

Charles Benjamin Lovely**Assistant Professor**

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University of Louisville School of Medicine

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Education

PhD.	University of Louisville Department of Biology	2010
B.S.	University of Louisville Biology	2002
B.A.	University of Louisville Chemistry	2002
Minor:	University of Louisville Spanish	2002

Employment

2018-Present	Assistant Professor – University of Louisville School of Medicine
2010-2017	Post-doctoral Research Fellow – The University of Texas
2008	Graduate Teaching Assistant – General Biology, University of Louisville
2008	Instructor – Urinalysis, Brown Mackie College
2007	Instructor – Microbiology, Brown Mackie College
2007	Instructor – Chemistry, Brown Mackie College
2002-2007	Graduate Teaching Assistant – Microbiology, University of Louisville

Publications

Lovely, C.B. Animal models of gene-alcohol interactions. *Birth Defects Res.* Accepted.

Lovely, C.B. Quantification of Ethanol Levels in Zebrafish Embryos Using Head Space Gas Chromatography. *J Vis Exp.* Accepted.

Lovely, C.B., Rampersad, M., Fernandes, Y.A., Eberhart, J.K. Gene-environment interactions in development and disease. *Wiley Interdiscip. Rev. Dev. Biol.* 2016, 6(1).

Lovely, C.B., Fernandes, Y.A., Eberhart, J.K. Fishing for Fetal Alcohol Spectrum Disorders: zebrafish as a model for ethanol teratogenesis. *Zebrafish* 2016, 13(5):391-8.

Lovely, C.B., Swartz, M.E., McCarthy, N., Norrie, J.L., Eberhart, J.K. Bmp signaling mediates endoderm pouch morphogenesis by regulating Fgf signaling in zebrafish. *Development* 2016, 43(11):2000-11.

McCarthy, N., Liu, J.S., Richarte, A.M., Eskiocak, B., **Lovely, C.B.,** Tallquist, M.D., Eberhart, J.K. Pdgfra and Pdgfrb genetically interact during craniofacial development. *Dev. Dyn.* 2016, 245(6):641-52.

Lovely, C.B., Nobles, R.D., Eberhart, J.K. Developmental age strengthens barriers to ethanol accumulation in zebrafish. *Alcohol* 2014, 48(6):595-602.

Lovely, C.B. and Eberhart, J. K. Catching a conserved mechanism of ethanol teratogenicity. *Alcohol Clin. Exp. Res.* 2014, 38(8):2160-3.

McGurk, P.D., **Lovely, C.B.,** Eberhart, J.K. Analyzing craniofacial morphogenesis in zebrafish using 4D confocal microscopy. *J. Vis. Exp.* 2014, 30(83):e51190.

- Swartz, M.E., Wells, M.B., Griffin, M., McCarthy, N., **Lovely, C.B.**, McGurk, P., Rozacky, J., Eberhart, J.K. A screen of zebrafish mutants identifies ethanol-sensitive genetic loci. *Alcohol Clin. Exp. Res.* 2013, 38(3):694-703.
- McCarthy, N., Wetherill, L., **Lovely, C.B.**, Swartz, M.E., Foroud, T.M., and Eberhart, J.K. Pdgfra protects against ethanol-induced craniofacial defects in a zebrafish model of FASD. *Development.* 2013, 140:3254-65.
- Sheehan-Rooney, K., Swartz, M.E., **Lovely, C.B.**, Dixon, M.J., and Eberhart, J.K. Bmp and Shh signaling mediate the expression of *satb2* in the pharyngeal arches. *PLoS One.* 2013, 8(3):e59533.
- Pham, C.D., Yu, Z., **Lovely, C.B.**, Agarwal, C., Myers, D.A., Barati, M., and Perlin, M.H. Haplo-insufficiency for different genes differentially reduces pathogenicity and virulence in a fungal phytopathogen. *Fungal Genet Biol.* 2012, 49(1):21-9.
- Lovely, C.B.**, and Perlin, M.H. *Cla4*, but not *Rac1*, regulates the filamentous response of *Ustilago maydis* to low ammonium conditions. *Commun. Integr. Biol.* 2011, 4(6):670-3.
- Lovely, C.B.**, Aulakh, K.B., and Perlin, M.H. The Role of *Hsl7* in Morphology and Pathogenicity and its Interaction with other Signaling Components in the Plant Pathogen, *Ustilago maydis*. *Eukaryot. Cell.* 2011, 10(7):856-68.

