

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Eric E. Nilsson

eRA COMMONS USER NAME (credential, e.g., agency login): ENILSSON

POSITION TITLE: Research Assistant Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Idaho, Moscow, ID	B.S. + B.S.	1983	Bacteriology + An. Sci.
Washington State University, Pullman, WA	D.V.M.	1987	Veterinary Medicine
University of Idaho, Moscow, ID	Ph. D.	1992	Zoology (Devel. Biol.)

**A.**

**Personal Statement.** Has extensive research experience in transgenerational epigenetic inheritance, ovarian developmental biology and reproductive physiology. Dr. Nilsson's veterinary training allows evaluation of normal and pathological changes in reproductive organs. These skills bear directly on performing the proposed research.

Nilsson EE and Skinner MK (2015) Environmentally Induced Epigenetic Transgenerational Inheritance of Reproductive Disease. *Biology of Reproduction* 93(6):145, 1-8. PMID: 26510870

Nilsson E and Skinner MK (2015) Environmentally Induced Epigenetic Transgenerational Inheritance of Disease Susceptibility. *Translational Research* 165, pp. 12-17. PMID: 24657180

Skinner MK, Bhandari RK, Haque MM, Nilsson EE. (2015) Environmentally Induced Epigenetic Transgenerational Inheritance of Altered SRY Genomic Binding During Gonadal Sex Determination. *Environ Epigenet.* 1(1):dvv004. PMID: 27175298

Kezele P, Nilsson EE and MK Skinner (2002) Cell-Cell Interactions in Primordial Follicle Assembly and Development. *Frontiers in Bioscience* 7:1990-1996. PMID: 12161345

**B.****Positions and Honors.****Research/Professional Experience:**

04-Present **Research Assistant Professor:** Laboratory of Dr. Michael K. Skinner, School of Biological Sciences, Washington State University, Pullman Washington. Research to determine the signaling factors that affect ovarian and follicular development in mammals. Also, reproductive toxicology studies to determine how environmental toxicants can induce epigenetic changes that cause increases in disease transgenerationally.

99-04 **Post Doctoral Fellow:** Dr. Michael K. Skinner, School of Biological Sciences, Washington State University, Pullman, WA. Perform studies to determine the signaling factors that affect ovarian and follicular development in mammals. Also, perform pilot studies on treatments for ovarian cancer in the nude mouse model.

98-99 **Post Doctoral Fellow:** Dr. Grant Mastick, Biology, University of Nevada at Reno, Reno, NV.

- Perform developmental biology studies on the control of axon pathfinding in early mouse brain.
- 96-98 **Post Doctoral Fellow:** Yamamoto Behavior Genes Project, ERATO, Mitsubishi-kasei Institute of Life Sciences, Machida-shi, Tokyo, Japan  
Conducted study on the mechanisms by which genes control sexual behavior in *Drosophila melanogaster* making use of ectopic transgene expression, immunocytochemistry, *in-situ* hybridization and behavioral analysis.
- 92-96 **Researcher:** Dr. Robert Speth, Department of Veterinary and Comparative Anatomy, Physiology and Pharmacology, Washington State University, Pullman, WA.  
Performed studies on the effects of the drug Quinapril on reproductive cyclicity of brain hormone receptors using receptor binding assays, autoradiography, computer image analysis and statistical analysis.
- 1993 **Instructor:** School of Veterinary Medicine, Washington State University, Pullman, WA. Taught section on antibiotics in Veterinary Pharmacology class.

### Honors:

Jacob Monson Scholarship: 1978 and 1979  
American Society of Animal Science Scholarship: 1983

### C.

#### Contributions to Science.

<https://www.ncbi.nlm.nih.gov/pubmed/?term=nilsson+e+and+skinner>

#### Major Contributions:

(1) Elucidated the epigenetic transgenerational inheritance mechanism and biological impacts.

