

# Andrew Pike

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## EDUCATION

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**Johns Hopkins University Bloomberg School of Public Health,**  
Baltimore, MD, 2010-2015

**Ph.D.** in Molecular Microbiology and Immunology. Thesis Title: "The effects of genetic modification on *Anopheles stephensi*"

**Michigan State University,** East Lansing, MI, 2008-2010

**M.S.** in Entomology. Thesis Title: "Three way interactions between *Wolbachia*, dengue virus, and their host, *Aedes aegypti*"

**Oberlin College,** Oberlin, OH, 2004-2008

**B.A.** Majors: Biology and Mathematics, Honors in Mathematics  
Minors: Computer Science and Religion

## AWARDS

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**The Dr. Lloyd and Mae Rozeboom Scholarship:** Award for the study of Medical Entomology, Spring 2011 and Spring 2012

**Hope Hibbard Memorial Scholarship in Biology:** Scholarship for continued research in biology following graduation, Spring 2008

**Edward Wong Memorial Prize in Mathematics:** Award for quality research in mathematics, Spring 2008

**Norman J. Goldring Scholar-Athlete Award:** For the four-year athlete with the highest GPA during his/her Oberlin career, Spring 2008

Elected as Associate member, Sigma Xi, Spring 2008

## PUBLICATIONS

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Travassos, M.A., A. Niangaly, J.A. Bailey, A. Outtara, D. Coulibaly, K.E. Lyke, M.B. Laurens, J. Pablo, A. Jasinskas, R. Nakajima, A.A. Berry, M. Adams, C.G. Jacob, **A. Pike**, S. Takala-Harrison, L. Liang, B. Kouriba, A.K. Kone, J.A. Rowe, J. Moulds, D.A. Diallo, O.K. Doumbo, M.A. Thera, P.L. Felgner, and C.V. Plowe. 2018. "Children with Cerebral Malaria or Severe Malarial Anaemia Lack Immunity to Distinct Variant Surface Antigen Subsets." *Scientific Reports* 8:6281

Pan, X., **A. Pike**, D. Joshi, G. Bian, M. McFadden, P. Lu, X. Liang, F. Zhang, A.S. Raikehl and Z. Xi. 2017. "The Bacterium *Wolbachia* Exploits Host Innate Immunity to Establish a Symbiotic Relationship with the Dengue Vector Mosquito *Aedes aegypti*." *ISME Journal* 12(1):277-288.

**Pike, A.**, N. B. Dizaji, Y. Dong, A. Gacita and G. Dimopoulos. 2017. "Changes in the microbiota cause genetically modified *Anopheles* to spread into a population." *Science* 357(6358) 1396-1399.

