

CURRICULUM VITAE
JON PATRICK BOYLE, Ph.D.

Department of Biological Sciences
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EDUCATION

- Ph.D., Veterinary Science** (Focus: Molecular Parasitology) 2003
Department of Pathobiological Sciences, University of Wisconsin-Madison.
- M.S., Veterinary Science** (Focus: Molecular Parasitology) 1998
Department of Pathobiological Sciences, University of Wisconsin-Madison.
- B.A., Cellular and Molecular Biology** (with High Honors) 1995
University of Montana.

CURRENT POSITION AND AFFILIATION

- Assistant Professor** September, 2008-Present
Department of Biological Sciences, University of Pittsburgh
- Member, Molecular Virology and Microbiology Training Program** October, 2008-Present
University of Pittsburgh School of Medicine

PREVIOUS RESEARCH POSITIONS

- Postdoctoral Research Scholar** June, 2003-August, 2008
Advisor: Dr. John C. Boothroyd. Dept. of Microbiology and Immunology, Stanford University. *Genetics of virulence in the obligate intracellular parasite Toxoplasma gondii.*
- Research Associate** January-June, 2003
Advisors: Drs. Nicole T. Perna and Bruce M. Christensen. Dept. of Animal Health and Biomedical Sciences, University of Wisconsin-Madison. *Annotating the transcriptome of mosquito disease vectors.*
- Doctoral Student** 1998-2003
Advisor: Dr. Timothy P. Yoshino. Dept. of Pathobiological Sciences, University of Wisconsin-Madison. *Thesis Title: "Serotonin and intramolluscan stages of the human blood fluke, Schistosoma mansoni: Uptake, behavioral effects, and role in development"*
- Masters Student** 1996-1998
Advisor: Dr. Timothy P. Yoshino. Dept. of Pathobiological Sciences, University of Wisconsin-Madison. *Thesis title: "Egg-laying in the freshwater pulmonate snail Biomphalaria glabrata: its experimental control and the role of biogenic monoamines"*
- Fullbright Research Scholar** 1995-1996
Advisor: Dr. Phillippe Roch, Universite de Montpellier II, Montpellier, France. *Innate immune mechanisms in marine bivalves.*

ACTIVE GRANTS

| | <u>Years</u> | <u>Direct Costs</u> |
|---|---------------------|--------------------------------|
| Research Grant. “Effector diversification and <i>Toxoplasma</i> virulence.” National Institute of Allergy and Infectious Diseases, NIH, R01. Role: PI. R01AI114655. | 2014-2019 | \$1,250,000 |
| Research Grant. “A novel approach to characterize the <i>Toxoplasma</i> secretome <i>in vivo</i> .” National Institute of Allergy and Infectious Diseases, NIH, R21. Role: PI. R21AI093906. Under no-cost extension. | 2012-2015 | \$297,672 |
| Research Grant. “Cyst effector gene families and <i>Toxoplasma</i> pathogenesis.” National Institute of Allergy and Infectious Diseases, NIH, R21. Role: PI. R21AI110351. | 2014-2016 | \$275,000 |

PREVIOUSLY FUNDED GRANTS

| | <u>Year(s)</u> | <u>Direct Costs</u> |
|---|-----------------------|--------------------------------|
| Pew Scholarship in the Biomedical Sciences. “Virulence and host range in intracellular pathogens.” Pew Charitable Trusts. Role: PI. | 2009-2013 | \$240,000 |
| Research Scholar Development Award (K22). “Molecular basis of pathogenesis in <i>Toxoplasma</i> ”. National Institute of Allergy and Infectious Diseases, NIH. Role: PI. K22AI080977. | 2009-2011 | \$250,000 |
| Research Grant. “Using Transposon-site sequencing to identify genes required for cyst formation in the human pathogen, <i>Toxoplasma gondii</i> .” Competitive Medical Research Fund, University of Pittsburgh School of Medicine. Role: PI. | 2010 | \$25,000 |
| Research Grant. Samuel and Emma Winters Foundation, Pittsburgh, PA. Role: PI. | 2009 | \$9,638 |
| Research Grant. Central Research Development Fund, University of Pittsburgh. Role: PI. | 2009-2010 | \$14,712 |

AWARDS AND FELLOWSHIPS

| | <u>Year(s)</u> |
|---|-----------------------|
| Ralph E. Powe Junior Faculty Enhancement Award , Oak Ridge Associated Universities. (\$10,000 in Research Funds) | 2009 |
| Best Oral Presentation Award , Molecular Parasitology Meeting, Woods Hole, MA. | 2006 |
| Ruth L. Kirschstein Postdoctoral National Research Service Award. “Virulence genes in recombinant strains of <i>Toxoplasma</i> .” National Institute of Allergy and Infectious Diseases, NIH. Role: PI. F32AI060306. | 2004-2007 |
| Outstanding Graduate Student Research Award , UW-School of Veterinary Medicine. | 2002 |
| Individual Predoctoral National Research Service Award. “Characterization of an ancient serotonin transporter.” National Institutes of Mental Health, NIH. Role: PI. F31MH012992. | 2001-2002 |

