

# CURRICULUM VITAE

## RANDALL SCOTT PRATHER

Division of Animal Sciences  
920 East Campus Drive, E125D Animal Science Research Center  
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Married 39 years; 7 children.

### **CAREER OBJECTIVE**

To genetically engineer swine for production agriculture and biomedicine, and to improve reproductive efficiency in domestic animals by performing directed research in developmental biology and reproductive physiology, by focusing on the molecular, cellular and physiological events surrounding ovulation, fertilization and preimplantation embryonic development.

### **EDUCATION**

**Postdoctoral Fellow**, University of Wisconsin-Madison, Dr. N.L. First & Dr. G.P. Schatten.

**Doctorate of Philosophy**, Endocrinology-Reproductive Physiology, University of Wisconsin-Madison, May, '87.

**Master of Science**, Animal Science and Industry (Reproductive Physiology), Kansas State University, May, '84.

**Bachelor of Science**, Agriculture (Animal Science and Industry), Kansas State University, May, '82.

**High School Diploma**, Garnett High School, Garnett, Kansas, May, '78.

### **TRAINING AND RESEARCH EXPERIENCE**

November '11-Present: **Director**, National Swine Resource and Research Center, University of Missouri-Columbia.

September '06-Present; **Curators' Distinguished Professor**, University of Missouri System.

November '04-June '19; **Associate Leader**, Food for the 21<sup>st</sup> Century Reproductive Biology Cluster, University of Missouri-Columbia.

September '03-November '11; **Co-Director**, National Swine Resource and Research Center, University of Missouri-Columbia.

September '01-Present; **Distinguished Professor of Reproductive Biotechnology**, University of Missouri-Columbia.

September '99-August '01; **Professor**, Department of Animal Sciences, University of Missouri-Columbia.

September '95-August '99; **Associate Professor**, Department of Animal Sciences, University of Missouri-Columbia.

June '89-August '95; **Assistant Professor**, Department of Animal Sciences, University of Missouri-Columbia.

June '88-June '89; **Postdoctoral Research Assistant**, Dept. Meat & Animal Science, University of Wisconsin-Madison.

March '87-June '88; **Postdoctoral Research Assistant**, Dept. Zoology, Dept. of Meat & Animal Science, University of Wisconsin-Madison.

June '84-February '87; **Research Assistant**, Department of Meat and Animal Science, University of Wisconsin-Madison.

June '82-May '84; **Temporary Assistant Instructor**, Department of Surgery and Medicine, College of Veterinary Medicine, Kansas State University, Manhattan, Kansas.

January '82; **Basic Milker's School**, Kansas State University, Manhattan, Kansas.

'75-'84; **Farm Manager and Worker**, Osage Farms Inc., Garnett, Kansas.

## **RESEARCH INTERESTS**

1. Mechanisms of Oocyte Activation
2. Transcriptional Regulation of Differentiation
3. *In Vitro* Production of Embryos
4. Nuclear Reprogramming After Nuclear Transfer
5. Transgenic Animal Production
6. Genomic Studies in Reproduction

## **WEB SITES**

Bloomberg- Disease Resistant Pigs.

<https://www.bloomberg.com/news/features/2019-12-03/china-and-the-u-s-are-racing-to-create-a-super-pig>

Science Daily- Transmissible Gastroenteritis Virus Resistant Pigs.

<https://www.sciencedaily.com/releases/2018/10/181015132934.htm>

Unearthed – Porcine Reproductive and Respiratory Syndrome Virus Resistant Pigs.

<https://unearthedmag.wordpress.com/2016/05/13/gene-editing-holds-promise-as-animal-disease-prevention-of-the-future/>

MIZZOU – Porcine Reproductive and Respiratory Syndrome Virus Resistant Pigs.

<http://munews.missouri.edu/news-releases/2015/1208-pigs-that-are-resistant-to-incurable-disease-developed-at-university-of-missouri/>, and <https://vimeo.com/187064068/415c816ef5>

National Hog Farmer - Porcine Reproductive and Respiratory Syndrome Virus Resistant Pigs. <http://nationalhogfarmer.com/animal-well-being/genetic-breakthrough-creates-prrs-resistant-pigs>

North American Porcine Reproductive and Respiratory Syndrome Symposium, Chicago, IL Dec 5, '15. <https://www.youtube.com/watch?v=vYLkeBUJU0>

New Pig Model of Cancer- [http://www.eurekalert.org/pub\\_releases/2015-07/uoi-npm072915.php](http://www.eurekalert.org/pub_releases/2015-07/uoi-npm072915.php)

North American Porcine Reproductive and Respiratory Syndrome Symposium, Chicago, IL Dec 6, '14. <http://www.youtube.com/watch?v=KLgHvTTITXE>

McGill University, Honorary Doctorate Address, Montreal, Canada, June 2, '14. [http://www.youtube.com/watch?v=pBr1d8\\_VKoc](http://www.youtube.com/watch?v=pBr1d8_VKoc)

National Hog Farmer. Story on Porcine Reproductive and Respiratory Syndrome resistance to virus. July 24, '13. <http://nationalhogfarmer.com/health/finding-cure-prrs>

Syndicate Mizzou: A Bacon of Hope. Jan 20, '09. <http://syndicatemizzou.org/articles/show/97>

National Swine Resource and Research Center Website. <http://nsrrc.missouri.edu/>

Prather's Home Page. <http://animalsciences.missouri.edu/faculty/prather/>

Discover Magazine story on Omega 3 Pigs. December 21, '06. <http://www.columbiamissourian.com/stories/2006/12/21/omega-3-pork-hits-discovers-top-list/>

Columbia Missourian story on Omega-3 pigs. March 29, '06. <http://www.columbiamissourian.com/stories/2006/03/29/eat-like-a-pig-without-looking-like-one/>

The New York Times story on Omega 3 Pigs. March 26, '06. <http://www.nytimes.com/2006/03/26/health/26cnd-pig.html>

The Daily Show- Omega 3 Pigs, March 26, '06. <http://www.cc.com/video-clips/yrv8of/the-daily-show-with-jon-stewart-what-are-we-doing-to-pigs---fatty-acids>

National Public Radio story on Omega 3 Pigs. March 26, '06. <http://www.npr.org/templates/story/story.php?storyId=5300300>

Cryopreservation Technique for Pig Embryos. Columbia Missourian. May 4, '04. <http://www.columbiamissourian.com/stories/2006/05/04/new-pig-embryo-technique-aids-disease-research/>

Swine Genome Project at the University of Missouri. <http://swine.rnet.missouri.edu/>

Bovine Genome Project at the University of Missouri. <http://bovine.rnet.missouri.edu/>

Ovine Genome Project at the University of Missouri. <http://genome.rnet.missouri.edu/Ovine/>

CNN story on the First Knockout Pigs for Xenotransplantation. Jan. 3 '02. <http://www.cnn.com/2002/HEALTH/01/03/pig.cloning/index.html>

### **PROFESSIONAL MEMBERSHIP**

International Xenotransplantation Association (IXA) '13-Present.  
American Association for the Advancement of Science '89-Present.  
Society for the Study of Reproduction '84-Present.  
International Embryo Technology/Transfer Society '83-'09, '11-Present.  
American Society of Animal Scientists '83,'94-'98.

Society for the Study of Fertility '94-'99.  
Society of Developmental Biologists '86-'92.  
American Scientific Affiliation '86-'91.  
Sigma Xi '87-'96.

## **AWARDS/HONORS**

- **Bar Association of Metropolitan St. Louis's 2018 Inventors of the Year** for our Porcine Reproductive and Respiratory Syndrome Virus Resistant Pigs. R.S. Prather, K.M. Whitworth, K.D. Wells. Aug. 20, '19.

- **Missouri University Livestock Engineering Team (MULE Team)** was designated a "Program of Distinction" by the College of Agriculture Food and Natural Resources at the University of Missouri. April 11, '19.

<https://cafnr.missouri.edu/research/programs-of-distinction/>

- **Science Leadership Award.** St. Louis Academy of Science, St. Louis, MO April 5, 2018.

- **Academy of Science St. Louis Fellow,** St. Louis, MO, April 5, 2018.

- **Roger L. Mitchell Fellow.** College of Agriculture Food & Natural Resources, University of Missouri. April 14, '16.

- **American Association for the Advancement of Science Fellow,** November '15. Induction Feb 13, '16. Washington DC.

- Mizzou Chapter of the **National Academy of Inventors.** University of Missouri. April 30, '15.

- **Doctorate in Science, *honoris causa*.** McGill University, Montreal, Canada. June 2, '14.

- **Fredrick Blackmar Mumford Outstanding Faculty Award.** College of Agriculture Food and Natural Resources. University of Missouri. April 10, '14.

- **Distinguished Faculty Alumni Award.** The University of Missouri Alumni Association. Columbia, MO October 12, '12.

- **Distinguished Agriscience Scientist Award.** Christopher Columbus Fellowship Foundation, <http://www.agriscienceawards.com/recent-winners.php>. Washington DC. July 12, '11.

- **Faculty Alumni Award.** The University of Missouri Alumni Association. Columbia, MO October 10, '08.

- **Research Award,** Society for the Study of Reproduction. Kailua-Kona, Hawaii May 27, '08. [http://www.ssr.org/Documents/2008-05-25\\_008awardees.pdf](http://www.ssr.org/Documents/2008-05-25_008awardees.pdf)

- **21<sup>st</sup> Century Corps of Discovery Lecture.** University of Missouri-Chancellor's Award. '07. <http://chancellor.missouri.edu/discovery/past-lectures.php>

- **Discover Magazine Top 100 Science Stories** in '06. Our Omega-3 pigs ranked number 38.

- **President's Award for Research and Creativity,** University of Missouri System. May 4, '06.

- **American Physiology Society,** Walter Randall Award for Biomedical Ethics, April 4, 2006. San Francisco, CA.

- **National Geographic Magazine**, Photo and story on transgenic pigs expressing the enhanced green fluorescent protein. July '05, page 18.
- **Presidential Faculty Entrepreneur of the Year Award**, University of Missouri System. March 5, '03.
- **Animal Molecular and Cell Biology Distinguished Lecturer**, University of Florida. May 3, '03.
- **Popular Science's Medical Tech Grand Award Winner**. The best of what's new- Knockout pigs- The most significant advance in medical technology for the year 2002.
- **Discover Magazine** Top 100 Science Stories in 2002. Our alpha 1,3 galactosyltransferase knock-out pigs ranked number 36.
- **Missouri's Excellence in Life Science Award** for Excellence in Life Science Research for '02. Missouri Biotechnology Association (MOBIO), November 14, 2002.
- **Distinguished Professor of Reproductive Biotechnology**, September 1, '01, University of Missouri-Columbia.
- **Outstanding Research Award**, American Society of Animal Science- Midwestern Section, March 19, '97.
- **Researcher of the Year**, Junior Faculty, College of Agriculture, Food & Natural Resources, University of Missouri, October 1, '96.
- **Junior Faculty Research Award**, Gamma Sigma Delta University of Missouri, March 27, '96.
- **Finalist-Student Competition**, International Embryo Transfer Society; '84, '85, '86.
- **Counselor, Kansas Boy's State**, Lawrence, KS. '78.
- **Delegate, Kansas Boy's State**, Lawrence, KS, '77.

## **MISCELLANEOUS**

- American Hereford Association-** Gene Editing Work Group. March 21, '17. Webinar. Presenter and Panel Member.
- Swine in Biomedical Research-** Organizing Committee. September 21-25, '17. Baltimore, MD.
- Strategic Planning**, ORIP NIH- Panel Member. North Bethesda, MD. July 9 '15.
- External Advisory Board-** R24 awarded to Christopher Tuggle, Iowa State University. Summer '15 to present.
- Chair** – Animal Models Impacting Human Disease: 10<sup>th</sup> Comparative Medicine Resource Directors Meeting. Session on the Impact of CRISPR/Cas9 Mutagenesis on Resources of Various Species. Bethesda, MD Aug 12-13, '14
- External Advisory Committee-** NRSP8- Swine sub-committee. Fall '13 to present.
- International Organizing Committee-** 10<sup>th</sup> International Conference on Pig Reproduction. Chair of the Local Organizing Committee. '13-'17. June 11-14, '17. Columbia, Missouri.

**Swine in Biomedical Research-** Organizing Committee. July 6-8, '14. Raleigh, NC.

**Swine in Biomedical Research-** Program Committee. July 6-8, '14. Raleigh, NC.

**International Organizing Committee-** 9<sup>th</sup> International Conference on Pig Reproduction. Treasurer. '09-'13. June, '13. Olsztyn, Poland. Also chaired a session.

**Swine in Biomedical Research-** Organizing Committee. Chicago, IL, July 17-19, '11. Also provided Welcoming Remarks and served as Session Moderator.

**Chairman** –International Embryo Transfer Society, Session VI Molecular Networks as Sensors and Drivers of Fertility. Orlando, FL, Jan 10, '11.

**International Organizing Committee** – Swine Genome Sequencing Consortium, Sanger Auditorium, November 2-4, '09. Hinxton, UK.

**Consultant** – Exemplar Genetics, Sioux Center, IA. 2/3/2009-2/2/2010; 9/1/2010-8/31/2011

**Swine in Biomedical Research-** Organizing Committee. San Diego, April 2-3, '08.

**International Embryo Transfer Society-** Chaired a session entitled 'Societal Needs' at the annual meeting. January 5-9, '08.

**International Organizing Committee-** 8<sup>th</sup> International Conference on Pig Reproduction. Treasurer. '05-'09. June 1-3, '09 Banff, Canada.

**Swine in Biomedical Research-** Organization Committee- Meeting held in Chicago in January '05.

**USDA/NRICGP Reproductive Biology of Animals** - Grant Review Panel May 31-April 4, '03. Washington D.C.

**USDA/NRICGP Reproductive Biology of Animals** - Grant Review Panel May 13-16, '02. Washington D.C.

**Abstract Session Chair.** International Embryo Transfer Society. Co-Chaired the review of 65 abstracts on cloning with Brett White at the University of Nebraska. Fall '01.

**International Organizing Committee-** 7<sup>th</sup> International Conference on Pig Reproduction. Treasurer. June '00-'05. The Netherlands.

**International Organizing Committee-** 6<sup>th</sup> International Conference on Pig Reproduction. June 3-6, '01. Columbia, MO.

**Editorial Board-** *Xenotransplantation*. Blackwell Publishing. May '02- Dec '19.

**Executive Editor-** *Molecular Reproduction & Development*. Wiley-Liss, Inc. March '07 - '17.

**Associate Editor-** *Molecular Reproduction & Development*. Wiley-Liss, Inc. November '99-February '07.

**Board of Editors-** Cloning, now re-titled *Cloning & Stem Cells*, now re-titled *Cellular Reprogramming*. Mary Ann Liebert, Inc. Publishers. September '98-Present.

**Editorial Advisory Board-** *Animal Reproduction Science*. Elsevier Science. January '00- December '01.

**Organizing Committee**- Nuclear Transfer and Transgenesis. June 18-21, '00. Park City, Utah.

**Chairman**-Session on: Stem Cells. Nuclear Transfer and Embryonic Stem Cells. April 15-17, '98. Monash University, Australia.

**Physiology Committee** - Midwest Section of the American Association of Animal Scientists/ American Dairy Science Association, '96-'98. Chairman '97-'98.

**Research Awards Committee**- Midwest Section of the American Association of Animal Scientists/ American Dairy Science Association, '97-'00.

**Co-Chair**- Session on: Embryo transfer in pigs. Annual Meeting of the International Embryo Transfer Society, Salt Lake City, Utah, January 8, '96.

**Chairman**- Session on: Activation of the oocyte. Annual Meeting of the International Embryo Transfer Society, Salt Lake City, Utah, January 9, '96.

**Director** - Transgenic Animal Facility, in the Animal Sciences Research Center, '90-'94.

**USDA/NRICGP Reproductive Biology of Animals** - Grant Review Panel June 1-4, '93. Washington D.C.

**Local Organizing Committee** - 4<sup>th</sup> International Conference on Pig Reproduction, Columbia, MO, May 23-26, '93.

**Local Organizing Committee**- 22<sup>nd</sup>Annual Meeting of the Society for the Study of Reproduction, Columbia, MO, Aug. 6-9, '89.

