CURRICULUM VITAE

Sandra Hope

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EMPLOYMENT AND POST-DOCTORAL EXPERIENCE

I am currently in a Professional Faculty position with Continuing Faculty Status as a full Professor at BYU. My duties are divided evenly between functions as the director of the RIC facility and teaching.

2016-present	Professor, Microbiology and Molecular Biology Department Brigham Young University
2004-present	Director, Research Instrumentation Core (RIC) Facility, College of Life Sciences Brigham Young University
2010-2016	Associate Professor, Microbiology and Molecular Biology Department Brigham Young University
2004-2010	Assistant Professor, Microbiology and Molecular Biology Department Brigham Young University
2003-2004	Research Associate, Microbiology, Immunology and Molecular Genetics Department University of Kentucky Medical School
2000-2003	Post-Doctoral Fellow, Microbiology, Immunology and Molecular Genetics Department University of Kentucky Medical School

EDUCATION

1994-2000	Ph.D., Veterinary Science; Virology & Immunology, Veterinary Science Department University of Kentucky College of Agriculture Dissertation: Development of a competitive reverse transcription PCR assay to quantify equine IFN-γ, IL-2, IL-4 and G3PDH. Preliminary study of equine arteritis virus (EAV) and cytokine responses in horses.
1992-1993	M.S., BioVeterinary Science; Virology & Biochemistry, Animal, Dairy & Vet. Sci. Dept. Utah State University Thesis: Inhibitors of equine arteritis virus replication.
1989-1992	B.A., German with Chemistry minor; Pre-veterinary medicine. Utah State University
2019-2021	M.B.A., Executive Program, Marriott School of Business Brigham Young University

PROFESSIONAL AFFILIATIONS

2009-	Cohort 2, Science Education Alliance (SEA-PHAGES), Howard Hughes Medical Institute
2010-2018	Member, International Society for Transgenic Technology
2007-2015	Executive Committee Member, Autumn Immunology Conference, Chicago
2003-	Member, American Association of Immunologists
1997-	Member, American Society for Microbiology
1993-2006	Associate Member, American Society for Virology

TEACHING EXPERIENCE

2004- Brigham Young University, Provo, Utah

Course		Credits	Hrs/wk	# semesters taught	# sections taught
MMBio194	Phage Hunters (team taught)	2	6	6	6
Bio241/MMBio241	Molecular & Cell Biol. Lab	1	3	15	68+37evening
MMBio121	General Biology: Health & Disease	3	3	4	4
MMBio261	Infection & Immunity	3	3	6	6
MMBio365	Advanced Lab Techniques	1	3	5	13
MMBio390R	Reading in Molecular Biol.	1	1	1	1
MMBio361	Infection & Immunity	4	4	5	5
MMBio463	Immunology	3	3	14	14
MMBio466	Virology Lab (team taught)	1	3	2	2
MMBio467/551R	Immunology Lab	1	3	14	14
MMBio490R/691R	Molecular Biology Seminar	1	1	1	1
MMBio494R	Mentored Research	Var.			42

1995-2000 Lexington Community College (LCC), Lexington, KY, Midway College Extension, Danville KY
Instructor in the Division of Biological Sciences and Nursing, LCC was affiliated with Univ. of KY

BSL 100	Human Anatomy & Physiology	3	3	14	14
BSL 100 lab	Human Anatomy & Physiology Lab	1	3	7	11
Bio 102	Human Ecology (non-sci. maj.)	3	3	1	1
Bio 103	Introductory Biology (non-sci. maj.)	3	3	1	1
Bio 195	Human Anatomy & Physiol. & Lab	4	6	1	1

RIC FACILITY DIRECTOR – Professional

2004- Management of the Research Instrumentation Core (RIC)

Equipment: flow cytometers, platereaders, spectrophotometry, fluorescent microscopy, centrifuges.

Duties: Purchase, maintain, and quality control-check equipment, train and manage technicians, maintain records for equipment usage and billing, prepare biannual audits, propose and implement changes. Train and provide consulting to students and faculty for equipment, protocols and data interpretation. Include RIC use in teaching: MMBio121, MMBio261, MMBio463, MMBio467, mentor for graduate and undergraduate students.

LEADERSHIP ACCOMPLISHMENTS AND SERVICE

2020- Associate Chair, Microbiology & Molecular Biology Dept., BYU
2019- Chair, University Vivarium Advisory Board, BYU
2012- Faculty Development Committee Member, Microbiology & Molecular Biology Dept., BYU
2018-2019 Member, University Vivarium Advisory Board, BYU
2015 Chair, Autumn Immunology Conference (early withdrawal from this position, served 3 months)
2014 Secretary, Autumn Immunology Conference
2013 Workshop Coordinator, Autumn Immunology Conference
2008-2012 Undergraduate Curriculum Committee Chair, Microbiology & Molecular Biology Dept., BYU
2008-2012 College Curriculum Committee Member, College of Life Sciences, BYU
2007-2015 Executive Committee Member, Autumn Immunology Conference
2007-2012 Undergraduate Program Coordinator, Autumn Immunology Conference
2007-2011 Computer Resources Committee Member, College of Life Sciences, BYU
2005-2017 Specific Pathogen-Free Animal Facility Advisory Committee Member, College of Life Sci., BYU
2004-2017 Core Facility Directors Committee Member, College of Life Sciences, BYU
2004-2007 Resource Committee Member, Microbiology & Molecular Biology Dept., BYU
2005, 2006 Workshop Chair, Innate Immunity, Autumn Immunology Conference, Chicago, IL
2004 SuperVision Certificate, Human Resources Supervisor Training Program, Univ. of Kentucky

TEACHING PUBLICATIONS

MMBio261 *Our Immune System and the Pathogens that Challenge Us: Foundations in Immunology, Virology, and Bacteriology*. (2019) Sandra Hope, Brian Poole, Great River Technol., online textbook, Kendall Hunt Publ. ISBN: 9781644961391

MMBio151 *Relevant Microbiology.* (2010) Don Breakwell, Sandra Burnett, Rich Robison, Paul Farnsworth. Great River Technol., online lab, Kendall Hunt Publ. ISBN: 978-1-61549-152-0

MMBio466 *Laboratory Exercises in Virology.* (2007) F. Brent Johnson, Sandra H Burnett

MMBio241 31 Video Tutorials for Molecular and Cellular Biology Lab. (2006) Sandra Burnett

MMBio467 *Immunology Lab Manual.* (2007) Sandra H Burnett

MMBio241 *Molecular and Cellular Biology Lab.* (2005) Sandra Burnett

SCHOLARSHIPS, HONORS AND AWARDS

2016	Outstanding Achievement in Technology Transfer, Brigham Young University
2014	Outstanding Teaching Award, College of Life Sciences, Brigham Young University
2012	Most Publication in ISI-listed Journals, Department of Microbiol. & Mol. Biol., BYU
2012	Highest Student Ratings in a 300-level Course, Department of Microbiol. & Mol. Biol., BYU
2010	Wiki Spirit Award, Science Education Alliance, Howard Hughes Medical Institute
2010	Phage Spirit Award, Science Education Alliance, Howard Hughes Medical Institute
2001-2003	NIH Research Training Grant in Microbial Pathogenesis, Univ. of Kentucky Medical School
2000-2001	NIH Research Training Grant in Cancer Etiology and Treatment, Univ. of KY Medical School

PROFESSIONAL DEVELOPMENT ACTIVITIES

Jul 2019-	Executive MBA program, Marriot School of Business, Brigham Young University
Jun 2014	SEA-PHAGES Advanced Phage Genomics Workshop, Howard Hughes Medical Institute
’12, ’13	Writing Matters Workshops, BYU University Writing
’11, ’12	Learning Suite Workshops, BYU Center for Teaching and Learning
Jun, Dec ’09	SEA-PHAGES In-situ and In-silico training sessions, Howard Hughes Medical Institute
’06, ’07, ’13	Participant, Publish and Flourish Writing Group, BYU Faculty Center
May 2006	BYU Writing Matters Faculty Workshop
Oct. 2005	Certified Operator, BD Biosciences FacsCanto Fluorescence Activated Cell Analyzer
Feb. 2005	Certified Operator, BD Biosciences digital FacsVantage SE Fluorescence Activated Cell Sorter
Jan. 2005	Certified Operator, MIDI, Inc. Gas Chromatography identification of bacterial cultures
2004-2005	BYU Faculty Development Seminar Series
Nov. 2004	Reinvention Center Meeting, Integrating Research into Undergraduate Education
Oct. 2004	Certified Operator, BD Biosciences analog FacsVantage SE Fluorescence Activated Cell Sorter
Feb. 2004	Univ. of Kentucky SuperVision, Human Resources Supervisor Training Program

INTELLECTUAL PROPERTIES (note that intellectual properties to date are in my former name Sandra H. Burnett)

U.S. Patent	“Methods and Devices for Charged Molecule Manipulation,” Aten, Q.T., Burnett, S.H., Howell, L.L., Jensen, B.D., assigned to Brigham Young University.
Example Provisional Patents Pending or Invention Disclosures Filed (8 of ~18)	“Inactivation of Bacterial Spores Using Phages That Bind” Hope, S., assigned to Brigham Young University.
	“System and Method for Treating a Disease or Bacterial Infection – Bystander Phage Therapy” Hope, S., assigned to Brigham Young University.
	“System and Method for Treating a Disease or Bacterial Infection” Hope, S., assigned to Brigham Young University.
	“Blood dopamine D2 receptors as biomarkers for brain dopamine” Hope, S., Burton GF, Steffensen SC, Assigned to Brigham Young University.
	“Cytoplasm-to-Organelle Macromolecule Transport via Nanolance-Generated Localized Intracellular Electric Field,” Quentin T. Aten, Regis A. David, Sandra H. Burnett, Brian D. Jensen and Larry L. Howell, assigned to Brigham Young University.
	“Pronuclear DNA Transfer via Nano-Featured Lance and Metamorphic Microelectromechanical System,” Quentin T. Aten, Sandra H. Burnett, Brian D. Jensen and Larry L. Howell, assigned to Brigham Young University.
	“Cell corrals designed to store cells during the cell manipulation processes,” Easter, M., Fazio, W., Aten, Q. Jensen, B., Howell, L., Burnett, S., assigned to Brigham Young University.
Transgenic Mouse Development	Transgenic mouse strain developed and donated to Jackson Laboratories: Macrophage Fas-Induced Apoptosis (Mafia) mice. Jackson stock number 005070. Strain: C57BL/6J-Tg(Csf1r-EGFP-NGFR/FKBP1A/TNFRSF6)2Bck/J

