

Daniel P. Beiting

ASSISTANT PROFESSOR OF PATHOBIOLOGY

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Education and training

Appalachian State University

B.S. IN EXERCISE SCIENCE

Boone, NC

1995 - 1999

Cornell University

PH.D. IN IMMUNOLOGY

Ithaca, NY

2001 - 2006

University of Pennsylvania

POSTDOCTORAL FELLOWSHIP

Philadelphia, PA

2006-2012

Awards & Achievements

- 2004 Trainee Award - The 11th International Conference on Trichinellosis
- 2006 Scientific Excellence in Molecular, Cellular and Immunoparasitology - American Society of Tropical Medicine and Hygiene (ASTMH)
- 2007 Guava Prize for best poster presentation - 9th International Congress on Toxoplasmosis
- 2012 Outstanding scientific presentation award - Burroughs Wellcome Fund-ASTMH
- 2016 Mack Technology Fellow - Wharton Business School

Professional service and memberships

- current Associate Editor - Microbiome
- current Associate Editor - Animal Microbiome
- current Member - American Society for Microbiology
- past Ad hoc/invited reviewer - Cellular Microbiology, Gut Microbes, Infection and Immunity, MBio, Veterinary Dermatology, Journal of Dental Research, Scientific Reports

Press and public engagement

- *Round-table discussion on public health.* Philadelphia Science Festival. Philadelphia, PA. April 2014.
- *NBC10 Issue Discussion on Infectious Disease* 54,000 viewers, 7 minutes on air.
- *PennVet One-health focus video*
- *Fecal Microbiota Transplants: (re)discovering the power of poo!* Philadelphia Science Festival; 'Gross' anatomy series. Philadelphia, PA. April 2015.
- *Tedx talk on the Microbiome.* The Peddie School, Heightstown, NJ. April 2016.
- *Fecal Microbiota Transplants: (re)discovering the power of poo!* Philadelphia Science Festival; 'Gross' anatomy series. Philadelphia, PA. April 2016.

Workshops

- *1st West African Regional Workshop on the Cell Biology of Protozoan Pathogens.* Co-organizer and Instructor - Accra, Ghana, July 13-24th, 2009.
- *Bioinformatic analysis of pathogen gene expression.* Co-organizer. 13th Annual Conference on Toxoplasmosis. Gettysburg, PA, June 2015.
- *Cloud computing for metagenomics.* Co-organizer. 4th Annual UPenn Microbiome Symposium, Philadelphia, PA; Nov, 2017

- *Bioinformatics for Eukaryotic Pathogens*. Co-organizer. Biology of Parasitism course. Woods Hole, MA; July 14-15, 2018
- *Big Data Genomics - A Practical Workshop on Sequence Analysis in Parasitology*. Instructor. Parasitology Pre-meeting Course for the 67th ASTMH Annual meeting. New Orleans, LA; Oct 28th, 2018
- *Cloud computing for metagenomics*. Co-organizer. 5th Annual UPenn Microbiome Symposium, Philadelphia, PA; Nov, 2018
- *Bioinformatics for Eukaryotic Pathogens*. Co-organizer. Biology of Parasitism course. Woods Hole, MA; July 20-21, 2019

Teaching

- *Transcriptomics using the R programming language* (32 hrs teaching)
- **CAMB 605** - First Year Seminar
- **CAMB 542** - Topics in Molecular Medicine (journal club)
- **CAMB 696** - Contemporary Topics in Parasitology Research (2-4 lecture hours + journal club)
- **VPTH 605** - The Microbiome in Animal Health and Disease (2 lecture hours)
- **IMUN 506** - Immune Mechanisms (1 lecture)
- **IMUN 507** - Immune Mechanisms - Advanced Topics (2 lecture hours)
- **BIOL 406** - Molecular Mechanisms of Infectious Disease (no longer teaching)

Consulting

- **Scientific Advisor** - P5 Health Ventures. 2016-2018
- **Scientific Advisor** - Astarte Medical. 2018 - current

Publications (peer-reviewed)