**Education Committee**, International Embryo Transfer Society '91-'92, '97-'99.

### **Ad Hoc Reviewer**

#### Journals

- Animal Biotechnology: '04, '05, '06, '07, '10, '13, '14, '16, '19;
- Animal Genetics: '95, '07, '10;
- Antiviral Research: '19;
- American Journal of Transplantation: '03;
- Animal Reproduction Science: '97, '98, '99, '02, '03, '04, '05, '06, '07, '08, '09, '13;
- Biology of Reproduction: '88, '89, '90, '91, '92, '93, '94, '95, '96, '97, '98, '99, '00, '01, '02, '03, '04, '05, '06, '07, '08, '09, '10, '11, '12, '13, '14, '15, '16, '17, '18;
- Biology Open: '13;
- BMC Biotechnology: '12;
- BMC Genomics: '13;
- Cellular Reprogramming: '13, '14;
- Developmental Biology: '89, '90, '91, '92, '93, '94, '95, '00, '06;
- Developmental Dynamics: '06, '11;
- Differentiation: '95;
- DNA and Cell Biology: '03;
- Domestic Animal Endocrinology: '99;
- Epigenetics: '10, '11;
- Gamete Research: '89;

- Genome: '00;
- Journal of the American Association for Laboratory Animal Science: '09;
- Journal of Animal Science: '91, '94, '95, '98, '06, '10;
- Journal of Experimental Zoology: '91, '92, '93, '94;
- Journal of Reproduction & Fertility: '89, '90, '91, '92, '95, '97, '98, '99 '00, '12, '13, '17;
- Life Sciences: '11;
- Microbiology: '13;
- Microscopy Research and Technique: '99;
- Molecular Reproduction & Development: '89, '90, '91, '92, '93, '94, '95, '96, '97, '98, '99, '18;
- Nature Reviews Genetics: '00;
- Nature Biotechnology: '01, '05, '08;
- PLoS ONE: '15, '19;
- Proceedings of the National Academy of Science: '96, '97, '00, '01, '03, '04, '05, '07, '08, '09, '10, '12;
- Reproduction: '00, '01, '05, '06, '07, '08, '12, '13, '14, '18;
- Reproduction in Domestic Animals: '09, '10;
- Reproduction, Fertility and Development: '97, '98, '99, '00, '01, '02, '03, '04, '05, '08, '09, '11, '13;
- Reproduction Nutrition Development: '95;
- Reproductive Biology and Endocrinology: '13;
- Scientific Reports: '16, '17, '18;
- Science: '00, '01;
- Systems Biology for Reproductive Medicine: '09;
- Theriogenology: '89, '90, '91, '92, '93, '94, '95, '96, '97, '98, '99, '00, '01, '02, '03, '04, '06, '07, '10, '11, '13, '15;
- Toxicologic Pathology: '15;
- Transgenic Research: '05, '06, '07, '09, '10, '11, '13, '14, '16, '18;
- Transplantation: '06;
- Xenotransplantation: '01, '02, '06;
- Virology: '19;
- Zygote: '97, '98.

#### Grant Proposals

- Austrian Science Fund: '97, '98;
- Biotechnology and Biological Sciences Research Council, UK: '97, '98;
- Global Research Network Program- Korea Research Foundation: '08.
- International Foundation for Science: '97;
- Juvenile Diabetes Research Foundation: '09;
- Lincoln University AES-Jefferson City Mo: '99;
- Massachusetts Agricultural Experiment Station: '95;
- Medical Research Council of Canada: '93;
- Missouri Agricultural Experiment Station (Lincoln University): '97;
- National Institutes of Health, NIAID, Innovation grant program: approaches in HIV vaccine research: '98;



- National Institutes of Health, NICHD, REB:'99; NICHD, ZHD1, '00; NINDS, NSD-B, '02; CSR ZRG1 BDA-A, '09; CSR ZRG1 IDM-L,'09; CSR ZRG1 EMNR-Q ,'11; CSR ZRG1 EMNR-E, '12; CSR SEP, '14.
- National Science Foundation:'94, '06;
- Natural Sciences and Engineering Research Council of Canada:'93, '08;
- North Carolina Biotechnology Center: '97;
- The Israel Science Foundation: '99, '02;
- The Volcani Center, ARO: '16
- Ohio Cancer Research Associates: '97;
- USDA CSREES Small Business Innovation Research Program: '90, '91, '98, '99, '02;
- USDA CSRS CRGO Animal Growth & Development: '90;
- USDA CSRS CRGO Animal Science - Reproductive Physiology: '90;
- USDA CSRS NRI CGP Animal Science - Reproductive Biology of Animals: '91, '92, '95, '96, '97,'99, '01, '04, '05;
- USDA CSRS NRI CGP Animal Science - Animal Molecular Genetics: '92, '99, '00;
- USDA CSRS NRI CGP Animal Science - Cellular Growth...: '92, '95, '96;
- USDA CSRS NRI CGP Improving Animal Growth: '98;
- USDA CSREES Biotechnology Risk Assessment: '04;
- USDA- NIFA Multistate Research Project: '14;
- University of Louisville, CTS Innovative Research proposal: '10.
- University of Wisconsin Sea Grant College Program: '97.

Site Visit

- University of Illinois- Review of swine research and teaching facilities, September 15-17, 2014.

**Team Captain** - Kansas State University, Animal Science and Industry Academic Quadrathlon. 2nd place team: '82.

**FUNDING (Total Costs)**

**As Principal Investigator or Co-Investigator (Subcontracts as PI/PD)**

2019-2020; <b>National Institutes of Health</b> - U42 Administrative Supplement. National Swine Resource and Research Center. PI, R.S. Prather, Co-Is Drs. Bryda, Schommer, Whitworth & Wells.	\$ 408,004
2019-2023; <b>National Institutes of Health</b> - U42. Swine somatic cell genome editing center. K.D. Wells, R.S. Prather, PI's.	\$8,671,087
2019-2022; <b>United States Department of Agriculture</b> , AFRI. Functional significance of growth hormone receptor promoters. P.I. M.C. Lucy, Co-I R.S. Prather, K.D. Wells & T.J. Safranski	\$499,938
2018-2017; <b>Genus plc.</b> Disease resistant pigs. R.S. Prather, K.D. Wells, K.M. Whitworth, B.K. Redel, PI's.	\$ 698,654
2018-2023; <b>National Institutes of Health</b> - U42. National Swine Resource and Research Center. PI, R.S. Prather, Co-Is Drs. Bryda, Schommer, Whitworth & Wells.	\$7,229,830

2018-2020; **Rural Development Administration**, Republic of Korea. Establishment of a National Transgenic Swine Resource and Research System. R.S. Prather, PI \$ 150,000

2017-2018; **United States Department of Agriculture**, ARS. 10<sup>th</sup> International Conference on Pig Reproduction. R.S. Prather, PI \$5,000

2017-2020; **United States Department of Agriculture**, AFRI. Functional analysis of estrogens and interferons in porcine conceptus development and implantation. R.D. Geisert PI, T.E. Spencer, K.D. Wells, R.S. Prather, Co-I. \$480,000

2017-2018; **United States Department of Agriculture**, AFRI. 10<sup>th</sup> International Conference on Pig Reproduction. R.S. Prather, PI \$5,000

2016-2017; **National Pork Board**, Porcine cytomegalovirus real-time PCR validation for diagnostic use. S. Schommer, PI, R.S. Prather, Co-I. \$45,874

2015-2017; **Genus plc**. PRRSV resistant pigs. R.S. Prather, K.D. Wells, K.M. Whitworth, PI's. \$ 701,844

2015-2017; **Amgen, Inc.** Preclinical Model Development. R.S. Prather & K. Wells PI's. \$ 300,000

2014-2016; **National Institutes of Health** – R21. Subcontract from the University of Pittsburgh – Dr. Robert Nicholls, PI, Development of a Swine Model of Prader-Willi Syndrome. R.S. Prather & K. Wells PI's on the subcontract. \$423,203 total \$ 150,708

2014-2015; **National Institutes of Health** – U42 Administrative Supplement. CRISPR/Cas9 to create animal models of human disease: The NSRRC. R.S. Prather & Kevin Wells, PI's \$ 230,957

2014-2015; **Howard Hughes Medical Institute**/ Univ. Iowa. Somatic cell nuclear transfer and related work for Iowa via HHMI. R.S. Prather \$ 20,000

2014; **Auburn University**. Fertilization of pig oocytes in the presence of specific pig serum. R.S. Prather \$ 25,836

2014-2018; **National Institutes of Health** – R01. Modification of donor cell metabolism to mimic blastomere metabolism for improved somatic cell nuclear transfer. R.S. Prather, J.A. Green, K. Wells PIs. \$1,133,088

2014; **Genus**. Genetic engineering of PRRSV resistant pigs for Genus. R.S. Prather & K. Wells, PIs \$ 111,694

2013-2018; **National Institutes of Health**- U42. National Swine Resource and Research Center. PI, R.S. Prather, Co-Is Drs. Bryda, Schommer, Walters & Wells. \$7,146,890

2013-2016; **United States Department of Agriculture AFRI**. ZFN-mediated inactivation of porcine interleukin 1 $\beta$  as a model to study endometrial receptivity and conceptus attachment. PDs J.J. Whyte, R.D. Geisert, R.S. Prather. \$ 497,696

2013-2014; **Genus**. Genetic engineering of PRRSV resistant pigs for Genus. R.S. Prather & K. Wells, PIs \$ 207,610

2013; **Genus**. Genetic engineering of PRRSV resistant pigs for Genus. R.S. Prather & K. Wells, PIs \$ 51,851

2012-2014; **National Institutes of Health** – R21, A large animal model of SMA. M. Lorson, PI, C. Lorson, K. Wells, R.S. Prather, Co-I's. \$ 416,625.

2012-2017; **National Institutes of Health**, R01 Dual Use – Induced Pluripotent Stem Cells from Swine: Application to Genetic Modification. RM Roberts, T Ezashi, RS Prather, KD Wells, BPV Telugu. \$1,984,446

2011-2012. **Iowa State University**. Cloning of DMD swine for Dr. Jason Ross. R.S. Prather, PI on the subcontract \$12,911

2011-2014. **Christopher Columbus Foundation**. CD163 modified pigs. R.S. Prather, PI \$25,000

2010-2014. **Korea – Kon-Kuk University**. Development of patient-specific organs by using multiple zinc finger nucleases. R.S. Prather, PI \$500,000

2010-2011. **University of British Columbia**. Maintenance of transgenic boars for the Juvenile Diabetes Research Foundation. R.S. Prather, PI \$ 6,435

2010. **University of Louisville** (Dr. Henry Kaplan). Green pigs for eye research. R.S. Prather, PI \$10,835.

2009; **Juvenile Diabetes Research Foundation**. Subcontract from the University of British Columbia. Tim Kieffer. R.S. Prather, PI on Subcontract \$62,461.

2009-2011; **National Institutes of Health**, U42 Administrative Supplement. National Swine Resource and Research Center. L.K. Riley, J.K. Critser, R.S. Prather and K.D. Wells. \$ 932,481.

2009-2011; **National Institutes of Health**, R21. High throughput cryopreservation of swine embryos. R.S. Prather, PI. \$ 372,115.

2009-2010. **Agricultural Research Service**, Swine genomics and biodefense countermeasures discovery. L. K Riley, M.A. McIntosh PIs, R.S. Prather Co-I. \$ 173,000.

2009-2011. **National Institutes of Health**, R21. Large animal model of spinal muscle atrophy. M.A. Lorson, PI, C.L. Lorson, R.S. Prather, K. D. Wells, Co-PIs. \$411,125.

2007-2008. **National Institutes of Health**. R13. Swine in Biomedical Research. Conference Grant. L. Riley, J. Critser & R.S. Prather, PI's. \$30,000.

2008-2013. **National Institutes of Health**. U42. Competitive Renewal of the National Swine Resource and Research Center. L. Riley, J. Critser & R.S. Prather, PI's. \$8,274,384.

2007-2008. **Hematech, Inc.** Production of pigs/fetuses for Hematech. R.S. Prather, PI. \$ 40,000

2007-2008. **United States Department of Agriculture**. NRI. Swine in Biomedical Research. Conference Grant. L. Riley, J. Critser & R.S. Prather, PI's. \$ 10,000

2007-2011. **National Institutes of Health**. Production of transgenic pigs by nuclear transplantation. Competitive renewal of R01. R.S. Prather, PI, Gordon Springer, Co-PI. \$1,162,175

2006-2009. **United States Department of Agriculture.** ARS. 1 year. Program for the prevention of animal infectious diseases and advanced technologies for vaccines and diagnostics. Knockout of sialoadhesin in swine. Direct costs only. R.S. Prather, PD. \$ 244,000

2006-2009. **United States Department of Agriculture.** NRI. 2 Years. Development of Defined Conditions for Pig Embryo Culture. R.S. Prather, PD. \$284,153

2005-2008. **United States Department of Agriculture.** Development of ovine expressed sequence tags for the study of female reproduction. J.A. Green, R.S. Prather, D.H. Keisler, M.F. Smith, G.K. Springer, J.F. Taylor, C. Elsik PDs. \$560,629

2005. **United States Department of Agriculture.** ARS. 7<sup>th</sup> International Conference on Pig Reproduction. Direct costs only. R.S. Prather, PD. \$ 2,500

2005-2009. **United States Department of Agriculture.** USDA National Needs Graduate Fellowships. M.C. Lucy R.S. Prather, W.R. Lamberson, J.F. Taylor, D.J. Patterson, M.F. Smith, H.A. Garverick, D.H. Keisler, T.J. Safranski, E. Antoniou, J.A. Green, E.B. Rucker, P. Sutovsky, PDs. Direct costs only. \$ 69,000

2005-2008. **United States Department of Agriculture NRI.** 2 years. Transcriptional Profiling of Nuclear Transfer-Derived Embryos to Improve Development After Nuclear Transfer. R.S. Prather, PI, P. Sutovsky & J. Green, Co-PDs \$499,939

2005. **United States Department of Agriculture.** 41.0 Animal Reproduction. International Conference on Pig Reproduction. R.S. Prather, PD. Direct costs only. \$ 5,000

2005-2006. **Monsanto Company.** Fertilization Experiments with Osteopontin. R.S. Prather, PI. \$ 125,000

2005. **United States Department of Agriculture.** Plant and Animal Systems. International Conference on Pig Reproduction. R.S. Prather, PD. Direct costs only. \$ 5,000

2004. **Immerge BioTherapeutics, Inc.** Construction of Knockout Miniature Swine. R.S. Prather, PI. \$ 55,013

2004-2005. **National Institutes of Health.** NCRR K13 RR020283. Swine in biomedical research conference. Larry Schook, Univ. IL. PI, Co-PIs Chris Counter, Duke U.; Eric Forsberg, Infigen; Merete Fredholm, Danish Vet. & Ag. Univ.; T. Mohankumar, Washington U.; Steven Niemi, Mass. General Hospital; Randall Prather, Univ. MO; and Hirosh Yasue, Japanese Nat. Inst. of Agrobiolol. Sci. \$ 22,500

2003-2009; **National Institutes of Health.** NCRR. R24. eNOS: Metabolism & vascular biology in health & disease. M.H. Laughlin PI, E.B. Rucker Co-PI, R.S. Prather, F.W. Booth, D.K. Bowles, J.R. Turk Co-Is. \$3,526,324

2003-2008; **National Institutes of Health,** NCRR U42. 5 years. Operation of the National Swine Research and Resource Center, Co-PIs:

L. Riley, J.K. Critser, R.S. Prather, E.B. Rucker. \$7,024,385  
2003-2005; **National Institutes of Health**, NCRR C06. 2 years.  
Construction of the National Swine Research and Resource Center. J.S.  
Coleman, PI, J.K. Critser, R.S. Prather, L.K. Riley, J. Herigon, E.B. Rucker,  
D. Spellman, J. Wawrzyniak, Co-PIs \$2,848,226  
2003-2005; **University of Missouri**; Match for the above C06  
to construct the National Swine Research and Resource Center. J.K. Critser,  
L. Riley, R.S. Prather, E.B. Rucker. \$5,458,530  
2002-2005; **United States Department of Agriculture NRI**. 2 years.  
Bovine ESTs: Focus on female reproduction. RS Prather, PI, Co-PIs: E.  
Antoniou, H.A. Garverick, JA Green, MC Lucy, RM Roberts, MF Smith,  
RS Youngquist. \$ 990,000  
2002-2007; **National Institutes of Health**, NCRR R01. 5 years.  
Production of transgenic pigs by nuclear transplantation. Competitive  
Renewal. RS Prather, PI, E Antoniou, Co-PI. \$1,034,867  
2002-2003; **Ximerex, Inc.** 1 year. Construction of transgenic pigs  
for Ximerex by Nuclear Transfer. RS Prather, PI. \$ 133,834  
2001; **United States Department of Agriculture**, NRI. 6 months.  
6<sup>th</sup> International Conference on Pig Reproduction. RS Prather, PI, BN  
Day, Co-PI. \$ 5,000  
2001-2002; **National Institutes of Health**. NCRR R01, 1 year.  
Production of transgenic swine by nuclear transplantation. RS Prather PI,  
Supplemental request to maintain genetic lines. \$ 18,161  
2001-2003; **BioTransplant, Inc/Immerge BioTherapeutics**,  
2 years. Production of  $\alpha$ -1,3-galactosyltransferase deficient pigs by  
nuclear transplantation. RS Prather PI (SBIR Phase II, NIH NCRR subcontract)  
\$ 345,686  
2000; **BioTransplant, Inc.**, 6 mo. Production of  $\alpha$ -1,3-  
galactosyltransferase deficient pigs by nuclear transplantation. RS Prather PI, BN  
Day Co-PI (SBIR Phase I, NIH NCRR subcontract) \$ 45,652  
1999-2004; **Monsanto**, 5 years. Agricultural Genomes: Animal  
Genome Project: Microarrays of Reproductive Significance. RS Prather  
& BN Day PIs, MC Lucy, MF Smith, JA Green, Co-PIs. \$2,500,000  
1999-2004; **Monsanto**, 5 years. Swine Reproduction. BN Day  
& RS Prather PIs, MF Smith, Co-PI. \$2,500,000  
1999-2002; **United States Department of Agriculture** NRI. 3 years.  
Development of Resources for Functional Genomics in the Pig. Joint project  
between CK Tuggle and MF Rothschild at Iowa State, MB Soares and TL Casavant  
at the University of Iowa, D Pomp at the University of Nebraska, WD Beavis at  
the National Center for Genomics Research, and RS Prather, BN Day, MC Lucy,  
WR Lamberson, JA Green. \$124,575 to MU. \$ 700,000  
1999-2000; **BioTransplant, Inc.** 1 year. Production of transgenic  
mini-swine for xenotransplantation. RS Prather PI, BN Day Co-PI \$ 119,755  
1998-2001; **National Institutes of Health**. NCRR R01, 3 years.  
Production of transgenic swine by nuclear transplantation. RS Prather PI,

