

CURRICULUM VITAE

Laura Clarke Bridgewater, Ph.D.

Associate Academic Vice President—Faculty Development, Brigham Young University
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EDUCATION

The George Washington University, Washington, D.C., 1989-1995
Ph.D. in Genetics, 1995
Academic Emphases: Molecular Biology, Gene Regulation, Developmental Biology

Brigham Young University (BYU), Provo, Utah, 1985-1989
B.S. in Microbiology, 1989

EMPLOYMENT HISTORY

Associate Academic Vice President for Faculty Development, BYU, 2018-present
Professor, Dept. of Microbiology & Molecular Biology, BYU, 2016-2018
Visiting Researcher, School of Life Science and Biotechnology, Shanghai Jiao Tong University, Shanghai, China working with Liping Zhao, Ph.D., 2014-2015
Associate Professor, Dept. of Microbiology and Molecular Biology, BYU, 2005-2016
Assistant Professor, Dept. of Microbiology & Molecular Biology, BYU, 2001-2005
Assistant Professor, Dept. of Zoology, BYU, 1999-2001
Postdoctoral Fellow, Dept. of Molecular Genetics, M.D. Anderson Cancer Center, Houston, Texas, P.I.: Benoit de Crombrughe, M.D., 1996-1999
Postdoctoral Fellow, Human Genetics Center, University of Texas Health Science Center at Houston, P.I.: Craig L. Hanis, Ph.D., 1995-1996
Graduate Research Assistant, Dept. of Pharmacology, The George Washington University Medical Center, Advisor: Steven R. Patierno, Ph.D., 1990-1995
Intern, NICHD, National Institutes of Health, Advisor: William A. Gahl, M.D./Ph.D., 1988
Research Assistant, Department of Zoology, BYU, Advisor: Robert E. Seegmiller, Ph.D., 1987-1989

UNIVERSITY CITIZENSHIP AND SERVICE

Associate Academic Vice President—Faculty Development, BYU, 2018-present
Responsibilities and accomplishments include the following:
Chair, University Professorial Faculty Council on Rank and Status
Chair, University Professional Faculty Council on Rank and Status
Coordinate independent examinations of the Academic Vice President's decisions regarding rank and status
Oversaw a major revision of the university's Rank and Status Policy
Oversee annual faculty stewardship reviews including conflict disclosures
Guide and support department chairs and deans as they conduct post-CFS reviews
Chair, University Faculty Development Council
Oversaw a substantial revision of the Parental Leaves section of the Faculty Leaves Policy
Review and approve faculty leave applications, including parental leaves, professional development leaves, and personal leaves

Chair, University Faculty Awards Committee
Organized a task force to examine and consider potential revisions of the university faculty awards system
Oversee the BYU Faculty Center, which provides training for new faculty, new department chairs, and new deans, as well as ongoing developmental seminars and workshops for all faculty, chairs, and deans
Deliver training sessions for new department chairs
Led the creation of the Student Ratings Summary Report
Oversee the BYU Faculty Advisory Council
Oversee the Harold B. Lee Library
Chair, University Archives Committee
Oversee BYU Studies
Chair, BYU Council on Religious Endeavors
Oversee BYU's ROTC Programs
Chair, Search Committee for Dean of Nursing, BYU, 2019-2020
Chair, Search Committee for Dean of Graduate Studies, BYU, 2018-2019
Executive Board of the David E. and Verla A. Sorensen Center for Moral and Ethical Leadership at BYU, 2020-present
Search Committee for Dean of BYU Marriott School of Business, 2017-2018
Associate Dean, BYU College of Life Sciences, 2016-2018
Search Committee for BYU Dean of Undergraduate Education, 2015-2016
Department Chair, BYU Department of Microbiology and Molecular Biology, 2011-2014
Faculty Advisor, BYU Women in Science Club, 2010-2018
Vice-Chair, BYU Athletic Advisory Council, 2010-2011
Chair of Academic Sub-Committee, BYU Athletic Advisory Council, 2009-2010
BYU Honors Program Faculty Council, 2009-2011
BYU Athletic Advisory Council, 2008-2011
Chair, Orientation Sub-Committee, BYU Employee Giving Committee, 2008-2011
MMBIO Department Faculty Development Committee, 2008-2011
BYU Women's Research Institute Grant Review Committee, 2008-2009
College of Life Sciences Graduate Committee, 2007-2008
Organizer, Seminar for Undergraduate Women in Math, Science, and Engineering, 2005-2006
Search Committee for Dean of BYU College of Biology and Agriculture, 2004-2005
BYU Pre-Medical Committee, 2004-2005
Search Committee for Director of BYU DNA Sequencing Center, 2004
Chair, Department Curriculum Committee for Life Science Core Courses, 2003-2004
Design Committee for BYU Rodent Facility Renovation, 2003
Chair, Department of Microbiology and Molecular Biology Graduate Committee, 2002-2006
Search Committee for Department of Zoology Faculty Position, 2000-2001
BYU Molecular Biology Committee, 1999
Board of Directors, Texas Society for Biomedical Research, 1998-1999

EXTERNAL CITIZENSHIP AND SERVICE

GRANT REVIEW COMMITTEES

U.S. Department of Veterans Affairs, Rehabilitation Research and Development Service, Regenerative Medicine Panel, Feb 2018

