CURRICULUM VITAE

Aparna Mahakali Zama, Ph.D.

Department of Animal Sciences
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EDUCATION AND TRAINING

Ph.D.	2004	Molecular Genetics	University of Georgia, Athens, Georgia
M.Sc.	1997	Animal Sciences	University of Hyderabad, India
B.Sc.	1994	Genetics	Osmania University, Hyderabad, India

PROFESSIONAL EXPERIENCE

Department of Animal Sciences, School of Environmental and Biological Sciences
Rutgers, The State University of New Jersey, New Brunswick, NJ

2021–	Associate Teaching Professor
2017–	Director, Undergraduate Program in Animal Sciences
2013–	Associate Member, Graduate Program in Endocrinology and Animal Biosciences
2016–2021	Assistant Teaching Professor
2012–2016	Assistant Research Professor
2006–2012	Research Associate

Center for Reproductive Sciences, University of Kansas Medical Center, Kansas City, KS

2004–2006	Postdoctoral Research Fellow in Reproductive Genetics

Department of Genetics, University of Georgia, Athens, GA

1997–2004	Graduate Research Assistant

MEMBERSHIPS

- National Association for Advisors of Health Professions, 2017–
- Endocrine Society, 2013–
- Society for the Study of Reproduction, 2003–

TEACHING EXPERIENCE

Classroom Teaching:

Department of Animal Sciences, School of Environmental and Biological Sciences
Rutgers, The State University of New Jersey, New Brunswick, NJ

1. Careers in Animal Science, 11:067:101, 2017–
2. Lab Animal Practicum, 11:067:205, 2016–2018
3. Endocrinology, 11:067:450, 2016–
4. Animal Diseases, 11:067:404, 2012–
5. Integrative Physiology Lab, 11:067:301, Spring and Fall 2016

Guest Lecturer in Genetics, Epigenetics, and Female Reproduction and Development in:

6. Animal Reproduction (11:067:327), 2017 –
7. Introduction to Animal Science (11:067:142), 2015 –

8. Reproductive and Developmental Toxicology (11:067:491/16:340:591), 2014 –

Department of Genetics, University of Georgia, Fall 1999
9. Introduction to Genetics, class of 125–150. *Graduate teaching assistant role.*

Department of Cell Biology, University of Georgia, Spring and Summer 1998
10. Introduction to Biology Lab, sections of 20–40 students.
11. Human Anatomy and Physiology Lab, sections of 20–40 students.

Research Mentoring:

Directed hypothesis-driven graduate and undergraduate thesis research and teach research techniques in genetics, physiology, anatomy, histology, immunohistochemistry, epigenetics, toxicology, molecular biology, and animal husbandry (32 students and technicians). 1998–present

PUBLICATIONS

Invited Book Chapter

1. Uzumcu M, **Zama AM. 2015.** Developmental effects of endocrine-disrupting chemicals in the ovary and on female fertility. In Rosenfeld CS (ed). *The Epigenome and Developmental Origins of Health and Disease,* Academic Press, pp 143-170. http://store.elsevier.com/product.jsp?isbn=9780128013830&pagename=search

Peer- Reviewed Publications: (Search terms in PUBMED "Aparna Mahakali Zama")

1. Roepke TA, Yang JA, Yasrebi A, Mamounis KJ, Oruc E, **Zama AM**, Uzumcu M. 2016. Regulation of arcuate genes by developmental exposures to endocrine-disrupting compounds in female rats. ***Reproductive Toxicology*** 62: 18-26. https://pubmed.ncbi.nlm.nih.gov/27103539/

2. **Zama AM*,** Bhurke A, Uzumcu M. 2015. Effects of endocrine-disrupting chemicals on female reproductive health. ***The Open Biotechnology Journal*** 9 (Suppl M6): 54-75. **(*Corresponding author)** http://benthamopen.com/ABSTRACT/TOBIOTJ-9-E024

3. **Zama AM**, Uzumcu M. 2013. Targeted genome-wide methylation and gene expression analyses reveal signaling pathways involved in ovarian dysfunction after developmental EDC exposure in rats. ***Biology of Reproduction*** 88(2): 52, 1-13. http://www.ncbi.nlm.nih.gov/pubmed/23303685