A COMPLETE LIST OF PEER-REVIEWED PUBLICATIONS CAN BE VIEWED **HERE** ON GOOGLE SCHOLAR

- | | |
|---|---|
| IL-27 and TCR Stimulation Promote T Cell Expression of Multiple Inhibitory Receptors | <i>ImmunoHorizons</i> |
| JH DELONG, AOH HALL, M RAUSCH, D MOODLEY, J PERRY, J PARK, AT PHAN, ... | 2019 |
| Alarmin S100A11 initiates a chemokine response to the human pathogen <i>Toxoplasma gondii</i> | <i>Nature immunology</i> |
| A SAFRONOVA, A ARAUJO, ET CAMANZO, TJ MOON, MR ELLIOTT, DP BEITING, ... | 2019 |
| Commensal microbes induce serum IgA responses that protect against polymicrobial sepsis | <i>Cell host & microbe</i> |
| JR WILMORE, BT GAUDETTE, DG ATRIA, T HASHEMI, DD JONES, CA GARDNER, ... | 2018 |
| The maternal vaginal microbiome partially mediates the effects of prenatal stress on offspring gut and hypothalamus | <i>Nature neuroscience</i> |
| E JAŠAREVIĆ, CD HOWARD, K MORRISON, A MISIC, T WEINKOPFF, P SCOTT, ... | 2018 |
| CD8+ T cells lack local signals to produce IFN-γ in the skin during <i>Leishmania</i> infection | <i>The Journal of Immunology</i> |
| FO NOVAIS, AC WONG, DO VILLAREAL, DP BEITING, P SCOTT | 2018 |
| Glycolysis is important for optimal asexual growth and formation of mature tissue cysts by <i>Toxoplasma gondii</i> | <i>International journal for parasitology</i> |
| A SHUKLA, KL OLSZEWSKI, M LLINÁS, LM ROMMEREIM, BA FOX, DJ BZIK, ... | 2018 |
| Sex-specific gene expression differences are evident in human embryonic stem cells and during in vitro differentiation of human placental progenitor cells | <i>Stem cells and development</i> |
| CM SYRETT, I SIERRA, CL BERRY, D BEITING, MC ANGUERA | 2018 |
| Culture-independent Profiling of the Fecal Microbiome to Identify Microbial Species Associated with a Diarrheal Outbreak in Immunocompromised Mice | <i>Comparative medicine</i> |
| AM MISIC, EL MIEDEL, AK BRICE, S COLE, GF ZHANG, CD DYER, A SECRETO, ... | 2018 |