- Anglero-Rodriguez Y.I., B.J. Blumberg, Y. Dong, S.L. Sandiford, **A. Pike**, A.M. Clayton, and G. Dimopoulos. 2016. "A natural *Anopheles*-associated *Penicillium chrysogenum* enhances mosquito susceptibility to *Plasmodium* infection." *Scientific Reports* 6:34084.
- Mesquita, R.D., R.J. Vionette-Amaral, C. Lowenberger, R. Rivera-Pomar, F.A. Monteiro, P. Minx, J. Spieth, A.B. Carvalho, F. Panzera, D. Lawson, A.Q. Torres, J.M.C. Ribeiro, M.H.F. Sorgine, R.M. Waterhouse, M.J. Montague, F. Abad-Franch, M. Alves-Bezerra, L.R. Amaral, H.M. Araujo, R.N. Araujo, L. Aravind, G.C. Atella, P. Azambuja, M. Berni, P.R. Bittencourt-Cunha, G.R.C. Braz, G. Calderon-Fernandez, C.M.A. Carareto, M.B. Christensen, I.R. Costa, M. Dansa, C.R.O. Dumas-Filho, I.F. De-Paula, F.A. Dias, G. Dimopoulos, S.J. Emrich, N. Esponda-Behrens, P. Fampa, R.D. Fernandez-Medina, R.N. da Fonseca, M. Fontenele, C. Fronick, L.A. Fulton, A.C. Gandara, E.S. Garcia, F.A. Genta, G.I. Firaldo-Calderon, B. Gomes, K.C. Gondim, A. Granzotto, A.A. Guarneri, R. Guigo, M. Harry, D.S.T. Hughes, W. Jablonka, E. Jacquin-Joly, M.P. Juarez, L.B. Koerich, J.M. Latorre-Estivalis, A. Lavore, G.G. Lawrence, G. Lazoski, C.R. Lazzari, R.R. Lopes, M.G. Lorenzo, M.D. Lugon, D. Majerowicz, P.L. Marcet, M. Mariotti, H. Masuda, K. Megy, A.C.A. Melo, F. Missirlis, T. Mota, F.G. Noriega, M. Nouzova, R.D. Nunes, R.L.L. Oliveira, G. Oliveira-Silveira, S. Ons, L. Pagola, G.O. Paiva-Silva, A. Pascual, M.G. Pavan, N. Pedrini, A.A. Peixoto, M.H. Pereira, **A. Pike**, C. Polycarpo, F. Prosdocimi, R. Ribeiro-Rodrigues, H.M. Robertson, A.P. Salerno, D. Salmon, D. Santesmasses, R. Schama, E.S. Seabra-Junior, L. Silva-Cardoso, M.A.C. Silva-Neto, M. Souza-Gomes, M. Sterkel, M.L. Taracena, M. Tojo, Z.J. Tu, J.M.C. Tubio, R. Urisc-Bedoya, T.M. Venancio, A.B. Walter-Nuno, D. Wilson, W.C. Warren, R.K. Wilson, E. Huebner, E.M. Dotson, and P.L. Oliveira. 2015. "The genome of *Rhodnius prolixus*, an Insect Vector of Chagas Disease, Reveals Unique Adaptations to Hematophagy and Parasite Infection." *PNAS* 112 (48) 14936-14941
- Sandiford, S.L., Y. Dong, **A. Pike**, B.J. Blumberg, A.C. Bahia, and G. Dimopoulos. 2015. "Cytoplasmic Actin is an Extracellular Insect Immune Factor which is Secreted upon Immune Challenge and Mediates Phagocytosis and Direct Killing of Bacteria, and is a *Plasmodium* Agonist." *PLoS Pathogens* 11(2): e1004631
- Pike, A.**, A. Vadlamani, S.L. Sandiford, A. Gacita and G. Dimopoulos. 2014. "Characterization of the Rel2-Regulated Transcriptome and Proteome of *Anopheles stephensi* Identifies new anti-*Plasmodium* Factors." *Insect Biochemistry and Molecular Biology* 52:82-93.
- Hamm, C.A., C.A. Handley, **A. Pike**, M.L. Forister, J.A. Fordyce, and C.C. Nice. 2014. "*Wolbachia* infection and Lepidoptera of conservation concern." *Journal of Insect Science* 14.6.
- Pike, A.**, C.M. Cirimotich and G. Dimopoulos. 2013. "Impact of Transgenic Immune Deployment on Mosquito Fitness." In W. Takken and C.J. Koenraadt [eds.], *Ecology of Parasite-Vector Interactions*. Wageningen Academic Publishers, Wageningen. 2013.

- Dong, Y., C. M. Cirimotich, **A. Pike**, R. Chandra and G. Dimopoulos. 2012. *Anopheles* NF- $\kappa$ B-Regulated Splicing Factors Direct Pathogen-Specific Repertoires of the Hypervariable Pattern Recognition Receptor AgDscam. *Cell Host and Microbe* 12(4):521-30.
- Hughes, G.\*, **A. Pike\***, P. Xue, and J. Rasgon. 2012. Invasion of *Wolbachia* into *Anopheles* and other insect germlines in an *ex vivo* organ culture system. *PLoS One* 7: e36277.
- Guo, X., Y. Xu, G. Bian, **A. Pike**, Y Xie, and Z. Xi. 2010. Response of the mosquito protein interaction network to dengue infection. *BMC Genomics* 11:380.
- Bosch, R. and **A. Pike**. 2009. "Map-Colored Mosaics" *Bridges Banff II: Mathematical Connections in art, music, and science* 139-146.
- \* These authors contributed equally to this work

