

**PERSONAL STATEMENT EXAMPLE**

**RESEARCH TRACK ASSISTANT PROFESSOR**

**TO**

**RESEARCH TRACK ASSOCIATE PROFESSOR**

## **Summary**

I was appointed to the position of Research Assistant Professor in 2010. During this time, I co-authored 8 peer-reviewed papers and 2 review articles. During my time as a Research Scientist in the Pediatrics department (2003-2010), I co-authored 11 peer-reviewed papers, 2 review articles, and a book chapter. Over the course of my academic career, I co-authored 25 peer-reviewed papers, 3 chapters in books, and 6 review articles. In recent years, I published research articles with collaborators from the University of Iowa, Mayo Clinic in Rochester MN, Johns Hopkins University School of Medicine, and United Kingdom Cystic Fibrosis Gene Therapy Consortium. This exemplifies my important professional collaborations, both at home and abroad. Over the course of my research career, I have been the principal investigator of 8 research grants; 4 of those (including an R01) have been awarded since joining the faculty.

## **Research Interests**

My over-arching research interest is to learn how airborne viruses defeat evolutionary safeguards of the lung. Based on this information, we can perhaps develop treatments for viral infections or exploit these strategies to improve lung gene therapy for inherited diseases such as cystic fibrosis.

## **Selected Projects**

- A cornerstone of my research program is devoted to engineering lentiviral vectors for gene transfer to airway epithelia. I pursue strategies to improve targeting, safety, and utility that would have broad applications in the fields of cell biology and gene therapy.
- The interferon-inducible transmembrane (IFITM) protein family members are a class of viral restriction factors. I contrast IFITM members from multiple mammalian species to discern if restriction activity varies among different animal models.
- The traditional belief concerning Measles virus is that the initial infection occurs at the apical surface of airway epithelia. Thanks in part to my work, the field now knows that infection occurs via a cellular receptor, nectin-4, located at the basolateral surface. This deceptively simple observation fundamentally changes our understanding of Measles disease progression. I now investigate the mechanism of Measles virus replication and cell-to-cell spread in airway cells.
- I developed a humanized mouse model to study Ebola virus pulmonary infection. Recent evidence suggests that human Tim-1 promotes epithelial infection of Ebola virus as well as multiple other enveloped viruses through a mechanism utilizing phosphatidylserine.
- My laboratory recently generated a novel tool that combines nonviral DNA transposons with viral vector systems for improved DNA *in vivo* delivery. This exciting result provides an avenue to achieve persistent/stable expression from adenoviral or AAV based vectors. In the near future, we will deliver this vector, expressing CFTR, to cystic fibrosis pigs and monitor disease correction metrics.

## Publications

*Manuscripts published or in press during the 2012-2013 academic year.* My contributions to these publications are outlined in my College of Medicine CV.

1) E. ... Transcriptional targeting in the airway using novel gene regulatory elements. *Am J Respir Cell Mol Biol.* 2012; 47: 227-33.

2) C. ... Jr. Advances in cell and gene-based therapies for cystic fibrosis lung disease. *Mol Ther.* 2012; 20: 1108-115.

*Molecular Therapy and Molecular Therapy Nucleic Acids are premier journals in the field of gene therapy.*

3) ... Intrapulmonary versus nasal transduction of murine airways with GP64 pseudotyped viral vectors. *Mol Ther Nuc Acids.* 2013; 2:e69.

4) ... Lentiviral vector gene transfer to porcine airways. *Mol Ther Nuc Acids.* 2012; 1:e56.

5) ... few *piggyBac* transposase tools for genome engineering. *Proc Natl Acad Sci, USA.* 2013; 18: E2279-87.

\*co-corresponding authors

*In preparation.* I have 2 papers in preparation.

... A less metastable Ebola virus glycoprotein mutant with increased transduction efficiency.

... Hybrid nonviral/viral vector systems for improved DNA transposon *in vivo* delivery.

## Grant Support

Within the last 10 years I have secured several research grants. From the NIH, I have been the beneficiary (as either principal investigator or co-investigator) of R01, K01, SBIR, P01, P30, R21, and NSRA grants. In addition, I earned multiple private grants from the Cystic Fibrosis Foundation, Carver Research Initiative, and Carver Collaborative Pilot programs. Since joining the faculty in Pediatrics, I have been awarded grants from the Children's Miracle Network, Cystic Fibrosis Foundation (Iowa Research Development Program), Midwest Regional Center of Excellence (MRCE), and a 5 year NIH R01 grant.