U.S. Department of Veterans Affairs, Rehabilitation Research and Development Service, Regenerative Medicine Panel, Mar 2017
NIH Musculoskeletal, Oral, and Skin Sciences (MOSS) Integrated Review Group, Oct 2016
U.S. Department of Veterans Affairs, Rehabilitation Research and Development Service, Regenerative Medicine Panel, Aug 2016
U.S. Department of Veterans Affairs, Rehabilitation Research and Development Service, Regenerative Medicine Panel, Feb 2016
NIH Skeletal Biology Structure & Regeneration Study Section, Musculoskeletal, Oral, and Skin Sciences Integrated Review Group, Oct 2011
NSF Physiological & Structural Systems Cluster Proposal Review Panel of Symbiosis Defense and Self-Recognition, Aug 2011
NIH Skeletal Biology Structure and Regeneration Study Section, Musculoskeletal, Oral, and Skin Sciences Integrated Review Group, Sep 2010
NIH Skeletal Biology Structure and Regeneration Study Section, Musculoskeletal, Oral, & Skin Sciences Integrated Review Group Special Emphasis Panel, Jan 2010
NIH Musculoskeletal, Oral, & Skin Sciences, Challenge Grants in Health and Science Research Review Group, May 2009
NIH Skeletal Biology Structure & Regeneration Study Section, Musculoskeletal, Oral, and Skin Sciences Integrated Review Group, Feb 2007
NIH Skeletal Biology Structure & Regeneration Scientific Review Group, Jun 2006
External reviewer, NSF single grant, Apr 2006
National Institute for Arthritis and Musculoskeletal and Skin Diseases, Centers of Research Translation Special Review Group, Mar 2006
External reviewer, NSF single grant, May 2005

EDITORIAL BOARD

Scientific Reports Editorial Board Member, Nature Publishing Group, 2018-2019

REVIEWER FOR THE FOLLOWING JOURNALS

Journal of Biological Chemistry	Molecular and Cellular Biology
ISME (Int'l Society for Microbial Ecology) Journal	Scientific Reports
PLOS ONE	Arthritis and Rheumatism
BioMed Research International	Molecular and Cellular Biochemistry
Experimental Cell Research	Osteoarthritis and Cartilage
Biochimica et Biophysica Acta	International Journal of Cancer
Nucleic Acids Research	Journal of Orthopaedic Research
Molecular Biology of the Cell	Genomics
Int'l Journal of Biochemistry and Cell Biology	Matrix Biology
Journal of Bone and Mineral Research	Journal of Cancer
American Journal of Clinical Nutrition	

PROFESSIONAL SOCIETIES

International Society for Microbial Ecology
Society for Developmental Biology
American Society for Matrix Biology, Charter Member
American Association for Cancer Research
American Association for the Advancement of Science

American Society for Biochemistry and Molecular Biology
Osteoarthritis Research Society International

MEETINGS ORGANIZED

LDS Life Science Research Symposium, Thanksgiving Point, Utah, July 2016

TEACHING ASSIGNMENTS (since 2005)

Organized and led the China Life Sciences Study Abroad program in Beijing, Xi'an, Shanghai, Guilin, Yangshuo, and Hangzhou; summer 2014, 13 students

MMBIO 240 (Molecular Biology)

Fall 2017, 453 students
Fall 2016, 395 students
Winter 2016, 547 students
Summer 2014, 7 students (offered in Shanghai with Study Abroad program)
Fall 2013, 216 students
Fall 2012, 194 students
Fall 2011, 94 students
Winter 2011, 252 students
Winter 2010, 178 students
Winter 2009, 247 students
Winter 2008, 252 students
Fall 2007, 115 students
Winter 2007, 196 students
Fall 2006, 140 students
Winter 2006, 261 students
Fall 2005, 205 students
Winter 2005, 91 students

IAS 201R (China Study Abroad Preparatory course)

Winter 2014, 13 students

MMBIO 390R (Readings in Molecular Biology)

Winter 2014, 18 students
Fall 2009, 13 students
Fall 2008, 15 students

LFSCI 399R (Academic Internship, with China Study Abroad program)

Summer 2014, 13 students

MMBIO 557 (Genes and Cancer)

Winter 2011, 13 students
Winter 2009, 15 students
Winter 2007, 16 students
Winter 2005, 5 students

MMBIO 551R (Microbial Ecology, with China Study Abroad program)

Summer 2014, 5 students

MMBIO 551R (Current Topics in Molecular Biology)

Summer 2012, 6 students

MMBIO 551R (Gene Expression)

Winter 2006, 5 students

MMBIO 490R/691R (Molecular Biology Seminar)

Fall 2008, 14 students

Winter 2008, 13 students

MMBIO 661 (Molecular Biology of the Cell--graduate level)

Fall 2013, 24 students

Fall 2012, 14 students

Fall 2011, 21 students

Fall 2010, 17 students

Fall 2009, 14 students

MMBIO 662 (Genomics, Molecular Evolution, and Developmental Biology—graduate level)

Winter 2014, 26 students

Winter 2013, 14 students

Winter 2012, 20 students

Winter 2011, 15 students

Winter 2010, 17 students

STUDENT MENTORED THROUGH RESEARCH (TOTAL NUMBERS)

3 Ph.D. students

12 M.S. students

12 Honors students

164 Undergraduate students

4 High school students

GRADUATE STUDENTS

Claudia Tellez Freitas	Ph.D. Student	2015-2019
Trina Loos	Ph.D. Student	2006-2010
Jaime Mayo	Ph.D. Student	2004-2007
Jeralyn Franson	M.S. Student	2015-2019
Brandt Nichols	M.S. Student	2011-2013
Daniel Olsen	M.S. Student	2011-2013
Fialka Grigorova	M.S. Student	2009-2011
Mary Ann Genzer	M.S. Student	2004-2006
Laura Harris	M.S. Student	2002-2003
Elizabeth Jenkins	M.S. Student	2001-2004
Jenny Moss	M.S. Student	2001-2003
Dana Murphy	M.S. Student	2000-2002
Gwen Miller	M.S. Student	2000-2001
Marlan Walker	M.S. Student	2000-2001
James Ricks	M.S. Student	1999-2000

