Dr. Knight’s Message

This year I celebrate my 25th anniversary as serving as chair of the department. Thank you to everyone who has contributed to the many years of doing it together. The department would not be where it is today without the support and commitment of the department members. I am pleased to share with you the many accomplishments from this last year.

Our graduate students and program continue to succeed. Domenick Kennedy was awarded an F31 from the NIH and two students, Anna Mielech and Valerie Ray, were awarded the Schmitt Fellowship for the 2013-2014 academic year. This year we matriculated our largest group of nine students into the Ph.D. program and our NIH Immunology Training Grant has been renewed for another 5 years.

The department welcomes Assistant Professor, Dr. Francis Alonzo to the department. Dr. Alonzo is a microbiologist and studies bacterial pathogenesis focusing on a single organism *Staphylococcus aureus*. Find out more about Dr. Alonzo and his research on page 2. We also welcome our newest joint appointee, Dr. Katherine Radek from the department of Surgery.

One of our virologists, Dr. Edward Campbell, was promoted to Associate Professor with tenure.

The department says farewell to one of our faculty, Dr. John Clancy who retired from the university in August. Dr. Clancy has been an invaluable member of our department and the institution and we wish Dr. Clancy all the best in his future endeavors. To learn about his tenure at Loyola go to page 4.

We are always pleased to hear about our students’ successes and it is a pleasure to feature Elizabeth Hussa in our alumni spotlight this year and to read about her many accomplishments. We thoroughly enjoy hearing from all of you and I encourage you to stay in touch.

Sincerely,

Katherine L. Knight

Katherine L. Knight, Ph.D.
Professor and Chair

Spotlight on Alumni—Elizabeth Hussa

This year we turn the alumni spotlight on Dr. Elizabeth Hussa. Elizabeth received her Ph.D. in 2008 under the mentorship of Dr. Visick. Her dissertation investigated the role of two-component response regulators in symbiotic colonization and in particular, SypG. After she graduated from Loyola she was a post-doctoral fellow at the University of Wisconsin-Madison for five years in the Department of Bacteriology under the mentorship of Dr. Heidi Goodrich-Blair. Then for the 2013-2014 academic year she worked as a visiting professor at her alma mater Illinois Wesleyan University where she taught Introductory Biology and Microbiology. She eventually grew tired of the cold and decided it was time to move south. In July of this year she moved to Mississippi where she was appointed to Assistant Professor at Millsaps College — a college known for its strong dedication to providing research experience to its students. At Millsaps College she teaches Introduction to Cell Biology and Genetics and in the future she will be teaching Microbiology. In July she was also awarded an MS-INBRE grant, which is awarded to professors who perform biomedical research with undergraduate students.

Dr. Hussa’s current research focuses on the way bacteria interact with other organisms. One bacterium in particular that interests Dr. Hussa is *Xenorhabdus nematophila*, which is beneficial to nematodes but is parasitic to caterpillars. As she describes it is like “the Jekyll and Hyde of bacteria”. She likes the idea that the bacteria could be both a mutualist and pathogenic. For instance, this bacteria is sold commercially to farmers to protect their crops for infestation of harmful insects. However, working with this particular bacterium has been challenging as the bacteria is very fussy. It is light-sensitive and it prefers highly purified water. Despite its challenges, she has found the system to be extremely useful in her teaching of research to undergraduate students. Because of its unique characteristics, the students are able to see the complexities of bacteria without having to use human pathogens.

She often thinks back about her time at Loyola and how it prepared her for her long term goal in teaching. She reflects back on the 1st year Journal Club and how the course forced her to confront her less than stellar skills and how to fine tune those skills in order to become an effective speaker. The department’s dedication to teaching also inspired her to have the same level of commitment to her students. She enjoys watching her students’ eyes light up when they come back with their research findings or when they understand a concept that they did not know before. She loves to teach, and one of her greatest rewards is knowing that she helped spark an interest in science and research in her students.
**Spotlight on Faculty—Dr. Francis Alonzo**

The Microbiology and Immunology department is pleased to announce the appointment of Dr. Francis Alonzo to the department. Dr. Alonzo received his PhD from University of Illinois at Chicago and completed his postdoctoral fellowship at New York University School of Medicine. Dr. Alonzo is a microbiologist and studies bacterial pathogenesis focusing on a single organism *Staphylococcus aureus*. His lab is interested in how *S. aureus* evades the host defense in order to cause disease, and from this knowledge to determine how to prevent the many infections caused by the bacterium. His lab uses a multi-disciplinary approach, incorporating immunology, cell biology, and bacteriology to understand the disease process at the host-pathogen interface.

