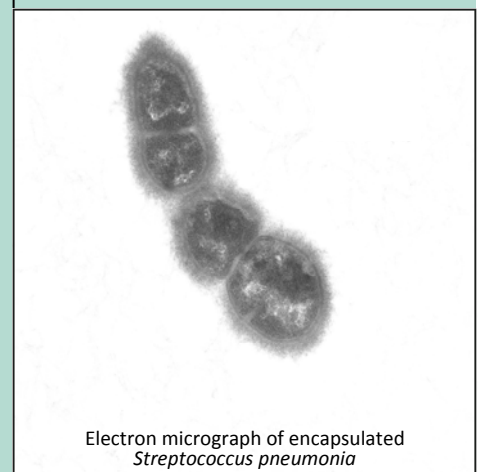
involved in extensive research to gain a better understanding of pneumococcal pathogenesis and ways to fight and prevent the disease.

[David Briles, Ph.D.](#), joined UAB in 1978. Since then he has been involved in the study of the interaction of bacterial virulence factors and host defenses in the pathogenesis of pneumococci. His laboratory primarily focuses on a cell surface protein, PspA, an important pneumococcal virulence factor and a potential candidate for vaccine development. They are currently investigating the protection-eliciting portion of PspA and its potential role in developing a protein pneumococcal vaccine that would eliminate total pneumococcal carriage, which the current conjugate vaccine is able to do only for serotypes contained in the vaccine. Dr. Briles works closely with many international organizations. He has projects funded through [NIH](#) and [PATH](#), an international health organization engaged in vaccine development for the developing world, plus he was a faculty member at SungKyunKwan University in South Korea from 2009-2013. Additionally, he has collaborations with the University of Tokyo and Butantan Institute in Brazil.

[Moon Nahm, M.D.](#), and his laboratory study the structure and diversity of pneumococcal capsules, and their interactions with host protective immunity. Their studies of capsular diversity have led to the discovery of many new serotypes, in-

cluding 6C and 11E. The discovery that many "6A" isolates were actually 6C strains helped explain the continuing increase in prevalence of "6A" after introduction of a PCV, which was believed to be cross protective against 6A. The discovery of serotype 11E revealed a link between host innate immunity and bacterial evolution.

The Nahm laboratory was instrumental in the invention and development of a multiplexed assay for antibody function, an important tool for vaccine evaluation and monitoring human immunity. To share this important assay technology, he is maintaining a website with detailed technical information ([www.vaccine.uab.edu](http://www.vaccine.uab.edu)) and has trained many visiting scientists from around the world in his laboratory. Because of the lab's expertise



Electron micrograph of encapsulated  
*Streptococcus pneumoniae*

Photo by Kanupriya Gupta

Continued on page 2

# UAB SCHOOL OF MEDICINE

## Department of Microbiology

### UAB Microbiology vs Pneumonia—continued from page 1

in pneumococcal antibodies and analytical technologies, Dr. Nahm's laboratory is selected as a WHO and NIH reference laboratory.

**Janet Yother, Ph.D.**, and her laboratory are involved in the study of genetic, biochemical and virulence properties of capsular polysaccharide in *S. pneumoniae*. Their studies have produced a better understanding of the mechanism of capsule synthesis in serotypes 2 and 3. In addition, the lab's research is directed toward understanding the regulation of capsule expression in response to factors like oxygen availability and glucose, which is critical to the knowledge of pneumococcal virulence.

UAB is instrumental in providing a platform for sharing knowledge and promoting collaborations among researchers within and outside the university. For example, the laboratories of the three PIs mentioned above meet once a month during the academic year to share their latest findings. Another major plank in the platform is the UAB Pneumococcal Symposium. This biannual meeting of researchers from various institutions throughout the southeastern US was organized in the late 1990s by Dr. Briles to provide researchers an opportunity to share the latest developments in the field of pneumococcal research. The 2014 symposium was attended by more than

70 researchers from six southeastern research institutions.

By 2050, 20 percent of the world's population will be over age 65, and as such, highly susceptible to pneumonia, making it critical to decrease the morbidity and mortality associated with this disease. The faculty and trainees in the UAB Department of Microbiology are aggressively addressing this issue with the goal of a pneumonia-free world.