HONORS STUDENTS

Caitlin Nichols	Honors Student	2008-2013
Michael Baldwin	Honors Student	2007-2011
Evan Davis	Honors Student	2007-2009
Daniel Jensen	Honors Student	2005-2007
Mark Tait	Honors Student	2004-2006
David Timme	Honors Student	2004-2006
Rudy Rodriguez	Honors Student	2000-2003
Todd Jackson	Honors Student	2000-2002
K. Nicole DeWitt	Honors Student	2000-2001
Vicki Winkel	Honors Student	2000
Reuben Chen	Honors Student	1999-2002
Trevor Ellison	Honors Student	1999-2001

UNDERGRADUATE STUDENTS (164 total)

Legend:

* Undergraduate students who have authored a peer-reviewed research publication

† Undergraduate students who have been the first author and presenter of a poster at a scientific meeting

‡ Undergraduate students who have been a non-presenting author on a poster

Brinton Moe (2021)	Jared Resolme (2015–2016)	Taylor Williams (2011-2012) ‡*
Minji Kim (2021)	Darla Miles (2015-2016) *	Tyson Skeen (2011-2012)
Heemin Lee (2021)	Kaitlyn Williams (2015-2016) *	Jillian Carr (2011-2012) ‡*
Rebecca Moulton (2021)	Rachel Sevey (2015-2016) ‡	Saroj Dhungel (2011-2012) *
Samuel Flor (2020-2021)	Austin Brockbank (2015-2016)	Kevin Steed (2011-2012) *
Evan Harris (2020-2021)	Conrad Stallings (2015- 2016) *	Matt Rees (2010-2012) ‡*
Tyson Stoker (2019-2021)	Peter Young (2015) *	Aubrey Rogers (2010-2012) †‡*
Laura Uricoechea Urrea (2019-2021) †	Joe White (2015-2016) †‡‡	Ben Fisher (2010-2011)
Michelle Porter (2018-2019)	Alistair Hilton (2015-2016) ‡ †	Lindsie Martin (2010-2011)
Karina Tovar (2018-2019) †	Andrew Rees (2013-2016) †‡	Jason Cooper (2010-2011)
Trevor Hoggan (2018-2019) ‡	Josh Yates (2012-2015) †*	Brandalyn Chidsey (2009-2011) ‡*
Edward Yeates (2018-2019)	Steven Pruitt (2013-2014)	Jacob Barney (2009-2011)
Ben Bondoc (2018-2019) ‡	Chris Guynn (2013-2014)	Jordan Richardson (2009-2010)
Spencer Nakamoto (2018-2019)	Nicole Barney (2013-2014)	Jayson Wutzbach (2009-2010)
Casey Straus (2018-2019)	Rob Driggs (2013-2014)	Nick Wallace (2009-2010) ‡
Peter Anderton (2018)	Spencer Dean (2013-2014) *	Julia Ventura (2009-2010) ‡*
Tanner Johns (2018) †	Logan Harmon (2013-2014)	Wayna Chow (2009-2010)
Claire Schachtschneider (2018)	Zach Pinter (2013-2014)	Christopher Fox (2009) ‡*
Eric Kim (2017-2018)	Jake Holland (2013-2014) ‡	Natalie Manwaring (2009)
Riley Driscoll (2016-2018) ‡	Julianna Thong (2013)	Suzanna Logan (2009)
Jason Hoggard (2017-2018)	Megan Whitt (2012-2014) *	Derek Hill (2008-2010)
Francis Payne (2017-2018) ‡	Wes Goar (2012-2014) ‡*	Caitlyn Nichols (2008-2010) ‡*
Jeffery Zhao (2015-2018) †‡	Loyd Christensen (2012-2014) * †‡	Michael Adam (2008-2010) †*
Haley Burrell (2015-2019) †‡*	Tyson Bailey, (2012-2013) ‡*	Ryan Cordner (2008-2010) †‡*
Blake Tibbitts (2017)	Wayne Simmons (2012-2013)	Sampath Loganathan (2008-2009) ‡*
McKenzie Hatcher (2017) ‡	Brianna Conley (2012-2013)	Kriti Shrestha (2008-2009)
Jacob Amini (2016-2017)	Alecia Brighton (2012)	Alina Schmidt (2007-2009) †‡*
Chris Read (2016-2017)	Ryan Mann (2011-2013)	Evan Davis (2007-2009) †
Alexis Conley (2016-2017)	Brian Earley (2011-2013)	Broc McCune (2007-2010) †‡
Mark Peterson (2016-2017)	Dylan Randall (2011-2013)	Borel Fonhoue (2007-2009) ‡