RESEARCH SUPPORT

2016-2017	$ 10,000	PI. Phage binding to *Paenibacillus larvae* spores, North American Pollinator Protection Campaign (NAPPC) Honey Bee Health Improvement Project Grant.
2014-2016	$200,000	Co-PI with J. Grose, D. Breakwell. Funding to perpetuate the "Phage Hunters" research program, private donation.
2012-2013	$ 16,000	Co-PI with J. Grose, D. Breakwell. A phage-based treatment for Fireblight and American Foulbrood. BYU Technology Transfer.
2012	$ 1,500	PI. Transgenic mouse rederivation project. NIH-University of Utah.
2011-2012	$ 49,950	Co-PI with L.Howell, B.Jensen (PI). Cytoplasm-to-Pronucleus and YAC
2011	$132,668	Nanoinjection. Nanoinjection and Cell Restraint Technologies. NanoInjection
2010-2011	$ 97,500	Technologies, LLC.
2010	$116,214	Co-PI with L.Howell, B.Jensen (PI). Development of Nanoinjection Prototypes
2009-2010	$127,386	and Protocols, Phases I, II, and III. NanoInjection Technologies, LLC.
2009-2012	Co-PI with D. Breakwell to join Science Education Alliance, National Research Genomics Initiative to setup and run "Phage Hunters" research program, Howard Hughes Medical Institute.	
2008-2009	$15,000 Office of Research and Creative Activity Mentoring Grant, Brigham Young Univ.	
2006-2007	$30,000 Office of Research and Creative Activity Mentoring Grant, Brigham Young Univ.	
2005-2006	$19,900 College of Biology and Agriculture Mentoring Grant, Brigham Young Univ.	

JOURNAL PUBLICATIONS

1. Scott Brady TS, Roll CR, Walker JK, Fajardo CP, Breakwell DP, Eggett DL, **Hope S** (2021) Phages Bind to Vegetative and Spore Forms of *Paenibacillus larvae* and to Vegetative *Brevibacillus laterosporus*. *Frontiers in Microbiology - Antimicrobials, Resistance and Chemotherapy*. In press.

2. Brown T, **Hope S,** Jensen B (2019) Fabrication and testing of a MEMS system for injection of DNA into plant cells. *Proceedings of ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.* IDETC2019-98019, 1-10.

3. Berg J, Merrill B, Breakwell D, **Hope S,** Grose J (2018) A PCR-based method for distinguishing between two common beehive bacteria, *Paenibacillus larvae* and *Brevibacillus laterosporus*. *Applied and Environmental Microbiology.* 84(22): e01886-18. doi: 10.1128/AEM.01886-18

4. Brady TS, Merrill BD, Hilton JA, Graves KA, Fajardo CP, **Hope S** (2018) Bystander Phage Therapy: Inducing Host-associated Bacteria to Produce Antimicrobial Toxins Against the Pathogen using Phages. *Antibiotics.* 7(4) 105. https://doi.org/10.3390/antibiotics7040105.

5. Merrill BD, Fajardo CP, Hilton JA, Payne AM, Ward AT, Walker AK, Dhalai A, Imahara C, Mangohig J, Monk J, Pascacio C, Rai P, Salisbury A, Velez K, Bloomfield TJ, Buhler B, Duncan SG, Furiman DA, George J, Graves K, Heaton K, Hill HL, Kim K, Knabe BK, Ririe DB, Rogers SL, Stamereilers C, Stevenson MB, Ward CS, Wright CK, Withers JM, Usher BK, Breakwell DP, Grose JH, **Hope S**, Tsourkas PK(2018) Complete genome sequences of eighteen Paenibacillus larvae phages from the Western United States. *Microbiology Resource Announcements.* 7 (13): e00966-18. doi: 10.1128/MRA.00966-18

6. Sharma R, Berg J, Choi M, Cowger A, Cozzens B, Duncan S, Fajardo C, Ferguson H, Galbraith T, Herring J, Hoj T, Durrant J, Hyde J, Jensen G, Ke SY, Killpack S, Kruger J, Lawrence E, Nwosu I, Tam T, Thompson D, Tueller J, Ward M, Webb C, Wood M, Wynne H, Yeates E, Baltrus D, Breakwell D, **Hope S**, Julianne Grose. (2018) Genome Sequences of Nine Erwinia amylovora Bacteriophages" *Microbiology Resource Announcements.* 7(14): e00944-18. doi: 10.1128/MRA.00944-18.

7. Stamereilers C, Fajardo C, Walker J, Mendez K, Castro-Nallar E, Grose J, **Hope S**, Tsourkas P (2018) Genomic analysis of 48 Paenibacillus larvae bacteriophages. *Viruses.* 10(7) 337. https://doi.org/10.3390/v10070377

8. Mitchell UH, Obray DJ, Hunsaker E, Garcia B, Clarke T, **Hope S** and Steffensen SC (2018) Peripheral Dopamine In Restless Legs Syndrome. *Frontiers in Neurology-Movement Disorders.* Mar. 15 https://doi.org/10.3389/fneur.2018.00155.

9. Walker J, Merrill B, Berg J, Dhalai A, Dingman D, Fajardo C, Graves K, Hill H, Hilton J, Imahara C, Knabe B, Mangohig J, Monk J, Mun H, Payne A, Salisbury A, Stamereilers C, Velez C, Ward A, Breakwell D, Grose J, **Hope S**, and Tsourkas P (2018) Complete genome sequences of Paenibacillus larvae phages BN12, Dragolir, Kiel007, Leyra, Likha, Pagassa, PBL1c, and Tadhana. *GenomeA.* Jun; 6: doi:10.1128/genomeA.01602-17.

10. Esplin I, Berg J, Sharma R, Jensen G, Bairett S, Ingersoll K, Kruger J, Peck M, Grossarth S, Wienclaw T, Harbaugh K, Ashcroft C, Taylor A, Smith H, Ransom E, Jarvis T, Jaen-Anieves D, Allen R, Bloomfield T, Bybee R, Duncan S, Fuhriman D, Knabe B, Pollock S, Ririe D, Rogers S, Stephenson M, Thompson S, Usher B, Wells M, Wright C, Hyde J, Choi M, Beatty N, Webb C, Hurst E, James B, Tatlow PJ, Payne A, Hilton J, Fajardo C, Merrill B, Ward A, Schoenhals J, Ward M, Jacobson C, Breakwell D, **Hope S**, Grose J (2017) Genome Sequences of 17 Novel Erwinia amylovora Bacteriophage. *GenomeA.* Nov.; 5:doi:10.1128/genomeA.00931-17.

11. Hanauera DI, Grahamb MJ, **SEA-PHAGES**, Betancurc L, Bobrownickib A, Cresawn SG, Garlenae RA, Jacobs-Sera D, Kaufmanne N, Pope WH, Russell DA, Jacobs Jr. WR, Sivanathang V, Asaig DJ, and Hatfull GF (2017) An inclusive Research Education Community (iREC): Impact of the SEA-PHAGES program on research outcomes and student learning. *PNAS*, www.pnas.org/cgi/doi/10.1073/pnas.1718188115.

12. Brady TS, Merrill BD, Hilton JA, Payne AM, Stephenson MB, **Hope S** (2017) Bacteriophages as an alternative to conventional antibiotic use for the prevention or treatment of Paenibacillus larvae in honeybee hives. *J. Invertebrate Pathology* 150:94-100.

13. Sessions JW, Armstrong DG, **Hope S**, Jensen BD (2017) A review of genetic engineering biotechnologies for enhanced chronic wound healing. *Exp. Dermatol.* (26) 179-185.

14. Esplin I, Berg J, Sharma R, Allen R, Arens D, Ashcroft C, Bairett S, Beatty N, Bickmore N, Bloomfield T, Brady TS, Bybee R, Carter J, Choi M, Duncan S, Fajardo C, Foy B, Fuhriman D, Gibby P, Grossarth S, Harbaugh K, Harris N, Hilton J, Hurst E, Hyde J, Ingersoll K, Jacobson C, James B, Jarvis T, Jaen-Anieves D, Jensen G, Knabe B, Kruger J, Merrill B, Pape J, Payne A, Payne D, Peck M, Pollock S, Putnam M, Ransom E, Ririe D, Robinson D, Rogers S, Russell K, Schoenhals J, Shurtleff C, Simister A, Smith H, Stephenson M, Staley L, Stettler J, Stratton M, Tateoka O, Tatlow PJ, Taylor A, Thompson S, Townsend M, Thurgood T, Usher B, Whitley K, Ward A, Ward M, Webb C, Wienclaw T, Williamson T, Wells M, Wright C, Breakwell D, **Hope S**, and Grose J (2017) Genome Sequences of 19 Novel Erwinia amylovora Bacteriophages. *Genome A*nnounce. 5 (46): e00931-17. doi: 10.1128/genomeA.00931-17.

15. Grose J, Kropinski AM, Adriaenssens EM, Kuhn JH, **Hope S** (2016). ICTV Taxonomic Proposal 2016.002a-dB.A.v1.Abouovirus. Create genus Abouovirus in the family Myoviridae, order Caudovirales. http://www.ictv.global/proposals-16/2016.002a-dB.A.v1.Abouovirus.pdf

16. Grose J, Kropinski AM, Adriaenssens EM, Kuhn JH, **Hope S** (2016). ICTV Taxonomic Proposal 2016.019a-dB.A.v1.Jimmervirus. Create genus Jimmervirus in the family Myoviridae, order Caudovirales. http://www.ictv.global/proposals-16/2016.019a-dB.A.v1.Jimmervirus.pdf

17. Grose J, Kropinski AM, Adriaenssens EM, Kuhn JH, **Hope S** (2016). ICTV Taxonomic Proposal 2016.018a-dB.A.v1.Jenstvirus. Create genus Jenstvirus in the family Siphoviridae, order Caudovirales. http://www.ictv.global/proposals-16/2016.018a-dB.A.v1.Jenstvirus.pdf

18. Sessions JW, Skousen CS, Price KD, Hanks BW, **Hope S**, Alder JK, Jensen BD (2016) CRISPR-Cas9 directed knock-out of a constitutively expressed gene using lance array nanoinjection. *SpringerPlus* 5:1521,1-11

19. Merrill BD, Ward AT, Grose JH, **Hope S** (2016) Software-based analysis of bacteriophage genomes, physical ends, and packaging strategies. *BMC Genomics* 17:679,1-16.