BN Day Co-PI	\$ 595,205
1998-1999; <b>BioTransplant, Inc.</b> , 1 year. Production of transgenic mini-swine by nuclear transplantation. RS Prather PI, BN Day Co-PI	\$ 113,803
1996-2000; <b>National Institutes of Health</b> NICHD U01. 4 years.	
Markers for predicting developmental competence. RS Prather, PI; BN Day & RM Roberts Co-PIs.	\$ 883,426
1996-1999; <b>National Institutes of Health</b> NCRR R01. 3 years.	
An improved method for making transgenic animals. RS Prather PI, BN Day Co-PI.	\$ 520,769
1996-1998; <b>United States Department of Agriculture</b> NRI, 2 years.	
Cdc25c and Cyclin B levels at the onset of transcription. PI	\$ 128,496
1996; <b>BioTransplant, Inc.</b> 6 months. Non-ES cell mediated gene targeting in the mini swine, via BioTransplant, Inc. subcontract. RS Prather PI, BN Day Co-PI. (NIH NCRR SBIR subcontract).	\$ 36,455
1995-1997; <b>United States Department of Agriculture</b> NRI, 2 years.	
Role of a G-protein coupled receptor in pig oocyte activation. PI	\$ 98,000
1994-1995; <b>University of Missouri Research Council</b> , 4 mo.	
Imprinting of genes in domestic pig embryos. PI.	\$ 2,834
1994-1995; <b>BioTransplant, Inc.</b> , 1 year. Activation and development of mini-pig oocytes and embryos, continued. PI.	\$ 234,379
1993-1994; <b>BioTransplant, Inc.</b> , 1 year. Activation and development of mini-pig oocytes and embryos. PI.	\$ 304,601
1992-1995; <b>United States Department of Agriculture</b> NRI, 3 years.	
Mechanisms of parthenogenic activation in pigs. PI.	\$ 151,108
1991-1992; <b>National Pork Producers Council</b> , 1 year. Artificial activation of <i>in vitro</i> matured porcine oocytes for cloning embryos. PI.	\$ 5,467
1990-1992; <b>United States Department of Agriculture</b> NRI, 2 years.	
Nuclear changes after nuclear transfer for cloning pigs. A continuation of 1988-1990, Multiplication of porcine embryos by nuclear transfer. PI.	\$ 150,000
1990-1991; <b>University of Missouri Research Council</b> , 1 year. Amino acid transport in early pig embryos. Experiments evaluate kinetics of amino acid transport in early pig embryos. PI.	\$ 6,222
1988-1990; <b>National Institutes of Health</b> Postdoctoral Fellowship, 2 1/2 years. Nuclear lamins in early embryogenesis (Awarded, but not accepted). PI.	\$ 60,000
1988-1990; <b>United States Department of Agriculture CGP</b> , 2 years.	
Multiplication of porcine embryos by nuclear transfer. PI.	\$ 200,000

Total as PI or Co-PI **\$76,094,218**

#### **As Major User/ Contributor/Collaborator**

2019-2021; **National Institutes of Health**- OT2 Subcontract from the University of Florida. Transgenic pigs with red-shifted channelrhodopsin-citrine

fusion proteins. R.S. Prather, PI on the subcontract; K.D. Wells Co-PI. \$69,917 to MU \$ 430,555

2019-2020; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Origins of cystic fibrosis airway disease. R.S. Prather, PI \$ 147,866 to MU. \$2,295,540

2019-2020; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Gene therapy for cystic fibrosis lung disease. R.S. Prather, PI \$ 58,262 to MU. \$2,199,723

2018-2019; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Origins of cystic fibrosis airway disease. R.S. Prather, PI \$ 147,866 to MU \$2,318,240

2018-2019; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Gene therapy for cystic fibrosis lung disease. R.S. Prather, PI \$ 226,295 to MU. \$2,201,579

2018-2020; **United States Department of Agriculture NIFA**. Subcontract from CryoCrate, Inc. A Highly Efficient Vitrification Device For Animal Embryos and Spermatozoa. R.S. Prather PI. \$32,831 to MU \$ 99,686

2018-2020; **National Institutes of Health** – R21. IGHMBP2 patient-derived missense mutations: large animal models of SMARD1. C. Lorson, PI, M. Lorson PI, R.S. Prather, Co-I. \$426,450

2017-2018; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Gene therapy for cystic fibrosis lung disease. R.S. Prather, PI \$ 271,017 to MU. \$2,203,382

2017: **National Institutes of Health** – DP2. Subcontract from the University of Iowa. Airway goblet cells, Friend or foe? R.S. Prather, PI. \$ 103,990 to MU.

2016-2017; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Gene therapy for cystic fibrosis lung disease. R.S. Prather, PI \$ 192,039 to MU. \$2,219,200

2015-2016; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Gene therapy for cystic fibrosis lung disease. R.S. Prather, PI \$ 115,981 to MU. \$2,216,878

2015-2020; **National Institutes of Health** – R01 Subcontract from The Mayo Clinic. Development of immunodeficient FAH<sup>-/-</sup> pigs. R.S. Prather, PI \$262,698 to MU. \$1,827,655

2014-2015; **National Institutes of Health** – P01. Subcontract from the University of Iowa. PPG- Gene therapy for cystic fibrosis lung disease. R.S. Prather, PI \$ 167,794 to MU. \$2,159,794

2012-2013; **National Institutes of Health** – P01, subcontract from the University of Iowa. PPG- Airway physiology and pathophysiology in a porcine CF model. R.S. Prather, PI \$ 45,874 \$11,362,245

2009-2014. **National Institutes of Health** subcontract from the University of Iowa. Cystic fibrosis lung disease. R. S. Prather, PI on the subcontract. \$366,128 to MU. \$11,374,870

2010-2013. **National Institutes of Health** subcontract from the University of Iowa. Iowa Phase II Clinical Trials of Novel Therapies for Lung Diseases. L. Durairaj, PI at UI. R. S. Prather, PI on the subcontract. \$250,699 to MU. \$5,316,755

2007-2010. **The Discovery Eye Foundation**. Functional reconstruction of the outer retina. Michael Young, PI, Harvard; Henry Klassen, UC-Irvine; Robert S. Langer, MIT; Erik Scherfig, University of Copenhagen-Denmark; Karin Warfvinge, Lund University, Sweden; Erin Lavik, Yale University. Henry Kaplan, University of Louisville, KY. Subcontract to the University of Missouri, R. S. Prather, PI. \$99,190. Total funding \$5,989,793.

2004-2009. **National Institutes of Health**. NHLBI P01. Subcontract from the University of Iowa. Gene Therapy for Cystic Fibrosis Lung Disease. M.J. Welsh, PI UI. R.S. Prather, PI on subcontract. \$639,194 to MU. \$8,424,151

2007-2009; **Fight SMA**, The development of a swine model of Spinal Muscle Atrophy. Monique Lorson, PI. \$ 172,748

2005-2008; **National Science Foundation**, NSF Major Instrumentation grant. University of Missouri Prime fund match. Acquisition of Instrumentation for Plant and Animal Genome Mapping and High Throughput Genotyping. H. T. Nguyen, PI. \$860,000

2000; **National Science Foundation**, Minority Graduate Education Proposal. PI is Provost Dr. Brady Deaton. \$2,401,784

1999: **University of Missouri Research Board**, Establish Genomics Core Facility. PI, Don Riddle \$ 98,000

1998; **National Science Foundation**, Match for a new scanning electron microscope. PI is Dr. Heide Schatten. \$ 273,000

1996-1999; **United States Department of Agriculture**, Food and Agricultural Sciences National Needs Graduate Fellowships-Animal Biotechnology Project. Funding for four highly qualified graduate students to work in the Department of Animal Sciences with the PI's or collaborators. \$ 216,000

1994-1997; **United States Department of Agriculture**, Food and Agricultural Sciences National Needs Graduate Fellowships-Animal Biotechnology Project. Funding for three highly qualified graduate students to work in the Department of Animal Sciences with the PI's or collaborators. \$ 163,000

1992-1995; **United States Department of Agriculture NRI**, 3 years. Transgenic expression in bovine blastocysts derived by *in vitro* procedures. R. M. Roberts PI, R.S. Prather Co-PI . \$ 200,000

1992-1995; **United States Department of Agriculture**, Food and Agricultural Sciences National Needs Graduate Fellowships-Animal Biotechnology Project. Funding for three highly qualified graduate students to work in the Department of Animal Sciences with the PI's or collaborators. \$ 162,000

1990-1993; **United States Department of Agriculture**, Food and Agricultural Sciences National Needs Graduate Fellowships-Animal Biotechnology Project. Funding for two highly qualified graduate students to work in the Department of Animal Sciences with the PI's or collaborators. \$ 96,000



Total as Major User/Contributor/Collaborator **\$70,847,436**

Awards Total **\$146,941,654**

**Program Income National Swine Resource and Research Center**

2012-2019; National Swine Resource and Research Center. **\$1,024,514**

<b>Pig Improvement Company</b> , Research on Swine Reproduction, R.S. Prather and B.N. Day, 1998.	\$ 5,000
<b>Struther's</b> , Research on Swine Reproduction, R.S. Prather and B.N. Day, 1999	\$ 8,000
<b>Korea NLRI-RDA</b> . Swine Reproduction, B.N. Day and R.S. Prather, 1999-2001.	\$111,000
<b>BioTransplant, Inc.</b> Micromanipulator, microscope and isolation table. R.S. Prather, 2001.	\$ 39,761
<b>Circle A Ranch</b> , 50 Angus heifers, 2002	\$100,500
<b>Immerge Biotherapeutics</b> . 2004	\$ 15,500
<b>Immerge Biotherapeutics</b> . 2004. Nutringer Nursery Units	\$ 10,000
Total Gifts	<b>\$289,761</b>

**Total Dollars Awarded \$ 148,255,929**

**Other**

2019-2021; **United States Department of Agriculture AFRI** Investigating mTORC1 Activation Mechanisms and Its Role in the Viability of Early Porcine Embryos NIFA Predoctoral Fellowship to Paula Chen. R.S. Prather & R.D. Geisert – mentors. \$95,745.

2007-2009; **United States Department of Agriculture NRI**, Regulation of the development of IVF and SCNT embryos by MicroRNAs. Postdoctoral Fellowship to Dr. Jason Ross. R.S. Prather – mentor. \$124,939.

**Other Total \$220,684**

**PUBLICATIONS**

33 Patents (17 U.S. Patents)  
325 Peer-Reviewed Manuscripts (53 invited)  
37 Invited Review Papers/Book Chapters (not peer-reviewed)  
103,181 Genome Sequence Data Base Submissions (GenBank)  
387 Abstracts

**Journal Cover/Vision Illustrations**

Developmental Biology 1990 Vol. 138 #2  
Journal of Animal Science 1996 Vol. 74 #9

Animal Biotechnology 2001 Vol. 12 #2  
Biology of Reproduction 2004 Vol. 70 #6  
Reproduction 2005 Vol. 129 #4  
Reproduction, Fertility and Development 2005 Vol. 17 #8  
Molecular Reproduction and Development 2006 Vol. 73 #9  
Stem Cells and Development 2006 Vol. 15 #4  
Biology of Reproduction 2007 Vol. 77 #5  
Molecular Reproduction and Development 2008 Vol. 75 #2  
Journal of Cellular Physiology 2008 Vol. 217 #2  
Reproduction, Fertility and Development 2009 Vol. 21 #7  
Science Translational Medicine Online issue April 28 2010  
Molecular Reproduction and Development 2010: Visions 77:565  
Molecular Reproduction and Development 2010: 77 #9  
Science Translational Medicine Online issue March 16 2011  
Biology of Reproduction September 2014 Vol. 91 #3

### Manuscript Honors

1. **Paper of the Week:** Journal of Biological Chemistry 2007, April 20.
2. **Top 10 downloaded reviews** from Reproduction in 2009 – Holt, Pickard & Prather. 2004. Wildlife conservation and reproductive cloning. Reproduction 127:317-324. PMID 15016951.
3. **Top 10 downloaded reviews** from Reproduction in 2010 – Holt, Pickard & Prather. 2004. Wildlife conservation and reproductive cloning. Reproduction 127:317-324. PMID 15016951.
4. **Designated "Highly accessed"** by BioMed Central- Walters et al. 2012. Completion of the swine genome will simplify the production of swine as a large animal biomedical model. BMC Medical Genomics 5:55.
5. **1,000 Citations on Scopus.** Lai et al. 2002. Production of alpha-1,3-galactosyltransferase knockout pigs by nuclear transfer cloning. Science 295:1089-1092. May 1, 2019.
6. **Scopus reports an h-index of 64** on January 1, '20, and 15,151 citations.
7. **Google Scholar reports an h-index of 81** on January 1, '20, and 23,213 citations; the i10-index is 303.

### Patents

1. **R.S. Prather**, F. Barnes, J. Robl, N.L. First & V.F. Simmon, "Multiplying Bovine Embryos"; U.S. Patent #4,994,384 (issued February 19, '91).
2. J. Li, A. Rieke, B. Day & **R.S. Prather**, "Method of Effecting Embryo Transplant"; U.S. Patent #5,558,636 (issued September 24, '96).
3. J. Li, A. Rieke, B. Day & **R.S. Prather**, "A System for Effecting Embryo Transplant"; U.S. Patent #5,656,010 (issued August 12, '97).

4. J. Li, A. Rieke, B. Day & **R.S. Prather**, "A System for Introducing a Fluid into the Uterus of an Animal"; U.S. Patent #5,916,144 (issued June 29, '99).
5. J. Li, A. Rieke, B. Day & **R.S. Prather**, "A System for Introducing a Fluid into the Uterus of an Animal"; Australia Patent #713,345 (issued March 16, '00).
6. J. Li, A. Rieke, B. Day & **R.S. Prather**, "A method for Introducing a Fluid into the Uterus of an Animal"; Australia Patent #717,684 (issued July 13, '00).
7. Z. Machaty & **R.S. Prather**, "Complete Activation of Mammalian Oocytes". U.S. Patent #6,211,429 (issued April 3, 01).
8. J. Li, A. Rieke, B. Day & **R.S. Prather**, "A System for Introducing a Fluid into the Uterus of an Animal"; Canada Patent #2,220,550 (issued April 17, '01).
9. **Prather, R.S.**, B.N. Day & R. Hawley. "Knockout swine and methods for making the same" U.S. Patent #7,547,816 (issued June 16, '09).
10. Welsh, M.J., C. Rogers, **R.S. Prather**, J. Engelhardt, Z. Yan. "Method of identifying compounds using a transgenic pig model of cystic fibrosis", Provisional patent filed March 30, '07, U.S. Patent #7,989,657 (issued Aug. 2, '11).
11. **Prather, R.S.**, "Improvement of fertilization and development of in vitro produced embryos", Provisional Patent filed June 25, '04.
12. **Prather, R.S.**, R. Li, C.N. Murphy, L. Spate. "High throughput cryopreservation of swine embryos". U.S. Patent # 8,852,078 (issued October 7, '14).
13. Welsh, M.J., C.S. Rogers, **R.S. Prather**, J. Engelhardt, Z. Yan. "Transgenic porcine models of cystic fibrosis" U.S. Patent #8,618,352 (issued December 31, '13).
14. Welsh, M.J., C.S. Rogers, **R.S. Prather**, J. Engelhardt, Z. Yan. "Transgenic pig models of cystic fibrosis" U.S. Patent #8,912,386 (issued December 16, '14).
15. Welsh, M.J., C. Rogers, **R.S. Prather**, J. Engelhardt, Y. Ziyang. "Transgenic animal models of disease", filed March 5, '08. Australia. PCT/US2008/002886. WO 2008/121199 A2. (Issued October 10, '13).
16. **Prather, R.S.**, B.N. Day & R. Hawley. "Knockout swine and methods for making the same" Canada #2,471,035 (issued May 13, '14).
17. Kim, J.H., D.N. Kwon, J.Y. Park, K. Lee, **R.S. Prather**, J.H. Kim, M.J. Kang, M.J. Recombination activating gene 2 gene targeting vector, production of SCID-like miniature pigs by TALEN-mediated gene targeting and use thereof., Japan Reg # 6216456. (Reg. Date Sept 29, '17).
18. Kim, J.H., D.N. Kwon, **R.S. Prather**, K. Li. 2017. Recombination activating gene 2 gene targeting vector, production of SCID-like miniature pigs by TALEN-mediated gene targeting and use thereof. U.S. Patent (issued Nov 7, '17). #9,807,987.