Devin Holden (2007-2009) †*	Dave Rowley (2004-2005)	Steve Crump (2001-2002)
Michael Baldwin (2007-2011) †	Carolina Montano (2003-2005) †*	Mark Rogers (2001-2002)
Stephanie Gaufin (2007-2009) *	Chuck Meeker (2003-2004)	Brian Miller (2001-2002)
Sam Wilkinson (2007-2008) ‡	Jennifer Chiniquiy (2003-2004)	Alisha Facer (2001-2002)
Jonathan Hansen (2006-2008) ††	Mary Ann Genzer (2003-2004)	Jason Dalling (2001-2002)
Daniel Sperry (2006-2007) †*	Scott Richins (2003-2004) ‡	Jared Armstrong (2001-2002)
Rich Davis (2006-2007) ‡	Kyle Bullock (2003-2004)	Steve Smith (2000-2002) ††
Alicia Yost (2006)	Chad Christensen (2003-2004)	Todd Jackson (2000-2002) ††*
Nathan Hicks (2005-2007)	Bryan Mason (2003-2004) ‡	Laura D. Harris (2000-2002) ††*
Daniel Jensen (2005-2007) ††*	Nick Orme (2002-2004) ††	Kit Bennion (1999-2002) ††
Brian Ellertson (2005-2007) †	Chris Meinhart (2001-2004) †*	Victoria Ryder (1999-2002) ‡
Tassanee Soward (2005-2006)	Jaron Coombs (2002-2003)	Reuben Chen (1999-2001) †*
Will Witwer (2005-2006)	Justin Hunt (2002-2003)	Trevor Ellison (1999-2001) †*
David Timme (2004-2006) ‡	Marianne Morris (2002-2003)	Eric Jenkins (2000-2001)
Jordan Olsen (2004-2006) ‡	Daniel Watson (2002-2003)	Hao Vu (1999-2001) ‡
Cindy Niederhauser (2004-2006) ††*	Kimberly Wilbur (2002-2003)	Nicole Dewitt (2001)
Mark Tait (2004-2006) ‡	Eric Freeman (2001-2003) ‡	Heather Taylor (2000-2001) ‡
Clark Rogers (2004-2005) †	David Sontag (2001-2003)	Jennifer Sampson (2000) ‡
Ben Kuntz (2004-2005) †	Brandon Bomsta (2001-2003) *	Vicki Winkel (2000) †*
Chikage Kubo (2004-2005) †	Mike Layton (2001-2003)	Dana Murphy (1999-2000) †
Shaunae Martin (2004-2005)	Rudy Rodriguez (2000-2003) ††*	James Clarke (1999-2000) *
Amanda Troxel (2004-2005)	Daniel Holsinger (1999-2003) *	Jenny Potter (1999-2000) ††**
Tyler Haberle (2004-2005) †	Whitni Babcock (2001-2002) ††	Ann Hillam (1999-2000) ‡
Steve DeWidt (2004-2005) ‡	Brad Crosby (2001-2002) ††	Thomas Carmack (1999-2000) ‡
Bobby Palmer (2004-2005)	Sam Vaughn (2001-2002) ††	

HIGH SCHOOL STUDENTS

Sia Im, Timpview High School (fall 2012)

Michael Perry, Timpview High School (summer 2012)

Andrew Brewer, Karl G. Maeser Preparatory Academy (summer 2011)

Hannah Leavitt, Karl G. Maeser Preparatory Academy (summer 2011)

HONORS AND AWARDS

Featured Speaker, 26th Annual Russell B. Clark Gerontology Conference, BYU, 2016

Utah Valley University College of Science and Health Symposium Series speaker, 2012

BYU Forum Speaker, 2010

Scholarship Award, BYU Faculty Women's Association, 2009

College Outstanding Mentor Award, BYU College of Life Sciences, 2008

College Creative Achievement Award, BYU College of Biology and Agriculture, 2006

Alice Louise Reynolds Lecturer, BYU, 2006

BYU Young Scholar Award, 2004

Damon Runyon-Walter Winchell Foundation, Postdoctoral Fellowship Award, 1997-1999

Cum Laude graduation from the George Washington University doctoral program, 1995

Phi Delta Gamma Scholarship for graduate study, George Washington University Chapter, 1993-1994

The George Washington University Presidential Merit Fellowship for Graduate Study, 1989-1992

Magna Cum Laude Graduation from BYU, 1989

BYU Trustees Scholarship, full tuition, 1985-1989

INVITED TALKS

BYU Global Women's Studies Winter Colloquium, Guest Lecturer, Feb 2018
Gut-Brain Axis Summit, Expert Speaker, San Francisco, CA, Dec 2017
BYU Career Engagement Conference, Invited Speaker, Mar 2017
BYU Department of Nutrition, Dietetics, and Food Science seminar speaker, Oct 2016
Research Presentation, 26th Annual Russell B. Clark Gerontology Conference, Mar 2016
Keynote Speaker at BYU-wide New Graduate Student Dinner, Sep 2015
BYU Cancer Research Center Summer Symposium, Provo, UT, Jun 2013
Utah Valley University College of Science and Health Symposium Series speaker, Orem, UT, Sep 2012
BYU Cancer Research Center Summer Workshop, Provo, UT, Jun 2012
Utah Valley University Inauguration of the Richard G. Scott Science Scholarship, Orem, UT, Apr 2012
Utah State University Department of Biology Seminar, Logan, UT, Oct 2010
BYU Alumni Board Annual Meeting, Provo, UT, Oct 2010
BYU Forum Address, Provo, UT, Jul 2010
Molecular Biology Seminar, BYU, Provo, UT, Feb 2009
LDS Life Science Research Symposium, Snowbird, Utah, Aug 2007
American Society for Matrix Biology Biannual Meeting, Nashville, Tennessee, Nov 2006
Alice Louise Reynolds Women-In-Scholarship Lecture, BYU, Provo, UT, Oct 2006
BYU, Statistics Dept. Seminar, Provo, UT, Sep 2005
BYU DNA Sequencing Center Staff Seminar, Provo, Utah, Mar 2003
Provo Kiwanis Club, Provo, Utah, Sep 2002
Women in Science Careers Seminar, Provo, Utah, Sep 2002
Molecular Biology Seminar Series, BYU, Provo, Utah, Oct 2001
BYU Annual High School Science Day, Provo, Utah, Oct 2000
BYU Summer Science Camp, Provo, Utah, Jul 2000
International Society for Matrix Biology Symposium Philadelphia, Pennsylvania, Jun 2000
Women in Medicine Symposium Series, BYU, Provo, Utah, Oct 1999
Conference for the Advancement of Science Teachers, Corpus Christi, Texas, Nov 1998
American Society for Biochemistry and Molecular Biology Fall Symposium, Regulation of Bone Formation, Taos, New Mexico, Oct 1998
International Science and Engineering Fair, Fort Worth, Texas, May 1998
Department of Zoology, BYU, Provo, Utah, Apr 1998
University of Texas Health Science Center at Houston, Graduate School of Biomedical Sciences, Houston, Texas, Mar 1996
University of Texas Health Science Center at Houston, Graduate School of Biomedical Sciences, Houston, Texas, Nov 1995
Howard Hughes Medical Institute, University of Utah, Salt Lake City, Utah, Jan 1995
Department of Zoology, BYU, Provo, Utah, Jan 1995