4. Uzumcu M, **Zama AM**, Oruc E. 2012. Epigenetic mechanisms in the actions of endocrine-disrupting chemicals: Gonadal effects and role in female reproduction. ***Reproduction in Domestic Animals*** 47(Suppl 4): 338-47. http://www.ncbi.nlm.nih.gov/pubmed/22827390

5. Gore AC, Walker DM, **Zama AM**, Armenti AE, Uzumcu M. 2011. Early life exposure to endocrine-disrupting chemicals causes lifelong molecular reprogramming of the hypothalamus and premature reproductive aging. ***Molecular Endocrinology*** 25(12): 2157-68. **(Cover story and Endocrine News article)** http://www.ncbi.nlm.nih.gov/pubmed/22016562

6. **Zama AM**, Uzumcu M. 2010. Epigenetic effects of endocrine-disrupting chemicals on female reproduction: An ovarian perspective. ***Frontiers in Neuroendocrinology*** 31(4): 420-39. http://www.ncbi.nlm.nih.gov/pubmed/20609371

7. **Zama AM**, Uzumcu M. 2009. Fetal and neonatal exposure to the endocrine disruptor methoxychlor causes epigenetic alterations in adult ovarian genes. ***Endocrinology*** 150(10): 4681-91. http://www.ncbi.nlm.nih.gov/pubmed/19589859

8. Marano JE, Sun D, **Zama AM**, Young W, Uzumcu M. 2008. Orthotopic transplantation of neonatal GFP rat ovary as experimental model to study ovarian development and toxicology. ***Reproductive Toxicology*** 26(3-4): 191-96. (**Journal cover**) http://www.ncbi.nlm.nih.gov/pubmed/18848623

9. Armenti AE*, **Zama AM***, Passantino L, Uzumcu M. 2008. Developmental methoxychlor exposure affects multiple reproductive parameters and ovarian folliculogenesis and gene expression in adult rats. ***Toxicology and Applied Pharmacology*** 233(2): 286-96. **(* - equal contribution)** http://www.ncbi.nlm.nih.gov/pubmed/18848953

10. **Mahakali Zama A**, Hudson FP, Bedell MA. 2005. Analysis of hypomorphic KitlSl mutants suggests different requirements for KITL in proliferation and migration of mouse primordial germ cells. ***Biology of Reproduction*** 73(4): 639-47. (**Journal cover)** http://www.ncbi.nlm.nih.gov/pubmed/15917341

11. Bedell MA, **Mahakali Zama A**. 2004. Genetic analysis of Kit ligand functions during mouse spermatogenesis. ***Journal of Andrology*** 25(2): 188-99. http://www.ncbi.nlm.nih.gov/pubmed/14760005

12. Rajaraman S, Davis WS, **Mahakali-Zama A**, Evans HK, Russell LB, Bedell MA. 2002. An allelic series of mutations in the Kit ligand gene of mice. II. Effects of ethylnitrosourea-induced Kitl point mutations on survival and peripheral blood cells of Kitl (Steel) mice. ***Genetics*** 162(1): 341-53. http://www.ncbi.nlm.nih.gov/pubmed/12242245

13. Rajaraman S, Davis WS, **Mahakali-Zama A**, Evans HK, Russell LB, Bedell MA. 2002. An allelic series of mutations in the Kit ligand gene of mice. I. Identification of point mutations in seven ethylnitrosourea-induced Kitl (Steel) alleles. ***Genetics*** 162(1): 331-40. http://www.ncbi.nlm.nih.gov/pubmed/12242244

Manuscripts in Preparation

1. Arpita S Bhurke AS, Seher Yirtici, **Aparna M Zama**, Mehmet Uzumcu. Effects of developmental exposure to DEHP on female reproductive function and ovarian follicle composition in rats.