19. Kim, J.-H., D.N. Kwon, K. Lee, **R.S. Prather**. 2018. Interleukin 2 receptor gamma gene targeting vecto, production of immune cell-deficient transgenic cloned mini pig having vector introduced therein, preparation method therefor and use thereof. U.S. Patent (issued Aug 28, '18). #10,058,079.
20. Lee, K., **R.S. Prather**. 2015 "Artificial oocyte activation" U. S. Patent issued Oct 10, '17 #9,783,779.
21. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. 2017. "Porcine reproductive and respiratory syndrome virus resistant animals", U.S. Patent 9,820,475 (issued Nov 21, '17).
22. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. 2018. "Porcine reproductive and respiratory syndrome virus resistant animals", Russian Patent 2644673 (issued February 13, '18).
23. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. 2018. "Porcine reproductive and respiratory syndrome virus resistant animals", Australian Patent 2017202540 (issued November 22, '18).
24. Welsh, M.J., C. Rogers, **R.S. Prather**, J. Engelhardt, Y. Ziyang. "Transgenic animal models of disease", filed March 5, '08. Canada. PCT/US2008/002886. WO 2008/121199 A2. (Issued November 21, '17).
25. Kim, J.-H., D.-N. Kwon, J.Y. Park, J.H. Kim, M.-J. Kang, K. Lee, **R.S. Prather**. 2018. "Cmp-acetylneuraminic acid hydroxylase targeting vector, vector-transduces transgenic animal for xenotransplantation, and method for producing same." Issued Japanese patent #6267785 (January 5, 2018).
26. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. 2018. "Porcine reproductive and respiratory syndrome virus resistant animals", U.S. Patent #10,080,353 (issued Sept 25, 2018).
27. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. 2017. "Porcine reproductive and respiratory syndrome virus resistant animals", U.S. Patent #10,405,526 (issued Sept. 10, '19).
28. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. "Pathogen-resistant animals having modified *CD163* genes" U.S. Patent issued Oct 9, '18. #10,091,975.
29. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. "Method for protecting porcine fetuses from infection with porcine reproductive and respiratory syndrome virus (PRRSV)". Provisional Patent filed April '18.
30. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. "Coronavirus resistant pigs." Provisional Patent filed April '18.
31. Yuan, Y., L.D. Spate, **R.S. Prather**, R.M. Roberts. "Medium supplement to increase the efficiency of oocyte maturation and embryo culture in vitro. U.S. Patent application #20,170,258,495.
32. Welsh, M.J., C. Rogers, **R.S. Prather**, J. Engelhardt, Y. Ziyang. "Transgenic animal models of disease", European Patent Office issued 10/17/2018. #2141985.
33. Kim, J.-H., D.-N. Kwon, J.Y. Park, J.H. Kim, M.-J. Kang, K. Lee, **R.S. Prather**. 2018. "Cmp-acetylneuraminic acid hydroxylase targeting vector, vector-transduces transgenic animal for xenotransplantation, and method

- for producing same." Issued European patent #2993234 (October 10, 2018).
34. Kim, J.-H., D.N. Kwon, K. Lee, **R.S. Prather**. 2019. Interleukin 2 receptor gamma gene targeting vector, production of immune cell-deficient transgenic cloned mini pig having vector introduced therein, preparation method therefor and use thereof. Japanese Patent (issued Feb. 6, '19). #6,464,167.
  35. **Prather, R.S.**, K.D. Wells, K.M. Whitworth. 2019. ANIMALES RESISTENTES AL VIRUS DEL SINDROME REPRODUCTIVO Y RESPIRATORIO PORCINO. Mexico Patent #357421 (issued July 9, '18).
  36. Lee, K., **R.S. Prather**. 2019. Artificial oocyte activation. U.S. Patent 10,190,093, Issued Jan 29 '19.
  37. Kim, J.-H., D.-N. Kwon, **R.S. Prather**, K.-H. Lee. 2019. Recombination activating gene 2 targeting vector, production of SCID-like miniature pigs by TALEN-mediated gene targeting and use thereof. Chinese Patent Number ZL 201480062489.3.
  38. Kim, J.-H., D.-N. Kwon, **R.S. Prather**, K.-H. Lee. 2019. Interleukin 2 receptor gamma gene targeting vector, production of immune cell-deficient transgenic cloned mini pig having vector introduced therein, preparation method thereof and use thereof. Chinese Patent Number ZL 201480062483.6.

### Peer-Reviewed

1. **Prather, R.S.** and N.L. First. 1986. Reprogramming of murine blastocoele formation. J. Exp. Zool. 237:347-350. PMID 3701291.
2. **Prather, R.S.** and N.L. First. 1986. Effect of cytochalasin B and demecolcine on freeze-thaw survival of murine embryos *in vitro*. J. Exp. Zool. 239:37-40. PMID 3746227.
3. **Prather, R.S.**, F.L. Barnes, M.L. Sims, J.M. Robl, W.H. Eyestone, and N.L. First. 1987. Nuclear transplantation in the bovine embryo: assessment of donor nuclei and recipient oocyte. Biol. Reprod. 37:859-866. PMID 3689854.
4. Robl, J.M., **R. Prather**, F. Barnes, W. Eyestone, D. Northey, B. Gilligan, and N.L. First. 1987. Nuclear transplantation in bovine embryos. J. Anim. Sci. 64:642-647. PMID 3689854.
5. **Prather, R.S.** and N.L. First. 1987. Developmental fate of highly asynchronous chimeric mouse embryos. J. Exp. Zool. 242:27-33. PMID 3598511.
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301. Hamm, J., K. Tessanne, C.N. and **R.S. Prather**. 2013. TRIM28, SETDB1, and p53 Expression in Porcine Preimplantation Embryos. SSR Annual Meeting Abs#638, page 267-8.
302. Mao, J., M.-T. Zhao, K.M. Whitworth, L.D. Spate, K. Lee, E. Walters, **R.S. Prather**. 2013. Oxamflatin treatment enhanced porcine SCNT embryo development and decreased DNA methylation. SSR Annual Meeting Abs#699, page 292.
303. Beaton, B.P., E.M. Walters, **R.S. Prather**, K.D. Wells. 2013. Recombinase-mediated gene stacking in swine. Transgenic Animal Conference, Tahoe City, CA.
304. Whitworth, K.M., K. Lee, J. Mao, L.D. Spate, **R.S. Prather**. 2013. Transcriptome analysis of pig nuclear transfer blastocysts treated with histone deacetylase inhibitors post-fusion and activation. Transgenic Animal Conference, Tahoe City, CA.
305. Lee, K., J.-H. Kim, **R.S. Prather**. 2013. Minimum length of homology in a donor DNA to facilitate homologous recombination during ZFN mediated gene targeting. Transgenic Animal Conference, Tahoe City, CA.
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309. Lee, K., A. Davis, C.N. Murphy, **R.S. Prather**. 2013. A Novel method to increase developmental potential of activated oocytes using Zn<sup>2+</sup> chelator TPEN (N, N, N', N'-tetrakis (2pyridylmethyl) ethylene diamine). International Embryo Transfer Society, Reno, NV. Reprod Fertil Dev 26:189
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311. **Prather, R.S.**, M.T. Zhao. 2014. Methylated DNA immunoprecipitation-Seq with low input DNA content. XXII Plant and Animal Genome meeting. San Diego, CA, Jan 10.

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313. **Prather, R.S.**, E.M. Walters, K.D. Wells. 2014. Biologically relevant swine models of human disease. SSR Annual Meeting. P114.
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316. Spate, L.D., J. Benne, S. Murphy, J.A. Green, K.D. Wells, **R.S. Prather**. 2014. Altering donor cell metabolism increases development of cloned embryos to the blastocyst stage. Swine in Biomedical Research Conference, Raleigh, NC. July 6-8. P87.
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322. **Prather, R.S.**, K.M. Whitworth, J.A. Green, K.D. Wells. 2014. Genetic engineering the pig to better understand PRRSv infection. North American PRRSv Symposium, Chicago, IL. Dec 5-6.
323. **Prather, R.S.**, K.M. Whitworth, J.A. Green, K.D. Wells. 2015. CRISPR/Cas9-Mediated Genetic Engineering: Is CD163 an Entry Mediator for PRRSv Infection? Plant and Animal Genome Meeting XXIII, San Diego Jan 10. W830.
324. Whyte, J.J., M.E. Hennessy, R.D. Geisert, **R.S. Prather**. 2015. Clustered regularly interspaced short palindromic repeat (CRISPR)/Cas9-directed inactivation of porcine interleukin-1B as a model to study endometrial receptivity and conceptus attachment. *Reprod. Fertil. and Dev.* 27:149-150.
325. Bartol, F.F., L. Spate, A. Samoylov, A. Cochran, V. Petrenko, **R.S. Prather**, T. Samoylova. 2015. Phage-peptide constructs for immunocontraception of wild pigs: effects on events associated with fertilization in vitro. Society for the Study of Reproduction annual meeting. #443.
326. Yuan, Y., J.-K. Park, Y. Tian, L.D. Spate, **R.S. Prather**, T. Ezashi, R.M. Roberts. 2015. Conversion of epiblast type porcine induced pluripotent stem cells into ground state naïve pluripotent stem cells. Society for the Study of Reproduction annual meeting. #37.
327. Whitworth, K.M., J.A. Benne, L.D. Spate, S.L. Murphy, J.A. Richt, E. Walters, K.D. Wells, **R. S. Prather**. 2015. Zygote injection of CRISPR/Cas9 RNA successfully modifies the target gene without delaying blastocyst development or changing the male:female sex ratio in pigs. Society for the Study of Reproduction annual meeting. #444.
328. Kang, J.-T., D.-K. Kwon, A.-R. Park, E.-J. Lee, Y.-J. Yun, D.-Y. Ji, B. Beaton, K.D. Wells, **R.S. Prather**, K.-W. Park. 2015. Development of human insulin secreting pigs for xeon-islet cell transplantation. Society for the Study of Reproduction annual meeting. #386.
329. Whitworth, K.M., J.A. Benne, B.P. Beaton, L.D. Spate, S.L. Murphy, M.S. Samuel, E.M. Walters, C.N. Murphy, K.D. Wells, **R.S. Prather**. 2015. Using the CRISPR/Cas9 system to edit specific genes in pig zygotes. American Society of Reproductive Immunology, Kingston, ON, Canada. June 4.
330. Kang, J.-T., D.K. Kwon, E.J. Lee, Y.-J. Yun, D.Y. Ji, S.M. Ahn, J.S Lee, B.P. Beaton, K.D. Wells, **R.S. Prather**, K.-W. Park. 2015. Development of porcine cells that lack porcine insulin expression and harbor a human insulin expression vector be used for xeon-islet cell transplantation. IPITA-IXA-CTS.
331. Nicholls, R.D., M.A. Johnson, F. Mompert, S.M. Gollin, K.D. Wells, **R.S. Prather**, M. Yerle. 2015. Somatic cell hybrids as a model system to evaluate genome editing and genomic imprinting of pig chromosomes in the development of pre-clinical large animal models. *Am. Soc. Hum. Genet.* 65<sup>th</sup> Annual Meeting, Baltimore, MD.
332. Samoylova, S. A. Cochran, A. Samoylov, B. Schemera, L.D. Spate, **R.S. Prather**, S. Ditchkoff, V. Petrenko, F. Bartol. 2015. Population control of

- wild pigs by using phage-based constructs developed to simulate production of anti-sperm antibodies. 22<sup>nd</sup> Annual Wildlife Society Conference, Winnipeg, Canada.
333. **Prather, R.S.**, K.M. Whitworth, K.D. Wells, A.J. Mileham. 2015. The role of CD163 and SIGLEC1 in Sensitivity to Porcine Reproductive and Respiratory Syndrome Virus Infection. N.A. PRRSV Conference, Chicago, IL, Dec 4-5.
  334. **Prather, R.S.** 2016. The Role of *CD163* in the Sensitivity to Porcine Reproductive and Respiratory Syndrome Virus. Plant and Animal Genome Meeting, San Diego Jan 9.
  335. Mordhorst, B.R., S.L. Murphy, L.D. Spate, R.M. Ross, K.D. Wells, J.A. Green, **R.S. Prather**. 2016. Reduction of mitochondrial function, proliferation, and gene expression in fibroblasts donor-cells for use in SCNT by CPI-613 and PS48. International Embryo Transfer Society annual meeting. *Reproduction, Fertility and Development* 28:141-142.
  336. Spate, L.D., B.K. Redel, **R.S. Prather**. 2016. Early porcine embryo energy preference and subsequent development. International Embryo Transfer Society annual meeting. *Reproduction, Fertility and Development* 28:170.
  337. Benne, J.A., L.D. Spate, B.M. Elliott, S. Murphy, **R.S. Prather**. 2016. In low oxygen culture, is hypotaurine necessary for in vitro development of porcine embryos? International Embryo Transfer Society annual meeting. *Reproduction, Fertility and Development* 28:171.
  338. Whitworth, K., S.L. Murphy, J.A. Benne, L.D. Spate, E. Walters, W.J. Raymond, S.L. Nyberg, K.D. Wells, **R.S. Prather**. 2016. Genome editing of somatic cell nuclear transfer derived zygotes by CRISPR/Cas9 guide RNA injection. International Embryo Transfer Society annual meeting. *Reproduction, Fertility and Development* 28:142-143.
  339. Redel, B.K., L.D. Spate, B. Elliott, M. Paczkowski, R.L. Krisher, **R.S. Prather**. 2016. Porcine embryos utilize small amounts of pyruvate, lactate and glucose in vitro. International Embryo Transfer Society annual meeting. *Reproduction, Fertility and Development* 28:171.
  340. Bryda, E.C., H. Men, Y. Agca, A.C. Ericsson, J.M. Amos-Landgraf, C.L. Franklin, **R.S. Prather**. 2016. Rat resource and research center. 13<sup>th</sup> Transgenic Technology Meeting, March 20-23, Prague, Czech Republic.
  341. Gruber, P., K. Wells, A. Spate, E. Walters, A. Firment, A.K. Kashyap, G. Baccam, **R.S. Prather**, A. Moon. 2016. The first large-animal, gene-targeted model of congenital heart disease and the future of surgical training. 4<sup>th</sup> joint meeting of the Congenital Heart Surgeons' Society and the European Congenital Heart Surgeons' Association, Venice, Italy June 22-24. Poster O-32.
  342. Spate, L.D., Y. Yuan, **R.S. Prather**, R.M. Roberts. 2016. A combination of three growth factors can enhance porcine embryo development during in vitro culture. Society for the study of Reproduction Annual Meeting, San Diego, CA. #343.
  343. Redel, B.K., Y. Yuan, L.D. Spate, **R.S. Prather**, R.M. Roberts. 2016. FGF2, LIF and IGF-1 added together during maturation and culture improve