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|---|-----------|
| Institutional Predoctoral National Research Service Award. Cellular and Molecular Parasitology Training Grant, National Institute of Allergy and Infectious Diseases, NIH. | 1996-1999 |
| Fullbright Grant for Study Abroad. Fullbright Foundation. | 1995-1996 |
| Watkins Research Scholarship. University of Montana. | 1994 |
| College Honors Scholarship. University of Montana. | 1990 |

STUDENT AWARDS

| | <u>STUDENT</u> | <u>Year(s)</u> |
|---|--|-----------------|
| Best Poster Award. Annual Retreat, Department of Biological Sciences, University of Pittsburgh. | Elisabeth English, Graduate Student. | September, 2013 |
| Goldwater Scholarship. Goldwater Foundation. | Adair L. Borges, Undergraduate. | 2013-2014 |
| Honorable Mention, Best Poster Award. FASEB Conference for microbial pathogenesis. | Katelyn A. Walzer, Research Technician | Summer, 2013 |
| Best Poster Award. Annual Retreat, Department of Biological Sciences, University of Pittsburgh. | Yaw Adomako-Ankomah, Graduate Student. | September, 2012 |
| Best Poster Award. Molecular Parasitology Meeting, Woods Hole, MA. | Gregory M. Wier, Graduate Student. | September, 2012 |
| Best Poster Award. Gordon Research Conference: Biology of Host-Parasite Interactions. Salve Regina University, Freeport, RI. | Katelyn A. Walzer, Undergraduate. | June, 2012 |

PUBLICATIONS

Since University of Pittsburgh Appointment:

Corresponding Author Publications:

- Walzer KA, Wier GM, Borges AL, English EE, Srinivasan AR, Dam RA and **Boyle JP.** (2014) *Hammondia hammondi* harbors functional orthologs of the host-modulating effectors GRA15 and ROP16 but is distinguished from *Toxoplasma gondii* by a unique transcriptional profile. Eukaryotic Cell. 2014 Oct 3. pii: EC.00215-14. [Epub ahead of print].
- Adomako-Ankomah Y, Wier GM, Borges AL, Wand HE and **Boyle JP.** (2014) Differential locus expansion distinguishes *Toxoplasmatinae* species and closely related strains of *Toxoplasma gondii*. MBio 5(1):e01003-13.
- Walzer KA, Adomako-Ankomah Y, Dam RA, Herrmann DC, Schares G, Dubey JP, and **Boyle JP.** (2013) *Hammondia hammondi*, an avirulent relative of *Toxoplasma gondii*, has functional orthologs of known *T. gondii* virulence genes. Proc Natl Acad Sci U S A 110:7446-7451.
- Kamau ET, Srinivasan AR, Brown MJ, Fair MG, Caraher EJ, and **Boyle JP.** (2012) A focused small-molecule screen identifies 14 compounds with distinct effects on *Toxoplasma gondii*. Antimicrobial Agents & Chemotherapy 56:5581-5590.
- Kamau E, Meehan T, Lavine MD, Arrizabalaga G, Mustata Wilson G, and **Boyle JP.** (2011) A novel benzodioxole-containing inhibitor of *Toxoplasma gondii* growth alters the parasite cell cycle. Antimicrobial Agents & Chemotherapy 55:5438-5451.

Reese ML, Zeiner GM, Saeij JP, Boothroyd JC, and **Boyle JP**. (2011) Polymorphic family of injected pseudokinases is paramount in *Toxoplasma* virulence. *Proc Natl Acad Sci U S A*. 108:9625-9630.

Collaborative Publications:

Bayer A, Delorme-Axford E, Sleighter C, Frey TK, Trobaugh DW, Klimstra WB, Emert-Sedlak LA, Smithgall TE, Kinchington PR, Vadia S, Seveau S, **Boyle JP**, Coyne CB, Sadovsky Y. (2014) Human trophoblasts confer resistance to viruses implicated in perinatal infection. *American Journal of Obstetrics and Gynecology*. Aug 6. pii: S0002-9378(14)00809-6.

Morgado P, Sudarshana D, Gov L, Harker K, Lam T, Casali P, **Boyle JP**, and Lodoen M. (2014). Type II *Toxoplasma gondii* induction of CD40 on infected macrophages enhances IL-12 responses. *Infection and Immunity*. Jul 14. pii: IAI.01615-14.

Pernas L, Adomako-Ankomah Y, Shastri AJ, Ewald SE, Treeck M, **Boyle JP**, Boothroyd JC. (2014) *Toxoplasma* effector MAF1 mediates recruitment of host mitochondria and impacts the host response. *PLoS Biology*. 12(4):e1001845.

Latorraca NR, Callenberg KM, **Boyle JP** and Grabe M. Continuum approaches to understanding ion and Peptide interactions with the membrane. (2014) *Journal of Membrane Biology*. May;247(5):395-408.

Feliu V, Vasseur V, Grover HS, Chu HH, Brown MJ, Wang J, **Boyle JP**, Robey EA, Shastri N, Blanchard N. (2013) Location of the CD8 T cell epitope within the antigenic precursor determines immunogenicity and protection against the *Toxoplasma gondii* parasite. *PLoS Pathogens*. 9(6):e1003449.

