**Thomas Raymond Gawriluk**

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I am a developmental biologist who is interested in how reproduction and immunity influence tissue regeneration in vertebrates. Specifically, I would like to learn mechanisms to reduce fibrosis and promote regeneration in mammals. Currently, I am a postdoc under Ashley Seifert, examining tradeoffs between adaptive and innate immunity with complex tissue regeneration using the African Spiny Mouse (*Acomys spp.*) and laboratory rabbit (*Oryctolagus cunniculus*).

**EDUCATION**

2014 Doctor of Philosophy in Biology, **University of Kentucky**

2006 Bachelors of Science in Honors Biology, **University of Illinois at Urbana-Champaign**

**RESEARCH EXPERIENCE**

2014 – Present Postdoctoral scholar, *University of Kentucky*

Mentor: Ashley W. Seifert

Determining the tradeoff between immunity and regeneration in wild and lab bred *Acomys spp.* I am also determining the role of hormones in complex tissue regeneration using pregnant mice and spiny mice as models.

2008-14 Graduate Student, *University of Kentucky*

Mentor: Edmund B. Rucker III

Dissertation Title: “The Conditional Deletion of Beclin-1 Reveals an Essential Role in Ovary and Testis”. Developed mouse models to study the role of autophagy in the development of the ovary and testis.

Summer 2011 Research Assistant, *University of Kentucky*

Mentors: Jeffery Osborn and Andrew Bouwma

Description: Evaluation of the use of Calibrated Peer Review (CPR) in an introductory biology lab during Fall 2011. We designed new assignments and evaluation criteria to study if students become better writers using CPR compared to students who receive instructor feedback.

2007-08 First Year Rotations, *Texas A&M University*

Mentors: Charles Long, Edmund Rucker and John R. Gold

Description: Isolation and use of lentiviral particles in genomic targeting of Bovine blastocysts (C Long). Generated knockout of the Mir27a locus in mouse (E Rucker). Characterized Red Drum microsatellite markers in Spotted Sea Trout (J Gold).

2005-07 Research Assistant, University of Illinois at Urbana-Champaign

Mentor: Matthew Stewart

Description: Cloned and sequenced Equine aggrecan. Determined a cocktail to promote proliferation of tenocytes and chondrocytes in cell culture.

**PUBLICATIONS**

PEER REFEREED

\* denotes equal contribution

1. **Gawriluk, T. R.**\*, Simkin, J.\*, Thompson, K. L.\*, Biswas, S. K., Clare-Salzler, Z., Kimani, J. M., Kiama, S. G., Smith, J. J., Ezenwa, V. O., and Seifert, A. W. (2016). Comparative analysis of ear hole closure identifies epimorphic regeneration as a discrete trait in mammals. *Nature Communciations*.
2. **Gawriluk, T.R.**\*, Haughton, C.L.\*, and Seifert, A.W. (2016). The Biology and Husbandry of The African Spiny Mouse (Acomys cahirinus) and the Research Uses of a Laboratory Colony. *Journal of the American Association for Laboratory Animal Science* 55(1), 9-19.
3. **Gawriluk, T. R.**, Ko, C., Hong, X., Christenson, L. K., and Rucker, E. B. (2014). Beclin-1 deficiency in the murine ovary results in the reduction of progesterone production to promote preterm labor. *Proceedings of the National Academy of Sciences*, 111(40), E4194-E4203.
4. Hale, A. N., Ledbetter, D. J., **Gawriluk, T. R.,** and Rucker III, E. B. (2013). Autophagy: Regulation and Role in Development. *Autophagy* 9(7), 951-72
5. Klinonsky, D.J., … **T. R. Gawriluk,** … and Zuckerbraun B. (1042 authors total). (2012). Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy* 8(4), 1-100
6. **Gawriluk, T. R.**, Hale, A. N., Flaws, J. A., Dillon, C. P., Green, D. R., and Rucker III, E. B. (2011). Autophagy is a cell survival program for female germ cells in the murine ovary. *Reproduction* 141, 759-765
7. Renshaw, M. A., **Gawriluk, T. R.,** and J. R. Gold. (2009). Characterization of red drum *(Sciaenops ocellatus)* microsatellite markers in spotted sea trout. *North American Aquaculture* 71, 374-379

COMMENTARIES

1. **Gawriluk, T. R.**, & Rucker, E. B. (2015). BECN1, corpus luteum function, and preterm labor. Autophagy, 11(1), 183-184.