2. **Aparna M Zama*,** Mehmet Uzumcu, Rebecca Joyce, Daniel Peled, Kiera Brennan Effects of *in-utero* and neonatal EDC-exposures via epigenetic mechanisms on a critical signaling pathway in the female reproductive tract. ***- Corresponding author**

Published Research Abstracts

1. Yirtici S, Brennan K, Amberge M, **Zama AM**, Uzumcu M. 2016. Effects of developmental exposure to endocrine-disrupting chemicals methoxychlor and bisphenol A on ovarian follicular dynamics and reproductive parameters in rats. 49th SSR Annual Meeting, San Diego, CA, July 2016.

2. **Zama AM**, Uzumcu M, Peled D. 2015. Effects of *in-utero* and neonatal EDC-exposures on adult rat uteri. Gordon Research Conference on Cellular and Molecular Mechanisms of Toxicity, Proctor Academy, Andover, NH, August 2015.

3. Bhurke A, **Zama AM**, Uzumcu M. 2014. Effect of developmental exposure to DEHP on female reproductive function and ovarian follicular composition in rats
47th SSR Annual Meeting, Grand Rapids, MI, July 2014

4. Epigenetic effects of endocrine-disrupting chemical methoxychlor on female reproduction. 2013.

Mehmet Uzumcu, **Aparna M Zama**
The International Workshop in Neuroendocrinology (IWNE 2013), Dourado, Sao Paulo, Brazil, August 2013

5. **Zama AM,** Altunbas K, Uzumcu M. 2012. Follicular stage-specific gene expression analysis in rat ovary. 45th SSR Annual Meeting, State College, PA, August 2012.

6. **Zama AM,** Altunbas K, Uzumcu M. 2011. Genome-wide analysis of methylation patterns in ovaries exposed to endocrine-disrupting chemicals. 44th SSR Annual Meeting, Portland, OR, July 2011.

7. **Zama AM**, Uzumcu M. 2010. Age- and hormone-dependent modulation of effects of methoxychlor (MXC) on ovarian estrogen receptor (ER) β expression and DNA methylation patterns. 43rd SSR Annual Meeting, Milwaukee, WI. July 2010

8. Uzumcu M, **Zama AM**, Zachow R. 2009. Immunolocalization of hepatocyte growth factor system proteins during embryonic and adult testis development. 42nd SSR Annual Meeting, Pittsburgh, PA, July 2009.

9. **Zama AM**, Uzumcu M. 2009. Fetal and neonatal methoxychlor exposure causes global and gene-specific alterations in methylation patterns in adult rat ovaries. 42nd SSR Annual Meeting, Pittsburgh, PA, July 2009.

10. Walker DM, Gore AC, Armenti AE, **Zama AM**, Uzumcu M. 2009. Long-term effects of perinatal methoxychlor or estradiol on gene expression in the hypothalamus of the aging female rat. Endocrine Society Meeting, Washington, DC, June 2009.

11. **Zama AM**, Armenti AE[b], Marano J[b], Passantino L[a], Uzumcu M. 2008. Fetal and neonatal methoxychlor exposure impairs early folliculogenesis and adult ovarian function through estrogen receptor-ß mediated and epigenetic mechanisms. Gordon Research Conference on Environmental Endocrine Disruptors, Waterville Valley, NH, June 2008.

12. Uzumcu M, **Zama AM**, Armenti AE[b], Passantino L[a]. 2008. Fetal and neonatal exposure to endocrine disruptor methoxychlor impairs adult ovarian function. 41st SSR Annual meeting, Kailua-Kona, Hawaii, May 2008.

13. **Zama AM**, Armenti AE, Passantino L, Uzumcu M. 2007. Mechanism of fetal and neonatal methoxychlor exposure induced impairment of adult ovarian function. Future Research on Endocrine Disruption, NIEHS, Research Triangle Park, NC, August 2007.

14. Kumar TR, **Mahakali Zama A**, Ma X. 2006. Molecular analysis of somatic and germ cell defects in the testes of LHβ knockout mice. Endocrine Society Meeting, Boston, MA, June 2006.

15. **Mahakali Zama A**, Kumar TR. 2006. Characterization of Sertoli cell and Leydig cell defects in the absence of germ cells. Biomedical Research Training Program Symposium, University of Kansas Medical Center, Kansas City, KS, April 2006.

