Kaela M. Varberg, Ph.D.

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Education

Ph.D., Cellular and Integrative Physiology — August 2012-May 2017
Indiana University School of Medicine, Indianapolis, IN

B.S., Biochemistry, Rockhurst University, Kansas City, MO — August 2008-May 2012

Publications

Muto M, Chakraborty D, **Varberg KM**, Moreno-Irusta A, Iqbal K, Scott RL, McNally RP, Choudhury RH, Aplin JD, Okae H, Arima T, Matsumoto S, Ema M, Mast AE, Grundberg E, Soares MJ. Intersection of regulatory pathways controlling hemostasis and hemochorial placentation. *Proc Natl Acad Sci USA.* 2021 Dec 14;118(50):e2111267118.

Varberg KM, Soares MJ. Paradigms for investigating invasive trophoblast cell development and contributions to uterine spiral artery remodeling. *Placenta.* 2021 May 3:S0143-4004(21)00130-2.

Varberg KM, Iqbal K, Muto M, Simon ME, Scott RL, Kozai K, Choudhury RH, Aplin JD, Biswell R, Gibson M, Okae H, Arima T, Vivian JL, Grundberg E, Soares MJ. ASCL2 reciprocally controls key trophoblast lineage decisions during hemochorial placenta development. *Proc Natl Acad Sci USA.* 2021 Mar 9;118(10):e2016517118.

Nteeba J, **Varberg KM***, Scott RL, Simon ME, Iqbal K, Soares MJ. Poorly controlled diabetes mellitus alters placental structure, efficiency, and plasticity. *BMJ Open Diabetes Res Care*. 2020 Jun;8(1).

Varberg KM, Garretson R, Blue EK, Haneline LS. Elevated Transgelin1 is sufficient to induce dysfunction in endothelial colony forming cells from gestational diabetic pregnancies. 2018 Oct; *Am J Physiol Cell Physiol.* 315(4):C502-C515.

Soares MJ, **Varberg KM**, Iqbal K. Hemochorial Placentation: Development, Function, and Adaptations. 2018. *Biol Reprod*. 99(1):196-211.

Varberg KM, Winfree S, Dunn KW, Haneline LS. Kinetic Analysis of Vasculogenesis quantifies endothelial colony forming cell network formation in vitro. *J Vis Exp.* 2018 Jan;(131).

Soares MJ, **Varberg KM**. Trophoblast. In Reference Module in Biomedical Sciences, Elsevier, 2018, ISBN 9780128012383.

Varberg KM, Winfree S, Chu C, Tu W, Blue EK, Gohn CR, Dunn KW, Haneline LS. Kinetic analyses of vasculogenesis inform mechanistic studies. 2017. *Am J Physiol Cell Physiol*. 312(4):C446-458.

Gohn CR, Blue EK, Sheehan B, **Varberg KM**, Haneline LS. Mesenchyme Homeobox 2 enhances migration of endothelial colony forming cells exposed to intrauterine diabetes mellitus. 2016. *J. Cell. Physiol*. 232(7):1885-1892.

Blue EK, Sheehan B, Nuss Z, Boyle F, Hocutt C, Gohn CR, **Varberg KM**, McClintick J, Haneline LS. Epigenetic regulation of PLAC8 contributes to altered function of endothelial colony forming cells exposed to intrauterine gestational diabetes mellitus. 2015. *Diabetes*. 64(7):2664-75.

Funding Support

University of Kansas Medical Center IRPR Translational Pilot Award July 2021-June 2022
PI: **Kaela Varberg** and Michael Soares
Project Title: "Extravillous trophoblast cell phenotypes in placenta accrete spectrum"

NIH F32 Postdoctoral Fellowship December 2018-May 2022
PI: **Kaela Varberg**, The University of Kansas Medical Center
Project Title: "Regulation of endovascular trophoblast cell development and uterine spiral artery remodeling"

Lalor Foundation, Inc. Postdoctoral Fellowship June 2018-May 2019
Project Title: "Regulation of endovascular trophoblast cell development and uterine spiral artery remodeling"

Kansas IDeA Network of Biomedical Research Excellence (K-INBRE) Postdoctoral Award May 2018-April 2019
Project Title: "Regulation of endovascular trophoblast cell development and uterine spiral artery remodeling"