#### POSTER PRESENTATIONS

- Pike, A.**, J. A. Bailey, M. A. Travassos, A. Outtara, S. Agrawal, A. Dara, L. M. Cohee, D. Coulibaly, K. E. Lyke, M. B. Laurens, M. Adams, S. Takala-Harrison, B. Kouriba, A. K. Kone, O. K. Doumbo, M. A. Thera, P. L. Felgner, J. C. Tan, J. Patel, C. V. Plowe, and A. A. Berry. "The use of small peptide microarrays to detect malaria exposure," oral presentation presented as part of the American Society for Tropical Medicine and Hygiene Annual Meeting, Baltimore, MD, USA, 5-9 November 2017 (given by A. A. Berry).
- Pike, A.**, C Kadangwe, J. E. Coalson, L. M. Cohee, A. Bauleni, C. Valim, T. E. Taylor, D. P. Mathanga, A. Kapito-Tembo, M. L. Wilson, E. Walker, M. K. Laufer and T. Mzilahowa. "Distribution, infection status and blood-feeding behavior of *Anopheles* spp. mosquitoes in Southern Malawi," poster presented as part of the American Society for Tropical Medicine and Hygiene Annual Meeting, Baltimore, MD, USA, 5-9 November 2017.
- Pike, A.**, J. A. Bailey, J. Tan, J. Patel, M. Laurens, D. Coulibaly, A. Niangaly, M. Thera, O. Doumbo, TRAC, M. Travassos, A. Berry and C. Plowe. "Measuring species- and region-specific markers of mosquito bites by small peptide arrays," poster presented as part of the American Society for Tropical Medicine and Hygiene Annual Meeting, Atlanta, GA, USA 13-17 November 2016.
- Pike, A.** and G. Dimopoulos. "Transgenic *Anopheles stephensi* fitness and susceptibility to various infections," poster presented as part of the American Society for Tropical Medicine and Hygiene Annual Meeting, New Orleans, LA, USA 2-6 November 2014.
- Pike, A.** and G. Dimopoulos. "The effects of transient immune deployment on transgenic *Anopheles stephensi* fitness," poster presented as part of the American Society for Tropical Medicine and Hygiene Annual Meeting, Washington, DC, USA 13-17 November 2013.
- Pike, A.** and G. Dimopoulos. "The effects of transient immune deployment on transgenic *Anopheles stephensi* fitness," poster presented as part of the ESF/EMBO symposium on Integrated Insect Immunology: From

Basic Biology to Environmental Applications, Pultusk, Poland, 23-28 September 2013.

**Pike, A.**, S. Sandiford, A. Vadlamani and G. Dimopoulos. "The Rel2 regulated transcriptome and proteome of Rel2 overexpressing *Anopheles stephensi*," poster presented as part of the Keystone Symposia on Molecular and Cellular Biology: Malaria, New Orleans, LA, USA 20-25 January 2013.

**Pike, A.**, S. Sandiford, A. Vadlamani and G. Dimopoulos. "The Rel2 regulated proteome of the malaria vector *Anopheles stephensi*," poster presented as part of the Summer Frontiers Symposium on "Training the innate immunity: immunological memory in innate host defense," Nijmegen, The Netherlands, 28-29 June 2012.

**Pike, A.**, G. Bian, Y. Xu, and Z. Xi. "Effects of *Wolbachia* and dengue virus infection on the mosquito *Aedes aegypti*," poster presented as part of the Entomological Society of America Annual Meeting, Indianapolis, IN, USA, 13-16 December 2009.

**Pike, A.**, G. Bian, Y. Xu, and Z. Xi. "Role of innate immunity in regulation of *Wolbachia* infection level in *Aedes aegypti*," poster presented as part of the American Society of Tropical Medicine and Hygiene Annual Meeting, Washington DC, USA, 18-22 November 2009.

#### GRANTS and FELLOWSHIPS

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Towson University Collaborative Teaching Fellowship, Aug. 2016-Aug. 2017  
Tropical Medicine Dinner Club of Baltimore Simpson Student Award in Tropical Disease Field Research, April 2014: \$500 to defray costs for travel or research in a developing country

Johns Hopkins Center for Global Health Field Research Award, March 2014: \$3500 to travel to an international site for at least 4 weeks of field research

Johns Hopkins Malaria Research Institute pre-Doctoral Fellowship, Jan. 2013-Dec. 2014: Two years of health insurance and fellowship support for pre-doctoral fellows interested in malaria research

Michigan State University Department of Entomology Hutson Travel Fellowship Feb. 2010: \$400 to travel to the national meetings of the Entomology Society of America

#### RESEARCH EXPERIENCE

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**Post-Doctoral Fellow** - University of Maryland School of Medicine, Baltimore, MD. Working in the laboratory of Dr. Christopher Plowe on serological markers of malaria exposure.