20. Berg JA, Merrill BD, Crockett JT, Esplin KP, Evans MR, Heaton KE, Hilton JA, Hyde JR, McBride MS, Schouten JT, Simister AR, Thurgood TL, Ward AT, Breakwell DP, **Hope S**, Grose JH (2016) Characterization of five novel Brevibacillus bacteriophages and genomic comparison of Brevibacillus phages. *PLOS One* 11(6);e016838,1-24.

21. Sessions J, Lewis T, Skousen C, **Hope S**, Jensen B (2016) The effect of injection speed and serial injection on propidium iodide entry into cultured HeLa and primary neonatal fibroblast cells using lance array nanoinjection. *SpringerPlus* 5:1093,1-18.

22. Sessions JW, Lindstrom DL, Hanks BW, **Burnett SH**, Jensen BD (2016) The Effect of Lance Geometry and Carbon Coating of Silicon Lances on Propidium Iodide Uptake in Lance Array Nanoinjection of HeLa 229 Cells. *J. Micromechanics and Microengineering* 26(4):1-10.

23. Grose JH, Merrill BD, Berg, JA, Graves KA, Ward AT, Hilton JA, Wake BN, Breakwell DP, **Burnett SH** (2015) Genome Sequences of Five Additional Brevibacillus laterosporus Bacteriophages. *Genome Announc.* Sep-Oct; 3(5): e01146-15.

24. Lewis TE, **Burnett SH**, Jensen BD (2015) Injection Force Effects on Propidium Iodide Uptake in Nanoinjected HeLa Cells. *Proc. ASME Internat. Design Engineering Technical Conferences*. Aug. DETC2015-47630.

25. Sheflo MA, Gardner AV, Merrill BD, Fisher JNB, Lunt BL, Breakwell DP, Grose JH, **Burnett SH** (2015) Correction for Sheflo et al., Complete Genome Sequences of Five Brevibacillus laterosporus Bacteriophages. *Genome Announc.* Sept/Oct; (3), doi:10.1128/genomeA.01113-15

26. Cresawn SG, Pope WH, Jacobs-Sera D, Bowman CA, Russell DA, Dedrick RM, Adair T, Anders KR, Ball S, Bollivar D, Breitenberger C, **Burnett SH**, Butela K, Byrnes D, Carzo S, Cornely K, Cross T, Daniels RL, Dunbar D, Findley AM, Gissendanner C, Golebiewska UP, Hartzog GA, Hatherill JR, Hughes LE, Jalloh CS, Khambule SL, King RA, King-Smith C, Klyczek K, Krukonis GP, Laing C, Lapin JS, Lopez AJ, Mkhwanazi SM, Molley S, Moran D, Munsamy V, Pacey E, Plymake R, Poxleitner M, Reyna N, Schildbach JF, Stukey J, Taylor SE, Ware VC, Wellmann A, Westholm D, Wodarski D, Zajko M, Zikalala TS, Hendrix RW, Hatfull GF (2015) Comparative Genomics of Cluster O Mycobacteriophages. *PLOS One* Mar. 5, 1-27. DOI:10.1371/journal.pone.0118725.

27. Grose JH, Jensen GL, **Burnett SH** and Breakwell DP (2014) Genomic Comparison of 93 Bacillus Phages Reveals 12 Clusters 13 singletons and Remarkable Diversity. *BMC Genomics* 15(855) 1-20. doi: 10.1186/1471-2164-15-855.

28. Merrill BD, Grose JH, Breakwell DP, **Burnett SH** (2014) Characterization of Paenibacillus larvae bacteriophages and their genomic relationships to firmicute bacteriophages. *BMC Genomics* 15(745) 1-18. doi:10.1186/1471-2164-15-745.

29. Lindstrom ZK, Brewer SJ, Easter MA, Jensen BD, **Burnett SH** (2014) Injections of propidium iodide into HeLa culture cells using a nanoinjection lance array. *Proc. ASME 7th Internat. Conf. Micro- Nanosys.*, DETC2013-13281, V001T09A004; 1-6.

30. Grose JH, Belnap DM, Jensen JD, Mathis MD, Prince JT, Merrill B, **Burnett SH**, Breakwell DP (2014) The Genomes, Proteomes and Structure of Three Novel Phages that Infect the Bacillus Cereus Group and Carry Putative Virulence Factors. *J. Virol.* 88(20); 11846-11860.

31. Toone NC, Fazio WC, Lund JM, Teichert GH, Jensen BD, **Burnett SH**, Howell LL. (2014) Investigation

of Unique Carbon Nanotube Cell Restraint Compliant Mechanisms. *Mechanics-based Design of Structures and Machines* 42(3) 1-12.

32. Aten AQ, Jensen BD, **Burnett SH**, Howell LL (2014) A self-reconfiguring metamorphic nanoinjector for injection into mouse zygotes. *Rev. Sci. Instruments* 85(5)055005-055005-10.

33. Jordan TC, **Burnett SH**, Carson S, Caruso SM, Clase K, DeJong RJ, Dennehy JJ, Denver DR, Dunbar D, Elgin SCR, Findley AM, Gissendanner CR, Golebiewska UP, Guild N, Hartzog GA, Grillo WH, Hollowell GP, Hughes LE, Johnson A, King RA, Lewis LO, Li W, Vazquez E, Ware VC, Barker LP, Bradley KW, Jacobs-Sera D, Pope WH, Russel DA, Cresawn SG, Lopatto D, Bailey CP, Hatfull GF. (2014) A Broadly Implementable Research Course in Phage Discovery and Genomics for First-Year Undergraduate Students. *mBio* 5(1). Doi:10.1128/mBio.01051-13.

34. Grose JH, Jensen JD, Merrill BD, Fisher JNB, **Burnett SH**, Breakwell DP. (2014) The Genomes of Three Novel Bacillus cereus Bacteriophages. *Genome Announc.* Jan/Feb 2014 (2)1:doi:10.1128/genomeA.01118-13.

35. Hatfull GF, Science Education Alliance Phage Hunters Advancing Genomics and Evolutionary Science (**SEA-PHAGES**) Program, KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) Mycobacterial Genetics Course, University of California—Los Angeles Research Immersion Laboratory in Virology, Phage Hunters Integrating Research and Education (PHIRE) Program (2013) Complete Genome Sequences of 63 Mycobacteriophages. *Genome Announc.* Nov./Dec. 2013; 1:doi:10.1128/ genomeA. 00847-13.

36. Breakwell DP, Barrus EZ, Benedict AB, Brighton AK, Fisher JNB, Gardner AV, Kartchner BJ, Ladle KC, Lunt BL, Merrill BD, Morrell JD, **Burnett SH**, Grose JH (2013) Genome Sequences of Five B1 Subcluster Mycobacteriophages *Genome Announc.* Nov/Dec 2013 1:e00968-13; doi:10.1128/genomeA.00968-13.

37. Sheflo MA, Gardner AV, Merrill BD, Fisher JNB, Lunt BL, Breakwell DP, Grose JH, **Burnett SH** (2013) Complete Genome Sequences of Five Paenibacillus larvae Bacteriophages. *Genome Announc.* Nov/Dec 2013 1:e00668-13; doi:10.1128/genomeA.00668-13.

38. Burnett WJ, Lee CJ, Merrill BD, **Burnett SH.** (2013) Utah's Red Honey. *Bee Culture*. Nov. 37-39.

39. Lee CJ, Merrill BD, Burnett WJ, **Burnett SH.** (2013) Catch the Buzz - Utah Honey has Beekeepers Seeing Red. *Bee Culture*. Sept. 12, 2013.

40. **Burnett SH**, Jensen BD (2013) Nanotechnology for genetic engineering in agriculture. *ISB News Report Agricultural and Environmental Biotechnology* Jun; 5-8.

41. Smith KC, Castro-Nallar E, Fisher JNB, Breakwell DP, Grose JH, **Burnett SH** (2013) Phage cluster relationships identified through single gene analysis. *BMC Genomics* 14:410.

42. Wilson AM, Aten QT, Toone NC, Black JL, Jensen BD, Tamowski S, Howell LL, **Burnett SH** (2013) Transgene delivery via intracellular electroporetic nanoinjection. *Transgenic Res*. 22:993-1002.

43. Teichert GH, Aten QT, Easter M, **Burnett SH**, Jensen BD, Howell LL (2012) A Metamorphic Erectable Cell Restraint (MECR). *Proceedings of the ASME 2012 International Mechanical Engineering Congress & Exposition*, Chicago, IL.

44. Aten QT, Jensen BD, Tamowski S, Wilson AM, Howell LL, **Burnett SH** (2012) Nanoinjection: Pronuclear DNA Delivery using a Charged Lance. *Transgenic Res.*, 21(6)**,** 1279-1290.

45. Hatfull, **et al.** (2012) Complete genome sequences of 138 mycobacteriophages. *J. Virology,* 86(4) 2382.

46. David RA, Jensen BD, Black JL, **Burnett SH**, Howell LL. (2012) Study of design parameters affecting the motion of DNA for nanoinjection. *J. Micromech. Microeng.,* 22 (5), 055006.

47. Teicher GH, Aten QT, **Burnett SH**, Howell LL, Jensen BJ. (2012) Cylindrical Single-Degree-of-Freedom Spatial Mechanisms for Cell Restraint. *J. Mech. Robotics*, Vol. 4, 021011.1-021011.9.

48. Aten QA, Jensen BD, **Burnett SH**, Howell LL. (2011) Electrostatic accumulation and release of DNA using a micromachined Lance. *J. Microelectromechanical Systems*, **20**, 1449-1461.

49. David RA, Jensen BD, Black JL, **Burnett SH**, Howell LL. (2011) Effects of dissimilar electrode material and electrode position on DNA motion during electrophoresis. *J. Nanotechnology in Engineering and Medicine*, **2** (2), 021014.1-021014.6.

50. Fernelius MH, Toone NC, Jensen BD, **Burnett SH**, Howell LL. (2011) Preliminary Studies of Stand-Alone Lance Concepts for Nanoinjection of DNA, *Proceedings of the ASME 2011 International Mechanical Engineering Congress & Exposition*, Denver, CO, IMECE2011-64026.