- somatic cell nuclear transfer embryo development and overall efficiency. Society for the study of Reproduction Annual Meeting, San Diego, CA. #345.
344. Yuan, Y., L.D. Spate, B.K. Redel, **R.S. Prather**, R.M. Roberts. 2016. A combination of three cytokines enhances porcine oocyte in vitro maturation and developmental competence. Society for the study of Reproduction Annual Meeting, San Diego, CA. #531.
  345. **Prather, R.S.** 2016. CD163 A gatekeeper for susceptibility to porcine reproductive and respiratory syndrome virus. J Anim. Sci. 94, Suppl 4, 6.
  346. Gaudreault, N., K.M. Whitworth, L. Popescu, M. Murgia, J. Niefeld, A. Mileham, K.D. Wells, **R.S. Prather**, R.R.R. Rowland. 2016. Pigs lacking CD163 expression on macrophages show no resistance to infection with African Swine Fever Virus. Global African Swine Fever Research Alliance, September 6-8, Ploufrang, France.
  347. Mordhorst, B.R., S.L. Murphy, J.A. Benne, B.K. Redel, L.D. Spate, K.D. Wells, J.A. Green, **R.S. Prather**. 2016. Reduced mitochondrial function and gene expression in porcine donor-fibroblasts treated with CPI-613 or PS48 does not negatively impact subsequent in vitro clone development after somatic cell nuclear transfer. Large Animal Genetic Engineering conference. Bethesda, MD September 19-20.
  348. **Prather, R.S.**, K.D. Wells. 2016. Resources for genetically engineered swine. Large Animal Genetic Engineering conference. Bethesda, MD September 19-20.
  349. Nicholls, R.D., B.K. Redel, L. Ghaloul-Gonzalez, K.J. Skvorak, S.F. Dobrowolski, M.E. Yates, M.A. Johnson, D.W. Lewis, S.M. Gollin, L.D. Spate, J. Benne, S. Murphy, M.S. Samuel, E.M. Walters, S.A. Hansen, K.D. Wells, J. Vockley, **R.S. Prather**. Porcine model of phenylketonuria (PKU) generated by CRISPR/Cas9 genome editing. Science 2016 (U. Pitt.)
  350. Nicholls, R.D., B.K. Redel, L. Ghaloul-Gonzalez, K.J. Skvorak, S.F. Dobrowolski, M.E. Yates, M.A. Johnson, D.W. Lewis, S.M. Gollin, L.D. Spate, J. Benne, S. Murphy, M.S. Samuel, E.M. Walters, S.A. Hansen, K.D. Wells, J. Vockley, **R.S. Prather**. Porcine model of phenylketonuria (PKU) generated by CRISPR/Cas9 genome editing. Pitt Brain Day 2016 (U. Pitt.)
  351. **Prather, R.S.** 2016. Precision breeding to advance animal health and welfare. USAHA/AAVLD meeting October 17, Greensboro, NC.
  352. **Prather, R.S.** 2016. Genome editing for PRRSV resistance and beyond. North American PRRSV Symposium. Chicago, IL Dec 5-6. Abs #S5.
  353. Popescu, L.N., N. Gaudreault, K.M. Whitworth, M.V. Murgia, J.C. Niefeld, A. Mileham, M. Samuel, K.D. Wells, **R.S. Prather**, R.R.R. Rowland. Genetically edited pigs lacking CD163 show no resistance following infection with the African Swine Fever Virus isolate Georgia 2007/1. North American PRRSV Symposium. Chicago, IL Dec 5-6. Abs #47.
  354. Spate, A.M., K.M. Whitworth, C.W. O’Gorman, A.K. Byrne, **R.S. Prather**, K.D. Wells. 2017. The use of paired CRISPR guide RNAs and the Cas9 system does not always produced site specific deletions of gene sequence

- in porcine cell and embryo culture. International Embryo Transfer Society annual meeting Abs #26. *Reprod. Fertil. Devel.* 29:120.
355. Spate, L.D., J.A. Benne, S.L. Murphy, **R.S. Prather**. 2017. In vitro matured gilt oocytes can have equal or better developmental competence than sow oocytes with new maturation media. International Embryo Transfer Society annual meeting Abs #86. *Reprod. Fertil. Devel.* 29:150.
356. Mordhorst, B.R., S.N. Bogue, K.D. Wells, J.A. Green, **R.S. Prather**. 2017. Oxygen deprivation does not further augment mitochondrial membrane potential in pharmacologically treated fibroblasts for use in somatic cell nuclear transfer. International Embryo Transfer Society annual meeting Abs #30. *Reprod. Fertil. Devel.* 29:122.
357. Redel, B.K., B. Beaton, L.D. Spate, J. Benne, S. Murphy, C. O’Gorman, **R.S. Prather**, K.D. Wells. 2017. Alternative source of Cas9 mRNA with improved efficiency of modifications and decreased cost. International Conference on Pig Reproduction, Columbia, MO June 11-14.
358. Pfeiffer, C.A., B.K. Redel, L.D. Spate, **R.S. Prather**. 2017. Addition of palmitate to porcine embryo culture improves the number of nuclei in the resulting blastocyst stage embryos. International Conference on Pig Reproduction, Columbia, MO June 11-14.
359. Yuan, Y., J. Park, Y. Tian, L.D. Spate, **R.S. Prather**, R.M. Roberts, T. Ezashi. 2017. Culture conditions employing small molecules for generating porcine induced pluripotent stem cells reprogrammed by episomal plasmids. International Conference on Pig Reproduction, Columbia, MO June 11-14.
360. Meyer, A.E., R.D. Geisert, T.E. Spencer, **R.S. Prather**, K.E. Brooks, L. Spate, J. Benne, S. Murphy. 2017. Generation of aromatase (*CYP19A1*) null embryos for evaluation of estrogen’s role in conceptus development and establishment of pregnancy. International Conference on Pig Reproduction, Columbia, MO June 11-14.
361. Mordhorst, B.R. K.A. Tessanne, S.K. Behura, K.D. Wells, **R.S. Prather**. 2017. Differential regulation of pathways in porcine fetal fibroblasts in response to culture serum quality. International Conference on Pig Reproduction, Columbia, MO June 11-14.
362. Whyte, J.J., R.D. Geisert, **R.S. Prather**. 2017. Developmental and morphological changes during preimplantation in a conceptus interleukin-1 $\beta$  (IL1BL) knockout pig embryo model. International Conference on Pig Reproduction, Columbia, MO June 11-14.
363. Mordhorst, B.R., S.L. Murphy, J.A. Benne, M.S. Samuel, R.A. Cecil, S.K. Behura, T. Ji, S. Rojas Salazar, R.M. Ross, B.K. Redel, L.D. Spate, C.N. Murphy, K.D. Wells, J.A. Green, **R.S. Prather**. 2017. Pharmacologic treatment of porcine embryonic fibroblasts with CPI-613 and or PS48 does not improve in vitro development but may improve gestational survival after somatic cell nuclear transfer. Society for the Study of Reproduction Annual Meeting.

364. Meyer, A.E., R.D. Geisert, T.E. Spencer, **R.S. Prather**, K.E. Brooks, C. Murphy, L. Spate, J. Benne, S. Murphy, R. Cecil. 2017. Effect of aromatase (CYP19A1) deletion on pre-implantation embryo development and conceptus elongation in pigs. Society for the Study of Reproduction Annual Meeting.
365. Koppes, E., B.K. Redel, K.J. Skvorak, S.F. Dobrowolski, L. Ghaloul-Gonzalez, M.E. Yates, M.A. Johnson, D.W. Lewis, S.M. Gollin, M. Yerle, L.D. Spate, J. Benne, S. Murphy, M.S. Samuel, E.M. Walters, S.A. Hansen, K.D. Wells, J. Vockley, **R.S. Prather**, R.D. Nicholls. 2017. Engineering of a porcine model of phenylketonuria using CRISPR/Cas9 genome editing. 6<sup>th</sup> Swine in Biomedical Research Conference, U. Maryland, Baltimore, MD. Sept 23-25.
366. Whitworth, K.M., K.D. Wells, **R.S. Prather**. 2017. Gene editing of CD163 protects pigs from PRRSV infectivity. Transgenic Animal Conference, Tahoe, CA.
367. Yuan, Y., L.D. Spate, B.K. Redel, **R.S. Prather**, R. M. Roberts. 2018. Supplementation of FGF2, LIF, and IGF1 enables efficient production of competent porcine oocyte without gonadotropins in the maturation medium. International Embryo Technology Society annual meeting. *Reprod. Fertil. Dev.* 30:220.
368. Nelson, E., D.J. Joo, Y. Zhang, B. Amiot, E. Walters, K. Whitworth, A. Spate, M. Samuel, K. Wells, **R. Prather**, S. Nyberg. 2018. Characterization of the FAH/RAG2 double-knockout pig. *Transplantation* 102:47
369. Mordhorst, B.R., J.A. Benne, R.F. Cecil, K.M. Whitworth, M.S. Samuel, L.D. Spate, and **R.S. Prather**. 2018. Hypoxic culture of donor fibroblasts for use in somatic cell nuclear transfer improves in vitro development and gestational day 35 survival of cloned pigs. Society for the Study of Reproduction Annual Meeting.
370. Chen, P., B.K. Redel, L.D. Spate, T. Ji, S.R. Salazar, **R.S. Prather**. 2018. Glutamine Supplementation Enhances Development of In Vitro-Produced Porcine Embryos and Increases Leucine Consumption from the Culture Medium. Society for the Study of Reproduction Annual Meeting.
371. Pfeiffer, C.A., A.E. Meyer, L.D. Spate, J.A. Benne, R.F. Cecil, T.E. Spencer, **R.S. Prather**, R.D. Geisert. 2018. Role of Prostaglandin Synthase 2 (PTGS2) on Early Conceptus Development in Pigs. Society for the Study of Reproduction Annual Meeting.
372. Meyer, A.E., C.A. Pfeiffer, K.E. Brooks, L. Spate, J. Benne, S. Murphy, R. Cecil, T.E. Spencer, **R.S. Prather**, and R.D. Geisert. 2018. New perspective on conceptus estrogen production on maternal recognition and the establishment of pregnancy in pigs. Society for the Study of Reproduction Annual Meeting.
373. Koppes, R., B.K. Redel, M.A. Johnson, S.F. Dobrowolski, J. Vockley, **R.S. Prather**, R.D. Nichols. 2018. Tissue culture model of porcine PKU fibroblasts: Defining deletion breakpoints, assaying PAH activity, and

- correcting genetic mutations. National Phenylketonuria Association Conference, Atlanta, GA. July 5-8.
374. Chen, P., L.D. Spate, E.C. Leffeler, **R.S. Prather**. 2019. Removal of hypotaurine from porcine embryo culture medium decreases message for pro-apoptosis genes, but does not affect development at low oxygen. Annual meeting of the International Embryo Technology Society. *Reprod. Fertil. Dev.* 31:161.
  375. Spate, L., B.K. Redel, S. Ortega, T, Spencer, **R.S. Prather**. 2019. Positive effects of supplementation in bovine culture medium with 3 cytokines. Annual meeting of the International Embryo Technology Society. *Reprod. Fertil. Dev.* 31:196
  376. Rowland, R.R.R., **R.S. Prather**. 2019. Characterization of CRISPR knockouts of pathogen receptors for PRRSV and TGEV. Plant and Animal Genome Meeting, San Diego, CA.
  377. Pfeiffer, C.A., A.E. Meyer, L.D. Spate, J.A. Benne, R.F. Cecil, K.E. Brooks, T.E. Spencer, **R.S. Prather**, R.D. Geisert. 2019. Conceptus prostaglandin synthase 2 is not essential for early development and the establishment of pregnancy in the pig. Society for the Study of Reproduction, Annual Meeting.
  378. Cecil, R.F., J.A. Benne, T. Hord, P. Chen, L.D. Spate, **R.S. Prather**. 2019. Chemically-induced hypoxia improves SCNT embryo development. Society for the Study of Reproduction, Annual Meeting.
  379. Chen, P., L.D. Spate, **R.S. Prather**. 2019. Phosphorylation of mechanistic target of rapamycin (MTOR) in porcine blastocysts is dependent on the concentration of glutamine in the medium. Society for the Study of Reproduction, Annual Meeting.
  380. Stoecklein, K., M. Ortega, L.D. Spate, T. Spencer, **R.S. Prather**. 2019. Supplementation of cytokines improves the in vitro culture of embryos but has no effect on cell number. Society for the Study of Reproduction, Annual Meeting.
  381. Whitworth, K.M., K.D. Wells, **R.S. Prather**. Protecting pigs from viral infectivity with gene editing. American Society of Animal Science annual meeting.
  382. Honegger, M., S. Christy, D. Goldman, M. Grompe, M. Samuel, K. Whitworth, K. Wells, **R.S. Prather**, W.H. Fleming. 2019. Porcine models for Fanconi Anemia. Fanconi Anemia Research Fund Scientific Symposium 2019. Chicago IL, Sept 19-22.
  383. Koppes, E., M.A. Johnson, B.K. Redel, M. Yerle, S.F. Dobrowolski, J. Vockley, K.D. Wells, **R.S. Prather**, R.D. Nicholls. 2019. Swine models of human neurobehavioral disease. Cold Spring Harbor Labs Genome Engineering: Frontiers in Genome Editing Oct 10-13.
  384. Stoecklein, K., C.N. Murphy, L.D. Spate, T.E. Spencer, **R.S. Prather**, M.S. Ortega. 2019. Cytokine supplementation improved the in vitro culture of bovine embryos. Applied Reproductive Studies in Beef Cattle, Knoxville, TN. Aug 20-21. Annual Symposium.

385. Zhou, L.T., F. Amargant, R.L. Krisher, R.M. Roberts, **R.S. Prather**, L.D. Spate, Y. Yuan, C.J. harris, J.H. Machlin, A. Bangoura, E.E. Rowell, M.M. Laronda, F.E. Duncan. 2019. Improving in vitro maturation for recovered cumulus oocyte complexes following processing of pediatric ovarian tissue for cryopreservation. Chicago, IL, Illinois Symposium on Reproductive Science, Northwestern, Nov 13-14.
386. Chen, P.R., L.D. Spate, **R.S. Prather**. 2020. Phosphorylation of mechanistic target of rapamycin (MTOR) in porcine blastocysts is dependent upon the concentration of glutamine in the medium. Annual Meeting of the International Embryo Technology Society, New York, NY. Poster #69.
387. Stoecklein, K., M.S. Ortega, C.N. Murphy, **R.S. Prather**. 2020. Improvement of bovine oocyte maturation in vitro through cytokine supplementation. Annual Meeting of the International Embryo Technology Society, New York, NY. Poster #188.
388. Gomes Lucas, C., B. Bauer, P. Chen, L. Spate, K. Wells, **R. Prather**. 2020. Effects of the homology direct repair enhancer RS-1 on pig embryo culture. Annual Meeting of the International Embryo Technology Society, New York, NY. Poster # 136.
389. Chen, P.R., R.R.R. Rowland, V. Petrovan, M. Sheahan, C. Ganta, K.M. Whitworth, M.S. Samuel, L.D. Spate, J.A. Benne, R.F. Cecil, K. Lechtenberg, K.D. Wells, **R.S. Prather**. 2020. Antrax toxin receptor 1-knockout pigs are protected from Senecavirus A infection. Plant and Animal Genome Meeting, San Diego, CA.
390. Sponchiado, M., Y.-S. Liao, E. Collins, K.M. Whitworth, K.D. Wells, **R.S. Prather**, L.R. Reznikov. 2020. SPARC: Development of pigs with mCherry-CRE recombinase fusion proteins in cholinergic neurons. Experimental Biology, April 4-7. San Diego, CA.

#### Other

1. **Prather, R.S.** 1984. Development and evaluation of cryopreservation techniques for bovine embryos. Master's Thesis. Kansas State University.
2. **Prather, R.S.** 1987. Developmental analysis of murine embryos after chimerization with a highly asynchronous blastomere. PhD Dissertation. University of Wisconsin-Madison.

#### Theses and Dissertations Supervised

**Rick A. Schoenbeck.** 1992, MS Thesis. Characterization of DNA synthesis and the transition from maternal to embryonic control in the 4-cell porcine embryo.

**Mario Mayes.** 1994. MS Thesis. Parthenogenetic activation of porcine oocytes by protein kinase inhibitors.

- Wendy J. Jolliff.** 1997. MS Thesis. Parthenogenetic development of in vitro matured, in vivo cultured porcine oocytes beyond blastocyst
- Kristin Whitworth.** 1997. MS Thesis. Parthenogenetic activation of porcine oocytes by specific protein kinase inhibitors.
- Jae-Hwan Kim.** 1999. PhD Dissertation. Involvement of G protein and protein tyrosine kinase signal transduction in pig oocyte activation.
- Hyun-Jin Do.** 1999. MS Thesis. Expression of pregnancy-associated glycoprotein 1 and 2 genes in in vitro-, in vivo- and parthenogenetically-derived preimplantation pig embryos.
- Jon E. Anderson.** 2000. PhD Dissertation. Cell cycle regulation in the early porcine embryo.
- Nancy T. Ruddock.** 2000. PhD Dissertation. Intracellular pH regulation in the early porcine embryo.
- David Bart Carter.** 2002. MS Thesis. Phenotyping cloned pigs.
- Ryan Asa Cabot.** 2002. PhD Dissertation. Developmental dynamics of nuclear trafficking in the porcine embryo.
- Jennifer Alexis Luth.** 2002. MS Thesis. Histone acetylation patterns in preimplantation porcine embryos.
- Steven Clay Isom.** 2006. PhD Dissertation. The effects of elevated temperature on preimplantation-stage porcine embryos.
- Lisa M. Martin.** 2006. MS Thesis. Morphologic and histological comparisons between in vivo and nuclear transfer derived porcine embryos.
- Aaron J. Bonk.** 2007. PhD Dissertation. DNA methylation in the early porcine embryo.
- Courtney McHughes.** 2007. MS Thesis. Identification and quantification of differentially represented transcripts in preimplantation bovine embryos.
- Jin Geol Kim.** 2007. MS Thesis. Comparative transcriptional profiling of the uterus according to stage of the estrous cycle and pregnancy status in gilts.
- Kyle B. Dobbs.** 2010. MS Thesis. The role of cytoplasmic polyadenylation element sequence mRNA abundance in porcine embryogenesis and parthenogenetic development.
- Bethany K. Bauer.** 2010. MS Thesis. Transcriptional profiling by deep sequencing identifies differences in mRNA transcript abundance in in vivo vs. in vitro cultured porcine blastocyst stage embryos.
- Kristin M. Whitworth.** 2010. PhD Dissertation. Differential gene and protein expression in pig nuclear transfer extraembryonic membranes and blastocyst stage embryos.
- Jennifer Hamm.** 2013. MS Thesis. Abundance of *TRIM28*, *SETDB1*, and *TP53* mRNA is dynamically regulated during porcine early embryogenesis and is abnormal in preimplantation embryos produced by *in vitro* fertilization in comparison to *in vivo* derived and nuclear transfer derived embryos.
- Ming-Tao Zhao.** 2013. PhD Dissertation. Stem cells and DNA methylation reprogramming in pigs.
- Bethany K. Redel.** 2014. PhD Dissertation. Transcriptional profiling to improve porcine preimplantation embryo development.