Invited Talks

- Mar. 23rd, 2019.** Using zebrafish to model gene-ethanol interactions and their impact on craniofacial development. Keynote Session, Gordon Research Seminar, Alcohol-induced End Organ Diseases, Ventura, CA
- Mar. 29th, 2017.** Gene-ethanol interactions and their impact on craniofacial development. Department of Biological Sciences, University of Massachusetts, Lowell, MA
- Mar. 9th, 2017.** Gene-ethanol interactions and their impact on craniofacial development. Department of Neurobiology and Developmental Sciences, University of Arkansas for Medical Sciences, Little Rock, AR
- Feb. 14th, 2017.** Gene-ethanol interactions and their impact on craniofacial development. Department of Biochemistry and Molecular Genetics, University of Louisville School of Medicine, Louisville, KY
- Jan. 25th, 2017.** Gene-ethanol interactions and their impact on craniofacial development. Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR
- Dec. 15th, 2016.** Gene-ethanol interactions and their impact on craniofacial development. Department of Molecular and Cell Biology, Henry M. Goldman School of Dental Medicine, Boston University, Boston, MA
- Aug. 22nd, 2016.** Gene-ethanol interactions and craniofacial development. Department of Veterinary Physiology and Pharmacology, School of Veterinary Medicine & Biomedical Sciences, Texas A&M University, College Station, TX

Presentations

Platform

- Lovely, C.B.**, Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci necessary for palate development. 2019 Midwest Zebrafish Meeting, Lexington, KY, 2019
- Lovely, C.B.**, Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci necessary for palate development. The 8th Strategic Conference of Zebrafish Investigators, Pacific Grove, CA, 2019
- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Gene-ethanol interactions and their impact on craniofacial development. The Teratology Society 58th Annual Meeting, Clearwater, FL, 2018
- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Requirement for Bmp signaling in endoderm and jaw development identified from a gene-ethanol screen in zebrafish. The Society of Developmental Biology 2017 Southwest Regional Meeting, Houston, TX 2017

- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Requirement for Bmp signaling in endoderm and jaw development identified from a gene-ethanol screen in zebrafish. 40th Annual Research Society on Alcoholism Scientific Meeting, Denver, CO 2017
- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Requirement for Bmp signaling in endoderm and jaw development identified from a gene-ethanol screen in zebrafish. The Teratology Society 57th Annual Meeting, Denver, CO 2017
- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Genetic Screening for Ethanol-Sensitive Zebrafish Mutants Identifies a Requirement for Bmp Signaling in Endoderm and Jaw Development. 11th Structural Birth Defects Meeting, Bethesda, MD 2017
- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Requirement for Bmp signaling in endoderm and jaw development identified from a gene-ethanol screen in zebrafish. 39th Annual Meeting of the Society of Craniofacial Genetics and Developmental Biology, Boston, MA 2016
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. 2015 Fetal Alcohol Spectrum Disorders Study Group Annual Meeting, San Antonio, TX 2015
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. The Teratology Society 55th Annual Meeting, Montreal, QC 2015
- Lovely, C.B.**, Henegar, T., Norrie, J.L., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. 25th Annual Texas Research Society on Alcoholism Scientific Conference, College Station, TX 2015
- Lovely, C.B.**, Henegar, T., McCarthy, N., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. 37th Annual Research Society on Alcoholism Scientific Meeting, Bellevue, WA 2014
- Lovely, C.B.**, McCarthy, N., Sidik, A., Swartz, M.E., and Eberhart, J.K. Using zebrafish to identify and characterize gene-ethanol interactions. 2014 Experimental Biology Meeting, San Diego, CA 2014
- Lovely, C.B.**, Henegar, T., McCarthy, N., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify an ethanol-sensitive pathway regulating lower jaw development. 24th Annual Texas Research Society on Alcoholism Scientific Conference, San Antonio, TX 2014
- Lovely, C.B.**, McCarthy, N., Henegar, T., Ho, K., Griffin, M.A., Rozacky, J.M., Swartz, M.E., and Eberhart, J. K. Using zebrafish to identify and characterize multiple gene-ethanol interactions. 23rd Annual Texas Research Society on Alcoholism Scientific Conference, Austin, TX 2013
- Lovely, C.B.**, and Eberhart, J.K. Components of Bmp signaling pathways interact with ethanol, perturbing proper embryonic jaw development. 6th Biannual Southern Plains Zebrafish Meeting, Austin, TX 2012
- Lovely, C.B.**, and Eberhart, J.K. Components of Bmp signaling pathways interact with ethanol, perturbing proper embryonic jaw development. 22nd Annual Texas Research Society on Alcoholism Scientific Conference, College Station, TX 2012
- Pham, C.D., Yu, Z., **Lovely, C.B.**, Agarwal, C., Myers, D.A., Barati, M., and Perlin, M.H. Haplo-Insufficiency differentially affects pathogenicity and virulence in *Ustilago maydis*. The 5th International Ustilago Meetings, Guanajuato, Mexico, 2010