51. David RA, Jensen BD, Black JL, **Burnett SH**, and Howell LL. (2010) Modeling and experimental validation of DNA motion in uniform and non-uniform DC electric fields. *J. Nanotechnology in Engineering and Medicine*, **1**(4), 041007-041015.

52. Steel CD, Kim WK, Sanford LD, Wellman LL, **Burnett SH**, Van Rooijen N, Ciavarra RP. (2010) Distinct macrophage subpopulations regulate viral encephalitis but not viral clearance in the CNS. *J. Neuroimmunology.* **226** (1-2), 81-92.

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57. Schwertfeger KL, Xian W, Kaplan AM, **Burnett SH**, Cohen DA, Rosen JM. (2006) A critical role for the inflammatory response in a mouse model of preneoplastic progression. *Cancer Res.* **66(11)**, 5676-5685.

58. Philipovskiy AV, Cowan C, Wulff-Strobel CR, **Burnett SH**, Kerschen EJ, Cohen DA, Kaplan AM, Straley SC. (2005) Antibody against V antigen prevents Yop-dependent growth of Yersinia pestis. *Infect. Immun.* **73(3)**, 1532-1542.

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INVITED PRESENTATIONS

1. *The Next Generation in Disease Control.* (2019) Interview by Gerry Hayes and written presentation for Beeculture Magazine.

2. *Phage Treatment for American Foulbrood* (2019) Wasatch Beekeepers' Association, Salt Lake City, UT

3. *American Foul Brood; a cure on the horizon, no more bonfires.* (2018) Keynote speaker, Wyoming Bee College Conference, Cheyenne, WY.

4. *Bee Safe Phage Therapy for the Control of American Foulbrood (Paenibacillus larvae) in Honeybees* (2017) United States Food and Drug Administration, Washington, D.C.

5. *Phage Treatment for American Foulbrood* (2017) Utah Beekeepers' Association Convention, Lehi, UT

6. *Phage Treatment for American Foulbrood* (2016) Wyoming Beekeepers Association, Casper, WY.

7. *Finding Phages to Fight American Foulbrood.* (2016) Virus Structure and Assembly Conference, Federation of American Societies for Experimental Biology, Steamboat, CO.

8. *Microfabricated Lance Array Nanoinjection system delivers CRISPR-Cas9 to hundreds of thousands of cells simultaneously*. (2016) International Transgenic Technologies Society 13th Conference, Prague, Czech Republic.

9. *Research on the use of Phages to Prevent and Treat American Foulbrood.* (2016) American Honey Producers Association Annual Convention. Albuquerque, NM.

10. *A Pollinators Buzz, The state of the Bee Hive State.* (2015) Horticulture Inspection Society, Western Chapter Conference, Salt Lake City, UT.

11. *BYU Phage Therapy for American and European Foulbrood Update.* (2015) Annual Utah Bee Inspector Meeting, Utah Department of Agriculture and Food, Salt Lake City, UT.

12. *Finding Phages to Treat American Foulbrood.* (2015) American Honey Producers Association Annual Convention. Manhattan Beach, CA.

13. *Studies from the Beehive: Phages, Phamerator, and Phashionable Genes*. (2014) School of Life Science, Seminar Series speaker, University of Nevada, Las Vegas, NV.

14. *BYU Phage Therapy for American and European Foulbrood Update.* (2014) Annual Utah Bee Inspector Meeting, Utah Department of Agriculture and Food, Salt Lake City, UT.

15. *The buzz about Paenibacillus larvae phages.* (2014) 6th Annual SEA-Phages Symposium, Symposium speaker, Ashburn, VA.

16. *Phage Therapy for American Foulbrood in Honeybees.* (2013) Annual Utah Bee Inspector Training Meeting, Utah Department of Agriculture and Food, Salt Lake City, UT.

17. *Regulation of hematopoiesis by macrophages in a transgenic mouse model.* (2007) Biology Department Seminar Series speaker, Utah Valley State College, Orem, UT.

18. *iLecture: Make your Own PodCast Lecture for Class*. (2008) Conference workshop, American Society for Microbiology Conference for Undergraduate Educators, Beverley, MA

GENBANK PUBLICATIONS

The following are GenBank publications of complete phage genomes (82 total). All genomes include full genomes (not genome fragments) with complete annotation of all genes and identification of any present tRNAs. Genomes were peer reviewed by GenBank prior to acceptance and publication.

	Year	Phage	Accession #	Authors
1	2018	SunLIRen (E. amylovora phage)	MH426725	Sharma,R., Ke,K., Breakwell,D.P., Hope,S. and Grose,J.H.

2	2018	Pavtok (E. amylovora phage)	MH426726	Sharma,R., Hughes,J., Breakwell,D.P., Hope,S. and Grose,J.H.
3	2018	DevRi (P. larvae phage)	MH431933	Ririe,D.B., Buhler,B., Salisbury,A., Pascacio,C., Stamereilers,C., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
4	2018	Arcticfreeze (P. larvae phage)	MH431932	Wright,C.K., Walker,J.K., Withers,J.M., Monk,J.R., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
5	2018	Wellington (E. amylovora phage)	MH426724	Sharma,R., James,B., Berg,J.A., Breakwell,D.P., Hope,S. and Grose,J.H.
6	2018	Gryphonian (P. larvae phage)	MH431934	Usher,B.K., George,J., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
7	2018	Toothless (P. larvae phage)	MH454084	Heaton,K.E., Velez,K., Merrill,B.D., Ward,A.T., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
8	2018	Saudage (P. larvae phage)	MH454083	Duncan,S.G., Pascacio,C., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
9	2018	Genki (P. larvae phage)	MH454082	Stevenson,M.B., Imahara,C., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
10	2018	LincolnB (P. larvae phage)	MH454081	Merrill,B.D., Payne,A.M., Hilton,J.A., Ward,A.T., Fajardo,C.P., Dhalai,A., Mangohig,J., Hope,S. and Tsourkas,P.K.
11	2018	Jacopo (P. larvae phage)	MH454079	Ward,C.S., Monk,J.R., Kim,M., Walker,J.K., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
12	2018	Eltigre (P. larvae phage)	MH454078	Merrill,B.D., Payne,A.M., Hilton,J.A., Ward,A.T., Fajardo,C.P., Rai,P., Hope,S. and Tsourkas,P.K.
13	2018	Bloom (P. larvae phage)	MH454077	Bloomfield,T.J., Dhalai,A., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
14	2018	Lucielle (P. larvae phage)	MH431937	Rogers,S.L., Monk,J.R., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
15	2018	Kawika (P. larvae phage)	MH431936	Furiman,D.A., Rai,P., Ward,A.T., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
16	2018	Honeybear (P. larvae phage)	MH431935	Hilton,J.A., Merrill,B.D., Payne,A.M., Ward,A.T., Fajardo,C.P., Dhalai,A., Hope,S. and Tsourkas,P.K.
17	2018	Yerffej (P. larvae phage)	MH431931	Merrill,B.D., Payne,A.M., Hilton,J.A., Ward,A.T., Fajardo,C.P., Imahara,C., Hope,S. and Tsourkas,P.K.
18	2018	Wanderer (P. larvae phage)	MH431930	Merrill,B.D., Payne,A.M., Hilton,J.A., Ward,A.T., Fajardo,C.P., Velez,K., Hope,S. and Tsourkas,P.K.
19	2018	Likha (P. larvae phage)	MG727702	Hill,H.L., Walker,J.K., Mun,H., Merrill,B.D., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
20	2018	Leyra (P. larvae phage)	MG727701	Knabe,B.K., Walker,J.K., George,J., Merrill,B.D., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
21	2018	Tadhana (P. larvae phage)	MG727700	Payne,A.M., Merrill,B.D., Graves,K., Velez,K., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Walker,J.K., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
22	2018	Pagassa (P. larvae phage)	MG727699	Merrill,B.D., Graves,K., Salisbury,A., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Walker,J.K., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
23	2018	Kiel007 (P. larvae phage)	MG727696	Graves,K., Dhalai,A., Stamereilers,C., Merrill,B.D., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Walker,J.K., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
24	2018	BN12 (P. larvae phage)	MG727695	Payne,A.M., Imahara,C., Merrill,B.D., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Walker,J.K., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
25	2018	PBL1c (P. larvae phage)	MG727698	Dingman,D., Mangohig,J., Merrill,B.D., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Walker,J.K., Bakhiet,N., Field,C., Stahly,D.P., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
26	2018	Dragolir (P. larvae phage)	MG727697	Merrill,B.D., Monk,J., Ward,A.T., Berg,J.A., Hilton,J.A., Fajardo,C.P., Walker,J.K., Breakwell,D.P., Grose,J.H., Hope,S. and Tsourkas,P.K.
27	2018	Ley (P. larvae phage)	MH454080	Merrill,B.D., Payne,A.M., Hilton,J.A., Ward,A.T., Fajardo,C.P., Salisbury,A., Hope,S. and Tsourkas,P.K.
28	2018	Ash (P. larvae phage)	MH454076	Payne,A.M., Merrill,B.D., Hilton,J.A., Ward,A.T., Fajardo,C.P., Dhalai,A., Stamereilers,C., Hope,S. and Tsourkas,P.K.
29	2018	C7Cdelta	MH431938	Merrill,B.D., Payne,A.M., Hilton,J.A., Ward,A.T., Fajardo,C.P., Mangohig,J., Hope,S. and

