

**16th Annual Berea Undergraduate Research
Symposium
October 7th, 2016**

Sponsored by Division I



Special Thanks

Chemistry Program

Undergraduate Research and Creative Projects Program

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Hatfield, Levey and Capps Research Funds

Oral Session I – Room 106

Moderator – Dawn Anderson

Speakers indicated by bold typeface

- 2:40 PM** **Emma Reasoner**, “Wildlife Response-Alaska Sealife Center”, Berea College; Mentor – Ron Rosen
- 3:00 PM** **Jacquie Zimmerman**, “The Expression of PD-L1 in the Hair Follicle”, University of Denver, Anchutz Medical Campus; Mentor – Dennis Roop
- 3:20 PM** **Jillian Kendall**, Robin Hauschner, “Examination of species richness and diversity of mosquitoes on the campus of Berea College”, Berea College; Mentor – Sarah Blank
- 3:40 PM** **Refreshment Break**
- 4:00 PM** **Zachary Setters**, “The role of TAp63 in epidermal wound healing”, University of Denver, Anchutz Medical Campus; Mentor – Dennis Roop
- 4:20 PM** **Casey Tetidrick**, Aubrey Melton, Chioma Amaechi, Willie Gosnell, Gladys Kamau, Yunpeng Xia, “A Peer-Assisted Learning (PAL) Model that Increases Student Success in Anatomy and Physiology”, Berea College; Mentor – Sarah Blank
- 4:40 PM** **Sean Nilan**, “Seed Germination Ecology of the Endangered Yellow Gentian (*Gentiana flavida*): A Population in Peril?”, Berea College; Mentor – Christopher Adams

Oral Session II – Room 101

Moderator – Jay Baltisberger

Speakers indicated by bold typeface

- 3:00 PM** **Aaron Morgan**, “Seed Dormancy in *Calycanthus floridus* (Carolina allspice): Does Time of Dispersal Affect Dormancy Break and Germination?”, Berea College; Mentors – Christopher Adams
- 3:20 PM** **Sunaina Sherchan**, “Clinical and Research Experience”, Bill Wilkerson Center for Speech Pathology and Audiology, Vanderbilt University Medical Center; Mentors – Ann Marie Tharpe
- 3:40 PM** **Refreshment Break**
- 4:00 PM** **Kyaw Hpone Myint**, “Encapsulation of Nanoparticles during Polymer Micelle Formation: A Dissipative Particle Dynamics Study”, The Ohio State University; Mentor – Barbara Wyslouzil & Lisa Hall
- 4:20 PM** **Albert Artiles**, “Counting Trees”, Berea College; Mentor – Beth Kelly & James Blackburn-Lynch
- 4:40 PM** **Seth Reasoner**, “Characterization of a novel delivery system of cyclic dinucleotides for efficient innate immune activation”, Vanderbilt University Medical Center; Mentor – Manny Ascano