Dubey JP, Tilahun G, **Boyle JP**, Schares G, Verma SK, Ferreira LR, Oliveira S, Tiao N, Darrington C, and Gebreyes WA. (2013) Molecular and Biological Characterization of First Isolates of *Hammondia hammondi* from Cats from Ethiopia. *Journal of Parasitology*. 99:614-618.

Wasmuth JD, Pszenny V, Haile S, Jansen EM, Gast AT, Sher A, **Boyle JP**, Boulanger MJ, Parkinson J, and Grigg ME. (2012) Integrated bioinformatic and targeted deletion analyses of the SRS gene superfamily identify SRS29C as a negative regulator of *Toxoplasma* virulence. *mBio* 3(6).

Ong YC, **Boyle JP**, and Boothroyd JC. (2011) Strain-dependent host transcriptional responses to *Toxoplasma* infection are largely conserved in mammalian and avian hosts. *PLoS ONE*. 6:e26369.

Khaminets A, Hunn JP, Konen-Waisman S, Zhao YO, Preukschat D, Coers J, **Boyle JP**, Ong YC, Boothroyd JC, Reichmann G, and Howard JC. (2010) Coordinated loading of IRG resistance GTPases on to the *Toxoplasma gondii* parasitophorous vacuole. *Cellular Microbiology*. 12:939-961.

Bontell IL, Hall N, Ashelford KE, Dubey JP, **Boyle JP**, Lindh J, and Smith JE. (2009) Whole genome sequencing of a natural recombinant *Toxoplasma gondii* strain reveals chromosome sorting and local allelic variants. *Genome Biology* 10:R53.

Publications Prior to University of Pittsburgh Appointment:

Boyle JP, Saeij JP, Harada SY, Ajioka JW, and Boothroyd JC. (2008) Expression quantitative trait locus mapping of *Toxoplasma* genes reveals multiple mechanisms for strain-specific differences in gene expression. *Eukaryotic Cell*. 7:1403-1414.

Boyle JP, Saeij JP, and Boothroyd JC. (2007) *Toxoplasma gondii*: inconsistent dissemination patterns following oral infection in mice. *Experimental Parasitology*. 116:302-305.

Saeij JP, Collier S, **Boyle JP**, Jerome ME, White MW, and Boothroyd JC. (2007) *Toxoplasma* co-opts host gene expression by injection of a polymorphic kinase homologue. *Nature*. 445:324-327.

Boyle JP, Rajasekar B, Saeij JP, Ajioka JW, Berriman M, Paulsen I, Roos DS, Sibley LD, White MW, and Boothroyd JC. (2006) Just one cross appears capable of dramatically altering the population biology of a eukaryotic pathogen like *Toxoplasma gondii*. *Proc Natl Acad Sci U S A*. 103:10514-10519.

- Saeij JP, **Boyle JP**, Collier S, Taylor S, Sibley LD, Brooke-Powell ET, Ajioka JW, and Boothroyd JC. (2006) Polymorphic secreted kinases are key virulence factors in toxoplasmosis. *Science*. 314:1780-1783.
- Boyle JP**, and Yoshino TP. (2005) Serotonin-induced muscular activity in *Schistosoma mansoni* larval stages: importance of 5-HT transport and role in daughter sporocyst production. *Journal of Parasitology*. 91:542-550.
- Hillyer JF, Schmidt SL, Fuchs JF, **Boyle JP**, and Christensen BM. (2005) Age-associated mortality in immune challenged mosquitoes (*Aedes aegypti*) correlates with a decrease in haemocyte numbers. *Cellular Microbiology*. 7:39-51.
- Khan A, Taylor S, Su C, Mackey AJ, **Boyle J**, Cole R, Glover D, Tang K, Paulsen IT, Berriman M, Boothroyd JC, Pfefferkorn ER, Dubey JP, Ajioka JW, Roos DS, Wootton JC, and Sibley LD. (2005) Composite genome map and recombination parameters derived from three archetypal lineages of *Toxoplasma gondii*. *Nucleic Acids Research*. 33:2980-2992.
- Saeij JP, **Boyle JP**, Grigg ME, Arrizabalaga G, and Boothroyd JC. (2005) Bioluminescence imaging of *Toxoplasma gondii* infection in living mice reveals dramatic differences between strains. *Infection and Immunity*. 73:695-702.
- Bartholomay LC, Cho WL, Rocheleau TA, **Boyle JP**, Beck ET, Fuchs JF, Liss P, Rusch M, Butler KM, Wu RC, Lin SP, Kuo HY, Tsao IY, Huang CY, Liu TT, Hsiao KJ, Tsai SF, Yang UC, Nappi AJ, Perna NT, Chen CC, and Christensen BM. (2004) Description of the transcriptomes of immune response-activated hemocytes from the mosquito vectors *Aedes aegypti* and *Armigeres subalbatus*. *Infection and Immunity*. 72:4114-4126.
- Vermeire JJ, **Boyle JP**, and Yoshino TP. (2004) Differential gene expression and the effects of *Biomphalaria glabrata* embryonic (Bge) cell factors during larval *Schistosoma mansoni* development. *Molecular and Biochemical Parasitology*. 135:153-157.
- Boyle JP**, Hillyer JF, and Yoshino TP. (2003) Pharmacological and autoradiographical characterization of serotonin transporter-like activity in sporocysts of the human blood fluke, *Schistosoma mansoni*. *Journal of Comparative Physiology A*. 12:12.
- Boyle JP**, Wu XJ, Shoemaker CB, and Yoshino TP. (2003) Using RNA interference to manipulate endogenous gene expression in *Schistosoma mansoni* sporocysts. *Molecular and Biochemical Parasitology*. 128:205-215.
- Boyle JP**, and Yoshino TP. (2002) Monoamines in the albumen gland, plasma, and central nervous system of the snail *Biomphalaria glabrata* during egg-laying. *Comparative Biochemistry and Physiology A*. 132:411-422.
- Boyle JP**, Zaide JV, and Yoshino TP. (2000) *Schistosoma mansoni*: effects of serotonin and serotonin receptor antagonists on motility and length of primary sporocysts *in vitro*. *Experimental Parasitology*. 94:217-226.