KUMC Biomedical Research Training Program Award July 2017
Project Title: "Development of the endovascular trophoblast lineage"

NIH T32 Training Grant January 2014-July 2017
PI: Hal Broxmeyer, Ph.D., Indiana University School of Medicine
Grant Title: "Basic Science Studies on Gene Therapy of Blood Diseases"

Research Experience

Postdoctoral Fellow July 2017-Present
University of Kansas Medical Center, Kansas City, KS
Mentor: Michael J. Soares, Ph.D.
Project Title: Transcriptomic profiling of invasive trophoblasts within the hemochorial placentation site

Graduate Student August 2012-July 2017
Indiana University School of Medicine, Indianapolis, IN
Mentor: Laura Haneline, M.D.
Project Title: Kinetic vasculogenic analyses of endothelial colony forming cells exposed to intrauterine diabetes

Undergraduate Research January 2011-May 2012
Rockhurst University, Kansas City, MO
Mentor: Chad Scholes, Ph.D.
Project Title: Antimicrobial Effects of Tannins from Several Species of Oak

Laboratory Assistant October 2010-May 2012
Stowers Institute for Medical Research, Kansas City, MO
Mentor: Ali Shilatifard, Ph.D.

Presentations

69th Annual Meeting, Society for Reproductive Investigation, Denver, CO **(Poster)**	March 2022
54th Annual Society for the Study of Reproduction Meeting, St. Louis, MO **(Poster)**	December 2021
5th Annual US Developmental Origins of Health and Disease, Raleigh, NC **(Oral)**	November 2021
18th Annual Gilbert S. Greenwald Symposium, Kansas City, KS **(Virtual Poster)**	October 2021
International Federation of Placenta Associations Annual Meeting (**Virtual Oral x2**)	August 2021
Centre for Trophoblast Research Placental Biology Course, University of Cambridge (**Virtual Oral**)	July 2021
17th Annual Gilbert S. Greenwald Symposium, Kansas City, KS **(Virtual Poster)**	October 2020
67th Annual Meeting, Society for Reproductive Investigation, Vancouver, CAN **(Poster)**	March 2020
*Cancelled due to global pandemic.	
16th Annual Gilbert S. Greenwald Symposium, Kansas City, KS **(Oral and Poster)**	November 2019
Children's Mercy Genomic Medicine Short Course, Kansas City, KS **(Oral)**	September 2019
4th Annual US Developmental Origins of Health and Disease, Raleigh, NC **(Oral)**	September 2019
52nd Annual Society for the Study of Reproduction Meeting, San Jose, CA **(Poster)**	July 2019
15th Annual Gilbert S. Greenwald Symposium, Kansas City, KS **(Poster)**	October 2018
3rd Annual US Developmental Origins of Health and Disease, Raleigh, NC **(Oral)**	October 2018
KUMC Biomedical Research Training Program Scholars Day, Kansas City, KS **(Oral)**	June 2018
14th Annual Gilbert S. Greenwald Symposium, Kansas City, KS **(Poster)**	October 2017
2nd Annual US Developmental Origins of Health and Disease, Detroit, MI **(Oral)**	September 2017
International Vascular Biology Meeting, Boston, MA **(Poster)**	October 2016
1st Annual US Developmental Origins of Health and Disease, Detroit, MI (**Poster)**	October 2016
Riley Hospital for Children Pediatric Scholars Day, Indianapolis, IN **(Poster)**	May 2016
IUPUI Research Day, Indianapolis, IN **(Poster)**	April 2016
Indiana Physiological Society Annual Meeting, Greencastle, IN **(Oral and Poster)**	February 2016
Indiana Physiological Society Annual Meeting 2015, Indianapolis, IN **(Poster*)**	February 2015
National Conference on Undergraduate Research, Ithaca, NY **(Poster)**	April 2011