Kanupriya Gupta received her Ph.D. from UAB in 2013. She continues her studies of the regulation of exoglycosidases and capsule in *Streptococcus pneumoniae* in the laboratory of Dr. Janet Yother.





## 23rd Annual Microbiology Research Retreat

by Peter Burrows, Ph.D.

October 17-19, 2014, microbiology department faculty, and special guests gathered at Alabama's beautiful Joe Wheeler State Park for the annual microbiology department retreat. This has always been one of our favorite retreat venues because of its convenient (about 2 hours from Birmingham) and beautiful location near Rogersville, Alabama, on Wheeler Lake, a 60 mile long body of water created by Wheeler Dam along the Tennessee River. This year's retreat was a wonderful opportunity for students, faculty and postdocs to focus on science and to establish new collaborations away from the distractions of everyday life. The weather this year could not have been better. An added treat was the unveiling of the new microbiology department T-shirt during the retreat registration. Images on the shirt were provided by microbiology graduate student Shane Kelly (Bedwell lab) and depicted squamous epithelial cells isolated from the buccal mucosa of the cheek. Shane's artwork was awarded Judge's Choice in the 2014 UAB School of Medicine Art Show.

The retreat began on Friday afternoon with scientific talks by students and postdocs. Roughly organized into themes, *Mycobacterium tuberculosis*, gene expression, host defense and immunity, and virology, the talks were varied and interesting and were followed by lively question and answer sessions. Friday evening was reserved for a poster session with 26 trainees presenting their research. Student and postdoc presentations continued on Saturday morning. Faculty judges of the oral and poster presentations uniformly agreed that this was a very difficult assignment due to the overall high quality of both talks and posters.

Before breaking for lunch on Saturday, the department's own Dr. Peter Prevelige swapped his structural virology hat

for that of photographer extraordinaire and took the retreat group photo. After lunch, faculty and trainees joined in a roundtable discussion about advanced courses in the department of microbiology. Many positive suggestions for possible courses, including an advanced virology course and a new course on the microbiome, came from the discussion.



The highlight of the retreat was the Saturday evening talk by keynote speaker Dr. William R. Jacobs, Jr. from the Albert Einstein College of Medicine, located in the Bronx borough of New York City. Bill is an alumnus of the UAB Department of Microbiology, having received his Ph.D. in molecular cell biology in 1985. He studied *Mycobacterium leprae*, the causative agent of leprosy, while in the laboratories of Drs. Roy Curtiss III and Josephine Clark-Curtiss. After receiving his Ph.D., he accepted a postdoctoral position in the Department of Microbiology and Immunology at Albert Einstein College of Medicine with Dr. Barry Bloom, studying *Mycobacterium tuberculosis*. Bill established his own laboratory at Einstein in 1987. His contributions to this field have been enormous and well recognized. He has been a Howard Hughes Investigator since 1990, and in 2013 he was elected to the US National Academy of Science. In his talk at the retreat, Bill delighted the audience with highlights of his scientific discoveries, including the "Bronx bomber," a highly virulent bacteriophage, lytic for certain mycobacteria, which he isolated from soil in his backyard in the Bronx and which has been instrumental for genetic analysis of these organisms. His talk was insightful, entertaining and even had an audience participation component. It was in the true sense of an overused word, awesome.

The retreat concluded on Sunday morning with three interesting talks by departmental faculty members, Drs. Dave Bedwell, Hui Hu (a new recruit to the department) and Jan Novak. This was followed by the awards ceremony with closing remarks by department chair, Dr. Fran Lund, during which she announced that our department had received the UAB Dean's Award for Excellence.



**UAB SCHOOL OF MEDICINE**  
**Department of Microbiology**



William R. Jacobs, Jr, Ph.D., from the Albert Einstein College of Medicine was the 2014 research retreat keynote speaker.

**Micro Faculty Are News Makers**

Follow these links to read news stories recognizing the work of microbiology faculty members and their labs.

