

Joshua E. Turse

Joshua E. Turse - Curriculum Vitae

Microbiologist, Molecular Biologist, Biosafety/Biosecurity

I have a broad background in **biosafety** and **microbiology** research. Experience working with:

- Multiple animal and pathogen systems in federal, university and corporate environments.
- Direct experience with BSL2 and BSL3 environments
- Animal handling guidelines
- Recombinant organism guidelines

My background as a researcher provides flexibility, perspective to balance the needs of research with the needs of ethics and law.

PROFESSIONAL EXPERIENCE

Washington State University, Veterinary Microbiology & Pathology

2009-2013

Associate in Research

Design, organize, direct and perform biological experiments in naïve and vaccinated cattle to assess T cell response to infection by *Anaplasma marginale*, tick borne pathogen. Present research at national conferences and in original manuscripts. Train students, staff in safe and efficacious research with recombinant organisms and experimental animals. • Establish collaboration between Washington State University and Pacific Northwest National Laboratory for solving *Dermacentor andersoni* (Rocky Mountain wood tick) salivary gland proteome (published July 2014). • Trained post-baccalaureate, 4 graduate students, 5 veterinary students for in all aspects of biological safety, molecular biology required for animal experiments and safe conduct of research in a biological safety level 2 (BSL2) space. • Manage and perform experiments with cattle herds of 10-30 animals in collaboration with

academic and corporate researchers, including correct application and modification of Institutional Review Board (IRB) protocols, Animal Care and Use Forms (ACUF), Institutional Animal Care and Use Committee (IACUC) forms, and administration of private grant opportunities. • Prepare annual progress reports to funding agencies to secure renewal of grant awards, ensure project milestones

Pacific Northwest National Laboratory, Integrative Omics
2006-2009

Postdoctoral Fellow

Define tasks and budget requirements from collaborators, and communicate those needs to internal teams to ensure expectations for the scope of the study, budget, and schedule are met and maintained. Design, manage, and analyze global proteomics experiments (large datasets) to examine the lifestyle of *Yersinia*, *Burkholderia*, *Arthrobacter*, and *Shewanella*. Present research in national, international conferences and original manuscripts. • Responsible for all USDA-APHIS veterinary shipping permits for select agents, point of contact for all projects within the group involving select agents. Management included defining experimental parameters for outside collaborators as well as education of internal technical staff. • Led team in 5-7 concurrent research projects under the Genomics:GTL Project and the Environmental and Molecular Sciences Laboratory National User Facility Programs. • Served on the William R. Wiley Environmental Molecular Sciences Laboratory biological safety committee responsible for training with regard to various pathogens and autoclave use. • Establish training program and wiki using MediaWiki for research group's mass spectrometers and software. Present new material to classroom audiences regularly. • Prepare regular progress reports for internal use and to external funding agencies to secure renewal of grant awards, and ensured project milestones were completed by deadlines. Prepare and submit original manuscripts based on research • Present research findings and significance to

collaborators and research teams by conference calls, classroom conferences, national conferences and international conferences.

Washington State University, Department of Chemistry
2007-2009

Adjunct Faculty (concurrent with post-doctoral position at Pacific Northwest National Laboratory)

Design graduate course, Chemistry 510 - Introduction to Proteomics, and lecture on techniques and applications for the analysis of proteomes for 2 years, approximately 20 graduate students. • Develop curriculum for delivery of classroom and online coursework via multimedia distance learning between Washington State University TriCities and Pullman campuses which integrated research at Pacific Northwest National Laboratory into daily classroom activities to achieve inquiry-based classroom.

Texas A&M University, Veterinary Pathobiology
1998-2005

Graduate Research

Perform research under NIH Grant, Improved Brucella Vaccine Strains, to defined naturally occurring rough, cytotoxic mutants of Brucella melitensis, a human and animal health threat. • Specialty training in handling, administration, and maintenance of Category B, biological safety level 3 (BSL3), select agents and select agent facilities. • Presented research findings and significance to collaborators and research teams by conference calls, conferences and national seminars.