** Presentation Award*

Scholarships and Awards

Donald C. Johnson Trainee Travel Award, KUMC	2022
US DOHaD Society Scientific Award	2021
Donald C. Johnson Trainee Travel Award, KUMC	2020
Kansas Postdoctoral Association Professional Development Award	2020
BioKansas Professional Development Award	2019
Awarded Trainee Abstract for Platform Presentation, 16th Annual Greenwald Symposium	2019
Donald C. Johnson Trainee Travel Award, KUMC	2019
Trainee Travel Award, US DOHaD Society Annual Meeting	2018
Trainee Travel Award, Genomic Medicine Short Course, Children's Mercy Center	2018
David M. Gibson Award, Sigma Xi Competition 1st Place Overall	2016
Student Volunteer of the Year Award, IU School of Medicine	2016
IU School of Medicine Office of Diversity Affairs Travel Award	2016
IU School of Medicine Travel Award	2015
Presentation Award, INPhys State Meeting	2015
IUPUI Women's Leadership Award Nominee	2015
P.E.O. Scholar Award Nominee	2014-2015
Dean's List Rockhurst University	2008-2012

Dowling Scholarship	2008-2012
Regent Scholarship	2008-2012
Iota Pi Recognition Scholarship--ZTA Foundation	2011
Don E. Gibbs Scholarship	2011
Joe Glas Scholarship	2010
Missouri Colleges Scholarship	2010
Donna Edell Scholarship	2009
Rockhurst Freshman Class Highest Honors	2009

Leadership Experience

Society for Reproductive Investigation In Training Member Committee	2021-Present
KUMC Postdoctoral Advisory Committee Member	2018-2022
Rockhurst University Young Alumni Council Member	2017-2022
International DOHaD Society Advocacy Committee Trainee Representative	2018-2020
US DOHaD Society Trainee Council Member	2018-2020
KUMC Office of Professional Affairs and Graduate Studies Hiring Committee	2018-2020
KUMC Postdoctoral Association Board Member, Chair*	2018-2020
Indiana Physiological Society Student Councilor	2016-2017
Cellular and Integrative Physiology Department Student Representative	2014-2017
IUSM Networking Committee Chair	2014-2017
Preparing Future Faculty and Professionals Program	2014-2017
IBMG Student Ambassador	2013-2016
Graduate and Professional Student Government IUSM Representative	2015
IUSM IBMG Program Oversight Committee Student Representative	2014-2015
Alpha Sigma Nu- National Jesuit Honors Society	2012
Phi Lambda Upsilon- Chemistry Honors Society	2011
Chapter President, Zeta Tau Alpha Fraternity, Kappa Eta Chapter	2010-2011
Chapter President, Beta Beta Beta Biological Honors Society, Pi Epsilon Chapter	2010-2011
Student President, Rockhurst Honors Program	2009-2010

Teaching Experience

Lecturer

Reproductive Physiology, PHSL834, KUMC, Kansas City, KS	2018-2021
Biology of Women N200, IUPUI, Indianapolis, IN	October 2015

Student Mentoring and Training

Lab Mentor

Gerardo Herrera Birrueta, Graduate Student	2021-
Anna Galligos, Undergraduate Intern	2020-2021
Mikaela Simon, Laboratory Assistant	2019-2021
Kacey Grooms, Laboratory Assistant	2019-2020
Misha Patel, Laboratory Assistant	2018-2019
Ayesha Hasan, M.D., Medical Fellow	2018-2019
Rashell Garretson, Undergraduate Student	2014-2017
Lauren Gilliland, Bioengineering Undergraduate Student	2015

Student Mentor 2013-2017

Kimberly Fong, IBMG Graduate Student
Alison Bates, IBMG Graduate Student
Cayli Meizel-Lambert, IBMG Graduate Student
Agnes Zybura, IBMG Graduate Student

Science Tutor 2009-2011
The Learning Center, Rockhurst University
RU College Bound Program, Rockhurst University

Supplemental Instructor 2008-2009
Honors General Biology I, Rockhurst University

Service

Kansas City Researchers in Biomedical Science (KC RiBS) Board Member 2018-Present
Founded and run non-profit group to support early career investigators in Kansas City.

Trainee Host and Moderator, Greenwald Symposium 2017-2021
Contribute to annual meeting preparation and hosting invited speakers.

Invited Speaker, Rockhurst University, Kansas City, MO 2017-2021
Present to and engage with science-track undergraduate students (1-2 times annually).

Mentor, Letters to a Pre-Scientist Program 2019-2020
Write letters to underrepresented/minority students about careers in science.

KUMC Office of Professional Affairs and Graduate Studies Hiring Committee 2018-2020
Serve as trainee representative on office hiring committee.

Girls, Inc. 2016-2017
Led workshops to encourage young girls to consider STEM education.