### Active grants

Title - Targeted Integration of a DNA transposon-based nonviral vector

Grant Agency – R01 HL-105821

Total Direct Costs - \$250,000 (year 1)

Project Period – 01/01/12 – 12/31/16

Role – Principal Investigator

Percent Effort – 40%

*Pending grant decisions*

Title - FIV vectors for treatment of cystic fibrosis  
Grant Agency – NIH SBIR Phase I  
Total Direct Costs - \$66,225  
Project Period – 07/01/13 – 6/30/14  
Role – Principal Investigator  
Program Director – Bill Raschke (Virogenics, Inc., San Diego, CA)  
Percent Effort – 10%

This grant earned an impact score of 39, just missing the payline of 35. The reviewers' comments were generally positive and the critiques are widely addressable. We will submit the revised application August 5.

Title - Measles virus rapid and discreet epithelial spread through nectin-4  
Grant Agency – NIH R01 submission  
Total Direct Costs - \$250,000  
Project Period – 12/01/13 – 11/30/18  
Role – Principal Investigator (Multiple PI)  
Collaborating PI – Roberto Cattaneo (Mayo Clinic, Rochester MN)  
Percent Effort – 30%

This grant earned a 41th percentile score. The reviewers' comments were addressable with simple experiments. We anticipate submitting the revised application November 5.

*Grants in Preparation*

In addition to resubmitting the two previously mentioned grants, I am preparing two additional grants. The Cystic Fibrosis Foundation approved a competitive letter of intent and I will submit the full research proposal September 11. Further, I am preparing a proposal as part of an NIH Program Project Grant Competitive Renewal. Other principle investigators on this PPG proposal include Mike Welsh, Joe Zabner, John Engelhardt and P. ... Jr. This grant will be submitted September 18.

*Other.* I have co-authored 4 patent applications. Three have been issued, the most recent in 2009. One application is under review. An invention disclosure for a 5<sup>th</sup> application was recently submitted.

**Future Plans**

I continue to work as a part of the multidisciplinary Center of Gene Therapy of Cystic Fibrosis and Other Genetic Diseases. I maintain diverse research projects and have strong collaborations both locally and abroad. My research is innovative and I have a clear track record of obtaining independent grant support. My short-term goals include pre-clinical studies using gene therapy to correct the anion transport defect in CF pigs. The long-term goal is to initiate a CF gene therapy clinical trial.

## COLLEGE OF MEDICINE PERSONAL STATEMENT -- TEACHING

### **Summary**

In August 2010, I was appointed to the position of Research Assistant Professor, in the department of Pediatrics, Division of Allergy and Pulmonology. Prior to this faculty appointment, I was an Assistant and Associate Research Scientist for 7 years. Although teaching is not a requirement for advancement in the research professor track, I recognize the vital contribution of teaching in the research environment. Historically, my teaching service was largely in the form of co-mentoring graduate and medical students with Dr. [redacted]. However, since my faculty appointment, my mentoring roles have become significantly more independent. Over the course of my time working with Dr. [redacted], I have had the pleasure of instructing 11 Ph.D. graduate students, 4 M.D. students, and a dental student. In addition, I have aided in the laboratory training of multiple pediatric fellows and post-doctoral fellows, including a post-doctoral fellow who recently left my lab for a faculty position of her own.

### **Recent Teaching Service**

[redacted] are two recent Ph.D. graduates whom I co-mentored as well as partially funded their research projects. I directed projects that comprised chapters of their theses and led to publications.

[redacted] *PL. Transcriptional targeting in the airway using novel gene regulatory elements. Am J Respir Cell Mol Biol. 2012; 47: 227-33.*

[redacted] *Intrapulmonary versus nasal transduction of murine airways with GP64 pseudotyped viral vectors. Mol Ther Nuc Acids. 2013; 2:e69.*

In November 2010, I joined the Graduate College and am currently serving on the thesis committee of [redacted], a graduate student in the laboratory of V. [redacted] in the Department of Microbiology. Mr. [redacted] successfully completed his comprehensive exam November 4, 2011.

### **Current lab members**

Currently my laboratory is composed of 4 members. [redacted] is a research intern who will enter the University of Iowa Medical School in August 2013. He received a COM summer research award where I serve as mentor. A [redacted] has been my research assistant and recently was accepted into the Microbiology Graduate Program. [redacted] worked in my lab as an undergraduate summer student in 2012. After graduating she has returned to the lab as a research intern and is applying to medical school next year. [redacted] is a post-doctoral fellow and the newest member of the Sinn lab.

**Former lab members**

In 2012, I hired [redacted] as a post-doctoral fellow. In August 2013, she will begin her new faculty position at Western Illinois University. We will continue to collaborate on projects involving Measles virus.

Letters of support from recent laboratory alumni whom I mentored are included with my dossier.

**Future Plans**

I enjoy teaching and mentoring and will continue to do so in the future. My long-term objectives include commitments to laboratory teaching at the undergraduate, graduate, medical student, and postdoctoral levels. For the coming year, I intend to become more involved in the pediatrics K club. The mission of this group is to present grant proposal ideas, solicit critiques, and improve grant proposals for junior faculty in the department. I have a respectable track record for writing awarded grants and hope that I can make a positive contribution to the group. In 2005, my K01 grant had a priority score of 118 (at that time the range was 100-500).