Inactivation of interferon receptor promotes the establishment of immune privileged tumor microenvironment	<i>Cancer cell</i>
KV KATLINSKI, J GUI, YV KATLINSKAYA, A ORTIZ, R CHAKRABORTY, ...	2017
Stress during pregnancy alters temporal and spatial dynamics of the maternal and offspring microbiome in a sex-specific manner	<i>Scientific reports</i>
E JAŠAREVIĆ, CD HOWARD, AM MISIC, DP BEITING, TL BALE	2017
CD8+ T cell cytotoxicity mediates pathology in the skin by inflammasome activation and IL-1β production	<i>PLoS pathogens</i>
FO NOVAIS, AM CARVALHO, ML CLARK, LP CARVALHO, DP BEITING, IE BRODSKY, ...	2017
T regulatory cells support plasma cell populations in the bone marrow	<i>Cell reports</i>
AG ZARETSKY, C KONRADT, F DÉPIS, JB WING, R GOENKA, DG ATRIA, JS SILVER, ...	2017
An Oxidative Central Metabolism Enables Salmonella to Utilize Microbiota-Derived Succinate	<i>Cell host & microbe</i>
L SPIGA, MG WINTER, TF DE CARVALHO, W ZHU, ER HUGHES, CC GILLIS, ...	2017
Cutaneous leishmaniasis induces a transmissible dysbiotic skin microbiota that promotes skin inflammation	<i>Cell host & microbe</i>
C GIMBLET, JS MEISEL, MA LOESCHE, SD COLE, J HORWINSKI, FO NOVAIS, ...	2017
Replication defective viral genomes exploit a cellular pro-survival mechanism to establish paramyxovirus persistence	<i>Nature communications</i>
J XU, Y SUN, Y LI, G RUTHEL, SR WEISS, A RAJ, D BEITING, CB LÓPEZ	2017
Involvement of innate immune system in late stages of inherited photoreceptor degeneration	<i>Scientific reports</i>
R SUDHARSAN, DP BEITING, GD AGUIRRE, WA BELTRAN	2017
MicrobiomeDB: a systems biology platform for integrating, mining and analyzing microbiome experiments	<i>Nucleic acids research</i>
FS OLIVEIRA, J BRESTELLI, S CADE, J ZHENG, J IODICE, S FISCHER, ...	2017
Aging-associated dysbiosis increases susceptibility to enteric viral infection in Drosophila	<i>bioRxiv</i>
C SANSONE, J COHEN, B GOLD, W ZHU, AM MISIC, DP BEITING, SE WINTER, ...	2017
NDR kinases regulate retinal development, homeostasis and gene expression	<i>Investigative Ophthalmology & Visual Science</i>
HM LÉGER, DP BEITING, WA BELTRAN, GD AGUIRRE, F LUCA	2017
Cutting edge: IL-4, IL-21, and IFN-γ interact to govern T-bet and CD11c expression in TLR-activated B cells	<i>The Journal of Immunology</i>
MS NARADIKIAN, A MYLES, DP BEITING, KJ ROBERTS, L DAWSON, RS HERATI, ...	2016
Suppression of type I interferon signaling overcomes oncogene-induced senescence and mediates melanoma development and progression	<i>Cell reports</i>
YV KATLINSKAYA, KV KATLINSKI, Q YU, A ORTIZ, DP BEITING, A BRICE, D DAVAR, ...	2016
Type I interferons control proliferation and function of the intestinal epithelium	<i>Molecular and cellular biology</i>
YV KATLINSKAYA, KV KATLINSKI, A LASRI, N LI, DP BEITING, AC DURHAM, ...	2016
Activity of uncleaved caspase-8 controls anti-bacterial immune defense and TLR-induced cytokine production independent of cell death	<i>PLoS pathogens</i>
NH PHILIP, A DELANEY, LW PETERSON, M SANTOS-MARRERO, JT GRIER, Y SUN, ...	2016
Meta-transcriptome profiling of the human-Leishmania braziliensis cutaneous lesion	<i>PLoS neglected tropical diseases</i>
SM CHRISTENSEN, LAL DILLON, LP CARVALHO, S PASSOS, FO NOVAIS, ...	2016