When commenting on the transition from Post-doctoral fellow to Assistant Professor Dr. Alonzo mentioned there have been a few surprises along the way, but overall he has been enjoying the experience. He has been appreciating the level of research independence and having the time to develop his own ideas and concepts. He finds the open door environment in the department beneficial to his research in that he can simply walk to a neighboring lab to discuss any questions or concerns or “talk shop”. He also finds the department to be very communicative which has been extremely helpful in getting things started in his lab.

When asked why he chose Loyola, he stated that he was attracted to our department and its commitment to training and developing all those that enter the department. From the volunteers to the senior post-docs, Dr. Alonzo witnessed how the department is committed to the success of each individual. When searching for a department to join, he looked for a department that placed a strong emphasis on teaching and mentoring and he thinks he has found a good fit.

Dr. Alonzo joined the department in July and has already hired a Research Technician and submitted two grant applications.

**Graduate Students’ Awards, and Presentations**

**Awards**
- **Domenick Kennedy**, NIH F31 AG047817 “Decline of B lymphopoiesis with Age: Adipocytes and Myeloid Suppressor Cells”, May 2014
- **Domenick Kennedy**, 2014 AAI Trainee Abstract Award, American Association of Immunologists Immunology Conference, 2014
- **Anna Mielech**, 2nd Place - Oral Presentation, St. Albert's Day, 2013
- **Mallory Paynich**, AAI Young Investigator Award, Autumn Immunology Conference, November 2013
- **Valerie Ray**, The Spirit of Dr. Martin Luther King Jr. Award (for the Biomedical Sciences Division), January 2014

**Presentations**
- **James Earnest**, "Tetraspanins aid coronavirus entry", 32nd Annual Meeting of the American Society for Virology, University Park, PA, July 2013
- **James Earnest**, "Tetraspanins aid coronavirus entry” American Society for Virology, Colorado State University, June 2014
- **Domenick Kennedy**, "Inhibition of B lymphopoiesis by myeloid-derived suppressor cells (HEM2P.262)". Abstract, Oral Presentation and Poster Presentation. American Association of Immunologists Immunology Conference, Pittsburgh, May 2014
- **Anna Mielech**, "Murine coronavirus ubiquitin-like domain is important for papain-like protease stability and viral pathogenesis", Oral Presentation at Chicago Area Virology Association Meeting, Chicago 2014
- **Michael Misale**, "Psychosocial Dysregulation of NK cells: A Role for Global H4K8ac", IMTAC Interactive Summer School in Tumor Immunology at the Karolinska Institute, Stockholm, Sweden, August 2013.
- **Michael Misale**, "Psychosocial Dysregulation of NK cells: A role for global H4K8ac", Loyola Cancer Center Retreat, July 2013
- **Mallory Paynich**, "Mechanism by which commensal exopolysaccharides limit inflammation", Autumn Immunology Conference, Chicago, November 2013
- **Mallory Paynich**, "Mechanism by which commensal exopolysaccharides limit inflammation”. AAI Annual Meeting, Pittsburgh, Pennsylvania, May 2014
- **Krystal Thomas-White**, "Accuracy of RDP Classifier via the Qiime Pipeline on Sequences from the female Urinary Microbiome-Project" 20th Annual Midwest Microbial Pathogenesis Conference, Columbus, OH, August 2013

**Welcome New Students!**

<table>
<thead>
<tr>
<th>Ph.D. Students</th>
<th>M.S. Students</th>
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<tbody>
<tr>
<td>David Christensen—Wolfe Lab</td>
<td>Abigail Cannon—Choudhry Lab</td>
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<tr>
<td>Karina Durso—Uprichard Lab</td>
<td>Kendra Foley—Nishimura Lab</td>
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<tr>
<td>Iris Figueroa—Cook Lab</td>
<td>James Mahon—Le Poole Lab</td>
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<tr>
<td>Erica Fleming—Knight Lab</td>
<td>Travis Price—Wolfe Lab</td>
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<td>Michael Hantak—Gallagher Lab</td>
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Krystal first became interested in science at an early age. From “take your daughter to work day” she learned what DNA was at the age of five and she would play with pipettors while working with her mother at Genentech. The exposure to science at the young age inspired her to pursue science as a career. She studied microbiology as an undergraduate at California Polytechnic State University and worked internships at Genentech. After graduation, she worked for a year at the University of California, San Francisco with Dr. Kwok in the human genomics lab where she first learned sequencing techniques. All these experiences lead her to pursue a graduate degree in Microbiology. In deciding on a program she looked for places outside of California and as a starting point, where her professors went for their graduate degrees. One of her professors was Dr. Candace Winstead, an alum of the Knight lab, which brought Krystal to Loyola. She knew she wanted to continue to work in microbiology and rotated in every microbiology lab, and ultimately choose to work in the Wolfe lab.