## COLLEGE OF MEDICINE PERSONAL STATEMENT-- SERVICE

### **Summary**

Since joining the Pediatric faculty in 2010, I have reviewed manuscripts for 12 different journals and I have been an ad hoc reviewer for 7 funding institutions. I currently belong to 4 national scientific societies. On multiple occasions, I have chaired sessions at national meetings and routinely present my research at local and national meetings. I am a member of 3 active University committees including the Institutional Animal Care and Use Committee.

*Viral Vector Core.* The Program Project Grant: Gene Therapy for Cystic Fibrosis Lung Disease has funded support for the viral vector core. I serve as co-investigator for that core unit and the Associate Director of the Gene Transfer Vector Core. My responsibilities include monitoring methods of lentiviral vector production and titering. In addition to the University of Iowa, the Vector Core produces and ships viral vector as a service to institutions across the country and world. Customer questions concerning lentiviral vector are directed to me.

*National/International Meetings.* I am a member of multiple professional affiliations such as the American Thoracic Society, Society of Pediatric Research, American Society of Virology, and the American Society of Gene and Cell Therapy. I routinely present my research at annual national meetings such as the *American Society of Gene and Cell Therapy (ASGCT)* in both poster or oral formats. Over the course of the last several years, I have been an active member of ASGCT. In addition, on multiple occasions, I have reviewed abstracts and served as session chair. This previous year (5/17/12), I chaired a session, was senior author on a poster presented by [redacted] and, and co-authored 3 additional abstracts. I attended genome engineering meetings in Lucca, Italy (Sept, 2012) and Big Sky, Montana (May, 2013). I was invited to present my research at the Midwest Regional Center for Excellence annual meeting in St. Louis, MO (Sept, 2012).

*Local Meetings/Training Courses.* In addition to national meeting, I participated in local meetings. I have repeatedly served as a poster judge at the Pediatric Research Day and Carver College of Medicine Day and will continue to do so in the coming years. My laboratory presented 2 and 3 posters, respectively. I attended the All Iowa Virology Meeting in Ames (3/29/13). I was senior author on a poster presented by [redacted] and an oral presentation by [redacted]

I completed the ASGCT Clinical Trials Training Course (5/17/10), a Grant Writing Seminar (12/6/10), ACURF webinar, and a Writing for Publication Seminar (5/25/11). Further, I had the honor of presenting my research at Pediatrics Research Grand Rounds (4/1/11). Further, I routinely present my research at E [redacted] on's, [redacted] and V [redacted]'s lab meetings. I also present at Pulmonary and Gene Therapy research seminars.

*Journal Reviewer.* I have been an invited manuscript reviewer for multiple scientific journals. These journals include: Molecular Therapy, Journal of Biological Chemistry, Human Gene Therapy, Biotechniques, Journal of Biotechnology, Gene Therapy, Respiratory Research and American Journal of Respiratory Critical Care Medicine.

*Grant Reviewer.* In addition to reviewing manuscripts, I have served as an invited research grant reviewer for the American Cystic Fibrosis Foundation, Canadian Cystic Fibrosis Foundation, National Health and Medical Research Council (Australia), the Health Research Board (Ireland) and the Telethon Institute of Genetics and Medicine (Italy). In April 2012, I reviewed a grant for the Cystic Fibrosis Trust (UK); in May 2012, I reviewed grants for the National Centre for the Replacement Refinement and Reduction of Animals in Research, NC3Rs (UK); and in April 2013, I reviewed for the Italian CF Research Foundation.

#### *University Committees.*

- Information Technology Advisory Committee. I currently chair this recently assembled committee with the intent of improving communication between COM departments and IT support. I serve as the representative from Pediatrics
- Mac Action Committee. This second committee is also chaired by me and is specifically targeted to research laboratories that use Macintosh computers.
- Research Professor Committee This committee is in the process of assembling and is tentatively chaired by E. and has the mission of representing and defining roles for Research Professors.
- Institutional Animal Care and Use Committee (IACUC). I was recently approached by E. with an offer to join the committee. My 3-year appointment begins September 1. According to U.S. federal law, institutions that use laboratory animals for research must establish IACUCs to oversee and evaluate all aspects of the institution's animal care and use program.

#### **Future Plans**

I recognize the crucial importance of service to the scientific enterprise. I will continue to review manuscripts when called upon if I feel the subject matter is within my area of expertise. In addition, grant reviewing is a rewarding process and I will continue to serve when asked. Service to the gene therapy community via the Gene Transfer Vector Core will remain an important component of my position.