16. **Mahakali Zama A**, Hudson FP, Bedell MA. 2004. Different requirements for KITL in proliferation and migration of mouse primordial germ cells. Germ Cells Meeting, Cold Spring Harbor, NY, October 2004.

17. **Mahakali Zama A**, Patel M, Hudson FP, Bedell MA. 2003. New insights into the role of Kit ligand during mouse spermatogenesis. Biomedical and Health Sciences Initiative Meeting, Athens, GA, 2003.

18. **Mahakali Zama A**. 2003. New insights into the role of Kit ligand during mouse spermatogenesis. Department of Genetics Retreat, University of Georgia, Athens, GA, October 2003.

19. Bedell MA, **Mahakali Zama A**. 2002. Kit ligand and germ cell development in mice. SE Regional Meeting of the Society for Developmental Biology, Gatlinburg, TN, 2002.

20. **Mahakali Zama A**, Bedell MA. 2001. Intercellular signaling by Kit ligand and Kit receptor. Department of Genetics Retreat, University of Georgia, Athens, GA, 2001.

21. **Mahakali A**, Russell LB, Bedell MA. 2000. Germ cell development in ENU-induced *Steel* mutants. Germ Cells Meeting, Cold Spring Harbor, NY, 2000.

22. **Mahakali A**, Russell LB, Bedell MA. 2000. Germ cell development in ENU-induced *Steel* mutants. Mutagenesis of the Mouse Genome, Georgia Genetics Symposium II, Athens, GA, 2000.

23. **Mahakali A**, Russell LB, Copeland NG, Jenkins NA, Bedell MA. 1999. Sex-specific effects of ENU-induced *Steel* mutations on germ cell development. 13th International Mouse Genome Conference, Philadelphia, PA, 1999.

RESEARCH PRESENTATIONS

Oral Presentations of submitted, peer-reviewed abstracts

1. Yirtici S, Brennan K, Amberge M, **Zama AM**, Uzumcu M. 2016. Effects of developmental exposure to endocrine-disrupting chemicals methoxychlor and bisphenol A on ovarian follicular dynamics and reproductive parameters in rats. 49th SSR Annual Meeting, San Diego, CA, July 2016.
2. **Zama AM**, Uzumcu M. 2010. Age- and hormone-dependent modulation of effects of methoxychlor (MXC) on ovarian estrogen receptor (ER) β expression and DNA methylation patterns. 43rd SSR Annual Meeting, Milwaukee, WI. July 2010.
3. **Zama AM**, Uzumcu M. 2009. Fetal and neonatal methoxychlor exposure causes global and gene-specific alterations in methylation patterns in adult rat ovaries. 42nd SSR Annual Meeting, Pittsburgh, PA, July 2009.
4. **Mahakali Zama A**, Kumar TR. 2006. Characterization of Sertoli cell and Leydig cell defects in the absence of germ cells. Biomedical Research Training Program Symposium, University of Kansas Medical Center, Kansas City, KS, April 2006.
5. **Mahakali Zama A**, Patel M, Hudson FP, Bedell MA. 2003. New insights into the role of Kit ligand during mouse spermatogenesis. Biomedical and Health Sciences Initiative Meeting, Athens, GA, 2003.
6. **Mahakali Zama A**. 2003. New insights into the role of Kit ligand during mouse spermatogenesis. Department of Genetics Retreat, University of Georgia, Athens, GA, October 2003.
7. **Mahakali Zama A**, Bedell MA. 2001. Intercellular signaling by Kit ligand and Kit receptor. Department of Genetics Retreat, University of Georgia, Athens, GA, 2001.

