

**BIOGRAPHICAL SKETCH**

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NAME: Begley, Matt

eRA COMMONS USER NAME (credential, e.g., agency login): m\_begley

POSITION TITLE: Laboratory Manager

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
Juniata College, Huntingdon, Pennsylvania	BS	05/2012	Biology

**A. Personal Statement**

Three letters have always plagued me. One of the most basic words in the English language holds so much power over my thoughts and actions. “Why?” This innocuous question is one of the most terrifying inquiries to hear as a student, and to a professional scientist, it holds even more significance. How is it that three letters can wield such power and be the initial inquisition of anything from malevolence to the most innocent of intentions? Curiosity is a powerful driver and has always been a motivating factor in my life. “Why,” is the first question consistently asked when pertaining to my actions, from both myself and others. Famed mountaineer, George Mallory, was once asked why he was attempting to climb Mount Everest and supposedly responded, “Because it’s there.” To me, that quotation perfectly summarizes why humans should be interested in the biology of the world around us. If humans are to cohabitate with our planet, and not merely dominate it, we must better understand the dynamics of the biotic portion of the world. To me the question of why do I want to study Biology has never been a difficult question to answer, but difficult to convey aptly: because it fascinates me. Research offers the unique ability to be on the edge of the known and the unknown. It is faced with exclusive challenges and circumstances that can only be experienced and resolved in the pursuit of knowledge. This is what drives and compels me. My career path has been circuitous, experiencing and training across many different disciplines, but I believe this broad range of experience has strengthened my professional development, and has made me a well-rounded scientist. I love incorporating several different aspects of my training and experience from different fields in my research. More frequently than not, I enjoy connecting the larger goals of my research projects to the broader context. This has led to a somewhat “systems biology” approach to how I conduct my experiments and research. My passion and my drive for investigating mechanisms of biology have propelled me to studying biochemistry, and in particular structural biology. Being able to understand, at a molecular level, how biological machinery functions is fascinating in and of itself; but being able to take that knowledge and zoom out to the macro-level causes me to think: “why?” How can something on the scale of atoms influence something on the scale of human beings? That is why I enjoy the rigors of research.

- Gallichotte EN, Young EF, Baric TJ, Yount BL, Metz SW, Begley MC, de Silva AM, Baric RS. Role of Zika Virus Envelope Protein Domain III as a Target of Human Neutralizing Antibodies. mBio. 2019 Sep 17;10(5) PubMed Central PMCID: PMC6751055.
- Gorman MJ, Caine EA, Zaitsev K, Begley MC, Weger-Lucarelli J, Uccellini MB, Tripathi S, Morrison J, Yount BL, Dinno KH 3rd, Rückert C, Young MC, Zhu Z, Robertson SJ, McNally KL, Ye J, Cao B, Mysorekar IU, Ebel GD, Baric RS, Best SM, Artyomov MN, Garcia-Sastre A, Diamond MS. An Immunocompetent Mouse Model of Zika Virus Infection. Cell Host Microbe. 2018 May 9;23(5):672-685.e6. PubMed Central PMCID: PMC5953559.
- Widman DG, Young E, Nivarthi U, Swanstrom JA, Royal SR, Yount BL, Debbink K, Begley M, Marcet S, Durbin A, de Silva AM, Messer WB, Baric RS. Transplantation of a quaternary structure

neutralizing antibody epitope from dengue virus serotype 3 into serotype 4. Sci Rep. 2017 Dec 7;7(1):17169. PubMed Central PMCID: PMC5719398.

4. Manvilla BA, Maiti A, Begley MC, Toth EA, Drohat AC. Crystal structure of human methyl-binding domain IV glycosylase bound to abasic DNA. J Mol Biol. 2012 Jul 13;420(3):164-75. PubMed Central PMCID: PMC3372577.

## **B. Positions, Scientific Appointments and Honors**

### **Positions and Scientific Appointments**

2017 - 2019     Laboratory Manager, University of North Carolina Chapel Hill, Chapel Hill, NC  
2016 - 2017     Research Assistant, University of North Carolina Chapel Hill, Chapel Hill, NC  
2015 - 2016     Associate Biologist, American Type Culture Collection, Manassas, VA

### **Honors**

2017             Patent (Intellectual Property), United States Patent and Trademark Office  
2012             Degree with Distinction- Biology, Juniata College  
2011             First Class Scholar- Microbiology, Trinity College Dublin  
2009             Eagle Scout, Boy Scouts of America

## **C. Contribution to Science**

1. a. Gallichotte EN, Young EF, Baric TJ, Yount BL, Metz SW, Begley MC, de Silva AM, Baric RS. Role of Zika Virus Envelope Protein Domain III as a Target of Human Neutralizing Antibodies. mBio. 2019 Sep 17;10(5) PubMed Central PMCID: PMC6751055.  
b. Gorman MJ, Caine EA, Zaitsev K, Begley MC, Weger-Lucarelli J, Uccellini MB, Tripathi S, Morrison J, Yount BL, Dinno KH 3rd, Rückert C, Young MC, Zhu Z, Robertson SJ, McNally KL, Ye J, Cao B, Mysorekar IU, Ebel GD, Baric RS, Best SM, Artyomov MN, Garcia-Sastre A, Diamond MS. An Immunocompetent Mouse Model of Zika Virus Infection. Cell Host Microbe. 2018 May 9;23(5):672-685.e6. PubMed Central PMCID: PMC5953559.  
c. Widman DG, Young E, Nivarthi U, Swanstrom JA, Royal SR, Yount BL, Debbink K, Begley M, Marcet S, Durbin A, de Silva AM, Messer WB, Baric RS. Transplantation of a quaternary structure neutralizing antibody epitope from dengue virus serotype 3 into serotype 4. Sci Rep. 2017 Dec 7;7(1):17169. PubMed Central PMCID: PMC5719398.  
d. Manvilla BA, Maiti A, Begley MC, Toth EA, Drohat AC. Crystal structure of human methyl-binding domain IV glycosylase bound to abasic DNA. J Mol Biol. 2012 Jul 13;420(3):164-75. PubMed Central PMCID: PMC3372577.
2. Patent- <https://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=/netahtml/PTO/srchnum.html&r=1&f=G&l=50&s1=20190023745.PGNR>.
3. Patent- <https://appft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fnetahhtml%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220200155663%22.PGNR.&OS=DN/20200155663&RS=DN/20200155663>