**Bethany Mordhorst.** 2017. PhD Dissertation. Metabolic programming of a Warburg effect-like phenotype in donor fibroblasts prior to somatic cell nuclear transfer.

**Raissa Cecil.** 2019. MS Thesis. Chemical stimulation of hypoxia in somatic cell nuclear transfer donor cells permits metabolic reprogramming and improved SCNT efficiency.

## **INVITED PRESENTATIONS**

Keynote Speaker – **Texas A&M Genome Editing Symposium.** Texas A&M University, College Station, TX. October 3-4, '19. "Engineering the Pig Genome to Improve Animal Welfare, Sustainability, Food Security and Models of Human Disease".

Speaker – **Policy Summit on Genome Editing in Livestock.** Washington DC, September 24-25, '19. "Engineering the Pig Genome to Improve Animal Welfare, Sustainability, Food Security and Models of Human Disease".

Keynote Speaker – **Pacific Symposium on Animal Biology and Biomedicine.** Washington State University, Pullman, WA. June 14, '19. "Engineering the Pig Genome to Improve Animal Welfare, Sustainability, Food Security and Models of Human Disease".

Speaker – **University of Texas-** Southwestern Medical Center, Dallas, TX. May 7, '19. "Metabolic Programming of a Warburg Effect-Like Metabolism in Donor Cells to Improve Development after Somatic Cell Nuclear Transfer".

Panelist/Speaker – **Ag Innovation Forum- The Agricultural Business Council of Kansas City.** American Royal, Kansas City, MO Feb 14, '19. "Collaborative Efforts to Detect and Control Swine Disease".

Speaker – **Gene Editing: Innovation and Impact in Missouri.** Donald Danforth Plant Science Center, St. Louis MO, November 13, '18. "Gene editing to improve animal welfare, sustainability and food security".

Speaker – **One Health Symposium.** Kansas City, MO, August 20, '18. "Gene editing to improve animal welfare, sustainability and food security: Disease resistance".

Speaker – **NIH Center Directors Meeting.** Rockville, MD, August 7, '18. "Toward patient-specific gene editing by using CRISPR/Cas9 to create swine models of human disease".

Speaker – **Niswender Lecture.** Colorado State University. Ft. Collins, CO, March 19, '18. "Genetic solutions to problems in human medicine and swine production".

Speaker – **Iowa Swine Day.** Ames, IA, June 29, '17. "Gene editing for animal agriculture: Practice and possibilities."

Speaker – **Nidovirus meeting.** Kansas City, MO, June 4, '17. "Genetic engineering to answer basic questions about viral infection and immune function."

Speaker – **Banff Pork Seminar.** Banff, Canada, Jan. 10-13, '17. "Editing the genome for PRRSV resistance: where can we go from here?"

Speaker- **University of Pennsylvania- Orphan Disease Center.** Dec. 15, '16. "Genetically engineered swine as biomedical models." Tag team presentation with Kevin Wells.

Keynote Speaker – **Conference of Research Workers in Animal Diseases.** Chicago, IL. Dec. 4, '16. "Genetic engineering for host resistance to PRRSV and other swine diseases."

Speaker – **Immunobiology of Xenotransplantation Steering Committee.** NIH, Rockville, MD. Nov 9, '16. "Advancing the understanding of human health and disease using biomedical swine models."

Speaker – **United States Animal Health Association/American Association of Veterinary Laboratory Diagnosticians joint meeting.** Greensboro, NC, Oct. 17, '16. "Precision breeding to advance animal health and welfare."

Speaker – **Large Animal Genetic Engineering Summit.** Bethesda, MD, Sept. 19-20, '16. "Development of animal models and the National Swine Resource and Research Center."

Speaker – **Elite Jarvis Commercial Swine VIP Top Hog Summit,** Purina, Gray Summit, MO. Sept. 13, '16. "Genetic editing – Using genetics to change risk factors."

Speaker – **Gordon Conference** on Regulatory Processes Modulating Mammalian Reproduction. Waterville Valley, NH Aug. 21-26, '17. "Editing the pig genome for agriculture and biomedicine."

Speaker – **NIH Resource Center Directors Meeting.** Bethesda, MD, Sept. 19-20, '16. "CRSIPR bacon: Knockouts made easy- a sizzling story."

Speaker – **Midwest Boar Stud Managers Conference V.** St. Louis, MO, Aug. 4, '16. "Genetic editing for resistance to porcine reproductive and respiratory syndrome virus."

Speaker – **International Society of Animal Genetics.** Salt Lake City, UT July 23-26, '16. "CD163: a gatekeeper for susceptibility to porcine reproductive and respiratory syndrome virus."

Speaker – **NCERA-57 Mini-symposium,** Interactions of health and reproduction in swine. Columbia, MO May 24, '16. "The pig that could not get PRRS and how reproduction could be affected next."

Speaker – **2016 PIC Symposium.** Nashville, NC May 10-11. "Editing the genome for PRRSV resistance: a new dawn for hog farming."

Speaker – **Association for Research in Vision and Ophthalmology** annual meeting. Seattle, WA. May 2, '16. "The pig as a large animal model"

Speaker – **Top Hog Summit,** Purina, Gray Summit, MO. April 19, '16. "Genetic editing – Using genetics to change risk factors."

Speaker – **Food and Drug Administration,** Rockville, MD. Feb 34, '16. "The role of CD163 in the sensitivity to the porcine reproductive and respiratory syndrome virus."

Speaker – **Plant and Animal Genome** meeting, San Diego, CA. Jan, 9, '16. "The role of CD163 in the sensitivity to the porcine reproductive and respiratory syndrome virus."

Speaker- **North American Porcine Reproductive and Respiratory Syndrome Symposium.** Chicago, IL. Dec. 5, '15. "The role of CD163 in the sensitivity to the porcine reproductive and respiratory syndrome virus."

Speaker – **American Heart Association.** Orlando, FL. Nov. 10, '15. "Transgenic pigs – How to create them and extant cardiovascular disease models."



Speaker – **University of Minnesota**. Minneapolis, MN. Oct. 28, '15. "Genetically engineered swine as models of human disease."

Speaker – **University of Iowa**. Iowa City, IA. Sept. 17, '15. "Genetically engineered swine as models of human disease."

Speaker – **International Society of Radiopharmaceutical Sciences**, 2015 Meeting, University of Missouri, Columbia, MO, May 26-31, '15. "Resources Available at the NSRRC."

Speaker – **Virginia Polytechnic Institute**, Blacksburg, VA, May 1, '15. "Genetic Engineering for Profitable Pork Production: Is Resistance to PRRSV Possible?"

Speaker – **XXIII Plant and Animal Genome Meeting**, San Diego, CA, Jan. 10, '15. "CRISPR/Cas9-Mediated Genetic Engineering: Is CD163 an Entry Mediator for PRRSV Infection?"

Speaker- **Amgen**. Thousand Oaks, CA, Dec. 16, '14. "Genetic Engineering to Study Cardiovascular Disease."

Speaker- **Zoetis**. Kalamazoo, MI, Dec. 10, '14. "Genetic Engineering Pigs: Examples from Medicine and Agriculture."

Speaker- **North American Porcine Reproductive and Respiratory Syndrome Symposium**. Chicago, IL. Dec. 6, '14. "Genetic Engineering Pigs to Better Understand PRRSV Infection."

Speaker- **American Heart Association**. Chicago, IL. Nov. 17, '14. "Generation of genetically engineered pigs as models of human disease".

Speaker- **Mizzou Epigenetics Day**. University of Missouri, Columbia, MO. Nov 6, '14. "Reprogramming DNA methylation during porcine embryogenesis".

Speaker- **A Developmental Tale: Metabolism Takes Centre Stage**. A satellite meeting of the World Congress of Reproductive Biology, Edinburgh, Scotland, Sept 1-2, '14. "Transcriptional profiling as a tool to understand embryo metabolism".

Speaker – **47<sup>th</sup> Annual meeting of the Society for the Study of Reproduction**. Grand Rapids, MI, July 19-22, '14. "Biologically relevant swine models of human disease".

Speaker – **XXII Plant and Animal Genome Meeting**, San Diego, CA, Jan 10, '14. "Methylated DNA immunoprecipitation (MeDIP) by using low amounts of DNA".

Speaker – **4<sup>th</sup> Mammalian Embryo Genomics Meeting**, Quebec City, Canada. Oct. 9-11, '13. "Genomic profiling to improve pig embryogenesis".

Speaker – **9<sup>th</sup> International Conference on Pig Reproduction**, Olsztyn, Poland. June 10-13, '13. "Transcriptional profiling of oocyte maturation and embryonic development elucidates metabolism and control of development".

Speaker – **National Swine Improvement Federation -International PRRS Symposium**, Marriott KC, Kansas City, MO. November 29-30, '12. "Genetic engineering of pigs for PRRSV resistance."

Speaker – **World Animal Health Congress**, InterContinental Hotel, Kansas City, MO. November 27-28, '12. "Creating genetically engineered pig models for custom testing."

Speaker – **BIO 2012 Livestock Biotech Summit**. Crowne Plaza, Kansas City, MO. September 19-21, '12. "The NSRRC and genetic engineering of swine".

Speaker – **Reproductive and Developmental Genomics**, Molecular Reproduction & Development Board Meeting, Cornell, Ithaca, NY. June 14-15, '12. "Genomic Profiling to Improve Assisted Reproductive Technologies in the Pig."

Speaker – **National Institutes of Health**- Councils of Councils meeting. NIH Campus, Bethesda, MD. June 5, '12. "The NSRRC and Genetic Engineering of Swine."

Speaker – **University of Kentucky**, Department of Biology. Lexington, KY. March 28-30, '12. "Development and Implementation of Systems for Genetic Modification in Pigs."

Speaker- **CTS-IXA 2011 Joint International Congress**, Miami, FL. Oct. 23-26, '11. "Technical Blocks to Efficient Pig Cloning."

Speaker – **American Association of Laboratory Animal Sciences, Kansas City area branch**. Kansas City, MO, Sept. 15, '11. "Genetically Engineered Pigs for Research."

Speaker- **Kansas State University**, Manhattan, KS. July 28, '11. "Development and Implementation of Systems for Genetic Modification in Pigs."

Speaker- **Reproduction & Regeneration**, University of Pennsylvania. Philadelphia, PA. June 13-14, '11. "The Multi-Potentiality of Pig Skin-Derived Stem Cells."

Speaker – **Advances in Reproductive Biology and Genetics**. Mizzou Advantage, University of Missouri, May 16-17, '11. Columbia, MO. "Development and Implementation of Systems for Genetic Modification in Pigs."

Speaker – **Plasticity, Fate, Control and Therapeutic Safety of Stem Cells**, DABE Workshop at the International Embryo Transfer Society annual meeting, January 8-12, '11. Orlando, Florida. "The Multi-Potentiality of Skin-Derived Stem Cells."

Speaker – **Mechanisms of Egg Maturation and Fertilization: From Sea to Land**. September 9-12, '10. Friday Harbor Laboratories, San Juan Island, WA. "Genetic Modification of Swine for Agriculture and Medicine."

Speaker – **9<sup>th</sup> World Congress on Genetics Applied to Livestock Production**. August 1-6, '10. Leipzig, Germany. "Genetic Modification of Swine for Agriculture and Medicine."

Speaker – **College of Agricultural, Consumer and Environmental Sciences – Distinguished Speaker Series**. July 21-22, '10. University of Illinois. "Genetically Engineered Swine Models to Study Diseases like Cystic Fibrosis."

Speaker – **Missouri Life Science Summit** – Animal to Human Health Collaborations. March 8-9, '10. University of Missouri – Kansas City, Kansas City Missouri. "Genetically engineered swine models to study diseased like cystic fibrosis."

Speaker – **NRSP8/Plant and Animal Genome**. January 10, '10. San Diego, CA. "Genetic Modification of Pigs Via Cloning."

Speaker – **Swine Genome Sequencing Consortium**: A celebration for completing the pig genome sequence. November 2-4, '09. Hinxton, UK. "Transgenesis and Biomedical Models."

Speaker – **University of Pennsylvania School of Veterinary Medicine** – 125<sup>th</sup> Anniversary Research Symposium. June 17, '09. Philadelphia, PA. "Transgenic and Cloned Pig Models of Cystic Fibrosis and Other Diseases."

Speaker – **8<sup>th</sup> International Conference on Pig Reproduction**. June 1-3, '09. Banff, Alberta, Canada. "Transcriptional, Post-Transcriptional and Epigenetic Control of Porcine Embryogenesis."

Speaker – **Purdue Agriculture Experiment Station**. May 21, '09. West Lafayette, IN. "Genetically Modified Swine for Medicine and Agriculture".

Speaker – **Molecular Reproduction and Development Conference**. March 19-21, '09. Brown University, Providence, RI. "Transcriptional, Post-Transcriptional and Epigenetic Control of Porcine Embryogenesis."

Speaker – **Billy N. Day Symposium** at the Midwest Section of the American Association of Animal Scientists annual meeting. March 17, '09. Des Moines, IA. "Basic Studies in Reproduction Laid the Foundation for Genetic Modification of Swine: Where Do We Go Next?"

Speaker – **American Society for Reproductive Medicine**. November 8-12, '08. San Francisco, CA. "Heart-Healthy Pork, Pig Organs for Humans, Green Eggs and Ham: How Genetically Modified Pigs Can Benefit You".

Speaker – **National Association of State Universities and Land Grant Colleges**. April 6, '08. Columbia, MO. "Life Sciences Research in Animal sciences at the University of Missouri: Genetically Modified Swine for Medicine and Agriculture".

Speaker – **Swine in Biomedical Science**. April 2-3, '08. San Diego, CA. "Genetic Modification in Swine: Current Status".

Speaker – **Transgenic Animal Conference VI**. August 12-16, '07. Granlibakken Conference Center, Tahoe City, CA. "Heart-healthy pork: *hFat-1* transgenic swine".

Speaker – **Advantages of Agriculturally Important Domestic Species as Dual-Use Models in Animal Agriculture and Biomedicine, NIH**. April 19-20, '07. Lister Hill Auditorium, Bethesda, MD. "Genetic Modification of Swine for Medicine and Agriculture".

Kiracofe Invited Lectures- **Kansas State University**. March 26-28, '07. Manhattan, KS. "Genetic Modification of Swine for Medicine and Agriculture", "Swine Embryogenesis: Technologies to Improve Reproduction", "Gene Expression During Swine Embryogenesis: Transcriptional Profiling and Differential Methylation Hybridization".

Speaker- **Utah State University**. March 1, '07. Logan, UT. "Genetic Modification of Swine for Medicine and Agriculture".

**Walter Randall Lecturer for 2006. American Physiological Society**, Experimental Biology Annual Meeting, April 1-5, '06. San Francisco, CA. "Transgenic animals for medicine and agriculture: do the ends justify the means?"

Speaker- **Oklahoma State University**. March 9 & 10, '06. Stillwater, OK. "Gene Expression During Pig Embryogenesis: Transcriptional profiling and differential methylation hybridization", and "Genetic Modification of Swine for Medicine and Agriculture".

Speaker - **University of Wisconsin-Madison**. Dec. 8 & 9, '05. Madison, WI. Endocrinology, Reproductive Physiology Training Program. "Gene Expression During Pig Embryogenesis".

Speaker - **American Association of Lab Animal Scientists**, Annual Meeting November 6-10, '05. St. Louis, MO. "Transgenic Approaches to Develop Swine Models".

Speaker - **Institute for Theological Encounter with Science and Technology**. Biological Advance Patenting and the Law. October 14-16, '05. Belleville, IL. "Discussion of Reproductive Biotechnologies for the Institute for Theological Encounter with Science and Technology".

Speaker- **Missouri State University**. Sept. 21 & 22. '05. Springfield, MO. "Genetic Modification of Swine for Medicine and Agriculture" and "Swine and Bovine Genomics Research with a Focus on Female Reproduction"

Speaker- **7<sup>th</sup> International Conference on Pig Reproduction**. June 14, '05. Rolduc Abbey, The Netherlands. "Pig Reproduction: A Look Back, and Ahead."

Speaker- **University of Iowa**. April 18, '05. Univ. of Iowa Gene Therapy Center Annual Retreat. Iowa City, IA. "Genetic Modification of Swine for Medicine and Agriculture."

Speaker- **Iowa State University**. March 23-24, '05. Ames, IA. "Genetic Modification of Swine for Medicine and Agriculture."

Speaker- **University of Connecticut-Storrs**. February 24-25, '05. Storrs, CT. "Genetic Modification of Swine for Medicine and Agriculture" & "Gene Expression During Pig Embryogenesis as Determined by Using a Pig Reproductive Tissue-Specific Microarray."