Posters

- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Requirement for Bmp signaling in endoderm and jaw development identified from a gene-ethanol screen in zebrafish. 77th Annual Society of Developmental Biology Meeting, Portland, OR 2018
- Lovely, C.B.**, Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci necessary for palate development. The Teratology Society 58th Annual Meeting, Clearwater, FL, 2018
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. 38th Annual Research Society on Alcoholism Scientific Meeting, San Diego, CA 2018

- Lovely, C.B.**, Swartz, M.E., McCarthy, N., Norrie, J.L., Henegar, T., and Eberhart, J.K. Requirement for Bmp signaling in endoderm and jaw development identified from a gene-ethanol screen in zebrafish. 75th Annual Society of Developmental Biology Meeting / 19th International Society of Differentiation, Boston, MA 2016
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. Gordon Research Conference on Craniofacial Morphogenesis and Tissue Regeneration, Ventura, CA 2016
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. Gordon Research Seminar on Craniofacial Morphogenesis and Tissue Regeneration, Ventura, CA 2016
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. 38th Annual Research Society on Alcoholism Scientific Meeting, San Antonio, TX 2015
- Lovely, C.B.**, Norrie, J.L., Henegar, T., Swartz, M.E., and Eberhart, J.K. Zebrafish genetic screens identify ethanol susceptibility loci. The 7th Aquatic Animal Models of Human Disease Conference, Austin, TX 2014
- Lovely, C.B.**, McCarthy, N., Sidik, A., Swartz, M.E., and Eberhart, J.K. Using zebrafish to identify and characterize gene-ethanol interactions. 2014 Experimental Biology Meeting, San Diego, CA 2014
- Lovely, C.B.**, McCarthy, N., Henegar, T., Ho, K., Griffin, M.A., Rozacky, J.M., Swartz, M.E., and Eberhart, J.K. Using zebrafish to identify and characterize multiple gene-ethanol interactions. 36th Annual Research Society on Alcoholism Scientific Meeting, Orlando, FL 2013
- Lovely, C.B.**, Ackerman, M., Henegar, T., and Eberhart, J.K. Isolation and characterization of an ethanol sensitive zebrafish mutant. 36th Annual Research Society on Alcoholism Scientific Meeting, Orlando, FL 2013
- Lovely, C.B.**, Ackerman, M., Henegar, T., and Eberhart, J.K. Isolation and characterization of an ethanol sensitive zebrafish mutant. 72nd Annual Society of Developmental Biology Meeting / 17th International congress of Developmental Biology, Cancun, MX 2013
- Lovely, C.B.**, and Eberhart, J.K. Components of Bmp Signaling Pathways Interact with Ethanol, Perturbing Proper Embryonic Jaw Development. 35th Annual Research Society on Alcoholism Scientific Meeting, San Francisco, CA 2012
- Lovely, C.B.**, Shaw, G.E., and Perlin, M.H. Regulation of morphogenesis in response to low ammonium in *Ustilago maydis*. The Mycology Society of America Conference, Lexington, KY 2010
- Lovely, C.B.**, Shaw, G.E., and Perlin, M.H. Mating type specific signaling in *Ustilago maydis*. 25th Fungal Genetics Conference, Asilomar, CA 2009
- Smith, D., Shawler, C., **Lovely, C.B.**, Heitman, J., and Perlin, M.H. To "P" or not to "P"? The action of methylammonium permeases in fungal dimorphism depends on their ability to be phosphorylated. 22nd Fungal Genetics Conference, Asilomar, CA 2003.