PODCAST EPISODES

Beliefs, Biomes, and CRISPR

Conversations with Teryl Givens, sponsored by Faith Matters (Ep. 63)

<https://podcasts.apple.com/us/podcast/faith-matters/id1307757928?i=1000513415366>

You're Got Your Own Private Zoo—It's Called Your Microbiota (Ep. 15)

Houston and Nature, by Nivien Saleh
<https://houstonnature.com/microbiota>

RESEARCH GRANTS (\$2.5 million total)

“Compositions for reducing pathogen concentrations and treating associated conditions, disorders, and diseases, and related systems and methods”

Principal Investigator: Laura C. Bridgewater

Funding Source: BYU College of Life Sciences Technology Transfer Fund, 2018
\$20,000

“A personalized treatment for stress- and diet-related deterioration of the gut microbiota in female mice”

Principle Investigator: Laura Clarke Bridgewater

Funding Source: BYU Women’s Research Initiative, 2018
\$5,000

“A phage-based treatment for inflammation and obesity”

Principle Investigator: Laura Clarke Bridgewater

Funding Source: BYU College of Life Sciences Technology Transfer Fund, 2017
\$15,000

“Integrating microbiome analysis into Immunology, Molecular Biology, and Genomics courses to improve student learning”

Co-Principal Investigators: Scott Weber, Laura Bridgewater, Brent Nielsen, and Steve Johnson

Funding Source: BYU College of Life Sciences Teaching Enhancement Grant, 2016
\$8,700

“Diet, gut microbiome, and mental health interactions”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2015-16
\$20,000

“Examining the relative contributions of genes, diet, and the gut microbiome to the development of obesity and diabetes”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2014-15
\$20,000

“Obesity, diabetes, and aging: Contributions of the gut microbiome”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU Gerontology Program, 2014
\$10,000

“Validation of an nBmp2 mutant mouse model”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2013-14
\$20,000

“Transcriptional activity of the novel nuclear protein nBmp2”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2012-13

\$20,000

“Common mechanisms of osteoarthritis in three mouse models”

Principal Investigator: Robert E. Seegmiller; Co-Investigator: Laura Clarke Bridgewater

Funding source: NIAMS/NIH, grant #R15 AR056861, 2009-2011

\$225,000

“A novel nuclear variant of Bmp2: Role in Ca²⁺ transport”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2011-13

\$20,000

“The role of nuclear Bmp2 (nBmp2) in skeletal muscle”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2010-12

\$20,000

“The unfolded protein stress response in chondrodysplasia and osteoarthritis”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2009

\$20,000

“Nuclear function of BMP family proteins”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2008

\$20,000

“MRI: Acquisition of DNA-manipulation robotics for increased throughput and data integrity in biological research, teaching, and student research training”

Principal Investigator: Leigh Johnson, Co-PI: Laura Clarke Bridgewater and three others

Funding Source: NSF, DBI-0520978, 2005-2008

\$337,502

“Chondrocyte-specific transcriptional regulation”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: NIAMS/NIH, grant #RO1 AR 48839, 2002-2008

\$925,000

“Nuclear localization of GDF-5”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2007

\$20,000

“Chondrocyte-specific enhancer elements”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: Ira and Mary Lou Fulton Family Foundation, 2001-2010

\$200,000

“Pathogenesis of osteoarthritis in *Col2a1* mutant mice”

Co-Principal Investigators: Laura Clarke Bridgewater and Robert E. Seegmiller

Funding Source: NIAMS/NIH, grant #R15 AR47568, 2002-2004

\$146,000

“Transgene rescue of chondrodysplasia and osteoarthritis”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: NIAMS/NIH, grant #RO3 AR 46362, 1999-2002

\$222,000

“Research Supplement for Underrepresented Minorities”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: NIAMS/NIH, supplement to grant #1 RO3 AR 46362, 2000-2002

\$47,820

“Establishing the foundation for treatment of cartilage collagen disorders by gene therapy”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2001

\$22,700

“Characterization of the role of SOX9 in cartilage differentiation”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: The Damon Runyon Cancer Research Foundation, grant #DRG1464, 1997-1999

\$98,500

PATENTS

Application number: 28628627

Title of Invention: A phage-based treatment for inflammation and obesity

Inventors: Laura Clarke Bridgewater and Gongze Zhao

Filed date: 14 March 2017

Application type: provisional

Application number: PCT/US18/22419

Title of Invention: Methods and compositions for treating obesity, inflammation, or metabolic disorders with bacteriophages.