BOOK CHAPTERS

1. Rucker, E. B., Hale, A. N., **Gawriluk, T. R.,** Ledbetter, D. J. Altering autophagy: mouse models of human disease. Autophagy – A Double-Edged Sword – Cell Survival or Death? ISBN 978-953-51-1062-0.

IN PREPARATION

1. **Gawriluk, T. R.**, Rucker III, E. B. Autophagy is necessary for Sertoli cell function and fertility in mice.

**TEACHING EXPERIENCE**

Spring 2016 Co-Instructor, University of Kentucky, *BIO199 Introduction to Research*

Designed and implemented a freshman undergraduate research course to test the hypothesis that the larval life-stage of homeotabulous insects regenerate appendages after injury using *Manduca sexta* as a model. Students work alongside instructors to produce data for a research symposium.

Summer 2015 Co-director, University of Kentucky, International Research in Kenya

Promoted the development of research skills for undergraduate scientists at the field station Mpala Research Centre in Laikipia and the University of Nairobi in Kenya.

TEACHING EXPERIENCE CONTINUED

2012-14 Teaching Assistant, University of Kentucky, *BIO315 Cell Biology Lab* (3 semesters)

Supervisor: Rebecca Kellum and Seth Jones

Responsible for two three-hour labs of 30 students each (junior and senior), facilitating students’ interactions with basic cell biology skills such as microscopy, protein purification and genetic manipulations.

2011-12 Teaching Assistant, University of Kentucky, *BIO155* *Intro Biology Lab* (3 semesters)

Supervisor: Andrew Bouwma

Responsible for two three-hour labs, teaching state-of-the-art biological intuition (e.g. searching and utilizing literature, scientific writing and experimental design) of approximately 30 students (freshman). In addition, spent five to eight hours each week working on course development and design with the course coordinator.

2008-10, 2013 Teaching Assistant, University of Kentucky, BIO304 Genetics (5 semesters)

Supervisors: Charles Fox, Pete Mirabito and John Rawls

Responsible for three two-hour recitation sections with 30 students each (junior and senior). These sections were run to provide a review of understanding and working through genetic-based problems.

2007-08 Teaching Assistant, Texas A&M University, GENE302 Genetics Lab (2 semesters)

Supervisor: Chara Ragland

Responsible for two three-hour laboratories of 30 students (sophomore and junior). Lab consisted of discussions and demonstrations of introductory genetics laboratory techniques (e.g. cloning, phage, fly, corn & mammal genetics).

**RESEARCH FUNDING**

Gertrude Ribble Biology Mini-Grant (U. Kentucky) 2012 - $300

Title: Understanding Secondary Roles for Beclin-1 Outside of Autophagy

Gertrude Ribble Biology Mini-Grant (U. Kentucky) 2011 - $500

Title: The Function of Beclin-1 and Autophagy on Steroidogenesis in the Ovary

Gertrude Ribble Biology Mini-Grant (U. Kentucky) 2010 - $500

Title: Evaluation of BECN1 mRNA expression in the mouse ovary

**AWARDS**

Society of Developmental Biology Travel Award: Used to attend 73rd Annual Meeting - $200

Keystone Travel Scholarship: Used to attend Molecular and Cellular Basis of Growth and Regeneration 2016 - $1200

Graduate School Travel Award (Kentucky): Used for SSR 2012 - $400

Gertrude Ribble Graduate Student Fellowship (Kentucky), Spring 2012 – stipend and tuition (one student awarded per semester)

Gertrude Ribble Biology Travel Award (Kentucky): Used for ISRS 2011 - $400

Graduate School Travel Award (Kentucky): Used for Autophagy Keystone Conference 2009 - $400

Gertrude Ribble Biology Travel Award (Kentucky): Used for Autophagy Keystone Conference 2009 - $400