GRANTS

Completed Research Support – External

NIH-NIEHS R21 ES026454-01A1 Uzumcu (PI), **Zama (Co-I)** 2016 - 2018
Detrimental effects on female reproduction of *in-utero* and neonatal exposure to common phthalates DEHP and its replacement DiNP

R21 ES017847-01, Uzumcu (PI), **Zama (Key Personnel)** 2011 - 2014
National Institute of Environmental Health Sciences (NIH-NIEHS)
Epigenetic transgenerational effects of endocrine disruptors via the female germ line

R56 ES017059, Uzumcu (PI), **Zama (Key Personnel)** 2010 - 2011
National Institute of Environmental Health Sciences (NIH-NIEHS)
Epigenetic effects of developmental endocrine disruptor exposure in the ovary

Completed Research Support – Internal

EOHSI CEED pilot grant, **Zama (Co-PI),** Uzumcu (Co-PI) 2016
Epigenetic reprogramming of PI3K signaling pathway in females after developmental endocrine-disrupting chemical exposure

Busch Biomedical Research Grant, Uzumcu (PI), **Zama (Key Pers.)** 2009 - 2011
Direct epigenetic effects of endocrine disruptors on the ovary

NIEHS Center P30, ES05022, Uzumcu (PI), **Zama (Key Pers.)** 2009 – 2010
Epigenetic inheritance of effects of endocrine disruptor exposure via the female germ line

AWARDS AND RECOGNITIONS

- ***Larry Ewing Memorial travel award for platform presentation*** at the Society of Study of Reproduction, Pittsburgh, PA, 2009
- ***Travel award*** from Gordon Research Conference on Environmental Endocrine Disruptors, New Hampshire, 2008
- ***Travel award*** from National Institutes of Environmental Health Sciences meeting on Future Research on Endocrine Disruption, North Carolina, 2007
- ***Postdoctoral fellowship*** from KUMED Biomedical Research Training Grant, University of Kansas Medical Center, 2005-2006
- ***Research Assistantship***, Department of Genetics, University of Georgia, 1998-2004 (through NSF and NIH funding to PI, Mary Bedell)
- ***Presidential Gold Medal*** awarded for standing First with Distinction in M.Sc. 1997
- ***First with Distinction*** in B. Sc. 1994

SERVICE

Editorial Board Member

- Environmental Epigenetics, 2015–

Ad-hoc Journal Reviewer

- Reviewer, *Biology of Reproduction,* 2005–
- Reviewer, *Reproductive Toxicology,* 2010–
- Reviewer, *Toxicology and Applied Pharmacology,* 2011–
- Reviewer*, Journal of Assisted Reproduction and Genetics,* 2012–
- Reviewer, *Epigenetics,* 2019–

Invited Reviewer of Conference Abstracts

- Endocrine Society, 2020 (~20 abstracts for annual 2021 ENDO meeting)

Department of Animal Sciences Service

1. Advising (annual advisee meetings ~250)
- Department of Animal Science student advisor, 2015–
- SEBS first-year student advisor, 2016–
- SEBS transfer student advisor, 2017–
- Veterinary Science Club advisor, 2017–2018
- Health professions advisor, 2018–

2. Member, Peer evaluation committee for merit pay, 2015, 2017, and 2020
3. Chair, Departmental Curriculum Committee, 2017–
4. Chair, Scholarships and Awards Committee, 2017–
5. Chair, Search committee for new instructors, 2018–

SEBS-Wide Service

6. Member, G.H. Cook Honors committee, 2016–
7. **Faculty sponsor,** SEBS Student to Professional Internship Network, 2016–
8. Animal Science Mentor, SEBS Economic Opportunity Fund, 2017–
9. Member, SEBS Curriculum and Educational Planning Committee, 2017–
10. Member, Undergrad Education Group of the SEBS Strategic Planning Task Force, 2019
11. Member, Language Engagement Committee, 2019–

Rutgers-NB Service

12. Member, Academic Integrity Task Force, 2017–2018 (a Rutgers universitywide initiative: New Brunswick, Newark, and Camden)
13. Member, Committee on Infosilem Scheduling Platform Implementation, 2019–

Outreach: Outside Rutgers Service

14. Faculty mentor, Rutgers 4-H STEM Ambassador Program, 2018–
15. Judge, Mercer County Science Fair, 2017 and 2018
16. Member, Immigration Task Force, Unitarian Universalist Congregation of Princeton (UUCP), 2018–2019
17. Invited Speaker, UUCP, "Sex and Gender Development from a Scientific Standpoint", Dec 2019 and Mar 2020
18. Member, UUCP Board of Trustees, 2018–2021

Updated 07-01-2021