Inventors: Laura Clarke Bridgewater and Gongze Zhao

File date: 14 March 2018

Application type: International (PCT)

Application number: 62675652

Title of Invention: Compositions for reducing pathogen concentrations and treating associated conditions, disorders, and diseases, and related systems and methods

Inventors: Laura Clarke Bridgewater and Gongze Zhao

File date: 23 May 2018

Application type: Provisional

Application number: PCT/UT19/33844

Title of Invention: Bacteriophage compositions and kits and related methods

Inventors: Laura Clarke Bridgewater and Gongze Zhao

File date: 23 May 2019

Application type: International (PCT)

PUBLICATIONS

1. Franson, J.J., Grose, J.H., Larson, K.W., **Bridgewater, L.C.** "Gut microbiota regulates the interaction between diet and genetics to influence glucose tolerance." *Medicines* 8(7), 34 <https://doi.org/10.3390/medicines8070034> (2021).
2. Tellez Freitas, C.M., Burrell, H.R., Valdoz, J.C., Hamblin, G.J., Raymond, C.M., Cox, T.D., Johnson, D.K., Andersen, J.L., Weber, K.S., **Bridgewater, L.C.** "The nuclear variant of bone morphogenetic protein 2 (nBMP2) is expressed in macrophages and alters calcium response." *Scientific Reports* 9(1):934 <https://www.nature.com/articles/s41598-018-37329-5> (2019).
3. Pape, J.A., Newey, C.R., Burrell, H.R., Workman, A., Perry, K., Bikman, B.T., **Bridgewater, L.C.**, Grose, J.H. "Per-Arnt-Sim Kinase (PASK) deficiency increases cellular respiration on a standard diet and decreases liver triglyceride accumulation on a western high-fat high-sugar diet." *Nutrients* 10 (12), 1990 <https://doi.org/10.3390/nu10121990> (2018)
4. Weber, K.S., **Bridgewater, L.C.**, Jensen, J.L., Breakwell, D.P., Nielsen, B.L., Johnson, S.M. "Personal microbiome analysis improves student engagement and interest in Immunology, Molecular Biology, and Genomics undergraduate courses." *PLOS ONE* 13(4):e0193696. <https://doi.org/10.1371/journal.pone.0193696> (2018)
5. **Bridgewater, L.C.**, Zhang, C., Wu, Y., Zhang, Q., Hu, W., Wang, J., Li, S., Zhao, L. "Gender-based differences in host behavior and gut microbiota composition in response to high fat diet and stress in a mouse model." *Scientific Reports* 7:10776 DOI:10.1038/s41598-017-11069-4 <http://rdcu.be/vXH4> (2017).
6. Cordner, R.D., Friend, L.N., Mayo, J.L., Badgley, C., Wallmann, A., Stallings, C., Young, P., Miles, D., Edwards, J.G., & **Bridgewater, L.C.** "The BMP2 nuclear variant, nBMP2, is expressed in mouse hippocampus and impacts memory." *Scientific Reports* 7:46464 DOI: 10.1038/srep46464 <http://rdcu.be/rpTv> (2017)
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ABSTRACTS/POSTER PRESENTATIONS

1. Franson, J.J., Grose, J.H., Larson, K.W., **Bridgewater, L.C.** "Gut microbiota regulates the interplay between diet and genetics to influence glucose tolerance." Published 30 Oct 2020 by MDPI AG in the 1st International Electronic Conference on Nutrients—Nutritional and Microbiota Effects on Chronic Disease. Session: Interrelationships among microbiota, poor nutrition choices, and chronic disease <https://sciforum.net/manuscripts/7005/manuscript.pdf> (2020).
2. Tovar, K., Uricoechea, L., Bridgewater, L.C. "Bacterial killers: Infection of unwanted gut bacteria." American Society for Microbiology Intermountain Branch Meeting, Provo, Utah (2019).
3. Johns, T., Hoggan, T., Payne, F., Bondoc, B., Burrell, H., Bridgewater, L.C. "Finding and assessing the lytic nature of phages that target *Yokenella regensburgei*." American Society for Microbiology Intermountain Branch Meeting, Provo, Utah (2019).
4. Newey, C., Pape, J., Burrell, H., Workman, A., Perry, K., Bikman, B., Bridgewater, L., Grose, J. "Understanding per-art-sim kinase and its role in metabolic disease." American Society for Microbiology Intermountain Branch Meeting, Provo, Utah (2019).