Graduate School Travel Award (Texas A&M): Used for Lost Pines Conference 2008 - $300

**TEACHING & CAREER DEVELOPMENT**

Summer 2013 **Frontiers in Reproduction** *Marine Biological Laboratory, Woods Hole, MA*

Fall 2012 **“College Teaching and Learning”** – EPE672 (3 credits) *U. Kentucky*

Fall 2012 “**University Administration**” – GS601 (1 credit) *U. Kentucky*

Fall 2011 “**Grant Writing**” – GS640 (3 credits) *U. Kentucky*

Spring 2011 “**Instructional Technology**” - GS630 (1 credit) *U. Kentucky*

Fall 2010 Certificate of completion “**Preparing Future Faculty**” - GS650 (2 credits) *U. Kentucky*

**ACADEMIC SERVICE**

Graduate member, Department of Biology Chair Reappointment Committee. 2012

Graduate member, Department of Biology Faculty Search Committee. 2011-2012

Group Leader, New Graduate Student Teaching Assistant Microteach Sessions. Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013.

President, Biology Graduate Student Association. 2009-2010

Graduate member, Department of Biology Faculty Search Committee. 2009-2010

Vice president, Biology Graduate Student Association. 2008-2009

Graduate member, Thomas Hunt Morgan Seminar Series Committee. 2008-2012

**PROFESSIONAL SERVICE**

Co-coordinator, 4th Annual Appalachian Regional Cell Conference. Marshall University 2015.

**PRESENTATIONS & ABSTRACTS**

INVITED TALKS

Understanding the immune response to injury in a regenerating mammal (Acomys spp.) (2016) 75th Annual Society for Developmental Biology Meeting. *Boston, MA.*

Understanding mammalian epimorphic regeneration using *Acomys*. (2016) Indiana University Department of Cellular & Integrative Physiology Seminar. *Indianapolis, IN.*

Understanding Mammalian Regeneration Using African Spiny Mice. (2016) Department of Clinical Veterinary Services Seminar, *University of Nairobi, Nairobi, Kenya*.

Using Q-Plex to understand the role of the immune response during mammalian regeneration. (2016) Multiplexing Applications Conference. *Logan, UT*.

A comparative approach to study epimorphic regeneration in mammals. (2015) 4th Annual Appalachian Regional Cell Conference. *Marshall University, Huntington, WV*

Beclin-1 regulates progesterone synthesis and deficiency results in preterm labor in mice. (2014) 33rd Annual Symposium in Reproductive Science and Women’s Health *U. Kentucky*

Beclin-1, but not autophagy, is necessary for adult Sertoli cell function and fertility in the mouse. (2013) University of Kentucky Forum for Reproductive Sciences, weekly meeting. *U. Kentucky*

Beclin-1, but not autophagy, is necessary for adult Sertoli cell function and fertility in the mouse. (2013) Molecular and Cellular Biology Seminar. *U. Kentucky*

INVITED TALKS CONTINUED

Beclin-1 deficiency leads to progesterone-dependent preterm birth in mice. (2013) Frontiers in Reproduction. *Marine Biological Laboratory, Woods Hole, MA*

Development of a Pre-term Birth Model. (2012) Molecular and Cellular Biology Seminar. *U. Kentucky*

A Role for Autophagy in Ovary Development, Folliculogenesis and Fertility. (2011) Molecular and Cellular Biology Seminar. *U. Kentucky*

Autophagy in the Ovary: Yes, You Should Care. (2011) University of Kentucky Forum for Reproductive Sciences, weekly meeting. *U. Kentucky*

Oogenesis, Folliculogenesis, Atresia and Autophagy: A Possible Cell Survival Role? (2010) Molecular and Cellular Biology Seminar *U. Kentucky*

Eating the Ovary: A possible role for Beclin-1 in Folliculogenesis (2010) University of Kentucky Forum for Reproductive Sciences, weekly meeting. *U. Kentucky*

Beclin-1: How’s Your Fecundity? Molecular and Cellular Biology Seminar (2009) *U. Kentucky*