		(P. larvae phage)		Tsourkas,P.K.
30	2018	Alexandra (E. amylovora phage)	MH248138	Cowger,A.E., Thompson,D.W., Sharma,R., Herring,J.A., Hoj,T.R., Killpack,S., Lawrence,E., Nwosu,I., Roark,B.J., Tueller,J.A., Choi,M.C., Ferguson,H.P., Kruger,J.L., Hope,S., Breakwell,D.P. and Grose,J.H.
31	2018	Yoloswag (E. amylovora phage)	KY448244	Pollock,S.V., Berg,J.A., Esplin,I.N.D., Hurst,E., Kruger,J.L., Sharma,R., Grose,J.H., Breakwell,D.P. and Hope,S.
32	2018	Asesino (Erwinia phage)	KX397364	Berg JA, Hyde JR, Breakwell DP, Hope S, Grose JH.
33	2017	RisingSun (E. amylovora phage)	MF459646	Putnam,M.J., Sharma,R., Kruger,J.L., Berg,J.A., Payne,A.M., Fajardo,C.P., Breakwell,D.P., Hope,S. and Grose,J.H.
34	2017	Joad (E. amylovora phage)	MF459647	Bickmore,M.X., Vaden,K., Brady,T.S., Arens,D.K., Tateoka,O.B., Carter,J.L., Pape,J.A., Robinson,D.M., Russell,K.A., Staley,L.A., Stettler,J.M., Townsend,M.H., Wienclaw,T., Williamson,T.L., Kruger,J.L., Berg,J.A., Sharma,R., Payne,A.M., Fajardo,C.P., Breakwell,D.P., Hope,S. and Grose,J.H.
35	2017	Mortimer (E. amylovora phage)	MG655270	Sharrma,R., Ferguson,H.P., Berg,J.A., Jensen,G.L., Keele,B.R., Ward,M.E.H., Breakwell,D.P., Hope,S. and Grose,J.H.
36	2017	Special G (E. amylovora phage)	KU886222	Sharma,R., Grossarth,S.E., Foy,B., Harbaugh,K., Ingersoll,K., Berg,J.A., Jarvis,T.M., Esplin,I.N.D., Merrill,B.D., Schoenhals,J., Breakwell,D.P., Hope,S. and Grose,J.H.
37	2017	Ray (E. amylovora phage)	KU886224	Sharma,R., Esplin,I.N.D., Berg,J.A., Jensen,G.L., Keele,B.R., Ward,M.E.H., Breakwell,D.P., Hope,S. and Grose,J.H.
38	2017	Simmy50 (E. amylovora phage)	KU886223	Sharma,R., Simister,A.R., Berg,J.A., Jensen,G.L., Keele,B.R., Ward,M.E.H., Breakwell,D.P., Hope,S. and Grose,J.H.
39	2017	Smairt (Mycobacteriophage)	MF668283	Tso,M.S., Paredes,A., Zierold,M.E., Delesalle,V.A., Grose,J., Hope,S., Breakwell,D., Delesalle,V.A., Garlena,R.A., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
40	2017	Apocalypse (Mycobacteriophage)	MF668267	Loney,R.E., Wentworth,H.A., Hanna,I.R., Delesalle,V.A., Grose,J., Hope,S., Breakwell,D., Garlena,R.A., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
41	2016	Petruchio (Mycobacteriophage)	KY213952	King,R.D., Delesalle,V.A., Grose,J., Hope,S., Breakwell,D., Garlena,R.A., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
42	2016	Sabinator (Mycobacteriophage)	KX808129	Wagner,J.D., Albritton,V.D., Beach,M.O., Bonner,C.T., Green,C.T., Harrell,M.L., Holder,G.D., Juneau,A.C., Labat,G.M., Lawrence,S.M., McCurry,A.D., Mouawad,M.A., Myers,D.S., Nowell,A.J., Palowsky,Z.R., Peoples,M.D., Peterson-Gross,L.E., Rizzo,E.R., Rybicki,S.K., Thomas,C., Vu,J.V., West,N., Williams,D.A., Morgan,G.B., Alonzo,F.L., Allison,W.D., Gissendanner,C.R., Findley,A.M., Sabin,D.S., Fisher,J.N., Lunt,B.L., Payne,D.E., Breakwell,D.P., Burnett,S.H., Klyczek,K., Garlena,R.A., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
43	2015	phiN3 (Sinorhizobium phage)	NC_028945	Hodson,T.S., Hyde,J.R., Schouten,J.T., Crockett,J.T., Smith,T.A., Merrill,B.D., Crook,M.B., Griffitts,J.S., Burnett,S.H., Grose,J.H. and Breakwell,D.P.
44	2015	phiM19 (Sinorhizobium phage)	KR052481	Crockett,J.T., Hodson,T.S., Hyde,J.R., Schouten,J.T., Smith,T.A., Merrill,B.D., Crook,M.B., Griffitts,J.S., Burnett,S.H., Grose,J.H. and Breakwell,D.P.
45	2015	phiM7 (Sinorhizobium phage)	KR052480	Schouten,J.T., Crockett,J.T., Hodson,T.S., Hyde,J.R., Smith,T.A., Merrill,B.D., Crook,M.B., Griffitts,J.S., Burnett,S.H., Grose,J.H. and Breakwell,D.P.
46	2015	Jenst (B. laterosporus phage)	KT151955	Taylor, A.S., Wienclaw, T.M., Schoenhals, J. E., Graves, K.A., Merrill, B.D., Ward, A.T., Esplin, I.D., Breakwell, D.P., Grose J.H. and Burnett, S.H.
47	2015	Osiris (B. laterosporus phage)	KT151956	Newey, E.N., Schouten, J., McBride, M.S., Hilton J.A., Heaton, K.E., Crockett, J.T., Esplin, K.P., Hyde, J.R., Brundage, B.M., Thurgood, T.L., Evans, M.R., Simister, A.R., Merrill, B.D., Ward, A.T., Burg, J.A., Schoenhals, J. E., Graves, K.A., Breakwell, D.P., Grose J.H. and Burnett, S.H.
49	2015	SecTim467 (B. laterosporus phage)	KT151957	Beckstead, A.P., Schouten, J., McBride, M.S., Hilton J.A., Heaton, K.E., Crockett, J.T., Esplin, K.P., Hyde, J.R., Brundage, B.M., Thurgood, T.L., Evans, M.R., Simister, A.R., Merrill, B.D., Ward, A.T., Burg, J.A., Schoenhals, J. E., Gardner, A.V., Graves, Breakwell, D.P., Grose J.H. and Burnett, S.H.
50	2015	Powder (B. laterosporus phage)	KT151958	Wienclaw, T.M., Kruger, J.L., Bairett, S.R., Ingersoll, K., Grossarth, S.E., Ransom, E.K., Berg, J.A. Harbaugh, K., Jensen, G.L., Ashcroft, C.R., Taylor, A.S., Graves, K.A., Schoenhals, J. E., Esplin, I.D., Merrill, B.D., Ward, A.T., Breakwell, D.P., Grose J.H. and Burnett, S.H., Bradley, K.W., Clarke, D.Q., Lewis, M.F., Barker, L.P., Bailey, C., Asai, D.J., Garber, M.L., Bowman, C.A., Russell, D.A., Pope, W.H., Jacobs-Sera, D., Hendrix, R.W., and Hatfull, G.F.
51	2015	Sundance (B. laterosporus phage)	KT151959	Wienclaw, T.M., Burg, J.L., Graves, K.A., Hilton, J.A., Buckley, A.L., Ward, A.T., Merrill, B.D., Grose J.H.,Breakwell, D.P., and Burnett, S.H., Bradley, K.W., Clarke, D.Q., Lewis, M.F., Barker, L.P., Bailey, C., Asai, D.J., Garber, M.L., Bowman, C.A., Russell,