PROFESSIONAL ASSOCIATIONS

American Society for Microbiology
1999-current

American Biological Safety Association
2014-current

EDUCATION

Texas A&M University, College Station, TX
2005

Genetics

Area of specialization: microbial pathogens
Dissertation: *Brucella* LPS: Genetic analysis and role in host-agent interaction using brucellaphage BK2 to isolate new lipopolysaccharide deficient mutants

Bates College, Lewiston, ME
1996

Biological Chemistry

Honor's Thesis: Is there a link between host genetic background and susceptibility to *Porphyromonas gingivalis* induced periodontal disease?

SELECT HONORS AND AWARDS

NIH Ruth L. Kirschstein National Research Service Award
(Postdoctoral Fellowship)

2009-2012

USDA National Needs Graduate Fellowship

2000-2003

TECHNICAL SKILLS

Administrative: Application, knowledge of Biosafety in Microbiological and Biomedical Laboratories (BMBL) and NIH Office of Biotechnology Activities Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules.

Laboratory experience: Molecular biology, microbiology, genetics, and biochemistry including: cloning and subcloning, PCR, bacterial expression systems, restriction mapping, DNA extraction and purification, protein expression, transposon mutagenesis, proteomics, microscopy (light, fluorescent), Southern blotting, Western blotting, biohazards, vaccines, select agents, HPLC, mass spectrometry, protein purification

Cell Culture: Establishment of primary cultures, infection, invasion
Animal Models: Maintaining animal records, multiple injection/sampling routes, drug administration, multiple animal species
Software: Skilled in all basic computer business applications, statistics applications, some database applications, others for specific laboratory platforms (mass spectrometry, PCR systems and 2D gel analysis systems).

PUBLICATIONS

1. Dücken DD; Brown WC; Alperin DC; Brayton KA; Reif KE; **Turse JE**; Palmer GH; Noh SM. Subdominant outer membrane antigens in *Anaplasma marginale*: conservation, antigenicity, and protective capacity using recombinant protein. *Submitted to PLoS October 10, 2014, currently in revision.*
2. Mudenda L; Aguilar-Pierle S; **Turse JE**; Scoles GA; Purvine SO; Nicora CD; Clauss TR; Ueti MW; Brown WC; Brayton K. [Proteomics informed by transcriptomics identifies novel secreted proteins in *Dermacentor andersoni* saliva.](#) *Int. J. for Parasitology.* Accepted July 14, 2014.
3. **Turse JE**, Scoles GA, Deringer JR, Fry LM, Brown WC. [Immunization-induced *Anaplasma marginale*-specific T lymphocyte responses impaired by *A. marginale* infection are restored after eliminating the infection with tetracycline.](#) *Clin Vaccine Immunol.* 2014. doi: 10.1128/CVI.00246-14. PubMed PMID: 25008904.
4. Noh SM, **Turse JE**, Brown WC, Norimine J, Palmer GH. [Linkage between *Anaplasma marginale* outer membrane proteins enhances immunogenicity but is not required for protection from challenge.](#) *Clin Vaccine Immunol.* 2013;20(5):651-6. doi: 10.1128/CVI.00600-12. PubMed PMID: 23446216; PubMed Central PMCID: PMC3647754.
5. Albarrak SM, Brown WC, Noh SM, Reif KE, Scoles GA, **Turse JE**, Norimine J, Ueti MW, Palmer GH. [Subdominant antigens in bacterial vaccines: AM779 is subdominant in the *Anaplasma marginale* outer membrane vaccine but does not associate with protective immunity.](#) *PLoS One.* 2012;7(9):e46372. doi: 10.1371/journal.pone.0046372. PubMed PMID: 23029498; PubMed Central PMCID: PMC3460813.
6. Adams LG, Khare S, Lawhon SD, Rossetti CA, Lewin HA, Lipton MS, **Turse JE**, Wylie DC, Bai Y, Drake KL. [Enhancing the role of veterinary vaccines reducing zoonotic diseases of humans: linking systems biology](#)