Beclin-1 and Fecundity: A Wonderful Relationship? Doug Green’s Lab Meeting (2009) *St. Jude’s Children’s Hospital, Memphis, TN*

An Overview of the Rucker Lab: \*Some Catchy Title\* and Tidbits of the Research I Do. Molecular and Cellular Biology Seminar (2008) *U. Kentucky*

INTERNATIONAL MEETINGS

**Gawriluk T.R.**, Ezenwa V.O., Kiama S.G. and Seifert A.W., Innate and adaptive immunity during epimorphic regeneration in mammals. Keystone Molecular and Cellular Basis of Growth and Regeneration @ Breakenridge, CO (2016) Poster

**Gawriluk T.R**., Flaws J.A., Ko C., The importance of autophagy in murine folliculogenesis and corpus luteal development. Society for the Study of Reproduction @ University Park, PA (2012) Poster

**Gawriluk T.R.**, Flaws J.A., Rucker E.B., The importance of autophagy in murine folliculogenesis and corpus luteal development. Gordon Research Conference on Autophagy in Stress, Development & Disease @ Ventura, CA (2012) Poster

**Gawriluk T.R**, Rucker E.B., Romance in the Cell: Beclin Lost in Translation? Keystone Symposia - Cell Death Pathways (X5) @ Whistler, BC (2009) Poster

LOCAL MEETINGS

**Gawriluk T.R.**, Simkin J., Ezenwa V.O., Kiama S.G., and Seifert A.W. *Acomys* exhibit a distinct immune response to injury that is associated with regeneration 1st Annual Regeneration Symposia @ IUPUI (2016) Poster

**Gawriluk T.R.**, Christenson, L.K., Rucker III E.B. Beclin-1, A New Regulator of Progesterone Synthesis During Pregnancy. 33rd Annual Symposia in Reproductive Science and Woman’s Health @ University of Kentucky (2014) Poster

**Gawriluk T.R.**, Rucker III E.B. Beclin-1 is necessary for adult Sertoli cell function and male fertility in the mouse. 5th Annual Illinois Symposium On Reproductive Science @ Southern Illinois University, Carbondale, IL (2013) Poster

LOCAL MEETINGS CONTINUED

**Gawriluk T.R.**, Rucker E.B. The importance of autophagy in murine corpus luteum development. 4th Annual Illinois Symposium On Reproductive Sciences @ Northwestern University Medical Campus, Chicago, IL (2012) Poster

**Gawriluk T.R.**, Flaws J.A., Ko C. The importance of autophagy in murine folliculogenesis and corpus luteal development. 31st Annual Symposia in Reproductive Science and Woman’s Health @ University of Kentucky (2012) Poster

**Gawriluk T.R.**, Flaws J.A., Dillon C.P., Rucker E.B. The Model to Assay for the Function of Autophagy in the Developing Follicle. 3rd Illinois Symposium On Reproductive Sciences @ University of Illinois Urbana-Champaign (2011) Poster

**Gawriluk T.R.**, Flaws J.A., Dillon C.P., Rucker E.B. A Genetic Mouse Model to Determine the Function of Autophagy in Folliculogenesis, Atresia and Ovulation. 30th Annual Symposia in Reproductive Science and Woman’s Health @ University of Kentucky (2011) Poster

**Gawriluk T.R,** Rucker E.B. What Importance Does Autophagy Serve in the Ovary? 4th Annual Biology Graduate Student Symposia @ University of Kentucky (2011) Poster

**Gawriluk T.R.**, Hale A.N., Flaws J.A., Rucker E.B. Eating the Ovary: A Potential Role for

Autophagy in Oogenesis and Folliculogenesis. 29th Annual Symposia in Reproductive Science and Woman’s Health @ University of Kentucky (2010) Poster

**Gawriluk T.R.**, Hale A.N., Rucker E.B. Happy Eggs Come From Happy Ovaries and Happy Ovaries Express Beclin-1. 3rd Annual Biology Graduate Student Symposia @ University of Kentucky (2009) Poster