52	2014	Phantastic (Mycobacteriophage)	KJ510415	D.A., Pope, W.H., Jacobs-Sera, D., Hendrix, R.W., and Hatfull, G.F. Meadows,H.N., Fisher,J.N.B., Gardner,A.V., Merrill,B.D., Hartmann,K.A., Bailey,M.E., Beckstead,A.P., Deus,L.M., Earl,A.S., Easter,R.A., Gibby,P.D., Graves,K.A., Ayer,P.A., Heiner,M.E., Herring,J.A., Jaen,A.D., Liu,J.E., Manci,A.M., Nielsen,D.A., Paz,H.C., Sabin,N.R., Solomon,M.B., Sutter,R.A., Wake,B.N., Willyerd,H.J., Zimmerman,L.J., Breakwell,D.P., Burnett,S.H., Grose,J.H., Bradley,K.W., Clarke,D.Q., Lewis,M.F., Barker,L.P., Bailey,C., Asai,D.J., Garber,M.L., Bowman,C.A., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
53	2013	Jimmer1 (B. laterosporus phage)	KC595515	Sheflo,M.A., Gardner,A.V., Merrill,B.D., Fisher,J.N., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
54	2013	Jimmer2 (B. laterosporus phage)	KC595514	Sheflo,M.A., Gardner,A.V., Merrill,B.D., Fisher,J.N., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
55	2013	Abouo (B. laterosporus phage)	KC595517	Sheflo,M.A., Gardner,A.V., Merrill,B.D., Fisher,J.N., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
56	2013	Davies (B. laterosporus phage)	KC595518	Sheflo,M.A., Gardner,A.V., Merrill,B.D., Fisher,J.N., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
57	2013	Emery (B. laterosporus phage)	KC595516	Sheflo,M.A., Gardner,A.V., Merrill,B.D., Fisher,J.N., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
58	2013	JL (B. cereus phage)	KC595512	Lloyd,J., Fisher,J.N.B., Gardner,A.V., Hallam,S.J., Jensen,J.D., Pettersson,S.M., Smith,C., Sullivan,S., Brighton,A.K., Sheflo,M.A., Burnett,S.H., Breakwell,D.P. and Grose,J.H.
59	2013	Basilisk (B. cereus phage)	KC595511	Jensen,J.D., Fisher,J.N.B., Gardner,A.V., Irons,D.L., Lloyd,J., Pettersson,S.M., Smith,C., Sullivan,S., Brighton,A.K., Sheflo,M.A., Burnett,S.H., Breakwell,D.P. and Grose,J.H.
60	2013	Shanette (B. cereus phage)	KC595513	Pettersson,S.M., Fisher,J.N.B., Gardner,A.V., Hallam,S.J., Jensen,J.D., Lloyd,J., Smith,C., Sullivan,S., Brighton,A.K., Sheflo,M.A., Burnett,S.H., Breakwell,D.P. and Grose,J.H.
61	2013	Adawi (Mycobacteriophage)	KF279411	Adawi,E.C., Merrill,C.A., Sargent,C.J., Fisher,J.N., Gardner,A.V., Lunt,B.L., Merrill,B.D., Breakwell,D.P., Burnett,S.H. and Grose,J.H.
62	2013	Bane1 (Mycobacteriophage)	KF279412	Marlow,S., Merrill,C.A., Sargent,C.J., Fisher,J.N., Gardner,A.V., Lunt,B.L., Merrill,B.D., Burnett,S.H., Grose,J.H. and Breakwell,D.P.
63	2013	Bane2 (Mycobacteriophage)	KF279413	Gardner,A.V., Merrill,C.A., Sargent,C.J., Fisher,J.N., Lunt,B.L., Merrill,B.D., Burnett,S.H., Grose,J.H. and Breakwell,D.P.
64	2013	Fredward (Mycobacteriophage)	KF279414	Ladle,K.C., Fisher,J.N.B., Gardner,A.V., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
65	2013	Quink (Mycobacteriophage)	KF279417	Vance,K.S., Kiser,C.D., Earl,A.S., Hansen,A.W., Merrill,C.A., Sargent,C.J., Fisher,J.N., Gardner,A.V., Lunt,B.L., Merrill,B.D., Breakwell,D.P., Burnett,S.H. and Grose,J.H.
66	2013	PhrostyMug (Mycobacteriophage)	KF279415	Hansen,A.W., Irons,D.L., Sargent,C.J., Fisher,J.N., Gardner,A.V., Lunt,B.L., Merrill,B.D., Payne,I.D.A.V.I.D., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
67	2013	SargentShorty9 (Mycobacteriophage)	KF279416	Sargent,C.J., Merrill,C.A., Fisher,J.N., Gardner,A.V., Lunt,B.L., Merrill,B.D., Payne,I.D., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
68	2013	Anubis (Mycobacteriophage)	NC_029018	Jackson, KR, Lunt, BL, Fisher, JN, Garner, AV, Bailey, ME, Deus, LM, Earl, AS, Gibby, PD, Hartmann, KA, Liu, JE, Manci, AM, Nielsen, DA, Solomon, MB, Breakwell, DP, Burnett, SH, and Grose, JH.
69	2013	Alex (Mycobacteriophage)	JX649100	Benedict,A.B., Fisher,J.N.B., Gardner,A.V., Lunt,B.L., Payne,D.E., Burnett,S.H., Breakwell,D.P. and Grose,J.H.
70	2013	Gyarad (Mycobacteriophage)	JX649099	Ladle,K.C., Fisher,J.N.B., Gardner,A.V., Lunt,B.L., Breakwell,D.P., Grose,J.H. and Burnett,S.H.
71	2013	Nacho (Mycobacteriophage)	JX649098	Kartchner,B.J., Fisher,J.N.B., Gardner,A.V., Lunt,B.L., Grose,J.H., Burnett,S.H. and Breakwell,D.P.
72	2013	Piglet (Mycobacteriophage)	JX649097	Barrus,E.Z., Adawi,E.C., Kennedy,A.K., Poe,D.E., Williams,K.R., Fisher,J.N.B., Gardner,A.V., Merrill,B.D., Grose,J.H., Burnett,S.H. and Breakwell,D.P.
73	2013	Serpentine (Mycobacteriophage)	JX649096	Brighton,A.K., Fisher,J.N.B., Gardner,A.V., Lunt,B.L., Breakwell,D.P., Burnett,S.H. and Grose,J.H.
74	2012	Aeneas (Mycobacteriophage)	JQ809703	Morrell,J.D., Brighton,A.K., Fisher,J.N.B., Sheflo,M.A., Adawi,E.C., Christiansen,M.R., Ferguson,N.C., Gardner,A.V., Irons,D.L., Jensen,J.D., Kennedy,A.K., Lloyd,J.S., Marlow,S.C., Mason,S.J., McCord,T.M., Merrill,B.D., Nelson,E.P., Norton,C.S., Pettersson,S.M., Poe,D.E., Russell,R.C., Smith,T.C., Sullivan,S., Williams,K.R., Breakwell,D.P., Grose,J.H., Burnett,S.H., Wang,X., Crowell,R., Bostrom,M.A., Burke,M., Wright,G.M., Gregory,S.G.,Colman,S.D., Bradley,K.W., Khaja,R., Lewis,M.F.,

				Barker,L.P., Asai,D.J., Bowman,C.A., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
75	2012	Fezzik (Mycobacteriophage)	JN600672	Woodward,T.J., Daetwyler,M.E., Fisher,J.N.B., Lunt,B.L., Sheflo,M.A., Payne,D.E. II, Breakwell,D.P., Burnett,S.H. and Grose,J.H.
76	2012	KLucky39 (Mycobacteriophage)	JF704099	Haskell,K.J., Giri,I., Issac,T.F., Liechty,Z.S., Daetwyler,M.E., Bull,L.A., Payne,D.E. II, Lunt,B.L., Argueta,L.B., Bajgain,P., Benedict,A.B., Earley,B.J., Engle,J.M., Fisher,J.N., Greenhalgh,E., Hansen,A.W., Ladle,K.C., Petersen,S.K., Sabin,D.S., Sargent,C.J., Severson,M.C., Smith,K.C., Taylor,M.A., Woodward,T.J., Wright,B.A., Burnett,S.H., Breakwell,D.P., Zhang,X., Meincke,L.J., Goodwin,L.A., Detter,J.C., Han,S., Green,L.D., Bradley,K.W., Khaja,R., Lewis,M.F., Barker,L.P., Jordan,T.C., Russell,D.A., Leuba,K.D., Fritz,M.J., Bowman,C.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
77	2012	Nepal (Mycobacteriophage)	JQ698665	Bajgain,P., Fisher,J.N.B., Lunt,B.L., Sheflo,M.A., Brighton,A.K., Adawi,E.C., Christiansen,M.R., Ferguson,N.C., Gardner,A.V., Irons,D.L., Jensen,J., Kennedy,A., Lloyd,J.S., Marlow,S., Mason,S.J., McCord,T.M., Merrill,B.D., Nelson,E.P., Norton,C.S., Pettersson,S.M., Poe,D.E., Russell,R.C., Smith,T.C., Sullivan,S., Williams,K.R., Burnett,S.H., Breakwell,D.P. and Grose,J.H.
78	2012	Shauna1 (Mycobacteriophage)	JN020141	Sheide,M.G., Fisher,J.N., Lunt,B.L., Smith,K.C., Taylor,M.A., Baker,B., Barrus,E.Z., Brighton,A.K., Chapman,K.M., Drake,E.A., Jackson,K.R., Kartchner,B.J., Kiser,C.D., Kiser,J.T., Kitchen,J.C., McDaniel,S.W., Ormsby,W.R., Parker,M., Steck,R.P., Vance,K.S., Breakwell,D.P., Burnett,S.H., Grose,J.H., Wang,X., Crowell,R., Burke,M., Wright,G.M., Gregory,S.G., Colman,S.D., Bradley,K.W., Khaja,R., Lewis,M.F., Barker,L.P., Jordan,T.C., Russell,D.A., Pope,W.H., Jacobs-Sera,D., Hendrix,R.W. and Hatfull,G.F.
79	2012	TA17A (Mycobacteriophage)	JN400277	Lunt,B.L., Payne,D.E., Fisher,J.N.B., Smith,K.C.B., Taylor,M.R., Baker,B., Barrus,E.Z., Brighton,A.K., Chapman,K.M., Drake,E.A., Jackson,K.R., Kartchner,B.J., Kiser,C.D., Kiser,J.T., Kitchen,J.C.B., Mcdaniel,S.W., Ormsby,W.R., Parker,M., Sheide,M.G., Steck,R.P., Vance,K.S., Breakwell,D.P., Burnett,S.H. and Grose,J.H.
80	2011	AnnaL29 (Mycobacteriophage)	JN572060	Lunt,B.L., Sheflo,M.A., Fisher,J.N.B., Breakwell,D.P., Burnett,S.H. and Grose,J.H.
81	2011	JEBEKS (Mycobacteriophage)	JN572061	Earley,B.J., Engle,J.M., Smith,K.C., Lunt,B.L., Fisher,J.N.B., Payne,D.E. II, Breakwell,D.P., Burnett,S.H. and Grose,J.H.
82	2010	Redrock (Mycobacteriophage)	GU339467	Jacobs-Sera,D., Zellars,M., Wells,M.E., Webb,J.L., Ware,V.C., Vazquez,E., TamarapuParthasarathy,P., Smith,I.A., Simon,S.E., Shaffer,C.D., Rubin,M.R., Rosenzweig,R.F., Rinehart,C.A., Qin,H., Pillay,I., Payne,D.E. II, Padolina,J.M., Novick,P.A., Miller,E.S., Mayer,E.S., Marzillier,J.Y., Mageeney,C.M., MacGibeny,M.A., Li,W., Lee,J.Y., Kinnersley,M.A., King-Smith,C., King,R.A., Kenna,M.A., Kearse,M.G., Johnson,B.K., Johnson,A.A., Johnson,C.M., Hughes,L.E., Harrison,M., Guild,N.A., Gilbert,J.L., Fillman,C.L., Felton,C.M., Dunbar,D.A., Dennehy,J.J., DeJong,R.J., Carson,S., Burnett,S.H., Breakwell,D.P., Berrios,J.E., Benjamin,R.C., Anderson,J.J., Bradley,K.W., Khaja,R., Lee,E., Barker,L.P., Lewis,M.F., Jordan,T.C., Cresawn,S.G., Grace,M.A., Pope,W.H., Ko,C., Russell,D.A., Peebles,C.L., Lawrence,J.L., Hendrix,R.W. and Hatfull,G.F.

RESEARCH PRESENTATIONS (presenters in bold)

1. **Obray JD**, Brundage J, Clarke T, Stockard A, Richmond B, Hope S, Yorgason JT, Steffensen SC (2019) Acute ethanol influences monocyte infiltration of CNS and alters microglia phenotype. Abstract in *Alcoholism: Clinical and Experimental Research*

2. **Monroe JA**, Bowden L, Hope S, Jensen BD, Bowden AE (2019) Carbon-infiltrated carbon nanotube surface enhancement of stainless steel stimulates adhesion in human osteoblasts. Orthopaedic Research Society, Phoenix, AZ.

3. **Roll CR,** Arnold C, Obray JD, Steffensen SC, Mitchell UH, Hope S (2019) Effect of Parkinson's Disease on expression of dopamine D2 receptors in peripheral blood leukocytes. ASM Intermountain Branch Meeting, Brigham Young University, Provo, UT.

4. **Roll CR,** Arnold C, Obray JD, Steffensen SC, Mitchell UH, Hope S (2018) Effect of Parkinson's Disease on expression of dopamine D2 receptors in peripheral blood leukocytes. Autumn Immunology Conference, Chicago, IL.