INVITED REVIEWS, BOOK CHAPTERS, COMMENTARIES AND OPINION PIECES:

Since University of Pittsburgh Appointment:

Review: (In press). English EE, Adomako-Ankomah Y and **Boyle JP**. Comparative analysis of rhoptry and dense granule effectors in *Toxoplasma gondii* and related species: determinants of host range and pathogenesis? *Parasite Immunology* (Special Issue: Toxoplasmosis).

Commentary: Walzer KA and **Boyle JP**. (2012) A single chromosome unexpectedly links highly divergent isolates of *Toxoplasma gondii*. *mBio* 3(1):e00284-11.

Opinion piece: Reese ML and **Boyle JP**. (2012) Virulence without catalysis: How can a pseudokinase affect host cell signaling? *Trends in Parasitology*. Feb;28(2):53-7.

Review: Adomako-Ankomah Y, Wier G and **Boyle JP**. (2011) Beyond the genome: Recent advances in *Toxoplasma gondii* functional genomics. *Parasite Immunology*. 55(12):5438-51.

Review: **Boyle JP** and Radke J. (2009) A brief history of studies that examine the interactions of *Toxoplasma* with its host cell: Emphasis on *in vitro* models. *International Journal for Parasitology*. 39:903-914.

Prior to University of Pittsburgh Appointment:

Review: **Boyle JP**, Saeij JPJ, Cleary MD and Boothroyd JC. (2006) Analysis of gene expression during development: lessons from the Apicomplexa. *Microbes and Infection*. 8(6):1623-30.

Review: Saeij JPJ, **Boyle JP** and Boothroyd JC. (2005) Differences among the three major strains of *Toxoplasma gondii* and their specific interactions with the infected host. *Trends in Parasitology*. 21(10):476-81.

Review: **Boyle JP** and Yoshino TP (2003) Gene manipulation of parasitic helminths. *International Journal for Parasitology*. 33(11):1259-1268.

Review: Yoshino TP, **Boyle JP** and Humphries JE (2001) Receptor-ligand interactions and cellular signaling at the host-parasite interface. *Parasitology*, 123:S143-157.

INVITED PRESENTATIONS:

Since University of Pittsburgh Appointment

Department of Computational Biology, Joint Seminar, Carnegie Mellon University/University of Pittsburgh. *To be presented in Spring, 2015.*

Student-invited Speaker, Department of Biology, Washington and Jefferson College. *To be presented November 21st, 2014.*

Department of Pharmacology and Toxicology, Indiana University School of Medicine. *To be presented October, 2014.*

Department of Medical Microbiology and Immunology, University of Wisconsin-Madison. May, 2014.

Department of Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine, May, 2014.

Department of Biological Sciences and Institute for Global Health, Vanderbilt University. March, 2014.

Department of Pathobiological Sciences, University of Wisconsin-Madison. June, 2012.

Department of Biochemistry and Molecular Biology, Colorado State University. April, 2012.

Department of Molecular Microbiology and Immunology, Oregon Health and Sciences University. February, 2012.

Department of Infectious Diseases and Microbiology. University of Pittsburgh. January, 2012.

Science 2011, University of Pittsburgh. October, 2011.

Department of Molecular Biology and Biochemistry, University of California-Irvine. April, 2011.

Department of Pathobiology, University of Pennsylvania, Philadelphia, PA. March, 2011.

Department of Veterinary Molecular Biology, Montana State University, Bozeman, MT. March, 2010.

Laboratory of Parasitic Diseases, NIH. January, 2010.

Center for Vaccine Research, University of Pittsburgh School of medicine. April, 2009.

Invited Presentations Prior to University of Pittsburgh Appointment:

Symposium on Genomic Approaches to Host-Parasite Interactions, American Society of Tropical Medicine and Hygiene, Philadelphia, PA. November, 2007.

American Society of Tropical Medicine and Hygiene annual meeting, Atlanta, GA. December, 2006.

Keynote speaker. Symposium on Toxoplasmosis, Mexico City. June, 2006.