**Gawriluk T.R**., Rucker E.B. Romance in the Cell: Beclin Lost in Translation?, Apoptosis and Cancer Conference: The Bcl-2 family of proteins @ Dartmouth College (2009) Poster

**Gawriluk T.R**., Rucker E.B. A Possible Link Between Autophagy and Translation Through Beclin-1, Advances in Cell Differentiation and Development Symposium @ Marshall University (2008) Poster

**Gawriluk T.R**., Long C. Lentiviral Targeting of Bovine Blastocysts, Lost Pines Molecular Biology Conference @ Science Park, Smithville, TX (2007) Poster

ABSTRACTS CONTRIBUTED TO

Simkin J., **Gawriluk T.R.**, Biswas S., and Seifert A., Evidence of a mammalian regeneration blastema in Acomys caharinus @ Appalachian Regional Cell Conference (2015)

Seifert, A.W., **Gawriluk, T.R.**, Simkin, J.M. and Biswas S.B., Comparative biology of vertebrate regeneration @ Mount Desert Island Biological Laboratories Tissue Regeneration Symposium (2015)

Pescosolido, K., **Gawriluk T.R.**, Generating an *in vivo* Model for the Detection of Autophagic Flux @ Undergraduate Research Symposium (2011)

Voisey A.N., **Gawriluk T.R.**, Hale A.N., Rucker E.B., A model system to interrogate crosstalk between apoptosis and autophagy: Deletion of the BH3 domain from Beclin. @ Dartmouth College (2009)

Ledbetter D., Voisey A.N., **Gawriluk T.R.**, Hale A.N., Rucker E.B., Discerning the roles of Bcl-2 and Bcl-XL in apoptosis. @ Dartmouth College (2009)

**STUDENTS MENTORED (Students’ status during training)**

Bailey Gershmier (Undergraduate) *Ohio State University* Summer 2016

Aaron Hoback (Undergraduate) *U. Kentucky* Spring 2016 – Present

Malik Guidry (Undergraduate) *U. Kentucky* Spring 2015 – Summer 2016

John Muturi Kimani (PhD Student) *U. Nairobi* Summer 2014 – Present

Kristen Andres (Undergraduate) *U. Kentucky* Fall 2012 – Spring 2014

Allison Hughes (Undergraduate) *U. Kentucky* Spring 2012 – Spring 2013

Elijah Dawson (Undergraduate) *U. Kentucky* Spring 2011 – Fall 2011

STUDENTS MENTORED CONTINUED

Chris Bushieb (Undergraduate) *U. Kentucky* Fall 2010 – Fall 2011

Tushar Patel (Undergraduate) *U. Kentucky* Fall 2010 – Spring 2011

Matthew Sermersheim (Undergraduate/Post-Bach) *U. Kentucky* Spring 2010 – Spring 2011

Bradlee Heckmann (Undergraduate) *U. Kentucky* Spring 2009 - Spring 2010

Nayeem Moulana (Undergraduate/Post-Bach) *U. Kentucky* Spring 2009 - Spring 2010

Colby Smith (Kentucky Biomedical Research and Infrastructure Network) *U. Kentucky* Summer 2009

Jennifer Pason (Undergraduate) *U. Kentucky* Spring 2009 - Spring 2010

Johnny Cebak (Undergraduate/Post-Bach) *U. Kentucky* Fall 2008 - Spring 2010

**ACADMEIC HONORS**

Gertrude Flora Ribble Research Fellowship Fall 2011 – University of Kentucky

Research Fellowship Spring 2010 – University of Kentucky

Research Fellowship Summer 2009 – University of Kentucky

Research Fellowship Summer 2008 – Texas A&M

Dean’s List 2005-06 – University of Illinois

**PROFESSIONAL SOCIETY MEMBERSHIPS**

American Association for the Advancement of Science (AAAS), member 2009 - Present

American Society of Cell Biology (ASCB), member 2015 - Present

Kentucky Academy of Sciences (KAS), member 2008 - Present

Society of Developmental Biology (SDB), member 2016 - Present

Society for the Study of Reproduction (SSR), member 2011 - 2014

University of Kentucky Biology Graduate Student Association (BGSA), member 2008 - Present