Speaker- **Swine in Biomedical Research**, Chicago IL. January 27, '05. "Perspectives on Porcine Transgenesis and Cloning."

Speaker- **Plant & Animal Genome-XIII Swine Workshop Program**, San Diego, CA. January 15, '05. "Gene Expression During Pig Embryogenesis as Determined by Using a Pig Reproductive Tissue-Specific Microarray."

Speaker- **Monsanto Company, Inc.** Chesterfield, MO. November 19, '04. "Gene Expression During Pig Embryogenesis as Determined by a Pig Reproductive Tissue-Specific Microarray".

Speaker- Workshop on **Advantages of Agriculturally Important Domestic Species as Biomedical Models**. Michigan State University, East Lansing, MI. October 29-31, '04. "Swine as Biomedical Models".

Speaker- **American Embryo Transfer Association**. Tampa, FL. October 14-16, '04. "Genetic Modification of Swine for Medicine and Agriculture".

Speaker- **Society for the Study of Reproduction**- Annual Meeting. Vancouver, BC, Canada. Aug. 1, '04. "Genetic Modification of Pigs for Medicine and Agriculture"

Speaker- **American Association of Animal Scientists**- Annual Meeting, St. Louis, MO. July 26, '04. "Swine and Bovine Genomics Research with a Focus on Female Reproduction".

Speaker- **Gordon Research Conference** – Reproductive Tract Biology, New London, CT. June 6-11, '04. "Development, 'or lack thereof', of nuclear transfer-derived embryos".

Speaker- **Washington University**, St. Louis, MO, December 17, '03. "Genetic Modification of Swine for Medicine and Agriculture".

Speaker- **Korean Conference on Innovative Science and Technology**. Jeju Island, South Korea. November 12-14, '03. "Genetic Modification of Swine for Medicine and Agriculture".

Speaker- **Food & Drug Administration**. October 7, 2003, Rockville, MD. "Transgenic Pigs for Medicine and Agriculture".

Speaker- **International Conference on Transgenic Animal Production**. August 10-14, '03. Tahoe, CA. "Transgenic Pigs for Medicine and Agriculture".

Speaker- **American Meat Science Association**, June 18, '03. Columbia, MO. "Use of Cloning and Transgenesis in Pigs"

Speaker-**Nebraska Physiological Society**, May 23, '03. Lincoln, NB. "Specific Genetic Modifications to Swine: Application to Medicine and Agriculture".

Distinguished Lecturer- **University of Florida's Animal Molecular and Cell Biology Graduate Program**- 1<sup>st</sup> Annual Research Symposium. May 2-3, '03. The Whitney Laboratory, Marineland, FL. "Swine and Bovine Genomics Research with a Focus on Female Reproduction"

Speaker- **University of Florida**, May 2, '03. Gainesville, FL. "Transgenic Pigs for Medicine and Agriculture"

Speaker- **Genetics at Science City**, Union Station, Kansas City, MO. April 28, '03. "Transgenic Pigs for Medicine and Agriculture"

Grand Rounds-Ob/Gyn, **Case Western Reserve University**, MacDonald Women's Hospital. March 5, '03. Cleveland, OH. "Transgenic Pigs for Medicine and Agriculture"

Speaker- **International Embryo Transfer Society**, January 13, '03. Auckland, New Zealand. "Transgenic Pigs for BioMedicine and Agriculture".

Speaker – **Linda Hall Library**. December 9, '02. Kansas City, MO. "Swine with Specific Genetic Modifications: Cloning & Xenotransplantation".

Speaker- **American Heart Association** Annual Meeting, November 17-20, '02. Chicago, IL. "Xenotransplantation: Genetic Modification to Overcome the Barriers".

Speaker- **Minority Donor Awareness Society**, October 4, '02. Kansas City, MO. "Xenotransplantation- Genetic Modification in Swine".

Speaker- **Iowa State University**. September 17, '02. Ames, IA. "Transgenic Pigs for Biomedicine and Agriculture".

Speaker- **Monsanto Company**. September 4, '02. Chesterfield, MO. "Transgenic Pigs for Biomedicine and Agriculture".

Speaker- **First International Workshop on Embryo Genomics in Farm Animals**, July 20, '02. Quebec City, Quebec, Canada. "Large Scale EST Project to Discover Genes of Importance to Pig Reproduction".

Speaker- **Harvard Medical School**. Massachusetts General Hospital/Transplantation Biology Research Center/Immerge BioTherapeutics, May 24, '02. Charlestown, MA. "Transgenic Pigs for Biomedicine and Agriculture".

Speaker- **University of Illinois**, May 1, '02. "Transgenic Pigs for Biomedicine and Agriculture".

Speaker- **Secretary's Advisory Committee on Xenotransplantation**, March 11, '02. National Institutes of Health, Bethesda, MD. "Transgenic Pigs for Biomedicine and Agriculture".

Speaker- **Mo-Kan Reproductive Biology Workshop**, November 3, '01. Columbia, MO. "Nuclear Transfer in Swine- Cloning & Transgenesis: Theory, Practice & Potential".

Visiting Expert Program. **The Ohio State University**. October 2-4, '01. Wooster and Columbus, OH. "Nuclear Transfer in Swine- Cloning & Transgenesis: Theory, Practice & Potential".

Speaker- **International Animal Agriculture and Food Science Conference**, July 25, '01. Indianapolis, IN, "Preserving/Conserving Germplasm by Incorporating Embryo-Related Technologies".

Speaker- **6<sup>th</sup> International Conference on Pig Reproduction**. June 3-6, '01. Columbia, MO. "Cellular Mechanisms of Fertilization and Parthenogenesis".

Speaker- **University of Nebraska-Lincoln**. April 11, '01. Lincoln, NB. "Development of Embryo-based Bio-technological Advances in Swine Embryogenesis".

Speaker- **Michigan State University**, March 28, '01. East Lansing, MI. "Development of Embryo-based Bio-technological Advances in Swine Embryogenesis".

Speaker - **International Congress on Animal Reproduction**. July 2-4, '00. Stockholm, Sweden. "Parthenogenetic Activation of Swine Oocytes".

Speaker- **Nuclear Transfer and Transgenesis**. June 18-21, '00. Park City, Utah. "Changes in the Structure of Nuclei after Transfer to Oocytes".

Speaker- **Banbury Conference**- Mammalian Cloning: Can It Be Made More Efficient? March 12-15, '00. Cold Spring Harbor, NY. "Nuclear Transfer in Swine".

Speaker- **Missouri Veterinary Medical Association**. January 21, '00. Tan Tara, Missouri. "Development of Embryo-Technologies in Swine"

Speaker - **Purdue University**. October 21, '99. West Lafayette, Indiana. "Differentiation of Swine Embryos and Progress in Cloning/Transgenesis".

Speaker - **Institute for Theological Encounter with Science and Technology**. "The Genome: Plant, Animal, Human". August 1-5, '99. Loyola University of Chicago, Chicago, IL "Genetic Modification of Domestic Animals".

Speaker/Panelist - **Tau Beta Pi 30<sup>th</sup> Annual Paul D. Scholz Symposium**. "Human Cloning and Genetic Engineering". April 27, '99, University of Iowa, Iowa City, IA. "Development of the Cloning/Nuclear Transfer/Transgenic Technology".

Speaker - **International Embryo Transfer Society-Satellite Session.** January 13, '99. Chateau Mont Sainte-Anne. Quebec, Canada. "Development of the techniques for nuclear transfer in pigs".

Speaker - **The American Society of Human Genetics.** October 28, '98. "Transgenic animals by nuclear transfer (cloning): theory, practice & potential".

Speaker - **Association of University Technology Managers, Inc.** September 14, '98. Kansas City, MO. "The Patent Frenzy - A Few Case Studies".

Speaker - **Utah State University.** September 8, '98 Logan, UT. "Development of Embryo Technologies in Pigs".

Speaker- **Nuclear Transfer and Embryonic Stem Cells.** April 15-17, '98. Monash University, Australia. "Strategies for Activating Nuclear Transfer Oocytes".

Speaker- **International Embryo Transfer Society.** . January 18, '98. Boston, MA. "Practical Aspects of In Vitro Production of Pig Embryos".

Speaker & Panelist- **Cloning and Biotechnology: Opportunities, Challenges and Choices.** November 13, '97. University of Nebraska-Lincoln. "Cloning Mammals: Theory, Practice & Potential".

Speaker- **Mammalian Cloning: Implications for Science and Society.** June 26, '97. Crystal Gateway Marriott Hotel, Arlington, VA. "Nuclear and Cytoplasmic Modifications After Nuclear Transfer".

Speaker- **Roslin Institute,** Roslin, Scotland. May 29, '97. "Activation of Pig Oocytes".

Speaker- **Lincoln University,** Jefferson City, MO. February 25, '97. "Chimera Production in Swine, and the Potential for Xenographs."

Speaker- **Korean Society of Animal Reproduction,** Seoul, South Korea. February 14, '97. "Artificial Activation of Pig Oocytes Arrested at Meiotic Metaphase II".

Speaker- **Korea Research Institute Bioscience and Biotechnology,** TaeJeon, South Korea. February 13, '97. "Development and Applications of Embryo Technologies in Pigs".

Speaker- **4<sup>th</sup> Midwestern Meeting on Conceptus and Uterine Development,** Iowa State University, Ames, IA. March 21, '94. "Artificial Oocyte Activation in Pigs".

Speaker- **Louisiana State University,** Baton Rouge, LA. November 5, '93. "When is Development of the Domestic Pig Conceptus Dependent Upon New Transcription?"

Speaker - **International Society for Heart Research,** American Section, '93 annual meeting. Columbia, MO. June 20-24, '93. "Strategies for Producing Large and Small Transgenic Animals".

Speaker- **4<sup>th</sup> International Conference on Pig Reproduction,** Columbia, MO. May 23-26, '93. "Nuclear Control of Preimplantation Development in the Pig".

Speaker- **University of Montreal,** CRR, Saint-Hyacinthe, Quebec, Canada. March 23, '93. "The Transition from Maternal Control of Development to Zygotic Control of Development in the Domestic Pig".

Speaker- **Biotransplant, Inc. & Harvard Medical School**, Boston, MA. November 17,'92. "Cloning Pig Embryos".

Speaker - **NCR 150, Animal Biotechnology: Technology Transfer and Industrial Needs**, National Livestock & Meat Board, Chicago, IL. May 17-19, '92. "Nuclear Transplantation as a Method of Producing Genetically Identical Livestock".

Speaker- **Chicago College of Osteopathic Medicine**, Downers Grove, IL. March 30,'92. "Nuclear Transfer for Cloning Domestic Animals: Nuclear Remodeling and Reprogramming".

Speaker - **International Symposium on: 'Cloning Mammals by Nuclear Transplantation'**, Fort Collins, CO, January 15, '92. "Nuclear Modifications after Nuclear Transfer".

Speaker - **Kansas State University**, Departmental Seminar & Guest Lecturer, April 1-3,'91, Manhattan, KS. "The Transition From Maternal-to-Zygotic Control of Development", "Cloning Livestock Embryos by Nuclear Transfer", "Nuclear Remodeling & Reprogramming After Nuclear Transfer".

Speaker- **Gordon Research Conference**, Quantitative Genetics and Biotechnology, January 11, '91, Oxnard, CA. "Nuclear Transplantation in Animals".

Speaker - **Mo-Kan Reproductive Biology Workshop**, June 16, '90, University of Missouri-Columbia. "Cloning Embryos by Nuclear Transfer".

Speaker - **University of Nebraska**, Biotechnology Seminar Series, March 7, '90, Lincoln, NE. "Nuclear Transfer and Nuclear Reprogramming in Domestic Animals".

Speaker - **Banbury Conference** - Applications of Basic Research in Development. October 15-18,'89, Cold Spring Harbor, NY. "Cloning by Nuclear Transfer in Laboratory and Domestic Animals".

Speaker- **2<sup>nd</sup> International Symposium on Genetic Engineering of Animals**, June 25-28, '89. Cornell University, Ithaca, NY. "Reprogramming and Cloning the Entire Genome".

Speaker- **3<sup>rd</sup> International Conference on Pig Reproduction**. April 11-14, '89. University of Nottingham, U.K. "Cloning of Embryos".

Faculty - **The American Fertility Society**, Regional Postgraduate Course, Hands on IVF, Cryopreservation and Micromanipulation. April 25-29, '88, Madison, WI. "Nuclear Transfer in Early Mammalian Embryos".

Speaker- **Application of Egg- and Embryo-Technologies to Domestic Animals**. Department of Obstetrics and Gynecology, January '87. The Royale Veterinary and Agricultural University, Copenhagen, Denmark. "Nuclear Transplantation in Domestic Animal Embryos".

### **University of Missouri**

**Director:** Transgenic Animal Facility, '90 - '94. This was a service facility to produce transgenic mice for on-campus investigators.



**Supervisor:** Unit D facilities of ASRC, Sept. '94 - Present. These are the large animal and surgery units in the Animal Science Research Center.  
Unit F of ASRC, '16- present.

## **Committees,**

### Campus

Review the status of the University of Missouri Research Board grant program. June '14  
Special Advisory Group to the Chancellor, Jan. '05-'10.  
DNA Core Advisory Committee, April 7, '99-Present.  
Molecular Biology Core Advisory Committee, Aug. '04-Feb. '07.  
Provost's Life Sciences Task Force, Dec. '00-Dec. '04.  
Transgenic Animal Core Facility Oversight Committee, '99-'02.  
Life Sciences Mission Enhancement Planning Committee, April '98-Aug. '99.  
Advisory Committee for Office of Research, Aug. '98- Aug. '01.  
Electron Microscopy Core Facility Oversight Committee, Nov. '96-'97 & '98-Jan. '99.  
Animal Care and Use Committee, Jan.'97-April '98.  
Curators' Professor screening advisory committee. '10, '11.  
Advisory Committee for the 2011-2013 Presidential Award for Faculty Excellence.

### College

CAFNR Promotion and Tenure Committee. Sept. '02-Aug. '04.

### Departmental

Chair Advisory Committee, July '16-??  
Promotion and Tenure Committee, July '96-'99.  
Swine Farm Operations Committee, June '89-present.  
Vehicle Committee, Chairman, Jan.'90-'95.  
GCI/RIF/Research Advisory Committee, Aug. '90-'96.  
Research Advisory Committee: GCI/RIF/GIF, Chairman, '96-'98; '02-'04; '11-'14.  
Unit D1-3 Space Committee, Oct. '91-Sept. '94.  
Unit D1-3 Space Committee, Chairman, Sept. '94-present.  
Unit F Space Committee, July '15-present.  
ASRC Space Committee, Sept. '94-present.  
Faculty Awards Committee, Oct.'94-'97.  
Policy Committee on Patents, etc., Aug 7, '95.  
Policy Committee on Support of Farms, Aug 8, '95.

Food for the 21<sup>st</sup> Century, Animal Reproduction Cluster  
Fellowships and Other Awards, Chairman '00-'10.  
Pilot Projects/Special Equipment, Jan. '91-'92.

Pilot Projects/Special Equipment, Chairman '94.  
Invited Speakers, Jan.'91-'92.  
Invited Speakers, Chairman, Aug. '94-Dec. '94.  
Publications, Chairman, Oct. '92-'94.  
Publications, '95-'05.  
Support Facilities, Oct.'92-'94.  
Fellowships, Chairman '95-'98.  
Transgenic Lab,'95-'98.

#### Search Committees

F21C Reproductive Biology Cluster, One Position, '92-'93, Filled by Matt Lucy  
F21C Reproductive Biology Cluster, Two Positions, '96-'98, Filled By Guang Zhao & the other position was re-advertised.  
Dean of the College of Veterinary Medicine, '98-'99- Filled by Joe Kornegay.  
McKee Endowed Professor, Department of Veterinary Pathobiology, '03-'04, Filled by John Critser.  
Gamete & Embryo Cryobiology, Department of Veterinary Pathobiology, '03-'04, Filled by Yuksel Agca.  
F21C Reproductive Biology Cluster, Two Positions. '04-'05. Committee Chair. Filled by Roccio Rivera and Kevin Wells.  
ObGyn Faculty, Three Positions. Filled by Gary Clark, Bret Barrier and Susan Nagel. '04-'05.  
Chair of Veterinary Pathobiology, Department of Veterinary Pathobiology, '05. Filled by George Stewart.  
F21C Reproductive Biology Cluster, One Position, Committee Chair. '08-'12. Filled by Chris Elsick.  
Gilbreath-McLorn Endowed Professor of Comparative Medicine, Department of Veterinary Pathobiology, '11- '13. Filled by Leslie Lyons.