STAT1 signaling in astrocytes is essential for control of infection in the central nervous system	MBio
S HIDANO, LM RANDALL, L DAWSON, HK DIETRICH, C KONRADT, PJ KLOVER, ...	2016
T cell receptor-induced NF-κB signaling and transcriptional activation are regulated by STIM1-and Orai1-mediated calcium entry	Journal of Biological Chemistry, jbc. M
X LIU, CT BERRY, G RUTHEL, JJ MADARA, K MACGILLIVRAY, CM GRAY, LA MADGE, ...	2016
Divergent isoprenoid biosynthesis pathways in Staphylococcus species constitute a drug target for treating infections in companion animals	mSphere
AM MISIC, CL CAIN, DO MORRIS, SC RANKIN, DP BEITING	2016
Divergent isoprenoid biosynthesis pathways in	Staphylococcus
AM MISIC, CL CAIN, DO MORRIS, SC RANKIN, DP BEITING	2016
Skin-resident memory CD4+ T cells enhance protection against Leishmania major infection	Journal of Experimental Medicine
ND GLENNIE, VA YERAMILLI, DP BEITING, SW VOLK, CT WEAVER, P SCOTT	2015
Genomic profiling of human Leishmania braziliensis lesions identifies transcriptional modules associated with cutaneous immunopathology	Journal of Investigative Dermatology
FO NOVAIS, LP CARVALHO, S PASSOS, DS ROOS, EM CARVALHO, P SCOTT, ...	2015
Eosinophils and IL-4 support nematode growth coincident with an innate response to tissue injury	PLoS pathogens
L HUANG, DP BEITING, NG GEBRESELAASSIE, LF GAGLIARDO, MC RUYECHAN, ...	2015
Genome sequencing reveals strain dynamics of methicillin-resistant Staphylococcus aureus in the same household in the context of clinical disease in a person and a dog	Veterinary microbiology
MF DAVIS, AM MISIC, DO MORRIS, JT MOSS, P TOLOMEIO, DP BEITING, ...	2015
The orphan nuclear receptor TLX is an enhancer of STAT1-mediated transcription and immunity to Toxoplasma gondii	PLoS biology
DP BEITING, S HIDANO, JE BAGGS, JM GESKES, Q FANG, EJ WHERRY, ...	2015
Complete genome sequence and methylome of Staphylococcus schleiferi, an important cause of skin and ear infections in veterinary medicine	Genome Announc.
AM MISIC, CL CAIN, DO MORRIS, SC RANKIN, DP BEITING	2015
Bystander chronic infection negatively impacts development of CD8+ T cell memory	Immunity
E STELEKATI, H SHIN, TA DOERING, DV DOLFI, CG ZIEGLER, DP BEITING, ...	2014
Human Classical Monocytes Control the Intracellular Stage of Leishmania braziliensis by Reactive Oxygen Species	The Journal of infectious diseases
FO NOVAIS, BT NGUYEN, DP BEITING, LP CARVALHO, ND GLENNIE, S PASSOS, ...	2014
Differential induction of TLR3-dependent innate immune signaling by closely related parasite species	PloS one
DP BEITING, L PEIXOTO, NS AKOPYANTS, SM BEVERLEY, EJ WHERRY, ...	2014
Intermediate Monocytes Contribute to Pathologic Immune Response in Leishmania braziliensis Infections	The Journal of infectious diseases
S PASSOS, LP CARVALHO, RS COSTA, TM CAMPOS, FO NOVAIS, A MAGALHÃES, ...	2014
Matrix metalloproteinase 9 production by monocytes is enhanced by TNF and participates in the pathology of human cutaneous leishmaniasis	PLoS neglected tropical diseases
TM CAMPOS, ST PASSOS, FO NOVAIS, DP BEITING, RS COSTA, A QUEIROZ, ...	2014