In the beginning Krystal’s research focused on Dr. Wolfe’s acetylation work, but Krystal became more interested in the many different urinary microbiome projects and choose one that piqued her interest. It is known that post-menopausal women have an increased number of UTIs and estrogen is often prescribed to decrease recurrent infection. Krystal wanted to understand if estrogen is affecting the urinary microbiome and how any changes compare to the vaginal microbiome. Her research is focusing on understanding the relationship between the bacteria in the urinary tract and vaginal tract and whether there are correlative changes in each area.

Krystal has been grateful for the Microbiology & Immunology program. She finds that the interactive and collaborative nature of the department has been extremely beneficial to her growth as a scientist. She enjoys the ability to talk to anyone in the department about a question or concern and being able to ask for their expert opinion. Even though at times it has been a challenge to juggle the many demands of a graduate student, she truly appreciates the program’s dedication to her learning and being immersed in a multi-disciplinary scientific environment. Because of the program and being exposed to many different science disciplines, she is able to challenge herself as a scientist and be able to speak intelligently about different areas of sciences, including her own.

**Bioinformatics: Erasing the Line Between Biology and Hacking**

Krystal and her husband, Patrick, together are trying to bridge the gap between their two fields. Krystal working with bioinformatics and Patrick a professional computer hacker. Over long talks at the dinner table when talking about their respective fields, Krystal and Patrick discovered their fields had deep and meaningful similarities. Both genetic code and computer code are simple languages that produce incredibly complex systems, and it turns out that many of the same techniques work for analyzing them both. Biology researchers today are spending countless hours trying to understand these complex systems, without realizing that tools already exist within the computer science community. What if these two sides could find a way to communicate in a way that both parties could understand and create new software programs to help the research community? Krystal and Patrick are laying down the tracks and starting that conversation. They presented at an information security conference, BSides Chicago, back in April with their presentation titled “Bioinformatics: Erasing the Line Between Biology and Hacking”. Their thoughts were well received by the audience, and after the conference they were invited to be a guest on the podcast Secur-bit and to present at a conference in California this upcoming January. Relations between these fields are only in the beginning stages but they are excited to see where it will go. One of their immediate goals is to create ways for the biological sciences community to get access to the computer science side and to create a platform for scientists to learn from and ask for help from software experts in order to advance their research.

**Department Retreat—SEPTEMBER 2013**

The department annual retreat was held at the Klarcheck Information Commons on the beautiful Lake Shore Campus. The retreat provided an opportunity for faculty and students to share their current research findings and to engage in scientific dialogue. The approximately 65 attendees benefited from the lab presentations, large group activities, and special talks. Small group sessions discussed training in the Microbiology/Immunology track, preliminary exam preparation, and post-doc and workforce opportunities. And a total of 20 posters were presented between the two poster sessions by students and post-docs.

**E-mail Update**

In March all faculty, students and staff were converted to Outlook and all e-mail addresses have changed to @luc.edu (versus @lumc.edu). Please update your address books accordingly.

**TWiV 276: Ramblers go viral**

This Week in Virology, a netcast about viruses - the kind that make you sick, visited the department back in January to record an episode to discuss coronaviruses with Drs. Susan Baker and Tom Gallagher.

The netcast is available online: (http://www.twiv.tv/2014/03/16/twiv-276-ramblers-go-viral/)

Host: Vincent Raciello
Retirement of Dr. John Clancy

This summer we said farewell to Professor John Clancy. Dr. Clancy joined Loyola in 1986 as Professor and Chair of the former Anatomy Department and in 1990 the department was re-named Cell Biology, Neurobiology, and Anatomy for which Dr. Clancy continued to chair for a total of 23 years. Throughout his tenure he has been an active teacher and mentor to graduate and medical students. He received the Basic Science Teacher of the Year 15 Award times, served on over 50 PhD Dissertation Committees and over 20 Thesis committees. His research studied transplantation immunobiology, the role of heat shock proteins in the immune response, and neuroimmunology which led to numerous article publications and abstracts, two patents, and the publication of one book.