## **Teaching,**

- 413 Reproductive Biology Seminar W90: Coordinated Graduate Seminar. 1 hr
- 433 Gamete & Embryo Biology F90: Developed and Team Taught This Graduate Level Class. 2 hr
- 433 Gamete & Embryo Biology F92: Team Taught This Graduate Level Class. 2 hr
- 440 Biology of Gestation W93: Developed & Team Taught This Graduate Level Class. 2 hr
- 433 Gamete & Embryo Biology F94: Team Taught This Graduate Level Class. 2 hr
- 400 Experimental Surgery F94: Coordinated this class taught by Dr. Youngquist. 1 hr
- 384 AI & Reproductive Management F95: Revamped & Team Taught This Upper Level Undergraduate Class. 3 hr
- 400 Experimental Surgery F95: Coordinated this class taught by Dr. Youngquist. 1 hr
- 400 Experimental Surgery F96: Coordinated this class taught by Dr. Youngquist. 1 hr
- 400 Gametes, Embryos & Gestation F96 (AS433 + Gestation): Team taught this Graduate Level Class. 3 hr
- 384 AI & Reproductive Management F96: Taught this undergraduate level class. 3 hr
- 301 Genetics W97: Taught the first 5 lectures for Dr. Lamberson. 3 hr.
- 384 AI & Reproductive Management F97: Team Taught This Upper Level Undergraduate Class. 3 hr
- 400 Experimental Surgery F97: Coordinated this class taught by Dr. Youngquist. 1 hr
- 301 Genetics W98: Taught the first 5 lectures for Dr. Lamberson. 3 hr.
- 384 AI & Reproductive Management F98: Team Taught This Upper Level Undergraduate Class. 3 hr
- 400 Experimental Surgery F98: Coordinated this class taught by Dr. Youngquist. 1 hr
- 384 AI & Reproductive Management F99: Team Taught This Upper Level Undergraduate Class. 3 hr
- 400 Experimental Surgery F99: Coordinated this class taught by Dr. Youngquist. 1 hr
- 384 AI & Reproductive Management F00: Team Taught This Upper Level Undergraduate Class. 3 hr
- 400 Experimental Surgery F00: Coordinated this class taught by Dr. Youngquist. 1 hr
- 440 Gamete & Embryo Biology F00: Taught This Graduate Level Class. 2 hr
- 384 AI & Reproductive Management F01: Team Taught This Upper Level Undergraduate Class. 3 hr
- 384 AI & Reproductive Management F02: Team Taught This Upper Level Undergraduate Class. 3 hr

- 213 Genetics W03: Taught the first 6 lectures of this course for Dr. Lamberson. 3 hr.
- 384 AI & Reproductive Management F03: Team Taught This Upper Level Undergraduate Class. 3 hr
- 213 Genetics W04: Taught the first 5 lectures of this course for Dr. Lamberson. 3 hr.
- 4384 AI & Reproductive Management F04: Team Taught This Upper Level Undergraduate Class. 3 hr
- 3213 Genetics W05: Taught the first 5 lectures of this course for Dr. Lamberson. 3 hr
- 4384 AI & Reproductive Management F05: Team Taught This Upper Level Undergraduate Class. 3 hr
- 3213 Genetics W06: Taught the first 5 lectures of this course for Dr. Lamberson. 3 hr
- 4384 AI & Reproductive Management F06: Team Taught This Upper Level Undergraduate Class. 3 hr
- 3213 Genetics W07: Taught the first 5 lectures of this course for Dr. Lamberson. 3 hr
- 4384 AI & Reproductive Management F07: Team Taught This Upper Level Undergraduate Class. 3 hr
- 3213 Genetics W08: Mentored Erin Sellner to teach the first 5 lectures of this course for Dr. Lamberson. 3 hr
- 4384 AI & Reproductive Management F08: Team Taught This Upper Level Undergraduate Class. 3 hr
- 4384 AI & Reproductive Management F09: Team Taught This Upper Level Undergraduate Class. 3 hr
- 4384 AI & Reproductive Management F10: Team Taught This Upper Level Undergraduate Class. 3 hr
- 4001 Topics in Research F10: Team Taught This Biotechnology Capstone Class with Dr. Jon Green. 3 hr
- 4384/7384 AI & Reproductive Management F11: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr
- 4384/7384 AI & Reproductive Management F12: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr
- 4384/7384 AI & Reproductive Management F13: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr
- 4384/7384 AI & Reproductive Management F14: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr
- 4384/7384 AI & Reproductive Management F15: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr
- 4384/7384 AI & Reproductive Management F16: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr
- 4384/7384 AI & Reproductive Management F17: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr

4384/7384 AI & Reproductive Management F18: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr

4384/7384 AI & Reproductive Management F19: Team Taught This Upper Level Undergraduate/Graduate Class. 3 hr

### **Graduate Faculty,**

Summer 1989 to present.

### **Doctoral Faculty,**

January 1, 1991 to present.

### **Postdoctoral Students/ Research Scientists**

<u>Name</u>	<u>Current Position</u>
Lee F. Rickords 1/91-9/92.	Associate Professor: Utah State University
Todd T. Stumpf 1/91-1/92.	Research Coordinator: Continental Grain
Jiewen Li 10/93-12/96.	Postdoc with Alan Bradley, Baylor College of Medicine
Zoltan Macháty 10/93-4/97.	Associate Professor- Purdue University
Yong-Mahn Han 3/97-9/98.	Research Scientist: KIST, Tae-Jeon, Korea
Tao Tao 6/97-4/99.	Director Clinique de Fertilité, Moncton, NB, Canada.
Jae-Hwan Kim 5/99-8/99	Assistant Professor, Pochon CHA University, Korea
Birgit Kühholzer 10/98-10/00	Homemaker.
Zhi-Xin Wei 3/99-5/01	Postdoc, University of Chicago
Kwang-Wook Park 4/99-4/02	Faculty, Suncheon National University, Korea
Liangxue Lai 12/98-4/02	Investigator, Guangzhou Institute of Biomedicine and Health, China.
Gi-Sun Im 5/02-12/03	Korea National Livestock Research Institute
Zhonghua Liu 8/02-6/04	Associate Professor- Northeast Ag. Univ., Harbin, China
Hwan-Yul Yong 12/03-11/05	Postdoctoral Fellow: Univ. Missouri- Mike Roberts
Rongfeng Li 1/05-12/07	Associate Professor- Inner Mongolia University, China.
Jason Ross 12/06-7/08	Associate Professor, Department of Animal Science, Iowa State University
S. Clay Isom 9/06-12/09	Associate Professor, Department of Veterinary and Animal Sciences, Utah State University
Jianguo Zhao 9/07-8/11	State Key Laboratory of Reproductive Biology, Institute of Zoology, Chinese Academy of Sciences, Beijing, P.R.China
Kim Tessanne 1/11-11/12	Technical Representative for Life Technologies
Kiho Lee 1/11-12/13	Assistant Professor at Virginia Polytechnical Inst.
Jiude Mao 1/1/10-8/31/14	Postdoc with Peter Sutovsky, Univ. MO
Jeff J. Whyte 9/06-4/17	Research Scientist, BSL3 Facility, Univ. MO
Kristin Whitworth 2010-Present	

Bethany Redel 12/15/2014-Present  
Susan Schommer 8/2016-Present  
Caroline Lucas 4/2017-Present

**Research Assistant Professor,**

Zoltan Machaty 4/97-8/00. Assistant Professor, Department of Animal Science,  
Purdue University  
Liangxue Lai 4/02-12/06. Investigator, Guangzhou Institute of Biomedicine  
and Health, China.

**Visiting Scientists,**

Seung-Ju Moon 8/94-7/95  
Prudence Aquino-Aquino 10/97

Gabor Vajta 11/97

Jorge Piedrahita 12/97  
James L. Sartin 9/99

Richard Taylor 10/99  
Jin-Ki Park 7/99-7/00  
Hee-Tae Cheong 7/00-8/01  
Yan-Hong Hao 10/01-12/02  
Clifton Murphy 1/95-Present  
Gabor Vajta 5/03

Yan-Hong Hao 6/03-1/09  
Yi Tan 1/06-4/06  
Mingtao Zhao 11/07-6/10

Xiao-Yu Yang 2/21/11-8/1/11  
Jan Secher 9/12-12/12  
Kwang-Wook Park 8/1/11-7/31/13  
Caroline Lucas 2/15-9/15

Home Position

Chonnam National University, Korea  
St. Luke's Medical Center, Quezon City,  
Philippines  
Danish Institute of Agricultural Sciences,  
Tjele, Denmark  
Texas A&M, College Station, TX  
College of Veterinary Medicine, Auburn  
University  
E.A.R.T.H. Costa Rica  
Korea NLRI-RDA  
Kangwon National University, Korea  
Northeast Ag. Univ. Harbin, China  
College of Veterinary Medicine, UMC  
Danish Institute of Agricultural Sciences,  
Tjele, Denmark  
Northeast Ag. Univ. Harbin, China  
Chongqing University of Medical Sci., China  
Institute of Biotechnology, Northwest A&F  
University, Yangling, Shannxi, 712100, P. R.  
China.  
Fujian Medical University, Fuzhou, P.R. China  
Copenhagen University, Denmark  
Suncheon National University, South Korea  
Federal University of Pelotas, Pelotas, Brazil

**Graduate Student Honors.**

Rick Schoenbeck

\*Finalist Student Poster Competition, International  
Embryo Transfer Society '93.

Jon Anderson

\*Awarded 2<sup>nd</sup> place in the Research and Creative  
Activity Forum '99, University of Missouri-Columbia.  
\*Awarded the Donald K. Anderson Graduate Student  
Teaching Award '98, University of Missouri-Columbia.

Nancy Ruddock	<p>*Awarded the Superior Graduate Achievement Award '97. University of Missouri-Columbia.</p> <p>* Animal Science Graduate Student Association-Social Committee, '97-'99, President '99-'00</p> <p>*Awarded a Brown Fellowship and spent a month in the laboratory of Dr. Alan Trounson, Monash medical Center, Australia.</p>
David Bart Carter	<p>* Awarded the Donald K. Anderson Graduate Student Teaching Award '01, University of Missouri-Columbia.</p>
Ryan Asa Cabot	<p>* College of Agriculture, '02. Food and Natural Resources, Research Expo XI poster session winner.</p>
Jin-Geol Kim	<p>* Neal A. Jorgensen Genome Travel Grant- to Present data at the Plant and Animal Genome Meeting, San Diego, CA. '05.</p>
Aaron Bonk	<p>*2<sup>nd</sup> Place Poster Competition, Division of Animal Science- Grad Forum June 30, '05.</p>
Aaron Bonk	<p>*Finalist Student Poster Competition, International Embryo Transfer Society, Orlando, FL. '06.</p>
Kristin Whitworth	<p>*Finalist Student Poster Competition, International Embryo Transfer Society, Denver, CO. '08. Named a Runner-Up, i.e. 2<sup>nd</sup> place.</p>
Kristin Whitworth	<p>*First Place. Graduate Student Forum, '08. Oral Presentations, Division of Animal Sciences, University of Missouri.</p>
Mingtao Zhao	<p>Recipient of the F.B. Miller PhD fellowship beginning 8, '10.</p>
Bethany Bauer	<p>*Finalist Student Poster Competition, International Embryo Transfer Society, Orlando, FL. '11.</p>
Bethany Bauer	<p>*Recipient of a Douglas D. Randall Young Scientists Development Fund Travel Award- IETS '11.</p>
Mingtao Zhao	<p>*Finalist Student Poster Competition, International Embryo Transfer Society, Phoenix, AZ. '12.</p>
Mingtao Zhao	<p>*Runner-Up (2<sup>nd</sup> place) in the Student Competition, International Embryo Transfer Society, Phoenix, AZ. '12.</p>
Kristin Whitworth	<p>*Recipient of a Douglas D. Randall Young Scientists Development Fund Travel Award- Transgenic Animal Conference '13.</p>
Bethany (Bauer) Redel	<p>*First Place. Graduate Student Forum, '13. Poster Presentation, Division of Animal Sciences, University of Missouri.</p>
Mingtao Zhao	<p>*Recipient of the Gamma Alpha Gamma Dissertation Year Fellowship. 2013-2014, \$5,000.</p>

Bethany (Bauer) Redel	*First Place. Graduate Student Forum, '14. Poster Presentation, Division of Animal Sciences, University of Missouri.
Bethany Mordhorst	*Recipient of the National Corn Board Scholarship, New Orleans, March 1-4, '16.
Bethany Mordhorst	*First Place. Student Poster Competition, '16. 42 <sup>nd</sup> International Embryo Transfer Society annual meeting, Louisville, KY.
Bethany Mordhorst	*Third Place. Graduate Student Forum, '16. Poster Presentation, Division of Animal Sciences, University of Missouri.
Bethany Mordhorst	*Outstanding Poster. Life Sciences Week, '17. Poster Presentation, University of Missouri.
Bethany Mordhorst	USDA NIFA-AFRI Merit Award, '18.
Paula Chen	*Finalist Poster Competition, International Embryo Technology Society '19.
Katy Stoecklein	*Grad Forum 1 <sup>st</sup> place MS poster competition. U. MO. '19
Raissa Cecil	*Grad Forum 2 <sup>nd</sup> place MS poster competition. U. MO. '19
Paula Chen	*Grad Forum 2 <sup>nd</sup> place PhD poster competition. U. MO. '19
Paula Chen	*Awarded Peter W. Farin Trainee Scholarship Award to cover travel expense to the International Embryo Technology Society annual meeting, New York, NY 2020.
Paula Chen	*Awarded Neal Jorgenson Genome Travel Grant to attend the Plant and Animal Genome Meeting, San Diego, CA 2020.

### **Graduate Advising,**

As Major Professor (14 MS and 10 PhDs graduated)

MS	Rick A. Schoenbeck	1992	Director Reproduction Resources, Hebron, IL
MS	Mario Mayes	1994	Research Scientist, University of Laval, Quebec, Canada
MS	Wendy Jolliff	1997	Homemaker
MS	Kristin Whitworth	1997	Sr. Research Specialist/PhD student at the University of Missouri
PhD	Jae-Hwan Kim	1999	Assistant Professor, Pochon CHA University, Korea
MS	Hyun-Jin Do	1999	Research Specialist, Pochon CHA University, Korea
PhD	Jon Anderson	2000	Embryo Technology Research Scientist, Sygen
PhD	Nancy Ruddock	2000	Postdoc in Australia, Melbourne (Alan Trounson)



MS	Bart Carter	2002	Director, Office of Animal Resources, Kansas State University
PhD	Ryan Cabot	2002	Professor, Department of Animal Science, Purdue University
MS	Jennifer Luth	2002	Postdoc at Washington Univ. St. Louis, MO
MS	Lisa Overman-Martin	2006	Veterinarian, North Carolina
PhD	S. Clay Isom	2006	Associate Professor, Utah State University
PhD	Aaron Bonk	2007	Technical Service Rep. with Promega.
MS	Jin-Geol Kim	2007	Research Specialist, University of Missouri
MS	Courtney McHughes	2007	Sales consultant, Mt. Pleasant, TX
MS	Kyle B. Dobbs	2010	Graduate Student with Dr. Pete Hanson, Florida State University
MS	Bethany K. Bauer	2010	PhD Student, Division of Animal Sciences, University of Missouri with Dr. Prather
PhD	Kristin Whitworth	2010	Research Scientist at the University of Missouri with Dr. Prather
MS	Jennifer Teson-Hamm	2013	National Foundation for Fertility Research
PhD	Mingtao Zhao	2013	Postdoc- Joe Wu- Stanford.
PhD	Bethany K. Redel	2014	Research Scientist at the University of Missouri with Dr. Prather
PhD	Bethany Mordhorst	2017	Postdoctoral Fellow at Sanford Health, Sioux Falls, SD.
MS	Raissa Cecil	2019	Research Specialist at the University of Missouri with Dr. Prather
MS	Sabrina Hammond	Current	
PhD	Katy Stoecklein	Current	
PhD	Paula Chen	Current	

### **As Committee Member**

MS	Steve Terlouw	1989
MS	Shyh-Jye Lee	1992
PhD	Gregg Eckardt	1992
PhD	Doug Leaman	1993
PhD	Stacey Hamilton	1993
PhD	Steve Terlouw	1993
PhD	Julie Galvin	1993
PhD	Tim Safranski	1994
PhD	Melody Stallings-Mann	1995
PhD	Rongti Liang	1995
MS	Nicole M. Ferguson-Kohout	1998
MS	Christopher Hueser	1999
PhD	Will Rieke	2000
MS	George Perry	2000
PhD	Melissa Larson	2000

MS	Jennifer Antelman	2007
PhD	Steve Mullen	2007
MS	Madhavi Kommareddy	2008
PhD	Bhanu Prakash Telugu	2008
MS	Julie Birt	2010
MS	Md Almamun	2011
PhD	Shawn Zimmerman	2012
MS	Benjamin Beaton	2012
MS	Anna Lichtenauer	2013
MS	Veronica Negron Perez	2013
MS	Justin Hennings	2013
PhD	Benjamin Beaton	2015
MS	Addison Byrne	2016
PhD	Daniel Kline	2016
PhD	Wonhee Song	2016
PhD	Kelsey Brooks	2016
PhD	Karl Kerns	2018
MS	Ashley Hobbs/Meyer	2018
MS	Caroline Pfeiffer	2019
PhD	Dalen Zuidema	Current
MS	Destiny Johns	Current