Protozoan parasites and type I interferons: a cold case reopened	Trends in parasitology
DP BEITING	2014

Cytotoxic T cells mediate pathology and metastasis in cutaneous leishmaniasis	<i>PLoS pathogens</i>
FO NOVAIS, LP CARVALHO, JW GRAFF, DP BEITING, G RUTHEL, DS ROOS, ...	2013
The cytokines interleukin 27 and interferon-γ promote distinct Treg cell populations required to limit infection-induced pathology	<i>immunity</i>
AOH HALL, DP BEITING, C TATO, B JOHN, G OLDENHOVE, CG LOMBANA, ...	2012
Distinct roles for IL-27 and IFN-γ in the development of T-bet⁺ Treg required to limit infection-induced pathology.	<i>Immunity</i>
AO HALL, DP BEITING, C TATO, B JOHN, G OLDENHOVE, GH PRITCHARD, ...	2012
Natural resistance-associated macrophage protein is a cellular receptor for sindbis virus in both insect and mammalian hosts	<i>Cell host & microbe</i>
PP ROSE, SL HANNA, A SPIRIDIGLIOZZI, N WANNISSORN, DP BEITING, SR ROSS, ...	2011
A systems biological view of intracellular pathogens	<i>Immunological reviews</i>
DP BEITING, DS ROOS	2011
Integrative genomic approaches highlight a family of parasite-specific kinases that regulate host responses	<i>Cell host & microbe</i>
L PEIXOTO, F CHEN, OS HARB, PH DAVIS, DP BEITING, CS BROWNBACK, ...	2010
Combinatorial effects of interleukin 10 and interleukin 4 determine the progression of hepatic inflammation following murine enteric parasitic infection	<i>Hepatology</i>
DB DOUGLAS, DP BEITING, JP LOFTUS, JA APPLETON, SK BLISS	2010
Apicomplexan parasites co-opt host calpains to facilitate their escape from infected cells	<i>science</i>
R CHANDRAMOHANADAS, PH DAVIS, DP BEITING, MB HARBUT, C DARLING, ...	2009
Eosinophil deficiency compromises parasite survival in chronic nematode infection	<i>The Journal of Immunology</i>
V FABRE, DP BEITING, SK BLISS, NG GEBRESELASSIE, LF GAGLIARDO, NA LEE, ...	2009
Immunity to <i>Trichinella spiralis</i> muscle infection	<i>Veterinary parasitology</i>
MV FABRE, DP BEITING, SK BLISS, JA APPLETON	2009
Coordinated control of immunity to muscle stage <i>Trichinella spiralis</i> by IL-10, regulatory T cells, and TGF-β	<i>The journal of immunology</i>
DP BEITING, LF GAGLIARDO, M HESSE, SK BLISS, D MESKILL, JA APPLETON	2007
IL-10 regulates movement of intestinally derived CD4⁺ T cells to the liver	<i>The Journal of Immunology</i>
SK BLISS, SP BLISS, DP BEITING, A ALCARAZ, JA APPLETON	2007
Synthesis of syndecan-1 by skeletal muscle cells is an early response to infection with <i>Trichinella spiralis</i> but is not essential for nurse cell development	<i>Infection and immunity</i>
DP BEITING, PW PARK, JA APPLETON	2006
Interleukin-10 limits local and body cavity inflammation during infection with muscle-stage <i>Trichinella spiralis</i>	<i>Infection and immunity</i>
DP BEITING, SK BLISS, DH SCHLAFFER, VL ROBERTS, JA APPLETON	2004
A putative serine protease among the excretory–secretory glycoproteins of L1 <i>Trichinella spiralis</i>	<i>Molecular and biochemical parasitology</i>
F ROMARIS, SJ NORTH, LF GAGLIARDO, BA BUTCHER, K GHOSH, DP BEITING, ...	2002