Susan G. Komen Tissue BioBank Volunteer, Indianapolis, IN 2014-2017
Volunteered in the laboratory processing tissue donations for the BioBank.

Training/Courses

DOHaD Summer Course August 5, 12 2021
Center for Developmental Health, Oregon Health & Science University

Human and Mammalian Genetics and Genomics: The McKusick Short Course July 19-29, 2021
The Jackson Laboratory, Virtual

Placental Biology Course, Centre for Trophoblast Research July 5-9, 2021
University of Cambridge, Virtual

Perinatal Research Society Trainee Grant Writing Workshop September 10-11, 2020
Perinatal Research Society Annual Meeting, Virtual

Trainee Train-Up September 7, 2019
4th Annual US Developmental Origins of Health and Disease, Raleigh, NC

Genomic Medicine Short Course September 10-13, 2018
Children's Mercy Center for Pediatric Genomic Medicine, Kansas City, MO

Meetings and Symposia Attended

69th Annual Meeting, Society for Reproductive Investigation, Denver, CO March 15-19, 2022
54th Annual Society for the Study of Reproduction Meeting, St. Louis, MO December 13-18, 2021
5th Annual US Developmental Origins of Health and Disease, Raleigh, NC November 7-9, 2021
18th Annual Gilbert S. Greenwald Symposium, Virtual October 13-15, 2021
International Federation of Placenta Associations, Virtual August 30-September 2, 2021

17th Annual Gilbert S. Greenwald Symposium, Virtual	October 8-9, 2020
53rd Annual Society for the Study of Reproduction Meeting, Virtual	July 9-12, 2020
16th Annual Gilbert S. Greenwald Symposium, Kansas City, KS	November 7-8, 2019
4th Annual US Developmental Origins of Health and Disease, Raleigh, NC	September 7-9, 2019
52nd Annual Society for the Study of Reproduction Meeting, San Jose, CA	July 18-21, 2019
3rd Annual RARE KC Summit, Kansas City, MO	March 4, 2019
15th Annual Gilbert S. Greenwald Symposium, Kansas City, KS	October 18-19, 2018
3rd Annual US Developmental Origins of Health and Disease Meeting, Raleigh, NC	October 1-2, 2018
One Health Research Symposium: Applications of CRISPR/cas9, Kansas City, MO	August 19-20, 2018
National Postdoctoral Association Annual Meeting, Cleveland, OH	April 6-8, 2018
Society for Reproductive Investigation, San Diego, CA	March 6-10, 2018
14th Annual Gilbert S. Greenwald Symposium, Kansas City, KS	October 19-20, 2017
2nd Annual US Developmental Origins of Health and Disease Meeting, Detroit, MI	September 25-27, 2017
19th International Vascular Biology Meeting, Boston, MA	October 30-November 2, 2016
1st Annual US Developmental Origins of Health and Disease Meeting, Detroit, MI	October 18-19, 2016
Gender Bias Under the Microscope, Chicago, IL	September 23, 2016
Indiana Physiological Society State Meeting, Indianapolis, IN	February 27, 2016
Vasculata, Charlottesville, VA	August 3-6, 2015
Indiana Physiological Society State Meeting, Indianapolis, IN	February 21, 2015
International Society for Experimental Hematology Annual Meeting, Montreal, Canada	August 21-24, 2014
IUPUI Preparing Future Faculty and Professionals Annual Meeting	2013, 2014
Scientific Writing from the Reader's Perspective	2014, 2015
National Conference on Undergraduate Research, Ithaca, NY	March 31-April 3, 2011

Professional Affiliations

Perinatal Research Society, Associate Member	2020-Present
Society for Reproductive Investigation	2020-Present
US DOHaD Society	2016-Present
Society for the Study of Reproduction	2019-Present
International DOHaD Society	2018-Present
North American Vascular Biology Organization	2016-2018
American Physiological Society	2016-2017
Indiana Physiological Society	2015-2017
Women and Hi Tech, Indianapolis, IN	2014-2017
International Society for Experimental Hematology	2014-2015

Peer Review

Placenta	2020
PLoS One	2020
BMJ Open Diabetes Research & Care	2020-2021
Molecular Human Reproduction	2021
FASEB Journal	2021
Nature Protocols	2021
National Science Foundation	2021
Genes	2021