5. **Obray JD,** Parsons M, Lattin J, Clarke T, Jang EY, Hope S, Yang CH, Yorgason JT and Steffensen SC. (2018) Ethanol enhancement of dopamine release in the nucleus accumbens and ethanol reward is mediated by peripheral neuroimmune interactions. *Alcoholism: Clin. Exp. Res.* 42(S1) 032.

6. **Clarke T,** Obray JD, Brundage J, Lattin J, Williams S, Yorgason JT, Hope S and Steffensen SC (2018) Acute ethanol increases monocyte infiltration of CNS and influences microglia phenotype. *Alcoholism: Clin. Exp. Res.* 42(S1) 021.

7. **Fajardo C**, Meredith S, Roll C, Griffitts JS, Hope S, Grose JH, and Breakwell DP. (2018) Proof of Concept: Determining Phage Adsorption Using Flow Cytometry. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

8. **Whitlock T**, Greene N, Creaser I, Knowles A, Karlinsey D, Nelson N, Barton K, Bateman J, Quist N, Hendrickson J, Ellis K, Chamberlain N, Jenkins J, Fajardo C, Fuhriman DA, Griffitts JS, Hope S, Grose JH, and Breakwell DP. (2018) The genomes of CW76, a unique phage, and XTREME, a T4-like phage infecting Sinorhizobium meliloti. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

9. **Creaser I**, Knowles A, Karlinsey D, Nelson N, Barton K, Bateman J, Quist N, Hendrickson J, Ellis K, Chamberlain N, Fajardo C, Fuhriman DA, Griffitts JS, Hope S, Grose JH, and Breakwell DP (2018) Host Range and Receptor Binding of 13 Newly-Isolated Phages Infecting Sinorhizobium meliloti. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

10. **Anderson K**, Barker A, Carroll M, Hogan T, Nieman T, Parsons M, Simister A, Steffensen A, Todd J, Breakwell DP, Hope S and Grose JH (2018) Screening for antibiotic-resistance genes in a sewage phage population. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

11. **Melhado E**, Chow J, Wiley M, Sarabia R, Standing N, Breakwell DP, Hope S and Grose JH (2018) Isolation and Characterization of Sewage Phages. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

12. **Hyer MG**, Call JJ, Dawson DD, Chronis JD, Ayala MA, Finnegan Z, Fox A, Hielscher T, Yeates EL, Breakwell DP, Hope S and Grose JH (2018) Identification of promiscuous sewage phage. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

13. **Potts E**, Sirrine M, Meeks T, Rodriguez W, Wilkey A, Tovar K, Porter M, Lambert A, Yeates E, Breakwell DP, Hope S and Grose JH (2018) Safe and effective phage therapy. ASM Tri-Branch Meeting, Fort Lewis College, Durango, CO.

14. **Brady S,** Hope S (2017) *Phage binding to Paenibacillus larvae spores.* Oral Presentation. North American Pollinator Protection Campaign, Washington, D.C.

15. **Gregory N,** Warner N, Hanks B, Jensen B, Hope S (2017) *Measurement of Nanoinjection Delivery Through Radiotagged DNA and Enucleation.* Oral Presentation. ASME Design Engineering Technical Conference, Cleveland, OH.

16. **Williams SB**, Pistorius SS, Anderson EQ, Clarke DR, Clarke TJ, Hope S, Steffensen SC (2017) *Acute ethanol activates microglia and affects the excitability of ventral tegmental area neurons.* Society of Neuroscience, Washington D.C.

17. Obray D, **Clarke T**, Jang EY, Garcia B, Klomp A, Richardson Al, Payne A, Hope S, Yang CH, Yourgason J, Steffensen SC (2017) *Ethanol enhancement of dopamine release in the nucleus accumbens and ethanol reward are mediated by peripheral neuroimmune interactions.* Society of Neuroscience, Washington D.C.

18. **Obray D,** Jang EY, Garcia B, Payne A, Hope S, Yang CH, Yorgason J, Steffensen SC (2017) *Ethanol enhancement of dopamine release.* Alcoholism: Clin & Exp Res. Denver, CO.

19. **Duncan S, Hurst E**, Berg J, Ward A, Hilton J, Breakwell D, Grose J, Hope S. (2016) *Paenibacillus Larvae Phages Contain Regions of Conserved Synteny Despite Large Genomic Differences.* Poster presentation. 8th Annual SEA-Phages Symposium, Ashburn, VA.

20. Harris N, Hurst E, James B, Pollock SV, Smith H, **Webb CJ**, Berg J, Fajardo C, Hilton J, Ward A, Breakwell D, Gross J, Hope S. (2016) *Genomic Characterization of Honeybear and Related Phage Toothless*. ASM Intermountain Branch Meeting, University of Utah, Salt Lake City, UT.

21. **Steffensen SC**, Jang EU, Park HJ, Garcia B, Burton GF, Burnett SH, Lee JG, Yang CH. (2015) *Dopamine D2 receptors as peripheral biomarkers for brain dopamine levels and as targets for modulating brain dopamine.* Society for Neuroscience, Chicago, IL. *Soc. Neurosci Absts.* (40) 780.16.

22. **Hilton JA**, Merrill BD, Graves KA, Wake BN, Ward AT, Payne AM, Grose JH, Breakwell DP, Burnett SH. (2015) *Isolation of Bacteriophages Against P. larvae, the Cause of American Foulbrood in Honeybees*. 21st Biennial Evergreen International Phage Meeting, Olympia, WA.

23. **Berg J**, Esplin ID, Brundage BM, Crockett JT, Esplin KP, Evans MR, Heaton KE, Hilton JA, Hyde JR, McBride MS, Schouten JT, Simister AR, Thurgood TL, Merrill BD, Ward AT, Breakwell DP, Burnett SH, and Grose JH. (2015*) Isolation of Isolation and Characterization of Paenibacillus larvae and Brevibacillus laterosporus Bacteriophages to Understand Their Evolutionary Relationship.* Poster presentation. 7th Annual SEA-Phages Symposium, Ashburn, VA.

24. **Hilton JA**, Schouten JT, Berg JA, Merrill BD, Ward AT, Breakwell DP, Grose JH, Burnett SH. (2015) *Discovery of Two Novel Phage Clusters in Brevibacillus laterosporus Using Comparative Genomics.* ASM Intermountain Branch Meeting, Fort Lewis College, Durango, CO.

25. **McBride MS**, Evans MR, Brundage BM, Merrill BD, Berg JA, Ward AT, Grose JH, Breakwell DP, Burnett SH. (2015) *Comparing Protein Structures of a Transcriptional Regulator Repeated in Brevibacillus Phages.* ASM Intermountain Branch Meeting, Fort Lewis College, Durango, CO.

26. **Crockett JT**, Esplin KP, Hyde JR, Merrill BD, Berg JA, Ward AT, Breakwell DP, Grose JH, Burnett SH. (2015) *Brevibacillus Bacteriophages Xane and Jenst Reveal a DNA Motif Indicating a Gene Regulatory Sequence.* ASM Intermountain Branch Meeting, Fort Lewis College, Durango, CO.

27. **Thurgood T**, Simister A, Heaton K, Merrill BD, Berg JA, Ward AT, Grose JH, Breakwell DP, Burnett SH. (2015) *Comparison of Brevibacillus laterosporus phages in an effort to more fully understand the genomic evolutionary changes that have occurred and effects on related organisms.* ASM Intermountain Branch Meeting, Fort Lewis College, Durango, CO.

28. **Jensen GL**, Berg JA, Esplin ID, Foy BM, Grossarth SE, Harbaugh K, Ingersoll K, Kruger JL, Peck MD, Ransom EK, Smith HG, Stratton JL, Breakwell DP, Burnett SH, Grose JH. (2014*) Isolation and characterization of eleven phages that infect Erwinia amylovora.* Oral presentation. 6th Annual SEA-Phages Symposium, Ashburn, VA.

29. **Wienclaw TM**, Taylor AS, Bairett SR, Ashcroft CR, Merrill BD, Schoenhals JE, Esplin ID, Breakwell DP, Grose JH, and Burnett SH. (2014) *Phage Jenst provides a unique genome with gene products new to Paenibacillus larvae phages.* Poster presentation. 6th Annual SEA-Phages Symposium, Ashburn, VA.

30. **Jang EU**, Folsom RJ, Linzey J, Friend L, Burnett SH, Steffensen SC. (2014) *Rapid adaptation of dopamine D2 receptors in brain and blood following acute ethanol administration.* Society for Neuroscience, Washington DC, *Soc. Neurosci. Absts,* (39) 53.9.

31. **Taylor AS**, Bairett SR, Wienclaw TM, Ashcroft CR, Esplin ID, Schoenhals JE, Merrill BD, Breakwell DP, Grose JH, Burnett SH. (2014) *Isolation and Characterization of Paenibacillus larvae Bacteriophage Jenst.* ASM Intermountain Branch Meeting, Brigham Young University, Provo, UT.

32. **Ransom E**, Berg J, Grossarth S, Smith H, Anieves D, Esplin ID, Merrill BD, Schoenhals JE, Breakwell DP, Burnett SH, Grose JH. (2014) *Comparative Genome Analysis of Seven Novel Erwinia Phages Reveals Orthologous Proteins and Allows for Formation of a Cluster with Three Known Enterobacteriaceae Phages.* ASM Intermountain Branch Meeting, Brigham Young University, Provo, UT.

33. **Stratton M**, Harbaugh K, Foy B, Anieves D, Paz H, Shurtleff C, Kruger J, Peck M, Jensen G, Esplin ID, Merrill BD, Schoenhals JE, Breakwell DP, Burnett SH, Grose JH. (2014) *Discovery and Genomic Analysis of an N4-like Erwinia amylovora Phage.* ASM Intermountain Branch Meeting, Brigham Young University, Provo, UT.

34. **Ingersoll K**, Jensen G, Kruger J, Foy B, Grossarth S, Harbaugh K, Paz H, Esplin ID, Schoenhals JE, Merrill BD, Burnett SH, Breakwell DP, Grose JH. (2014) *Isolation and Characterization of Deimos-Minion, the Largest Erwinia amylovora Bacteriophage.* ASM Intermountain Branch Meeting, Brigham Young University, Provo, UT.

35. **Schoenhals JE, Merrill BD**, Graves KA, Grose JH, Burnett SH, Breakwell DP. (2014) *DNA packaging strategies for bacteriophages identified using phylogenetic analysis of large terminase proteins.* ASM Intermountain Branch Meeting, Brigham Young University, Provo, UT.