- [with vaccine development.](#) Vaccine. 2011;29(41):7197-206. doi: 10.1016/j.vaccine.2011.05.080. PubMed PMID: 21651944; PubMed Central PMCID: PMC3170448.
7. Adams LG, Khare S, Lawhon SD, Rossetti CA, Lewin HA, Lipton MS, **Turse JE**, Wylie DC, Bai Y, Drake KL. [Multi-comparative systems biology analysis reveals time-course biosignatures of in vivo bovine pathway responses to *B. melitensis*, *S. enterica* Typhimurium and *M. avium* paratuberculosis.](#) BMC Proc. 2011;5 Suppl 4:S6. doi: 10.1186/1753-6561-5-S4-S6. PubMed PMID: 21645321; PubMed Central PMCID: PMC3108236.
 8. **Turse JE**, Pei J, Ficht TA. [Lipopolysaccharide-Deficient *Brucella* Variants Arise Spontaneously during Infection.](#) Front Microbiol. 2011;2:54. doi: 10.3389/fmicb.2011.00054. PubMed PMID: 21833310; PubMed Central PMCID: PMC3153030.
 9. **Turse JE**, Marshall MJ, Fredrickson JK, Lipton MS, Callister SJ. [An empirical strategy for characterizing bacterial proteomes across species in the absence of genomic sequences.](#) PLoS One. 2010;5(11):e13968. doi: 10.1371/journal.pone.0013968. PubMed PMID: 21103051; PubMed Central PMCID: PMC2980473.
 10. Henne KL, **Turse JE**, Nicora CD, Lipton MS, Tollaksen SL, Lindberg C, Babnigg G, Giometti CS, Nakatsu CH, Thompson DK, Konopka AE. [Global proteomic analysis of the chromate response in *Arthrobacter* sp. strain FB24.](#) J Proteome Res. 2009;8(4):1704-16. doi: 10.1021/pr800705f. PubMed PMID: 19231868.
 11. Callister SJ, McCue LA, **Turse JE**, Monroe ME, Auberry KJ, Smith RD, Adkins JN, Lipton MS. [Comparative bacterial proteomics: analysis of the core genome concept.](#) PLoS One. 2008;3(2):e1542. doi: 10.1371/journal.pone.0001542. PubMed PMID: 18253490; PubMed Central PMCID: PMC2213561.
 12. Pei J, **Turse JE**, Ficht TA. [Evidence of *Brucella abortus* OPS dictating uptake and restricting NF-kappaB activation in murine macrophages.](#) Microbes Infect. 2008;10(6):582-90. doi: 10.1016/j.micinf.2008.01.005.

PubMed PMID: 18457975; PubMed Central PMCID: PMC2752336.

13. Pei J, **Turse JE**, Wu Q, Ficht TA. [Brucella abortus rough mutants induce macrophage oncosis that requires bacterial protein synthesis and direct interaction with the macrophage.](#) Infect Immun. 2006;74(5):2667-75. doi: 10.1128/IAI.74.5.2667-2675.2006. PubMed PMID: 16622203; PubMed Central PMCID: PMC1459739.
14. Zhang X, Rao MN, Jones SR, Shao B, Feibush P, McGuigan M, Tzodikov N, Feibush B, Sharkansky I, Snyder B, Mallis LM, Sarkahian A, Wilder S, **Turse JE**, Kinney WA, Kjærsgaard HJ, Michalak RS. [Synthesis of squalamine utilizing a readily accessible spermidine equivalent.](#) The Journal of Organic Chemistry. 1998;63(23):8599-603. doi: 10.1021/jo981344z.

Book Chapters Henne KL, **Turse JE**, Nakatsu CH, Konopka AE. [Protein expression profile of an environmentally important bacterial strain: the chromate response of Arthrobacter species strain FB24.](#) Handbook of Molecular Microbial Ecology I: John Wiley & Sons, Inc.; 2011. p. 663-74.

Contact Me

```
[contact-form][contact-field label='Name' type='name'
required='1'/][contact-field label='Email Address'
type='email' required='1'/][contact-field
label='Comments/Questions' type='text'
required='1'/][[/contact-form]
```

Name(required)

Email(required)

Website

Comment(required)

Submit