Poster Session – Lobby

3:30 to 5:00 PM

- Poster 1** Haylie Prottzman & Kaitlynn Rothwell, “Nutritional Management and Reproductive Performance of Replacement Heifers raised in Sustainable Production Systems at Berea College and Community Producer Operations”, Berea College; Mentor – Quinn Baptiste
- Poster 2** Nina Meneses, Olivia Slater, Favour Akabogu, Robin Hauschner, Aubrey Melton, Casey Tetidrick & Jillian Kendall, “Climate Change and the Effect of Temperature on the Release of *Proterometra macrostoma* (Trematoda: Digenea) Cercariae from their Snail Intermediate Host, *Pleurocera semicarinata* (Gastropoda: Pleuroceridae)”, Berea College; Mentor – Ron Rosen & Sarah Blank
- Poster 3** Favour Akabogu, Robin Hauschner, Nina Meneses, Olivia Slater, Kaitlyn Reasoner, Hsuan Peng, Lin Peng & Chi Peng, “Seasonal Changes in Maturation of Adult *Cotylaspis insignis* (Trematoda: Aspidogastridae) Recovered from the Fat Mucket, *Lampsilis radiata luteola* (Bivalvia: Unionidae)”, Berea College; Mentor – Ron Rosen
- Poster 4** Meghan Kramer, “Development of therapeutics for sleep apnea targeting Kir2.4 potassium channels”, Vanderbilt University Medical Center; Mentor – Jerod Denton
- Poster 5** Amber Follin & Ambra Pozzi, “Expression of DDR-2 Flag in Human Embryonic Kidney Cells”, Vanderbilt University Medical Center; Mentor Corina Borza
- Poster 6** Hanna Abe, “Analysis of neuromasts in pkd2 mutant zebrafish”, Mayo Clinic, Rochester MN; Mentor – Caroline Sussman
- Poster 7** James Bryson McCarthy, “The application of glyoxalase one crispr cas-9 knockout cells for the study of neuropathy”, Vanderbilt University; Mentor – Jim Galligan
- Poster 8** Hsuan Peng, “Intraepithelial cells in an NOD IL 10-/- ABo DQ8 mouse model of celiac disease” Mayo Clinic, Rochester MN; Mentor – Eric Marietta & Joseph Murray
- Poster 9** Aubrey Melton, “Determining the effectiveness of a PAL (Peer-Assisted Learning) program in Anatomy and Physiology II”, Berea College; Mentor – Sarah Blank
- Poster 10** Marah Zeidan, “Improving Long-Term Outcomes in Retinoblastoma Survivors”, Vanderbilt University Medical Center; Mentor – Debra Friedman
- Poster 11** Wesley Saintilnord & Rafael Mendoza, “The stability of environmental temperatures influences thermal plasticity in the Eastern newt (*Notophthalmus viridescens*)”, Berea College; Mentor – Patrick Mineo
- Poster 12** Rebekah Ponder, “Visualizing spatiotemporal gene expression of the Sonic Hedgehog (Shh) gene during axoltl limb development and regeneration”, University of Kentucky; Mentor – Ashley Seifert
- Poster 13** Tyller Culver & Jeremy Wilde, “Isolation and Characterization of Antibiotic Resistant Staphylococcus in the Berea College community–A pilot study”, Berea College; Mentor – Dawn Anderson
- Poster 14** Monica Moran, “Effect of Ziram and methylmercury on ubiquitin activating enzyme E1 and microtubules in human neurons and mouse neuro2A cells”, Vanderbilt University; Mentor – Diana Neely
- Poster 15** Moncia Powell & Hope Thomas, “Isolation and Characterization of Plasmid DNA from Non-Pathogenic Commensal *Escherichia coli*”, Berea College; Mentor – Dawn Anderson