5. Burrell, H.R., Zhao, J., Driscoll, R., Franson, J., Grossarth, S., Hatcher, M., Hoggard, J., Payne, F., Tibbitts, B., Zhao, L., Grose, J.H., Bridgewater, L.C. "A phage-based manipulation of the gut microbiota to improve metabolic health." American Society for Microbiology Tri-branch Meeting, Durango, Colorado (2018).
6. Zhao, J., Burrell, H.R., Bridgewater, L.C. "Combating obesity through gut microbiota targeted phage therapy." Oral presentation, American Society for Microbiology Tri-branch Meeting, Durango, Colorado, (2018).
7. Zhao, J., Bridgewater, L.C. "Phage Hunting Through the Human Gut." Oral presentation. Utah Conference on Undergraduate Research. Cedar City, Utah (2018).
8. Monroe, J.A., Kwon, J., Bridgewater, L.C., Jensen, B.D., Bowden, A.E. "Carbon-Infiltrated Carbon Nanotube Coating of Titanium Stimulates Proliferation, Vitality, and Functionality of Human Osteoblasts." Orthopaedic Research Society Annual Meeting. New Orleans, Louisiana (2018).
9. Cox, T.D., Freitas, C.M., Yorgason, J.T., Franson, J.J., Bridgewater, L.C., Steffensen, S.C., Weber, K.S. "CD5 deficient mice exhibit altered cognitive function in behavioral studies." Autumn Immunology Conference, Chicago, Illinois (2017).
10. Ong, K.L., Rees, A., Franson, J., White, J., Hilton, A., Choksi, N., Pattison, J.A., Laub, S., Nickle, T., Harrison, M., Dallon, B., Bikman, B., Bridgewater, L.C., Grose, J.H. "PAS kinase deficient mice display increased rates of cellular respiration." Keystone Mitochondria Communication, Taos, New Mexico (2017).
11. Zhao, J., Grossarth, S., Driscoll, R., Payne, F., Hatcher, M., Bridgewater, L.C. "Combating obesity through gut microbiome targeted phage therapy." Life Sciences Undergraduate Research Poster Competition, 2nd place winner. Provo, Utah (2017).
12. Franson, J.J., Sevey, R., Zhao, J., White, J., Hilton, A., Rees, A., Ong, K.L., Choksi, N., Grose, J., Bridgewater, L.C. "Effect of Diet on the Microbiota of a Mouse Model with a Genetically Increased Metabolism Rate" American Society of Microbiology Intermountain Branch Meeting. Salt Lake City, Utah (2016).
13. Franson, J.J., White, J., Ong, K.L., Choksi, N., Hilton, A., Rees, A., Resolme, J., Zhao, J., Sevey, R., Olsen, K., Grose, J., Bridgewater, L.C. "Effect of Diet, Genes, and Microbiota on Glucose Tolerance in a Mouse Model with a Genetically Increased Metabolic Rate." LDS Life Science Research Symposium. Lehi, Utah (2016).
14. Zhao, J., Grossarth, S., Grose, J., Bridgewater, L.C. "Phage hunting through the human gut." Phabulous Phages Conference. Provo, Utah (2016)
15. White, J., Franson, J., Rees, A., Hilton, A., Ong, K.L., Choksi, N., Resolme, J., Zhao, J., Grose, J., Bridgewater, L.C. "PAS kinase and its role in the development of diabetes and obesity in mice." Utah Conference for Undergraduate Research. Salt Lake City, Utah (2016).
16. Bowden, A.E., Beatty, A.M., Bridgewater, L.C. "Design and validation of a complex loading whole spinal segment bioreactor." Philadelphia Spine Research Symposium, held in conjunction with the Orthopaedic Research Society. Philadelphia, Pennsylvania (2015).
17. Hancock, J., Cook, M., Grose, J., Bridgewater, L.C., and Weber, K.S. "Role of PAS kinase and metabolism on immune cells." Autumn Immunology Conference. Chicago, Illinois (2015).
18. Rees, A., Franson, J., White, J., Ong, K.L., Choksi, N., Hilton, A., Grose, J., and Bridgewater, L.C. "The role of PAS kinase and the gut microbiome in metabolism and diabetes onset in mice. American Society for Microbiology. New Orleans, Louisiana (2015).

19. Yates, J.D. **Bridgewater, L.C.** "Evidence for a nuclear variant of decapentaplegic (dpp)." Southwest Regional Meeting of the Society for Developmental Biology. Aurora, Colorado (2014).
20. Mayo, J.L., Nichols, B.A., Olsen, D.S., Corder, R.D., Hancock, C.R., Weber, K.S., Wilson, E., Edwards, J.G., Barrow, J.R., and **Bridgewater, L.C.** "The nBMP2 mutant mouse shows defects in intracellular calcium transport-regulated pathways." Southwest Regional Meeting of the Society for Developmental Biology. Aurora, Colorado (2014).
21. **Bridgewater, L.C.**, Christensen, S.L. Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., Holland J.G., Harmon, L.M., Robinson, T., Bowden, A.E. "Development of an alpaca disc culture system for the study of intervertebral disc degeneration." Second International Spine Research Symposium, Philadelphia Spine Research Society. Philadelphia, Pennsylvania (2013).
22. Bowden, A.E, Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., Robinson, T.F., Christensen, S.L., Holland J.G., **Bridgewater, L.C.** "Development of an alpaca disc culture system for the study of intervertebral disc degeneration." Orthopaedic Research Society Annual Meeting, San Antonio, Texas (2013).
23. Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., Bowden, A.E., **Bridgewater, L.C.** "Mechanical parallels for a camelid cervical spine model of lumbar disc degeneration." Second International Spine Research Symposium, Philadelphia Spine Research Society. Philadelphia, Pennsylvania (2013).
24. Fullwood, R.A., Stolworthy, D.K., Bowden, A.E., and **Bridgewater, L.C.** "Alpaca cervical spine anatomy: Shape, size, AF/NP ratio." Emerging Ideas in Biomedical Research Conference, BYU, Provo, UT (2013). **(1st place prize in the poster competition.)**
25. Christensen, S.L., Holland, J.G., Fullwood, R.A., Stolworthy, D.K., Bowden, A.E., Robinson, T.F., and **Bridgewater, L.C.** "Development of an alpaca disc culture system for the study of intervertebral disc degeneration." Emerging Ideas in Biomedical Research Conference, BYU, Provo, UT (2013). **(2nd place prize in the poster competition.)**
26. Olsen, D.S., Bailey, K.T., Nichols, B.A., and **Bridgewater, L.C.** "Lack of nuclear BMP-2 causes reduced spleen size." American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, Massachusetts (2013).
27. Nichols, B.A., Goar, W.A., McCune, B.T., and **Bridgewater, L.C.** "Nuclear localized BMP2 promotes cell cycle progression. American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, Massachusetts (2013).
28. Rogers, A.C., Nichols, B.A., Loos, T.J., and **Bridgewater, L.C.** "Nuclear Bmp4 interacts with the SCF E3 ubiquitin ligase complex and inhibits the cell cycle." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2012).
29. Ricks, M.L., Falk, D.J., Farrell, J.T., Rees, M.B., Carr, J.M., Williams, D.T., Kooyman, D.L., **Bridgewater, L.C.**, and Seegmiller, R.E. "Premature osteoarthritis in the temporomandibular joint of heterozygous disproportionate micromelia mice." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2012).
30. Loos, T.J., and **Bridgewater, L.C.** "Nuclear Bmp4 (nBmp4) interacts with the SCF E3 ubiquitin ligase." American Society for Matrix Biology meeting, Charleston, South Carolina (2010).
31. Loos, T.J., and **Bridgewater, L.C.** "Nuclear Bmp4: a novel ROC1 and ROC2 binding partner." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
32. Corder, R.D., Ventura, J., Blickenstaff, J., Walther, C., Mayo, J.L., Felin, J.E., Andreasen, B., Wallace, N., Cappechi, M.R., Edwards, J.G., and **Bridgewater, L.C.** "Mice bearing a targeted mutation of nBmp2 display decreased memory capabilities. American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).