Department of Biomedical Sciences, Iowa State University, Ames, IA. May, 2001.

CONFERENCE ORAL PRESENTATIONS (Since University of Pittsburgh Appointment):

Wier GM*, McGreevy EM, Brown MJ, Truong F, Tirrell DA and **Boyle JP**. Using an analog of methionine to specifically label *Toxoplasma gondii* proteins in the context of the host cell. Molecular Parasitology Meeting, Woods Hole, MA. September, 2014. ****Selected as a talk from over 270 abstracts.**

Boyle JP*. Host cell targeting small molecules with activity against highly diverse intracellular pathogens. Pew Scholars Annual Meeting, Vieques, Puerto Rico. March 2013.

Wier GM*, Tirrell DA, Walker AK, Andrews PC and **Boyle JP**. A new method for the orthogonal labeling and purification of *Toxoplasma* secreted proteins in the context of the host. Molecular Parasitology Meeting, Woods Hole, MA. September 2012. ****Selected as a talk from over 250 abstracts.**

Adomako-Ankomah Y*, Pernas L and **Boyle JP**. An expanded gene cluster, *MAF1*, mediates virulence in *Toxoplasma gondii* through recruitment of host mitochondria. Molecular Parasitology Meeting, Woods Hole, MA. September 2012. ****Selected as a talk from over 250 abstracts.**

Onyeozili N*, Callenberg KM, **Boyle JP**, and Grabe M. Determining the binding affinity of *Toxoplasma* ROP proteins to a membrane using free energy calculations. Plenary Session, Summer Research Symposium. Duquesne University. Pittsburgh, Pennsylvania. 2011. ****Selected as a talk from 106 abstracts.**

Boyle JP*. Molecular mechanisms of pathogenesis in eukaryotic parasites, Annual Pew Scholars Meeting, Los Suenos, Costa Rica. March, 2010.

*** denotes presenting author**

CONFERENCE POSTER PRESENTATIONS (Since University of Pittsburgh Appointment):

Borges AL, Dubey JP and **Boyle JP***. Comparative transcriptional analysis of *Toxoplasma gondii* and *Hammondia hammondi* during *in vitro* growth. Molecular Parasitology Meeting, Woods Hole, MA. September, 2014.

Borges AL*, Adomako-Ankomah Y and **Boyle JP**. The impact of a tandemly-expanded cluster of pseudokinase paralogs on bradyzoite differentiation and cyst biology. Molecular Parasitology Meeting, Woods Hole, MA. September, 2014.

Srinivasan AR*, Harper JL, Kamau ET, Jeffers V, Sullivan Jr. WJ, and **Boyle JP**. Identification of a putative drug-resistance protein in the human pathogen *Toxoplasma gondii*. Molecular Parasitology Meeting, Woods Hole, MA. September, 2014.

English EE*, Danielson JJ, Adomako-Ankomah Y and **Boyle JP**. The role of *MAF1* expression during the establishment of chronic *T. gondii* infection. Molecular Parasitology Meeting, Woods Hole, MA. September, 2014.

- Kamau ET*, Lavine MD, Arrizabalaga GA and **Boyle JP**. Using Chemical Mutagenesis and Deep Sequencing to Identify the Target Of A Novel Inhibitor Of *Toxoplasma gondii* Growth. Molecular Parasitology Meeting, Woods Hole, MA. September 2012.
- Adomako-Ankomah Y*, Pernas L, Boothroyd JC and **Boyle JP**. Gordon Research Conference: Biology of Host-Parasite Interactions. Salve Regina University, Freeport, RI. June 2012.
- Walzer KA*, Dam RA, Herrmann DC, Schares G, Dubey JP, and **Boyle JP**. Polymorphic secreted effectors from nonpathogenic *Hammondia hammondi* complement virulence in *Toxoplasma gondii*. Gordon Research Conference: Biology of Host-Parasite Interactions. Salve Regina University, Freeport, RI. June 2012. ****won best poster award out of ~200 posters**
- Walzer KA and **Boyle JP***. Studying how mouse virulence evolved in the human pathogen *Toxoplasma gondii*. Pew Scholars Annual Meeting, Panama. March, 2012
- N. Onyeozili*, K.M. Callenberg, S.C. Xiao, **J.P. Boyle**, and M. Grabe. Determining the binding affinity of *Toxoplasma* ROP proteins to a membrane using free energy calculations. 56th Annual Biophysical Society Meeting. San Diego, CA. 2012
- N. Onyeozili*, K.M. Callenberg, **J.P. Boyle**, and M. Grabe. Determining the binding affinity of *Toxoplasma* ROP proteins to a membrane using free energy calculations. 2011 Annual Biomedical Research Conference for Minority Students, St. Louis, MO.
- S.C. Xiao*, K.M. Callenberg, N.O. Onyeozili, **J.P. Boyle**, and M. Grabe. A quantitative approach to understanding membrane targeting and association of ROP proteins to the host membrane during *Toxoplasma* infection. Science 2011. University of Pittsburgh, Pittsburgh, PA. 2011.
- Adomako-Ankomah Y*, Ross H, Wooton J, and **Boyle JP**. A cluster of bradyzoite-specific pseudokinases is involved in controlling parasite growth during *Toxoplasma gondii* stage differentiation. International Toxoplasmosis Meeting, Ottawa CA. June 2011.
- Kamau E*, Salvador C, and **Boyle JP**. A small-molecule approach to identify essential *Toxoplasma gondii* kinase effectors. International Toxoplasmosis Meeting, Ottawa CA. June 2011.
- Walzer KA and **Boyle JP***. Using comparative genomics to study host range and virulence in the human pathogen *Toxoplasma gondii*. Pew Scholars Annual Meeting, Cozumel, Mexico. March, 2011
- Meehan TL*, Kamau ET, Mustata G and **Boyle JP**. Identification of a novel inhibitor of *Toxoplasma* growth. Molecular Parasitology Meeting, Woods Hole, MA. September, 2010.
- Adomako-Ankomah Y*, Wooton J and **Boyle JP**. Characterizing the role of ROP42 in virulence of *Toxoplasma gondii*. Molecular Parasitology Meeting, Woods Hole, MA. September, 2010.
- Kamau ET*, Meehan TL, Fair M, Leone M, Brooks S and **Boyle JP**. Novel small molecule probes to identify new targets in the *Toxoplasma* kinome. Molecular Parasitology Meeting, Woods Hole, MA. September, 2010.