[Fran Lund, Ph.D.](#)

[Alan Zajac, Ph.D.](#)

[Christopher Klug, Ph.D.](#)



**2014 Research Retreat Award Recipients**

**ORAL PRESENTATIONS**

**POSTER PRESENTATIONS**

**Graduate Students**

- 1st - Kathryn Doornbos
- 2nd - Lindsey Padgett

**Graduate Students**

- 1st - Yuan Tian
- 1st - Xiaojiao Xue
- 2nd - Gwendolyn Gunn

**New Investigators**

- 1st - Shannon Ramano
- 2nd - Alex Dalecki

**New Investigators**

- 1st - Brady Spencer
- 2nd - Katherine Taylor

**Postdoctoral Fellow**

- 1st - Shannon Kahan
- 2nd - Jianlin Geng

**Postdoctoral Fellow**

- 1st - Avi Mitra
- 2nd - Kanupriya Gupta

**Micro Wins Awards in 2014 CFAR Research Day Poster Competition**

More than 130 investigators, students and staff interested in HIV, global health and infectious diseases research gathered at UAB on December 11, 2014, to celebrate World AIDS Day. CFAR Director Michael Saag presented the State of the CFAR, and a Research Poster Competition rounded out the event. Four of the five of the monetary awards for project funding went to teams directed by microbiology department faculty.

**FIRST PLACE (\$4000 funding + \$250 prize)**

*A novel approach to generate HIV-1 broadly neutralizing antibodies*

Team: Jan Novak, Zina Moldoveanu, Hui Hu, Matthew Renfro, Jialan Geng, Hairong Wei, Bi Shi, Qing Wei, Milan Raska, Audra Laube, Bara Knoppova

**SECOND PLACE (\$2000 funding + \$125 prize)**

*Novel copper-coordinating small molecule inhibitors against methicillin resistant staphylococcus aureus*

Team: Suzanne Michalek, Olaf Kutsch, Frank Wolschendorf, Santosh Shah, Alex Dalecki, Kaitlyn Schaaf

**PEOPLE'S CHOICE (\$1000 funding + \$75 prize)**

*Engineer the CRISPR/Cas9 system to clear pathogenic DNA virus infections in AIDS patients*

Team: George Luo, Mengxi Jiang, Joshua Justice

**\*SPECIAL GLOBAL HEALTH AWARD (\$4000 funding + \$250 prize)**

*Isolation of human antibodies for the treatment of fungal infections*

Team: John Kearney, Rodney Glenn King, Emily Stefanov

**UAB SCHOOL OF MEDICINE**  
**Department of Microbiology**



**UAB Alumnus Writes Model F31 Grant Application**

While doing graduate research in the UAB microbiology department, alumnus Juan Calix, M.D., Ph.D., wrote an F31 grant application that was not only funded, but also selected by NIH as a model application. According to NIH Program Specialist Jen Sacchetti, Calix's excellent F31 application is posted on the NIH public website as a sample for the extramural researcher community.

"His application mentions the research strength at UAB, and various programs including UAB MSTP," says Moon Nahm, M.D., Calix's mentor.

Calix received several awards while studying at UAB, including the 2012 Samuel B. Barker Award for Excellence in Graduate Studies, the most prestigious annual award given to students from the Graduate School.

In 2014, after receiving his MD/PHD at UAB, Calix began a medical internship at Washington University in St. Louis. He is in a special faculty training program where he can do research in the late phase of his residency training and can be an infectious diseases faculty member there.

"I believe that he will soon be a leader in infectious diseases and microbiology," says Nahm. "Clearly, Juan is a model student for UAB."

The model F31 application is on the NIH/NIAID website:  
<http://www.niaid.nih.gov/researchfunding/grant/samples/Pages/F31-Calix.aspx>

**Public Defense**

**Eneida L. Hatcher**

"The Role of Gene Fragmentation and Loss in Poxvirus Evolution"

Friday, October 31, 2014 1:00 PM  
 BBRB 170

Mentor: Elliot Lefkowitz, Ph.D.  
 Committee: William Britt, Ph.D., Jamil Saad, Ph.D., Robert Thacker, Ph.D., Jeffrey Engler, Ph.D.



**Trainees in Novak Lab Receive Awards**

**Tyler Stewart** (left) received a travel award from the 2014 Awards Committee of the Society for Glycobiology to present his research results at the 2014 Annual Meeting of the Society for Glycobiology, November 16-19, 2014, in Honolulu, Hawaii.

**Dr. Colin Reily** (right) received the 2014 Dale Benos Scholar Award by the T32 Nephrology Research and Training Center executive committee in recognition of his outstanding interdisciplinary training in kidney-related research.