In 2009, the department of Micro/Immuno was pleased to welcome him to the department and he has been a valuable teacher and mentor to both Micro and InDIRI graduate students. For several years he has been the coordinator for the Immunology Journal Club and IDIM 400: Infections and Immunology.

In July, CBNA and Micro, hosted a joint celebration recognizing Dr. Clancy’s many years of service to the institute. At the celebration, former faculty and students spoke about his dedication to teaching and his commitment to their development as an independent researcher. Many stated that they would not be where they are today without his leadership, guidance and support.

Dr. Clancy will continue to serve the department as Professor Emeritus, but in the colder months he will be with his wife in sunny California playing tennis. We wish him all the best in his retirement!

Microbiology/Immunology Alum Publishes e-Book

Clive Clandis, PhD, a former graduate student, published a thesis writing e-book in fall of 2013 titled “Getting Over the Thesis Barrier”. The e-book is an essential writing guide aimed squarely at students suffering various stages of writer’s block. Students will learn the tricks of the trade - applicable to any thesis, whether in the humanities or the sciences - to conquer writer's block and sail through the thesis writing process, overcoming hurdles faced by generations of students and generations to come, but starting with the obvious question: where to start? And if there is one piece of advice to take home from this book it is this: DO NOT START AT THE BEGINNING! The e-book can be purchased on amazon.com for $5.99.

Dr. Landis is currently chair of Cardiovascular Research at the Chronic Disease Research Centre at the University of West Indies.

Celebrating Many Years of Service

<table>
<thead>
<tr>
<th>Name</th>
<th>Years</th>
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<tbody>
<tr>
<td>Yougang Zhai, PhD, Research Associate</td>
<td>5 years</td>
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<tr>
<td>Ed Campbell, PhD, Associate Professor</td>
<td>5 years</td>
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<tr>
<td>Sara Jones, PhD, Research Associate</td>
<td>5 years</td>
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<tr>
<td>Karen Visick, PhD, Professor</td>
<td>15 years</td>
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<tr>
<td>Liang Qiao, MD, Professor</td>
<td>20 years</td>
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<tr>
<td>Pi Chen Yam, Research Specialist</td>
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<tr>
<td>Mae Kingzette, Lab Director</td>
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<tr>
<td>Periannan Sethupathi, MD, Research Associate</td>
<td>25 years</td>
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<tr>
<td>Katherine Knight, PhD, Professor and Chair</td>
<td>25 years</td>
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In Memoriam

Professor Emeritus, Charles Lange, passed away in October 2013. Dr. Lange was a professor in the department from 1970-1995 and in 1996 he was granted the title of Professor Emeritus. In honor of his memory the department provided a donation to the Charles Lange Memorial Scholarship fund to the Chicago Public Schools Student Science Fair. We received a note from the Lange family that they had the honor to present the scholarship to the first recipient at the CPS Student Science Fair in May.

Summer Undergraduate Research Program Update

The Summer Undergraduate Research Program entered its 15th year this summer and it continues to grow and attract great students. The program, headed by Drs. Lanning and Schlutz, provides “hands on” research experience for students who are considering a graduate degree. On average the department receives over 175 applications per year for approximately 6 slots. Participants in the program develop a research project, attend weekly journal clubs and Friday meetings, and receive a stipend. Each summer, the program invites outside speakers to talk about careers in science and research ethics and new this year current PhD and MD/PhD students spoke to the participants about their different degree paths. At the end of the program all participants present their summer research at Friday meeting. The program has been successful and many students who have participated have pursued careers in science.