33. Baldwin, M. and **Bridgewater, L.C.** "Identification of a consensus DNA binding sequence for nGdf5." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
34. McCune, B.T., Finley, M., Schmidt, A.D., Fox, C., Mayo, J.L., and **Bridgewater, L.C.** "Binding of nBmp2 to PLSCR1 suggests a possible mechanism for nBmp2 regulation of calcium-modulating proteins." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
35. Evanson, B.G., Schmidt, A.D., Mayo, J.L., **Bridgewater, L.C.**, and Hancock, C.R.. "Nuclear bone morphogenetic protein 2 mutant mice exhibit slowed skeletal muscle relaxation and decreased tetany in the gastrocnemius, plantaris, soleus muscle complex." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
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37. Holden, D.N., Mayo, J.L., Barrow, J.R., and **Bridgewater, L.C.** "The transcription factor Lc-Maf participates in *Col27a1* regulation during chondrocyte maturation." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
38. Davis, E.D., Fonhoue, B.S.D., Felin, J.E., McCune, B.T., and **Bridgewater, L.C.** "Nuclear Bmp2 (nBmp2) alters the expression of several genes." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
39. Adam, M.M., Nichols, C.A., Schmidt, A.D., Logonathan, S.K., Thomson, D., Capecchi, M.R., Barrow, J.R., and **Bridgewater, L.C.** "Mice with targeted inactivation of nBmp2 exhibit increased daytime activity." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
40. Cordner, R.D., Loos, T.J., and **Bridgewater, L.C.** "ROC1 and ROC2: Interactions with the nuclear variant of Bmp4." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
41. Loos, T.J., and **Bridgewater, L.C.** "Determining the function of nuclear Bmp4." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
42. Mayo, J.L., Wilkinson, S., Felin, J.E., Lin, C.-Y., and **Bridgewater, L.C.** "A potential role for the nuclear variant of Bmp2 (nBmp2) in carcinogenesis." American Association for Cancer Research Annual Meeting, Los Angeles, California (2007).
43. Sudweeks, T.J. and **Bridgewater, L.C.** "A novel nuclear variant of Bmp4." American Association for Cancer Research Annual Meeting, Los Angeles, California (2007).
44. Jensen, J.D., Sperry, D.K., Hansen, J.D., Davis, R.E., Felin, J.E., and **Bridgewater, L.C.** "Nuclear localization of GDF5 is mediated by a bipartite nuclear localization signal." American Association for Cancer Research Annual Meeting, Los Angeles, California (2007).
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46. **Bridgewater, L.C.**, Mayo, J.L., and Felin, J.E. "Nuclear localization of Bmp2." American Society for Matrix Biology Biannual Meeting, Nashville, Tennessee (2006).
47. Seegmiller, R.E., Niederhauser, C.M., Montañó, C., Bomsta, B.D., Wink, A.E., Sudweeks, S.N., and **Bridgewater, L.C.** "Aggrecan expression in Dmm mice." American Society for Matrix Biology Biannual Meeting, Nashville, Tennessee (2006).
48. Jensen, J.D., Felin, J.E., Meinhart, C., and **Bridgewater, L.C.** "Nuclear localization of GDF-5." American

- Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
49. Mayo, J.L., Barrow, J.R., and **Bridgewater, L.C.** "Coordinate regulation of Col11a2 and Col27a1 by the transcription factor Lc-Maf." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
 50. Niederhauser, C.M., Montañó, C., Bomsta, B.D., Seegmiller, R.E., Sudweeks, S.N, and **Bridgewater, L.C.** "Aggrecan 1 expression in *Dmm* mice." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
 51. Felin, J.E., Mayo, J.L., and **Bridgewater, L.C.** "Nuclear localization of BMP2." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
 52. Ellertson, B.D., Felin, J.E., Kubo, C., Merrell, K., and **Bridgewater, L.C.**, "Identification of proteins that bind a *Col11a2* enhancer element." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
 53. Timme, D.W., Meinhart, C., Mason, B., and **Bridgewater, L.C.** "A novel function for a ribosomal protein in transcriptional regulation." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
 54. Kubo, C., Richins, S., and **Bridgewater, L.C.** "A new transcriptional regulator of the *Col11a2* gene." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
 55. Kunz, W.B., Meinhart, C., Olsen, J., and **Bridgewater, L.C.** "Identification of proteins that bind a chondrocyte-specific enhancer element." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
 56. Rogers, C.D., Mason, B., Timme, D., and **Bridgewater, L.C.** "Identification of candidate transcriptional regulators of the Col11a2 gene. American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
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