# UAB SCHOOL OF MEDICINE

## Department of Microbiology



### Mentors Change Lives

In a November 18, 2014, article in GEN (Genetic Engineering & Biotechnology News), Susanna F. Greer, Ph.D., says microbiology professor Louis Justement, Ph.D., changed her life.

As an undergraduate chemistry major in the 1990s, Greer spent a summer doing research in Justement's lab at the University of Texas Medical Branch at Galveston. This initial encounter led Greer to choose a career in research. She is currently associate professor of biology, Georgia State University, specializing in transcriptional and epigenetic regulation of immune response and cancer immunology.

Justement, who chairs the Training and Career Opportunities Subcommittee of the Federation for American Societies for Experimental Biology, continues to change lives of students here at UAB.

## Department Events

**January 6, 2015**

"Bio-Inspired Polymeric Nanomaterials for Cell Encapsulation and Drug Delivery" [Eugenia Kharlampieva, Ph.D., Department of Chemistry, UAB](#) (Host: [Peter Prevelige](#))

**January 13, 2015**

"Focus on Foci: The Regulation and Functions of RNA-Protein Granules in Quiescent Cells" [Paul Herman, Ph.D., Department of Molecular Genetics, The Ohio State University](#) (Host: [David Bedwell](#))

**January 20, 2015**

"Factors and Features that Control Ribosome Synthesis in Eukaryotes" [David Schneider, Ph.D., Department of Biochemistry and Molecular Genetics, UAB](#) (Host: [Sunnie Thompson](#))

**January 27, 2015**

[Mike Russell, Ph.D., Witebsky Center for Microbial Pathogenesis and Immunology, University at Buffalo](#) (Host: [Jiri Mestecky](#))

**February 3, 2015**

[Matthew Stoll, M.D., Ph.D., MSCS, Division of Pediatric Rheumatology, UAB](#) (Host: [Fran Lund](#))

**February 10, 2015**

[Ann Palmenberg, Ph.D., The Institute for Molecular Virology, Department of Biochemistry, UW-Madison](#) (Host: Microbiology Graduate Students - [Beth Walters](#))

**February 17, 2015**

"Macrophages Old and New" [Gwen Randolph, Ph.D., Wash. U., Saint Louis, MO](#) (Host: [Fran Lund](#))

**February 24, 2015—Marx Lecture**

[Jorge Galán, Ph.D., Department of Microbial Pathogenesis, Yale School of Medicine](#) (Host: [Fran Lund](#))

**March 3, 2015—No Seminar**

**March 10, 2015**

[Rick Gourse, Ph.D., Department of Bacteriology, University of Wisconsin Madison](#) (Host: [Chuck Turnbough](#))

**March 17, 2015**

[Lou Laimins, Ph.D., Department of Microbiology-Immunology, Northwestern University Feinberg School of Medicine, Chicago, IL](#) (Host: [Mengxi Jiang](#))

**March 24, 2015**

[Tom Braciale, M.D., Ph.D., Department of Pathology, University of Virginia School of Medicine](#) (Host: [Allan Zajac](#))

**March 31, 2015**

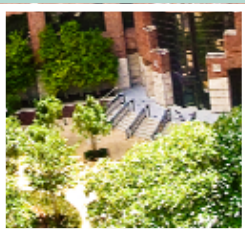
[Anne Willis Ph.D., MRC Toxicology Unit, Leicester, UK](#) (Host: [Sunnie Thompson](#))

## Welcome

- Fareena Bilwani** - Postdoc (Klug Lab)
- Shaonli Das** - Postdoc (Tse Lab)
- Brittany McCracken** - Work Study (Niederweis Lab)
- Bi Shi** - Postdoc (Hu Lab)
- Kari Thrasher** - Work Study (Bedwell Lab)
- Yimin Wang** - Research Associate (Bedwell Lab)
- Yang, Xiu-hui** - Visiting Scientist (Luo Lab)

## Farewell

- Abdellah Akil** - Postdoc (Luo Lab)
- Di Bush** - Postdoc (Prevelige Lab)
- Tulin Dadali-Abel** - Lab Consultant (Lund Lab)
- Hai Ding** - Visiting Scientist (Luo Lab)
- Jason Freeman** - Research Technician (Steyn Lab)
- Enatra Hale** - Research Assistant (Steyn Lab)
- Zhouhua Hou** - Visiting Scientist (Luo Lab)
- James Hove Mazorodze** - Visiting Scientist (Steyn Lab)
- Ashley Rouss** - OSSII (Chair's Office)
- Jun Tsao** - Assistant Professor
- Bridget Williams** - Work Study (Thompson Lab)



**University of Alabama at Birmingham**  
**Department of Microbiology**

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## Chair's Office Welcomes Kendall Phillips

The first cheerful face you will see in the chair's office is our new temporary employee, Kendall Phillips. She comes to us through the UAB Temporary Services department.