**Graduate Student: Ph.D.** - Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD. Rotations in the George Dimopoulos, Fernando Pineda and Jason Rasgon labs working on *Anopheles gambiae* mosquito immunity, modeling mitochondrial movement in neurons, and the introduction of *Wolbachia* into *Anopheles* spp.

mosquitoes, respectively. Thesis work in the laboratory of Dr. Dimopoulos on the effects of transgenic immune deployment on mosquito fitness and gene expression.

**Graduate Student: M.S.** - Michigan State University, East Lansing, MI. Working in the laboratory of Dr. Zhiyong Xi on the three way interactions between dengue virus, its mosquito host, and the intracellular endosymbiont bacterium *Wolbachia*.

**Undergraduate Student** - Oberlin College, Oberlin, OH. Working in the laboratory of Dr. Mary Garvin looking for evidence of vertical transmission of West Nile Virus in the mosquito *Culiseta melanura* as a possible overwintering mechanism for West Nile Virus in temperate climates.

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#### TEACHING EXPERIENCE

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**Towson University, Adjunct Professor,** January 2017-June 2017  
**University of Maryland School of Medicine, Guest Lecturer,** Fall 2016

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#### OTHER EXPERIENCE

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**United States Food and Drug Administration,** Microbiology Reviewer  
October 2017-Present

**Associate Editor of the POSTDOCKET,** Postdoctoral Association of America, November 2016-December 2017

**Teaching Assistant,** Johns Hopkins Bloomberg School of Public Health, January 2013-December 2015. Acted as TA for both the laboratory section of "Biology of Parasitism" and the online course "Public Health Perspectives on Research." Duties include assisting students with laboratory activities, grading, answering emails and updating the course website.

**Treasurer,** Baltimore-Washington Eagles Football Club 501(c)3, January 2014-Present

**Student Constituency Representative,** Johns Hopkins University Bloomberg School of Public Health Centennial Working Committee, August 2012-December 2015.

**Vice President of Social and Cultural Affairs,** Johns Hopkins University Bloomberg School of Public Health Student Assembly, May 2011-May 2012.

**Member at Large,** Johns Hopkins University Bloomberg School of Public Health Student Assembly, August 2010 - May 2011 and May 2012-December 2015.

**Member,** Johns Hopkins University Bloomberg School of Public Health Deans for Students Network, August 2010 - May 2011.

**Vice President,** Michigan State University Graduate-Undergraduate Entomology Student Society, January 2009-December 2010.

**Teaching Assistant,** Michigan State University Integrative Studies Biological Program, August 2009-May 2010. Lead lectures and

laboratory exercises as well as grade papers for three classes of approximately 25 students in an introductory science course.

**(Senior) Resident Assistant**, Oberlin College Office of Residential Education, September 2005 - March 2007. Organized community for approximately 30 student residents; supervised other RAs. Provided information about campus resources to students and fellow RAs.

**Peer Liaison**, Oberlin College Student Academic Services, January 2006 - May 2008. Advised approximately 15 eligible first year students on social and academic subjects to assist the transition from high school to college.

**Teaching Assistant**, Oberlin College Department of Computer Science, September 2007 - May 2008. Taught practical labs for students in introductory computer science and graded their work.

**Tutor and Grader**, Oberlin College Department of Mathematics Department, September 2004 - May 2007. Assisted students with mathematics work, specifically calculus and statistics. Also graded assignments for calculus, discrete mathematics, and linear algebra classes.

**Oberlin College Cross Country and Track and Field**. August 2004 - May 2008. Voted most improved fall 2005 and spring 2006.

**Oberlin College Mathematics Majors Committee**. Sept. 2004-May 2008.

**Millbrook Printing Company, Grand Ledge, Michigan, Bindery worker**. May 2006 - August 2006 and May 2007-August 2007. Worked in the bindery with printed materials, and prepared final products for shipping.

**Petland, Lansing, Michigan, Pet caretaker and sales staff**. June 2001 - August 2005. Duties included sales, advice on care for the animals, and tending the animals in the store.

## MEMBERSHIPS

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Sigma Xi

American Society for Microbiology

American Society for Tropical Medicine and Hygiene