- Poster 16** Brenna MacMillan & Million Beshah, “Design and Synthesis of Novel Neurotensin Analogs”, Berea College; Mentors – Matthew Saderholm
- Poster 17** Job Limo, “Pharmaceutical Science Research”, University of Kentucky, College of Pharmacy; Mentor – Eric Munson
- Poster 18** Maria S. Ledesma-Alonso, “Synthesis and Characterization of ZorO Protein”, University of Tennessee, Knoxville; Mentor – Shawn Campagna
- Poster 19** Christinia Patel, “Functional role of the cytoplasmic tail of α subunit of $\alpha 3\beta 1$ integrin in migration and adhesion to LM-511”, Vanderbilt University Medical Center; Mentor – Olga Viquez
- Poster 20** Boubacar Cherif, “The Bioluminescent Detection of HIV Persistency”, University of Miami; Mentor – Emre Dikici
- Poster 21** Samuel A. Effoe, “Teratogen Toxicity in Organotypic Culture Models”, University of Pittsburgh; Mentor – Peter Alexander & Rocky Tuon
- Poster 22** Jonah Rector, “Activity of Small Molecule Endoplasmic Reticulum Proteostasis Regulators”, The Scripps Research Institute; Mentor – R. Luke Wiseman
- Poster 23** Marco Santos, “Impact of SRCR Domains in the Functionality & Localization of Lysyl Oxidase Like 2 in Diabetic Nephropathy”, Vanderbilt University; Mentor – Alberto Lopez-Jimenez
- Poster 24** Tomas Flores & Chris James, “Lab study of glyphosphate degradation in Berea forest soils”, Berea College; Mentor – Paul Smithson
- Poster 25** Carlos Andres Berejnoi Bejarano & Chann Makara Han, “Degradation of glyphosphate in Berea College forest soils”, Berea College; Mentor – Paul Smithson
- Poster 26** Aubree Zimmer, “Probing actinomycin Y5 biosynthesis by investigating Z-family homologs”, University of Kentucky College of Pharmacy; Mentor – Steven Van Lanen
- Poster 27** Priscila Elizabeth Garcia Garcia & Savannah Osborne, “Land Use History, Soil Characterization, and Invasive Species in the Berea College Forest”, Berea College; Mentor – Paul Smithson
- Poster 28** Helina Asrat, “Managing pests in stored wheat: Do organic methods work?”, Berea College; Mentor – Sean Clark
- Poster 29** Sean Gillette, “Impact of Polymer and Surfactant on Adsorption of Poorly Water-Soluble Drug, Griseofulvin”, University of Kentucky, College of Pharmacy; Mentor – Patrick Marsac
- Poster 30** Michael James & Kateryna Nabukhotna, “Engineering Novel Substrates for the Neuropeptidase Neurolysin”, Berea College; Mentor – Matthew Saderholm
- Poster 31** Bhavesh Ramkorun, “Comparing two unrooted phylogenetic X-trees”, Berea College; Mentor – Beth Kelly & James Blackburn-Lynch
- Poster 32** Malachi Holden, “Adjoints and Hierarchies”, Berea College; Mentor – Beth Kelly & James Blackburn-Lynch
- Poster 33** Susan Bonta & Constantine Botimer, “Spreading Knowledge of the Berea College Art Collection to the Larger Community”, Berea College; Mentor – Meghan Doherty
- Poster 34** Rashad Hayden & Bethany Turner, “Diversity and Community Policing”, Berea College; Mentor – Kennaria Brown

- Poster 35** Talha Rehman, “The CLAS12 Forward Tagger Detector”, Jefferson Lab; Mentor – Marco Battaglieri
- Poster 36** Dustin Watts, “Fabrication of MEMS Microrobots”, University of Louisville; Mentor – Dan Popa
- Poster 37** Nathanael Bodine, “Developing High Entropy Alloys and the Impact of Annealing on the Crystalline Structures”, Berea College; Mentor – Troy Messina
- Poster 38** Tanner Thompson, “Thermo-Magnetic Properties of High Entropy Alloys”, Berea College; Mentor – Troy Messina
- Poster 39** Robert Barnes, “Thermo-Magnetic Properties of High Entropy Alloys”, Berea College; Mentor – Troy Messina
- Poster 40** Abdul Ali Eissar, “(2+1)-dimensional Causal Dynamical Triangulations”, Bard College; Mentor – Joshua Cooperman
- Poster 41** Denzell Barnett & Guillermo Ramos-Macias, “Development of Open Source Computer Simulations for STEM fields”, Berea College; Mentor – Martin Veillette
- Poster 42** Kyree Hobson & Simeon Huff, “Evaluation of the Berea Summer Food Service Program”, Berea College, Grow Appalachia & the Berea Summer Food Service Program; Mentor – Andrea Woodward
- Poster 43** Eddie Henderson & Charity Ryan, “*Without Metaphor*”, Berea College; Mentor – Daniel Feinberg



Plenary Talk – Room 106 at 5:15 PM
Dr. Karl Dawson - “Using science to drive a global revolution in production agriculture: Defining the tools for the future”
Vice President and Chief Scientific Officer, Alltech, Lexington KY

Karl Dawson attained his Bachelor of Science degree in bacteriology from Utah State University, then gaining a Master of Science degree at the University of Wyoming in microbiology before getting a Ph.D. in bacteriology from Iowa State University. He worked two years as a microbiologist at the National Animal Disease Laboratory in Ames before he moved to the University of Kentucky for twenty-one years before joining the research team at Alltech in 1999.