Kendall has plenty of UAB experience, having worked in the UAB School of Health Professions for 10 years before retiring in 2011.

In her spare time, Kendall enjoys traveling and spending time with her three granddaughters.

We're on the web:

<http://www.uab.edu/microbiology>

## Useful Links

[Faculty Directory](#)

[Microbiology Newsfeed](#)

[Annual Retreat](#)

[Employee Site](#)

[Microbiology Seminar Series](#)

[BBRB Conference Rooms Schedule](#)

[Giving Opportunities](#)

## Grant Awards | September 1 - December 31

### Barnum

KYPHA INC.

*Discriminating Bacterial vs. Viral Meningitis Using CSF Samples*

### Bedwell

National Institute of Neurological Disorders and Stroke/NIH/  
DHHS R21NS090928

*New Nonsense Suppression Drugs to Treat MPS I*

### Briles

PATH VACCINE SOLUTIONS

*Protection Elicited by Active Immunity to Goldstein Antigen Prot-GBSP14*

### Hu

National Institute of Allergy and Infectious Diseases/NIH/DHHS  
*Negative Regulatory Pathways in T Cell Quiescence and T Cell Response*

### Kearney

Juvenile Diabetes Research Foundation International  
*Analysis of Human and Mouse Antibodies to Beta Cell Antigens Bearing N-Acetyl Glucosamine Post-Translation Modifications and their Potential to Prevent Human Type 1 Diabetes*

## Publications | October 1 - December 31

Aldred KJ, Breland EJ, **McPherson SA**, **Turnbough CL Jr**, Kerns RJ, Osheroff N. Bacillus anthracis GrlAV96A Topoisomerase IV, a Quinolone Resistance Mutation That Does Not Affect the Water-Metal Ion Bridge. Antimicrob Agents Chemother. 2014 Dec;58(12):7182-7. Epub 2014 Sep 22.

Atasheva S, **Kim DY**, **Frolova EI**, **Frolov I**. Venezuelan equine encephalitis virus variants lacking transcription inhibitory functions demonstrate highly attenuated phenotype. J Virol. 2014 Oct 15. [Epub ahead of print]

**Bedwell GJ**, **Zhou Z**, Uchida M, Douglas T, Gupta A, **Prevelige PE**. [Selective Bioteplated Synthesis of TiO<sub>2</sub> Inside a Protein Cage](#). Biomacromolecules. 2014 Dec 15. [Epub ahead of print]

Buckingham SC, **Ramos TN**, **Barnum SR**. Complement C5-deficient mice are protected from seizures in experimental cerebral malaria. Epilepsia. 2014 Nov 10. [Epub ahead of print]

Chaurio RA, Muñoz LE, Maueröder C, Janko C, Harrer T, Fürnrohr BG, **Niederweis M**, Bilyy R, Schett G, Herrmann M, Berens C. The Progression of Cell Death Affects the Rejection of Allogeneic Tumors in Immune-Competent Mice - Implications for Cancer Therapy. Front Immunol. 2014 Nov 11;5:560.

Cortines JR, Lima LM, Mohana-Borges R, Millen TA, Gaspar LP, Lanman JK, **Prevelige PE Jr**, Silva JL. [Structural insights into the stabilization of the human immunodeficiency virus type 1 capsid protein by the cyclophilin-binding domain and implications on the virus cycle](#). Biochim Biophys Acta. 2014 Dec 16. pii: S1570-9639(14)00324-0. doi: 10.1016/j.bbapap.2014.12.008. [Epub ahead of print]

**Cox R**, Pickar A, Qiu S, Tsao J, Rodenburg C, **Dokland T**, Elson A, He B, Luo M. Structural studies on the authentic mumps virus nucleocapsid showing uncoiling by the phosphoprotein. Proc Natl Acad Sci USA. 2014 Oct 21;111(42):15208-13.