36. **Lindstrom ZK**, Brewer SJ, Easter MA, Jensen BD, and Burnett SH. (2013) *Simultaneous multi-cell injections of propidium iodide into HeLa cells using a nanoinjection lance array.* ASME Global Congress on Nanoengineering for Medicine and Biology, Boston, MA.

37. **Merrill BD**, Sheflo MA, Ayer PA, Beckstead AP, Fajardo CP, Ferguson NC, Fisher JNB, Gardner AV, Graves KA, Hartmann KA, Kennedy AK, Liu JE, Lunt BL, Merrill CA, Russell RC, Wake BN, WilliamsKR, Zimmerman LJ, Grose JH, Breakwell DP, Burnett SH. (2013) *Discovery and Characterization of Novel Paenibacillus larvae Bacteriophages.* 5th Annual SEA-Phages Symposium, Ashburn, VA.

38. **Herring JA**, Deus LM, Manci AM, Meadows HN, Heiner ME, Willyerd HJ, Gardner AV, Fisher JNB, Smith K, Grose JH, Breakwell DP, Burnett SH. (2013) *Phage cluster and subcluster identification using Tape Measure Protein primers in a PCR reaction.* 5th Annual SEA-Phages Symposium, Ashburn, VA.

39. **Merrill BD**, Sheflo MA, Ayer PA, Beckstead AP, Fajardo CP, Ferguson NC, Fisher JNB, Gardner AV, Graves KA, Hartmann KA, Kennedy AK, Liu JE, Lunt BL, Merrill CA, Russell RC, Wake BN, WilliamsKR, Zimmerman LJ, Grose JH, Breakwell DP, Burnett SH. (2013) *Discovery and Characterization of Novel Paenibacillus larvae Bacteriophages.* ASM Intermountain Branch Meeting, Idaho State Univ., Pocatello, ID.

40. **Gardner AV**, Adawi EC, Christiansen MR, Ferguson NC, Irons DL, Jensen J, Kennedy A, Lloyd JS, Marlow S, Mason S, McCord TM, Merrill BD, Nelson EP, Norton CS, Pettersson SM, Poe DE, Russell RC, Smith TC, Sullivan S, Williams KR, Morrell JD, Fisher JNB, Brighton AK, Sheflo M, Breakwell DP, Burnett SH, and Grose JH. (2012) *Proposal for A1 Subcluster Division and Evidence of Evolutionary Events in B1 and B4 Subcluster Phage*. Howard Hughes Medical Institute Fourth Annual Phage Symposium, Ashburn, VA.

41. **Ferguson NC**, Irons DL, Marlow SC, McCord TM, Brighton AK, Fisher JNB, Sheflo MA, Breakwell DP, Grose JH, Burnett SH. (2012) *Division of the Mycobacteriophage A1 Subcluster Based on Phylogenetic Comparison.* ASM Intermountain Branch Meeting, Idaho State University, Pocatello, ID.

42. **Mason SJ**, Gardner AV, Nelson EP, Christiansen MR, Brighton AK, Fisher JNB, Sheflo MA, Breakwell DP, Grose JH, Burnett SH. (2012) *Mislabeling of the Second Tape Measure Protein.* ASM Intermountain Branch Meeting, Idaho State University, Pocatello, ID.

43. **Jensen JD**, Merrill BD, Russell RC, Smith TC, Brighton AK, Fisher JNB, Sheflo MA, Breakwell DP, Burnett SH, Grose JH. (2012) *Phylogenetic Origin of Glutaredoxin Gene Shared by Mycobacteriophage A1 Sub-cluster, Distantly Related Bacteria, and other bacteriophages.* ASM Intermountain Branch Meeting, Idaho State University, Pocatello, ID.

44. **Lloyd JS**, Norton CS, Sullivan S, Pettersson SM, Fisher JNB, Brighton A, Sheflo MA, Breakwell DP, Erickson DL, Burnett SH, Grose JH. (2012) *Lack of Correlation between Phage Clusters and Ecoregions in the United States.* ASM Intermountain Branch Meeting, Idaho State University, Pocatello, ID.

45. **Williams KR**, Adawi EC, Kennedy AK, Poe DE, Brighton AK, Fisher JNB, Sheflo MA, Breakwell DP, Burnett SH, and Grose JH. (2012) *Divergent evolution of a RuvC holliday junction resolvase in the B1 subcluster.* ASM Intermountain Branch Meeting, Idaho State University, Pocatello, ID.

46. **Gardner AV**, Brighton AK, Fisher JNB, Sheflo MA, Breakwell DP, Grose JH, Burnett SH. (2012) *Environmental Effect on Phage Genomes: Analysis of the B4 Subcluster.* ASM Intermountain Branch Meeting, Idaho State University, Pocatello, ID.

47. **Brighton AK**, Fisher JNB, Lunt BL, Taylor MA, Smith KC, Baker B, Barrus EZ, Chapman KM, Drake EA, Jackson KR, Kartchner BJ, Kiser CD, Kiser JT, Kitchen JCB, McDaniel SW, Ormsby WR, Parker M, Sheide MG, Steck RP, Vance KS, Breakwell DP, Burnett SH, and Grose JH. (2011) *Additional Evidence for Frameshifts in A2 and Gene Mosaicism in F Mycobacteriophage.* Howard Hughes Medical Institute Third Annual Phage Symposium, Ashburn, VA.

48. Grose JH, **Breakwell DP**, Burnett SH. (2011) *Out of the SEA: Getting Students to Crawl on Land.* Howard Hughes Medical Institute Third Annual Phage Symposium, Ashburn, VA.

49. **Wilson A**, Aten Q, Jensen B, Howell L, Tamowski S, Burnett S. (2011) *Next Generation pronuclear injection: MEMS replaces the pump*. Transgenic Research 20(5), p. 1159. Presented at the Tenth Transgenic Technology Meeting, St. Pete Beach, FL.

50. **Brighton AK**, Vance KS, Parker M, Jackson KR, Steck RP, Ormsby WR, Taylor MA, Fisher J, Lunt BL, Burnett SH, Grose SH, Breakwell DP. (2011) *Gene Mosaicism Demonstrated in Mycobacteriophage Shauna1*. ASM Intermountain Branch Meeting, Weber State University, Ogden, UT.

51. **Barrus EZ**, Sheide MG, Taylor MA, Fisher JNB, Lunt BL, Burnett SH, Grose JH, Breakwell DP. (2011) *Shauna1 Mycobacteriaphage holin gene confirms common ancestry of all F cluster phage.* ASM Intermountain Branch Meeting, Weber State University, Ogden, UT.

52. **Kartchner BJ**, Kiser JT, Kiser CD, McDaniel SW, Taylor MA, Fisher JNB, Lunt BL, Burnett SH, Grose JH, Breakwell DP. (2011) *Clustering of Mycobacteriophage in the Utah Landscape.* ASM Intermountain Branch Meeting, Weber State University, Ogden, UT.

53. **Smith KC**, Burnett SH, Grose JH, Breakwell DP. (2011) *Degenerate PCR Primers to Identify Mycobacterio-phage Clusters and Sub-Clusters.* ASM Intermountain Branch Meeting, Weber State University, Ogden, UT.

54. **Chapman KM**, Baker B, Drake EA, Kitchen JCB, Taylor MA, Fisher JNB, Lunt BL, Burnett SH, Grose JH, Breakwell DP. (2011) *TA17A: A Unique Member of the Mycobacteriophage Sub-Cluster A2.* ASM Intermountain Branch Meeting, Weber State University, Ogden, UT.

55. **Kitchen JCB**, Brighton AK, Chapman KM, Baker B, Taylor, Fisher JNB, Lunt BL, Burnett SH, Grose JH, Breakwell DP. (2011) *Morphological Traits of Mycobacteriophage Clusters and Sub-Clusters.* ASM Intermountain Branch Meeting, Weber State University, Ogden, UT.

56. **Burnett SH**, Aten Q, David R, Howell L, Jensen B. (2010) *Zygote restraint and DNA delivery without a holding pipette or a microinjection pump*. LDS Life Science Research Symposium, Park City, UT.

57. **Black JL**, Howell L, Jensen B, Burnett SH. (2010) *Pronuclear Migration in the Mouse Zygote Indicates a Bi-phasic Movement of the Female Pronucleus.* LDS Life Science Research Symposium, Park City, UT.

58. **Burnett SH**, Aten Q, David R, Howell L, Jensen B. (2010) *Zygote restraint and DNA delivery without a holding pipette or a microinjection pump*. Transgenic Research 19(2), p. 325. Oral Presentation at the Ninth Transgenic Technology Meeting, Berlin, Germany.

59. **Breakwell DP**, Burnett SH. (2010) *Data Overload: Letting Freshmen Students "Have At" Mycobacteriophage Lab Work and Comparative Genomics.* Howard Hughes Medical Institute NGRI Second Annual Symposium, Ashburn, VA.

60. **Sargent CJ**, Payne II DE, Lunt BL, Argueta LB, PB, Benedict AB, Bull LA, Daetwyler ME, Earley BJ, Engle JM, Fisher JNB, Giri I, Greenhalgh E, Hansen AW, Haskell KJ, Issac TF, Liechty ZS, Petersen SK, Sabin DS, Severson MC, Smith KC, Taylor MAR, Woodward TJ, Wright BA, Burnett SH, Breakwell DP. (2010) *Genomic Analysis of the Newly-Isolated Subcluster B1 Mycobacteriophage KLucky39 Reveals a Novel Putative Peptidase and a Primase, the Lack of Five Anticipated Genes, and the Relationship of KLucky39 to Other Phage*. Howard Hughes Medical Institute NGRI Second Annual Symposium, Ashburn, VA.

61. **Smith KC**, Daetwyler ME, Liechty ZS, Severson MC, Wright B, Lunt BL, Payne II DE, Breakwell DP, Burnett SH. (2010) *Tape Measure Protein in Mycobacteriophage KLucky39 Shows Evolution of Phage Clusters*. American Society for Microbiology Intermountain Branch Meeting, Provo, UT.

62. **Argueta L**, Petersen S, Sabin D, Sargent C, Taylor MA, Lunt BL, Payne II DE, Breakwell DP, Burnett SH. (2010) *Addition of Novel Mycobacteriophage to Pre-existing Subclusters of the B Cluster.* American Society for Microbiology Intermountain Branch Meeting, Provo, UT.

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