* denotes presenting author

PROFESSIONAL SERVICE

Manuscript Reviews (50 total including 2 as guest editor):

| | |
|--|---|
| Journal of Infectious Diseases, 2011 | BMC Genomics, 2010, 2012, 2014 (2) |
| Cellular Microbiology, 2011, 2014 | Theoretical Population Biology, 2010 |
| mBio, 2011, 2012 (guest editor) | Genome Biology, 2008 |
| Protist, 2011 (2) | Journal of Parasitology, 2005, 2008, 2012, 2013 |
| PloS One, 2011 (2), 2012 (4), 2013 (3), 2014, 2015 | PNAS, 2006 |

Int. Journal for Parasitology, 2010, 2011, 2012
 Parasitology International, 2013
 Parasite Immunology, 2014 (2)
 Cytoskeleton, 2012
 Experimental Parasitology, 2014
 Eukaryotic Cell, 2014 (2)

PLoS Pathogens, 2006, 2011 (**guest editor**),
 2012, 2013 (3), 2014 (2), 2015
 Molecular and Biochemical Parasitology, 2012
 Infection and Immunity, 2013 (2)
 Acta Tropica, 2014
 PLoS Biology, 2014

Grant Review Panels:

Ad-hoc reviewer, NIH, Pathogenic Eukaryotes Study Section, February 2015
 Ad-hoc reviewer, NIH, AIDS and Opportunistic Infections and Cancer Study Section, March 2014
 External Ad-hoc reviewer, Biotechnology and Biological Sciences Res. Council, UK. 2012, 2013
 External Ad-hoc reviewer, Medical Research Council, UK. 2014
 Ad-hoc reviewer, The National Science Foundation. 2010
 External Ad-hoc reviewer, The Wellcome Trust. U.K. 2009

LAB PERSONNEL AND ACTIVITIES

| Current Personnel | Position | Start Date |
|--------------------------|---|-------------------|
| Greg Wier | MCDB PhD Student | May, 2010 |
| Elisabeth English | MCDB PhD Student | February, 2012 |
| Jeffrey Danielson | Undergraduate | September, 2013 |
| Jonathan Harper | Undergraduate | September, 2013 |
| Germine Alfonse | Undergraduate | January, 2014 |
| Uchenna Mbawuike | Rotation Student, Hot Metal Bridge Program | August, 2014 |
| Dillon Kunkle | Rotation Student, Molecular Virology and Microbiology PhD program | September, 2014 |
| Rachel Coombs | Rotation Student, MCDB PhD Program | November, 2014 |
| Krystal Flakes | Rotation Student, Hot Metal Bridge Program | January, 2015 |

| Previous Personnel | Position | Start/End Date | Current Position |
|---------------------------|------------------------------------|-----------------------|--|
| Monique Brisson | Rotation Student, MCDB PhD Program | Nov. 2008-Feb. 2009 | Unknown |
| Rachel Pileggi | Rotation Student, MCDB PhD Program | Feb. 2009-May 2009 | Unknown |
| Lauren Oldfield | Rotation Student, MCDB PhD Program | Feb. 2009-May 2009 | Postdoctoral Fellow, J. Craig Venter Institute |
| Tracy Meehan | Undergraduate | Jan. 2009-Aug. 2010 | PhD Student, Boston College |
| Noah Haibach | Undergraduate | May 2009-Aug. 2009 | Unknown |
| Andrew Knappenberger | Undergraduate | Jan. 2009-May 2010 | Unknown |