Deshane JS, Redden DT, Zeng M, Spell ML, Zmijewski JW, Anderson JT, Deshane RJ, Gaggar A, Siegal GP, Abraham E, Dransfield MT, **Chaplin DD**. Subsets of airway myeloid-derived regulatory cells distinguish mild asthma from chronic obstructive pulmonary disease. J Allergy Clin Immunol. 2014 Oct 25. [Epub ahead of print]

**Hatcher EL**, Hendrickson RC, **Lefkowitz EJ**. Identification of nucleotide-level changes impacting gene content and genome evolution in orthopoxviruses. J Virol. 2014 Dec 1;88(23):13651-68. Epub 2014 Sep 17.



## Publications | October 1 - December 31

Imperiale MJ, **Jiang M**. What DNA Viral Genomic Rearrangements Tell Us About Persistence. *J Virol*. 2014 Dec 3. pii: JVI.01227-14. [Epub ahead of print]

Kirylyuk K, Li Y, Scolari F, Sanna-Cherchi S, Choi M, Verbitsky M, Fasel D, Lata S, Prakash S, Shapiro S, Fischman C, Snyder HJ, Appel G, Izzi C, Viola BF, Dallera N, Del Vecchio L, Barlassina C, Salvi E, Bertinetto FE, Amoroso A, Savoldi S, Rocchietti M, Amore A, Peruzzi L, Coppo R, Salvadori M, Ravani P, Magistrone R, Ghiggeri GM, Caridi G, Bodria M, Lugani F, Allegrì L, Delsante M, Maiorana M, Magnano A, Frasca G, Boer E, Boscutti G, Ponticelli C, Mignani R, Marcantoni C, Di Landro D, Santoro D, Pani A, Polci R, Feriozzi S, Chicca S, Galliani M, Gigante M, Gesualdo L, Zamboli P, Battaglia GG, Garozzo M, Maixnerová D, Tesar V, Eitner F, Rauen T, Floege J, Kovacs T, Nagy J, Mucha K, Pączek L, Zaniew M, Mizerska-Wasiak M, Roszkowska-Blaim M, Pawlaczyk K, Gale D, Barratt J, Thibaudin L, Berthouix F, Canaud G, Boland A, Metzger M, Panzer U, Suzuki H, Goto S, Narita I, Caliskan Y, Xie J, Hou P, Chen N, Zhang H, Wyatt RJ, **Novak J**, Julian BA, Feehally J, Stengel B, Cusi D, Lifton RP, Gharavi AG. Discovery of new risk loci for IgA nephropathy implicates genes involved in immunity against intestinal pathogens. *Nat Genet*. 2014 Nov;46(11):1187-96. Epub 2014 Oct 12.

Komiyama Y, Kafkova LR, Barasch A, Shah GR, Grbic JT, Novak Z, Komiyama K, **Novak J**, **Mestecky J**, **Moldoveanu Z**. Origin of galactose-deficient immunoglobulin g in gingival crevicular fluid in periodontitis. *J Periodontol*. 2014 Dec;85(12):1779-85.

Komiyama Y1, Kafkova LR, Barasch A, Shah GR, Grbic JT, Novak Z, Komiyama K, **Novak J**, **Mestecky J**, **Moldoveanu Z**. Origin of galactose-deficient immunoglobulin g in gingival crevicular fluid in periodontitis. *J Periodontol*. 2014 Dec, 85(12):1779-85.

Kozlovskaya V, Xue B, Lei W, **Padgett LE**, **Tse HM**. and Kharlampieva, E. Hydrogen-Bonded Multilayers of Tannic Acid as Mediators of T-Cell Immunity. *Advanced Healthcare Materials*. 2014 Dec 9. [Epub ahead of print]

Kuruganti S, Accavitti-Loper MA, **Walter MR**. Production and characterization of thirteen human type-I interferon- $\alpha$  subtypes. *Protein Expr Purif*. 2014 Nov;103:75-83.

Kuruganti S, Accavitti-Loper MA, **Walter MR**. Production and characterization of thirteen human type-I interferon- $\alpha$  subtypes. *Protein Expr Purif*. 2014 Nov;103:75-83. Epub 2014 Aug 20.