Invited and selected talks

- *IL-10 modulates the inflammatory response to *Trichinella spiralis*.* 2nd Immunology Meeting for Graduate students (Northeast region), Cornell University, College of Veterinary Medicine, Ithaca, New York, USA, September 2002.
- *IL-10 limits local and regional inflammation during muscle infection with *Trichinella spiralis*.* Biological and

Biomedical Sciences Program Symposium, Cornell University, College of Veterinary Medicine, Ithaca, New York, USA, September 2003.

- *IL-10 controls inflammation at the surface of the diaphragm and in the pleural cavity during muscle infection with Trichinella spiralis.* 6th Annual Upstate New York Immunology Conference. Bolton Landing, NY, USA, November 2003.
- *Syndecan-1, a heparan-sulfate proteoglycan, is synthesized during muscle infection with the parasitic nematode Trichinella spiralis.* The 11th International conference on Trichinellosis, San Diego University, San Diego, CA, August 2004.
- *Coordinated control of immunity to muscle stage Trichinella spiralis by IL-10, regulatory T cells and TGF- β .* 10th Annual Woods Hole Immunoparasitology Conference. Woods Hole, MA, USA, May 2006
- *Coordinated control of immunity to muscle stage Trichinella spiralis by IL-10, regulatory T cells and TGF- β .* The 55th Annual Meeting of the American Society of Tropical Medicine and Hygiene (ASTMH), Atlanta, GA, November 2006.
- *A genome-scale screen in Toxoplasma gondii infected cells identifies positive regulators of STAT1-mediated transcription.* 20th Annual Molecular Parasitology Meeting, Woods Hole, MA, Sept 2009.
- *A genomic screen in Toxoplasma infected cells identifies nuclear hormone receptors as positive regulators of STAT1 signal transduction.* The 11th International Congress on Toxoplasmosis, Ottawa, Ontario, June 2011
- *Pathogens as perturbagens: exploiting genomic technologies to identify novel regulators of host immunity.* University of Virginia. Center for Public Health Genomics. Genome Sciences Seminar Series. Oct 2011.
- *Pathogens as perturbagens: exploiting genomic technologies to identify novel regulators of host immunity.* University of South Florida. Global Health Seminar Series. April 2012.
- *TLR3/TRIF-dependent innate recognition of a protozoan parasite.* 21st Annual Molecular Parasitology Meeting, Woods Hole, MA, Sept 2012 (awarded received for outstanding presentation).
- *TLR3-dependent recognition of RNA from a protozoan parasite.* The 61st Annual Meeting of the American Society of Tropical Medicine and Hygiene (ASTMH), Atlanta, GA, Nov 2012.
- *Genomic approaches to studying host-pathogen interactions.* University of Pennsylvania, Gastroenterology Seminar Series. Oct 2013.
- *Transcriptomic profiling of the human Leishmania braziliensis skin lesion.* Annual Tropical Medicine Research Center (TMRC) meeting. Natal, Bahia, Brazil. Feb, 2014.
- *Microbial Genomics in Veterinary Medicine.* Departmental Seminar Series for PennVet Clinical Studies Philadelphia (CSP). Philadelphia, PA, Feb 18 2016.
- *From the Skin to the Gut: Leveraging Microbial Genomics to Inform Veterinary Medicine.* Departmental Seminar Series for PennVet Clinical Studies New Bolton Center (NBC). Philadelphia, PA, May 10 2016.
- *Transcriptional Programs Associated with Susceptibility to Cutaneous Leishmaniasis.* Tropical Medicine Research Center (TMRC) Meeting. Salvadore, Bahia, Brazil. April 12 2016.
- *Canine breed genetics as a tool to understand host-microbiome interactions.* Canine Breeder Excellence Seminar at PennVet. Philadelphia, PA. April 30 2016.
- *Monitoring the Microbiome During Treatment and Remission of Canine Chronic Enteritis.* PennVet House Officer Research Day. Philadelphia, PA. June 23 2016.
- *Transcriptional Programs Associated with Susceptibility to Cutaneous Leishmaniasis.* Tropical Medicine Research Center (TMRC) Meeting. Salvador, Bahia, Brazil. March 6, 2017.
- *Mining relationships between clinical metadata and the host-associated microbiome.* Malnutrition of Enteric Diseases (MAL-ED) Data Meeting. Philadelphia, PA, USA. Aug 28-29 2017.
- *MicrobiomeDB: a systems biology platform for integrating, mining and analyzing microbiome experiments.* Institute of Bioinformatics Symposium: Parsing the Microbiome. University of Georgia. Athens, GA, USA. September 25, 2017

- *From the Skin to the Gut: Leveraging Microbial Genomics to Advance Veterinary Medicine*. 118th Penn Annual Conference. Wilmington, DE, USA. September 27, 2017
- *Of Mice, Men and Microbes: strategies for interrogating transcriptomes and microbiomes across domains of life*. Building Interdisciplinary Research Careers in Women's Health (BIRCWH). Philadelphia, PA, USA. November 21, 2017
- *A skin-associated, polymicrobial signature correlates with increased inflammation and treatment failure in cutaneous leishmaniasis*. Tropical Medicine Research Center (TMRC) Meeting. Salvadore, Bahia, Brazil. March 12, 2018.
- *From the Skin to the Gut: Leveraging Microbial Genomics to Advance Canine Health*. Seminar series. James A. Baker Institute for Animal Health, Cornell University. Ithaca, NY. USA. March 27, 2018
- *A 'Makerspace' Approach to Facilitating Interdisciplinary Microbiome Research*. PennVet Faculty Retreat. New Bolton Center. Kennett Square, PA. June 8th, 2018.
- *Microbiology and Man's Best Friend: leveraging canine models of disease to elucidate host-microbe interactions*. University of Maryland, School of Medicine, Center for Epigenetic Research in Child Health and Brain Development. Baltimore, MD. July 26th, 2018.
- *Understanding Normalization and Variance in RNAseq Data*. 67th Annual Meeting for the American Society for Tropical Medicine and Health (ASTMH). Parasitology Pre-meeting Course: Big Data Genomics – A Practical Workshop on Sequence Analysis in Parasitology. New Orleans, LA. Oct 28th, 2018.
- *Exploring Complex Microbial Communities in Enteric Disease Studies*. 67th Annual Meeting for the American Society for Tropical Medicine and Health (ASTMH). New Orleans, LA. Oct 28th, 2018.
- *Diet-induced changes in microbial metabolism mediate colonization resistance in enteritis*. Illumina Accelerator. Foster City, CA. Dec 13th, 2018.