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| Suman Sajjan | Undergraduate | Aug. 2009-May 2010 | M.S. Student, Johns Hopkins University. Research Analyst, U.S. Army. Baltimore, Maryland. |
| Gargi Bhattacharrya | Postdoctoral Fellow | Aug. 2009-July 2010 | Unknown |
| Erin Caraher | Undergraduate | Jan. 2009-June 2011 | Unknown |
| Genevieve Dobihal | Undergraduate | Jan. 2009-April 2009 | Unknown |
| Caitie O'Dell | Undergraduate | Jan. 2009-August 2009 | Unknown |
| Erica McGreevy | Rotation Student, MCDB PhD Program | Nov. 2009-Feb. 2010 | Visiting Lecturer, Department of Biological Sciences, University of Pittsburgh |
| Michael Leone | Undergraduate | May 2010-Aug. 2010 | Unknown |
| Matthew Fair | Undergraduate | May 2010-June 2011 | Unknown |
| Heather Ross | Undergraduate | May 2010-May 2012 | Medical Student |
| Jessica Coblentz | Rotation Student, MCDB PhD Program | June 2010-Nov. 2010 | MCDB PhD Student |
| Katelyn Walzer | Undergraduate | Sep. 2009-Aug. 2011 | Ph.D. Student, Duke University |
| Katelyn Walzer | Research II Technician | Sep. 2011-June 2012 | Ph.D. Student, Duke University |
| Mary Krawczak | Undergraduate | June 2012-Aug. 2012 | Unknown |
| Edwin Kamau | Research II Technician | Oct. 2008-Jan. 2013 | Ph.D. Student, NYU University |
| Mark Brown | Research II Technician | Feb. 2010-March 2013 | Research III Technician, University of Pittsburgh School of Medicine |
| Rachel Dam | Undergraduate | May 2010-April 2013 | Research Technician, Baylor College of Medicine |
| Hannah Wand | Undergraduate | Jan. 2012-June 2013 | Research Technician, Stanford University School of Medicine. |
| Yaw Adomako-Ankomah | MCDB PhD Student | May 2009-Dec., 2013 | Postdoctoral Fellow, National Institute of Allergy and Infectious Diseases, NIH. |
| Adair Borges | Undergraduate | June 2012-Aug. 2014 | Ph.D. Student, University of California-San Francisco |
| Ananth Srinivasan | Undergraduate | May 2010-Aug. 2014 | Ph.D. Student, University of Pennsylvania |
| Katherine Wozniak | Rotation Student, MCDB PhD Program | August, 2014-November 2014 | Rotation student, MCDB PhD Program. Bill Saunders Lab |

| Student Research Fellowships | Name/Position | Year(s) |
|------------------------------|---------------|---------|
|------------------------------|---------------|---------|

| Student Research Fellowships | Name/Position | Year(s) |
|---|--------------------------------------|----------------|
| HHMI Graduating Senior Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Ananth R. Srinivasan, Undergraduate. | Summer, 2014 |
| HHMI Graduating Senior Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Adair L. Borges, Undergraduate. | Summer, 2014 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Jonathan Harper, Undergraduate. | Summer, 2014 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Germine A. Alfonse, Undergraduate. | Summer, 2014 |
| Pennsylvania Space Grant Consortium Research Scholarship. University of Pittsburgh. | Ananth R. Srinivasan, Undergraduate. | Fall, 2013 |
| Samuel D. Colella Award. Department of Biological Sciences, University of Pittsburgh. | Adair L. Borges, Undergraduate. | Summer, 2013 |
| Brackenridge Research Fellowship. Honors College, University of Pittsburgh. | Ananth R. Srinivasan, Undergraduate. | Spring, 2013 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Ananth R. Srinivasan, Undergraduate. | Summer, 2013 |
| HHMI Academic Year Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Hannah E. Wand, Undergraduate. | 2012-2013 |
| HHMI Academic Year Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Adair L. Borges, Undergraduate. | 2012-2013 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Rachel A. Dam, Undergraduate. | Summer, 2012 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Mary Krawczak, Undergraduate. | Summer, 2012 |
| HHMI Graduating Senior Research Fellowship, Department of Biological Sciences, University of Pittsburgh. | Katelyn A. Walzer, Undergraduate | Summer, 2011 |
| HHMI Academic Year Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Rachel A. Dam, Undergraduate. | 2011-2012 |
| Brackenridge Research Fellowship. Honors College, University of Pittsburgh. | Heather Ross, Undergraduate. | Spring, 2012 |

| Student Research Fellowships | Name/Position | Year(s) |
|---|----------------------------------|----------------|
| Chancellor's Research Fellowship. Office of the Chancellor, University of Pittsburgh. | Katelyn A. Walzer, Undergraduate | Fall, 2010 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Katelyn A. Walzer, Undergraduate | Summer, 2010 |
| HHMI Graduating Senior Research Fellowship, Department of Biological Sciences, University of Pittsburgh. | Tracy L. Meehan, Undergraduate. | Summer, 2010 |
| HHMI Summer Research Fellowship. Department of Biological Sciences, University of Pittsburgh. | Tracy L. Meehan, Undergraduate. | Summer, 2009 |

UNDERGRADUATE TEACHING SINCE APPOINTMENT

Lecturer. BIOSC. 1999. "Medical Microbiology", University of Pittsburgh. 2009-present. 18-27 students (39 lectures, 50 min each).