Lopez EF, **Kabarowski JH**, Ingle KA, Kain V, Barnes S, Crossman DK, Lindsey ML, Halade GV. Obesity superimposed on aging magnifies inflammation and delays the resolving response following myocardial infarction. *Am J Physiol Heart & Circulatory Physiology*. In Press

Lu L, Zheng L, Si Y, Luo W, Dujardin G, Kwan T, **Potockick NR**, **Thompson SR**, Schneider DA, King PH. Hu Antigen R (HuR) Is a Positive Regulator of the RNA-binding Proteins TDP-43 and FUS/TLS: IMPLICATIONS FOR AMYOTROPHIC LATERAL SCLEROSIS. *J Biol Chem*. 2014 Nov 14;289(46):31792-804. Epub 2014 Sep 19.

Luong TT, Kim EH, Bak JP, Nguyen CT, Choi S, **Briles DE**, Pyo S, Rhee DK. Ethanol-induced alcohol dehydrogenase E (AdhE) potentiates pneumolysin in *Streptococcus pneumoniae*. *Infect Immun*. 2014 Oct 13. [Epub ahead of print]

Muzny CA, Sunesara IR, Griswold ME, Kumar R, **Lefkowitz EJ**, Mena LA, Schwebke JR, Martin DH, Swiatlo E. Association between BVAB1 and high Nugent scores among women with bacterial vaginosis. *Diagn Microbiol Infect Dis*. 2014 Dec;80(4):321-3. Epub 2014 Sep 16.

Oestreich KJ, Read KA, Gilbertson SE, **Hough KP**, McDonald PW, Krishnamoorthy V, **Weinmann AS**. Bcl-6 directly represses the gene program of the glycolysis pathway. *Nat Immunol*. 2014 Oct;15(10):957-64. Epub 2014 Sep 7.

**Padgett LE**, **Burg AR**, Lei W, **Tse HM**. Loss of NADPH Oxidase-Derived Superoxide Skews Macrophage Phenotypes to Delay Type 1 Diabetes. *Diabetes*. 2014 Oct 6. [Epub ahead of print]

Raska M, Czernekova L, Moldoveanu Z, Zachova K, Elliott MC, Novak Z, Hall S, Hoelscher M, Maboko L, Brown R, Smith PD, **Mestecky J**, **Novak J**. Differential Glycosylation of Envelope gp120 Is Associated with Differential Recognition of HIV-1 by Virus-specific Antibodies and Cell Infection. *AIDS Res. Therapy*. 11:1-16. (2014).

## Publications

**Reily CR, Ueda H, Huang Z-Q, Mestecky J, Julian BA, Willey CD, Novak J.** Cellular Signaling and Production of Galactose-Deficient IgA in IgA Nephropathy, an Autoimmune Disease. *J. Immunol. Res.* Vol. 2014. Epub (2014).

Schmitt R, Ståhl A-L, Olin AI, Kristoffersson, A-C, Rebetz, J, **Novak J**, Lindahl G, Karpman D. The combined role of galactose-deficient IgA1 and streptococcal IgA-binding M protein in inducing IL-6 and C3 secretion from human mesangial cells: implications for IgA nephropathy. *J. Immunol.* 193, 317-26, 2014.

Shen R, Raska M, Bimczok D, **Novak J**, Smith PD. HIV-1 Envelope Glycan Moieties Modulate HIV-1 Transmission. *J Virol.* 2014 Dec 15;88(24):14258-67. Epub 2014 Oct 1.

Stoll ML, Kumar R, Morrow CD, **Lefkowitz EJ**, Cui X, Genin A, Cron RQ, Elson CO. Altered microbiota associated with abnormal humoral immune responses to commensal organisms in enthesitis-related arthritis. *Arthritis Res Ther.* 2014 Nov 30;16(6):486. [Epub ahead of print]

Stuchlova Horynova M, Vrablikova A, Stewart TJ, **Takahashi K, Czernekova L, Yamada K**, Suzuki H, Julian BA, Renfrow MB, **Novak J**, Raska M. N-Acetylgalactosaminide  $\alpha$ 2,6-sialyltransferase II is a candidate enzyme for sialylation of galactose-deficient IgA1, the key autoantigen in IgA nephropathy. *Nephrol Dial Transplant.* 2014 Oct 3. [Epub ahead of print]

Suzuki Y, Matsuzaki K, Suzuki H, Okazaki K, Yanagawa H, Ieiri N, Sato M, Sato T, Taguma Y, Matsuoka J, Horikoshi S, **Novak J**, Hotta O, Tomino Y. Serum levels of galactose-deficient immunoglobulin (Ig) A1 and related immune complex are associated with disease activity of IgA nephropathy. *Clin Exp Nephrol.* 2014 Oct;18(5):770-7. Epub 2014 Jan 30.