To find out more about the Undergraduate Summer Research Program, please visit: www.stritch.luc.edu/microimmunogrp.
### Graduate Student Defenses

**Defenses:**

- **Linda Mielech, Ph.D.** (Mentor: Dr. Wolfe) "Understanding posttranslational regulation of the response regulator RCSB and the novel acetyl donor acetyl phosphate in Escherichia coli" Current Position: Postdoctoral Fellow, Univ. of WI—Madison
- **Nick Huang, Ph.D.** (Mentor: Dr. Iwashima) "Modulation of Th17 responses by Omental Cells" Current Position: Returned to Stritch School of Medicine to complete MD portion of his MD/PhD degree
- **Andrew Killianski, Ph.D.** (Mentor: Dr. Baker) "Coronavirus Proteases as Therapeutic Targets: Development of Biosensors to Detect Inhibition of Protease Activity and Dissecting the Multifunctionality of SARS-CoV PLpro ", Current Position: National Research Council Postdoctoral Fellow, Edgewood Chemical and Biological Center on Aberdeen Proving Ground in Edgewood, MD
- **Anna Mielech, Ph.D.** (Mentor: Dr. Baker) "Multifunctional Coronavirus Papain-Like Proteases as Targets for Antiviral Therapeutics and Vaccines". Current Position: Postdoctoral Fellow, Loyola University Chicago

**Kathleen McGuire Ph.D.** (Mentor: Dr. Wiethoff) "Adenovirus Vectors As Potent Adjuvants in Vaccine Development." Current Position: Postdoctoral Fellow, Harvard Medical School

**Valerie Ray, Ph.D.** (Mentor: Dr. Visick) "Identifying novel factors involved in biofilm formation by Vibrio fischeri." Current Position: Postdoctoral Fellow, Ohio State University

### Recent Publications

<table>
<thead>
<tr>
<th>Title</th>
<th>Journal</th>
<th>Year</th>
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<tbody>
<tr>
<td>Defenses: <strong>Linda Mielech, Ph.D.</strong></td>
<td>Understanding posttranslational regulation of the response regulator RCSB and the novel acetyl donor acetyl phosphate in Escherichia coli</td>
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<td>Coronavirus Proteases as Therapeutic Targets: Development of Biosensors to Detect Inhibition of Protease Activity and Dissecting the Multifunctionality of SARS-CoV PLpro</td>
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<tr>
<td>Defenses: <strong>Anna Mielech, Ph.D.</strong></td>
<td>Multifunctional Coronavirus Papain-Like Proteases as Targets for Antiviral Therapeutics and Vaccines</td>
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- **Mielech, Anna M, Andy Killianski, Yahima M. Baez-Santos, Andrew D. Mesecar and Susan C. Baker.** 2014. MERS-CoV Papain-like Protease has delSGylating and deubiquitinating activities. Virology 450: 64-70
**Recent Publications—continued**


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**Current Faculty**

<table>
<thead>
<tr>
<th>Primary Faculty</th>
<th>Joint Faculty</th>
<th>Joint Faculty</th>
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<tbody>
<tr>
<td>Francis Alonzo, PhD</td>
<td>Dennis Lanning, PhD</td>
<td>J. Paul O'Keefe, MD</td>
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<tr>
<td>Susan Baker, PhD</td>
<td>Phong Le, PhD</td>
<td>Clodia Osipo, PhD</td>
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<tr>
<td>Edward Campbell, PhD</td>
<td>Herbert Mathews, PhD</td>
<td>Katherine Radek, PhD</td>
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<tr>
<td>John Clancy, PhD</td>
<td>Liang Qiao, MD</td>
<td>John Robinson, MD</td>
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<tr>
<td>Adam Driks, PhD</td>
<td>Richard Schultz, PhD</td>
<td>Susan Uprichard, MD</td>
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<tr>
<td>Thomas Gallagher, PhD</td>
<td>Karen Visick, PhD</td>
<td>Stephanie Watkins, PhD</td>
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<td>Makio Iwashima, PhD</td>
<td>Christopher Wiethoff, PhD</td>
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<tr>
<td>Katherine Knight, PhD</td>
<td>Pamela Witte, PhD</td>
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<td>Alan Wolfe, PhD</td>
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*Want to Donate to the Katherine L. Knight Fund for Mentoring?* [http://www.luc.edu/giving/](http://www.luc.edu/giving/)<br>

Be sure to select the ‘other’ box under area of support and in the comment box type “Katherine L. Knight Mentoring Fund– AU 210973.”

**Your input:** If you know someone whom you would like to see featured in the Alumni Spotlight section, or have ideas about things you would like to see in future newsletters, please send an email to Deborah Hammer at dhammer@luc.edu.

Deparment Website: [www.lumc.edu/microimmuno](http://www.lumc.edu/microimmuno)

Respectfully prepared by Ashley Glodowski September 2014