Guest Lecturer. BIOSC. 1540. "Computational Biology", University of Pittsburgh. 2009-present "Comparative Genomics" One 50 minute lecture. ~20 students

Guest Lecturer. IDM 2014. "Functional Genomics of Infectious Disease Pathogens", University of Pittsburgh School of Public Health. "Cutting edge genomic approaches in the Apicomplexa". Fall 2012. One 1.5 h lecture.

GRADUATE-LEVEL TEACHING SINCE APPOINTMENT

Lecturer. BIOSC 2055. Scientific Communication: Predoctoral Fellowships and Grants. Fall, 2014. 12 Students.

Course Coordinator. BIOSC 2950. Graduate Student Seminar Series Journal Club. Fall 2012-Present. 7-12 students.

Lecturer. BIOSC. 2022. Graduate Core Course, Cell Biology. "Intracellular Parasitism". Spring 2009 (2 1.5 h lectures), 2010 (2 1.5 h lectures) and 2011 (three 1.5 hour lectures). ~7-9 students

TEACHING PRIOR TO APPOINTMENT

Guest lecturer, 2 lectures (1.5 hours each), School of Public Health, University of California-Berkeley. PH 265. Molecular Parasitology, "Schistosomes". March 9 and 11, 2004. ~20 students

Guest lecturer, 1 lecture (50 min), Department of Zoology, University of Wisconsin. Zoology 528: Neurobiology, "Synaptic plasticity". November, 2000. ~60 students

Teaching Assistant, Department of Zoology, University of Wisconsin. Zoology 528: Neurobiology. Fall, 2000. Duties: Grading problem sets and exams, and writing exams. ~60 students

Teaching Assistant, School of Veterinary Medicine, University of Wisconsin. Veterinary Parasitology Laboratory. Spring, 1999. Duties: Lab setup and instruction. ~25 students

POPULAR PRESS

"Pitt-Stanford Research Suggests Aimless Proteins Crucial to Disease". Mar 31, 2011 Pitt Chronicle.

"Single Protein Can Determine Severity Of *Toxoplasma* Infections". December 21st, 2006. ScienceDaily.

UNIVERSITY SERVICE:**Departmental committees:**

| Committee | Role | Academic Year(s) |
|--|---------------|-------------------------|
| Department seminar committee | Chair | 2011-2014 |
| Undergraduate Research Certificate Oversight Committee | Member | 2013, 2014 |
| Graduate Recruiting committee | Member | 2012-2014 |
| Faculty search committee | Member | 2009, 2012, 2014 |
| Graduate Recruiting committee | Ad-hoc member | 2011 |
| Departmental retreat planning committee | Member | 2009-2011 |
| Undergraduate planning and oversight comm. | Member | 2010 |
| Undergraduate Research committee | Chair | 2010-2012 |
| HHMI Executive Committee | Member | 2009-2011 |

Dissertation committees (University of Pittsburgh Department of Biological Sciences):

| Student | Role | Purpose | P.I. | Program | Dates |
|---------------------|-------------|------------------|-------------|----------------|-----------------------|
| Hillary Cleveland | Member | Comps/PhD Thesis | Hildebran | MCDB | Fall 2014-Present |
| Zhihao Sun | Member | Comps/PhD Thesis | Brodsky | MCDB | Fall 2014-Present |
| Yang Liu | Member | Comps/PhD Thesis | Rebeiz | MCDB | Fall 2013-Present |
| Nick Keiser | Member | Comps/PhD Thesis | Pruitt | E&E | Fall 2013-Present |
| Heather Shaffery | Member | Comps/MS Thesis | Relyea | E&E | Fall 2011-Spring 2013 |
| Bryce Lunt | Member | Comps/PhD Thesis | Hatfull | MCDB | Fall 2012-Present |
| Elisabeth English | Advisor | PhD Thesis | Boyle | MCDB | Spring 2012-Present |
| Jessica Coblentz | Member | Comps/PhD Thesis | Kiselyov | MCDB | Spring 2012-Present |
| Greg Wier | Advisor | PhD Thesis | Boyle | MCDB | Summer 2010-Present |
| Ira Kukic | Member | Comps/PhD Thesis | Kiselyov | MCDB | Fall 2010-Spring 2014 |
| Tushar Gupta | Member | Comps/PhD Thesis | Pipas | MCDB | Fall 2010-Present |
| Corrinne Mansfield | Member | Comps | Roman | MCDB | Fall 2010-Present |
| Lauren Oldfield | Member | Comps/PhD Thesis | Hatfull | MCDB | Fall 2009-Spring 2014 |
| Elizabeth Rochon | Member | Comps/PhD Thesis | Roman | MCDB | Fall 2009-Present |
| Yaw Adomako-Ankomah | Advisor | PhD Thesis | Boyle | MCDB | Fall 2009-Fall 2013 |

Student committees outside of Department:

| Student | Role | Purpose | P.I. | Department | Institution | Dates |
|----------------|-------------|----------------|-------------|-------------------------|--------------------------|--------------|
| Chen Li | Co-Sponsor | Senior Thesis | Yvonne Chan | UPMC Montefiore | University of Pittsburgh | 2011-2013 |
| Becita Fields | Member | MS Thesis | Alice Tarun | School of Public Health | University of Pittsburgh | 2011 |