Funding

Current

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| R00 AA023560 (PI: C.B. Lovely) | 6/2018 – 5/2021 |
| NIH/NIAAA <i>Analysis of an ethanol-sensitive pathway regulating anterior craniofacial development</i> | |
| Startup Funds – PI: C.B. Lovely | 1/2018 – 12/2023 |
| University of Louisville <i>Gene-ethanol interactions in craniofacial development</i> | |

Completed

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| K99 AA023560 (PI: C.B. Lovely; Sponsor: J.K. Eberhart, Univ. of Texas) | 9/2015 – 8/2017 |
| NIH/NIAAA <i>Analysis of an ethanol-sensitive pathway regulating anterior craniofacial development</i> | |
| F32 AA021320 (PI: C.B. Lovely; Sponsor: J.K. Eberhart, Univ. of Texas) | 9/2012 – 9/2015 |
| NIH/NIAAA <i>Ethanol-induced Lower Jaw Loss in Bmp Signaling Pathway Mutants</i> | |

Academic and Professional Honors

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| 2019 | Keynote Address – Gordon Research Seminar on Alcohol-induced End Organ Diseases |
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2018	Innovator Award Finalist – The Teratology Society 58 th Annual Meeting
2017	Wilson Presentation Award Finalist – post doc, The Teratology Society 57 th Annual Meeting
2017	Postdoctoral Speaker Award – 11 th Structural Birth Defects Meeting
2015-2020	NIH Pathway to Independence Award (K99/R00)
2015	Wilson Presentation Award – post doc, The Teratology Society 55 th Annual Meeting
2012-2015	NIH Ruth L. Kirschstein post-doctoral fellowship
2014	Finalist for the Aquatic Animal Models of Human Disease Post-doctoral Poster Presentation Award
2014	Finalist for the American Association of Anatomists Post-doctoral Poster Presentation Award
2014	American Association of Anatomists Travel Award
2012	Best Speaker Award, Post-doctoral, 6 th Biannual Southern Plains Zebrafish Meeting
2009	BioLegend Travel Award
2009	Center for Genetics and Molecular Medicine Travel Award
2007	The Richard B. and Constance L. Lewis Educational Scholarship
2005	Conwell / Furnish Teaching Award
1997	Sigma Phi Epsilon Balanced Man Scholarship
1997-2002	Governor's Scholar Trustees Scholarship, University of Louisville

Memberships in Professional Societies

Research Society on Alcoholism (RSA)
 Society of Developmental Biology (SDB)
 Society for Craniofacial Genetics and Developmental Biology (SCGDB)
 American Association of Anatomists (AAA)
 Society for Teratology (Tera)
 International Zebrafish Society (IZFS)
 Omicron Delta Kappa
 Golden Key National Honor Society

Service to Scientific Community

Journal Review – Ad Hoc

PLoS Genetics
 Journal of Clinical Investigation
 Neurotoxicology
 Journal of Visualized Experiments
 eLife
 Alcohol
 Neuroscience Letters
 Developmental Dynamics