**Vlach J, Saad JS.** HIV: a vicTIM. *Trends Microbiol.* 2014 Nov;22(11):603-4. Epub 2014 Oct 16.

Wall EA, Caufield JH, Lyons CE, **Manning KA, Dokland T**, Christie GE. Specific N-terminal cleavage of ribosomal protein L27 in *Staphylococcus aureus* and related bacteria. *Mol Microbiol.* 2014 Nov 11. [Epub ahead of print]

Wallace E, Maillard N, Ueda H, **Hall S**, Fatima H, **Novak J**, Julian BA. Immune profile of IgA-dominant diffuse proliferative glomerulonephritis. *Clin. Kidney J.* 7, In Press. 2014.

Wang D, Zhang Y, He Y, Li Y, **Lund FE**, Shi G. The deficiency of G $\alpha$ q leads to enhanced T-cell survival. *Immunol Cell Biol.* 2014 Oct;92(9):781-90. Epub 2014 Jun 24.

Yamaji K, Suzuki Y, Suzuki H, Satake K, Horikoshi S, **Novak J**, Tomino Y. The kinetics of glomerular deposition of nephritogenic IgA. *PLoS One.* 2014 Nov 19;9(11):e113005.

Zhou Z, **Bedwell GJ**, Li R, Bao N, **Prevelige PE**, Gupta A. P22 virus-like particles constructed Au/CdS plasmonic photocatalytic nanostructures for enhanced photoactivity. *Chem Commun (Camb).* 2014 Dec 1. [Epub ahead of print]

Zhu L, Zhai Y-L, Wang F-M, Hou P, Lv J, Xu S-F, Liu L-J, Yu F, Zhao, M-H, **Novak J**, Gharavi AG, Zhang H. Variants in complement factor H and complement factor H-related protein genes, CFHR3 and CFHR1, affect complement activation in IgA nephropathy. *J. Am. Soc. Nephrol.* 26, In Press. 2014.

**Congratulations to the Prevelige lab for achieving 100 publications!**

Read the 100th publication online – [Selective Biotemplated Synthesis of TiO<sub>2</sub> Inside a Protein Cage.](#)

**UAB SCHOOL OF MEDICINE**  
**Department of Microbiology**

**Around Campus and About Town**



**UAB presents "Warhol: Fabricated"**  
 January 9 - February 28, 2015  
 UAB Abrams-Engel Institute for the Visual Arts

Nine Warhol screen prints and 90 photographic prints owned by UAB with loaned pieces from the Andy Warhol Museum, the Booth Western Art Museum, the Birmingham Museum of Art, beta pictoris gallery and private collectors, and an iconic photo of Warhol from internationally recognized photographer Bob Adelman. In addition, well-known New York-based contemporary artist Charles Lutz will display works from his "Denied Warhol Paintings and Sculpture" series.

**Fine Folk Art Gallery Exhibit**  
 January 16 - February 20, 2015  
 Shelby County Arts Council Gallery



Experience Southern culture at its best -- paintings on tin, wind chimes made from rolling pins and silverware, gourd art, funky folk dolls and much more.



**Mardi Gras Bracelets**  
 February 7, 2015  
 10:30 am - 12:30 pm  
 Southside Branch, Birmingham Public Library

Participants will use strings of beads, thin ribbon, and bracelet bases to create colorful jewelry to wear during the Mardi Gras season.

**Between Fantasy and Reality: Frank Fleming**  
 Birmingham Museum of Art  
 February 27 - August 1, 2015

Featuring Alabama artist Frank Fleming, best known for his large-scale bronze sculptures, many of which can be found across the city of Birmingham, including Five Points South, the Botanical Gardens, and the Zoo. Exhibit highlights Fleming's sculptures produced between 1970-1985, a period when he worked primarily with clay, stoneware, and ceramics.



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