Teaching / Mentoring

Courses

Brown Mackie College

2008 Urinalysis
 2007 Microbiology
 2007 Chemistry

University of Louisville

2008 Graduate Teaching Assistant – General Biology
 2002-2007 Graduate Teaching Assistant – Microbiology

Mentoring

Undergraduate Students

2019-present Sam Robinson

- 2019-present Rachel Eckert
Project: Creation of zebrafish transgenic constructs using tol2
- 2018-present Allison Villari
Project: Injecting transgenic constructs into zebrafish
- 2018-present Elizabeth Lepovsky
Project: Creation of transgenic zebrafish
- 2016-2017 Amar Sheth
Project: Creation of transgenic zebrafish
- 2016-2017 Harsh Gupta
Project: Analysis of tert-Butanol as an ethanol analog
- 2014-2015 Ashley Anderson – University of Texas
Project: Methanol and isopropanol embryo dosage response curves for wild-type and ethanol-sensitive zebrafish
- 2013-2014 Taylor Henegar – University of Texas visiting student - St. Edwards University
Project: Isolation and Characterization of an ethanol sensitive zebrafish mutant
- 2013-2014 Delaney Dowd – University of Texas
Project: Characterization of an ethanol sensitive zebrafish mutants
- 2012-2014 Kim Ho – University of Texas
Project: The localization and gene x ethanol interaction of bmpR1ba during zebrafish craniofacial development
- 2011 Ivan Pulido – University of Texas visiting student - St. Edwards University
Project: Effect of Dorsomorphin on BMP pathway and Craniofacial Development
- 2009-2010 Greg Shaw – University of Louisville
Project: Mating type specific signaling in Ustilago maydis

High School Students

- 2018 Ashley Kayabasi
Project: Creation of transgenic zebrafish
- 2018 Carley Kayabasi
Project: Creation of transgenic zebrafish
- 2016 Mukund Pasapuleti
Project: Creation of transgenic zebrafish

Funding

Completed

- Undergraduate Research Fellowship – University of Texas at Austin (PI: K. Ho; Sponsor: C.B. Lovely and J.K. Eberhart, Univ. of Texas) 9/2013 – 5/2014
The localization and gene x ethanol interaction of bmpR1ba during zebrafish craniofacial development

Presentations

Platform

- Henegar, T., **Lovely, C.B.**, and Eberhart, J.K. Isolation and Characterization of an ethanol sensitive zebrafish mutant. 23rd Annual Texas Research Society on Alcoholism Scientific Conference, Austin, TX 2013

Posters

- Ho, K., **Lovely, C.B.**, and Eberhart, J.K. Members of the Bmp pathway interact with ethanol perturbing embryonic jaw development. Annual Waggoner Center for Alcohol and Addiction Research Retreat, Austin, TX 2014
- Dowd, D., Sidik, A., **Lovely, C.B.**, and Eberhart, J.K. A zebrafish “shelf screen” identifies multiple gene-ethanol interactions in *vangl2* and *plk1*. 24th Annual Waggoner Center for Alcohol and Addiction Research Retreat, Austin, TX 2014
- Dowd, D., Sidik, A., **Lovely, C.B.**, and Eberhart, J.K. A zebrafish “shelf screen” identifies

- multiple gene-ethanol interactions in *vangl2* and *plk1*. 24th Annual Texas Research Society on Alcoholism Scientific Conference, San Antonio, TX 2014
- Henegar, T., **Lovely, C.B.**, and Eberhart, J.K. Isolation and Characterization of an ethanol sensitive zebrafish mutant. 2013 Annual Biomedical Research Conference for Minority Students, Nashville, TN 2013
- Ho, K., **Lovely, C.B.**, and Eberhart, J.K. *bmpR1ab* interacts with ethanol perturbing embryonic jaw development in zebrafish. 23rd Annual Texas Research Society on Alcoholism Scientific Conference, Austin, TX 2013
- Dowd, D., **Lovely, C.B.**, and Eberhart, J.K. A zebrafish “shelf screen” identifies multiple gene-ethanol interactions. 23rd Annual Texas Research Society on Alcoholism Scientific Conference, Austin, TX 2013
- Henegar, T., **Lovely, C.B.**, and Eberhart, J.K. Isolation and Characterization of an ethanol sensitive zebrafish mutant. 6th Biannual Southern Plains Zebrafish Meeting, Austin, TX 2012
- Shaw, G.E., **Lovely, C.B.**, and Perlin, M.H. Mating type specific signaling in *Ustilago maydis*. The Mycology Society of America Conference, Lexington, KY 2010