Skinner MK and Nilsson E (2018) Mechanisms of Epigenetic Transgenerational Inheritance. In: Encyclopedia of Reproduction 2<sup>nd</sup>. Edition, Ed: MK Skinner. Elsevier. Vol 3 Ch 88. (ePub). <https://doi.org/10.1016/B978-0-12-801238-3.64511-7>

Ben Maamar M, Sadler-Riggelman I, Beck D, McBirney M, Nilsson E, Klukovich R, Xie Y, Tang C, Yan W, Skinner MK. (2018) Alterations in sperm DNA Methylation, Non-Coding RNA expression, and histone retention mediate Vinclozolin induced epigenetic transgenerational inheritance of disease. Environmental Epigenetics. Environmental Epigenetics 4(2):1-19, dvv101. PMID: 29732173

McCarrey JR, Lehle JD, Raju SS, Wang Y, Nilsson EE, Skinner MK. (2016) Tertiary Epimutations - A Novel Aspect of Epigenetic Transgenerational Inheritance Promoting Genome Instability. PLoS One. 11(12):e0168038. PMID: 27992467

Skinner MK, Bhandari RK, Haque MM, Nilsson EE. (2015) Environmentally Induced Epigenetic Transgenerational Inheritance of Altered SRY Genomic Binding During Gonadal Sex Determination. Environ Epigenet. Dec;1(1):dvv004. PMID: 27175298

(2) Elucidated ovarian primordial follicle development mechanisms.

Nilsson E, Larsen G, and Skinner MK (2014) Roles of Gremlin1 and Gremlin2 in Regulating Ovarian Primordial to Primary Follicle Transition. Reproduction. 147(6):865-74. PMID: 24614542

Nilsson EE, Savenkova MI, Schindler R, Zhang B, Schadt EE and Skinner MK (2010) Gene Bionetwork Analysis of Ovarian Primordial Follicle Development. Plos One 16;5(7):e11637. PMID: 20661288

Nilsson EE, Dole G and Skinner MK (2009) Neurotrophin NT-3 Promotes Ovarian Primordial to Primary Follicle Transition. Reproduction 138(4):697-707. PMID:19584175

Nilsson EE, Rogers N and MK Skinner (2007) Actions of the anti-Müllerian hormone (AMH) on the ovarian transcriptome to inhibit primordial to primary follicle transition. *Reproduction* 134:209-221. PMID: 17660231

**(3) Elucidated primordial follicle assembly.**

Eric Nilsson, Bin Zhang, and Michael K. Skinner (2013) Gene Bionetworks that Regulate Ovarian Primordial Follicle Assembly. *BMC Genomics* 14:496. PMID: 23875758

Nilsson EE, Schindler R, Savenkova MI and Skinner MK (2011) Inhibitory Actions of Anti-Müllerian Hormone (AMH) on Ovarian Primordial Follicle Assembly. *PLoS ONE* 6(5): e20087. PMID: 21637711

Schindler R, Nilsson EE and Skinner MK (2010) Induction of ovarian primordial follicle assembly by connective tissue growth factor CTGF. *PLoS ONE* 24;5(9):e12979. PMID: 20886044

Nilsson EE and Skinner MK (2009) Progesterone Regulation of Primordial Follicle Assembly in Bovine Fetal Ovaries. *Molecular and Cellular Endocrinology*. 313 (2009) 9–16. PMID: 19747959

**(4) Elucidated transgenerational ovarian disease mechanisms.**

Nilsson E and Skinner MK (2018) Environmentally Induced Epigenetic Transgenerational Inheritance of Female Reproductive Pathology. In: *Encyclopedia of Reproduction 2<sup>nd</sup> Edition*, Ed: MK Skinner. Elsevier. Vol 2 Ch 117. (ePub). <https://doi.org/10.1016/B978-0-12-801238-3.64418-5>

Bao J, Zhang Y, Schuster AS, Ortogero N, Nilsson EE, Skinner MK and Yan W (2014) Conditional inactivation of Miwi2 reveals that MIWI2 is only essential for prospermatogonial development in mice. *Cell Death and Differentiation*. 21(5):783-796. PMID: 24464225

Nilsson E, Larsen G, Manikkam M, Guerrero-Bosagna C, Savenkova MI, Skinner MK. (2012) Environmentally induced epigenetic transgenerational inheritance of ovarian disease. *PLoS One*. 7(5):e36129. PMID: 22570695

**(5) Elucidated ovarian follicle cell interactions.**

Skinner MK, Schmidt M, Savenkova M, Sadler-Riggelman I, and EE Nilsson. (2008) Regulation of granulosa and theca cell transcriptomes during ovarian antral follicle development. *Molecular Reproduction and Development* 75(9):1457-72. PMID: 18288646

Nilsson EE and MK Skinner (2002) Role of Transforming Growth Factor Beta in Ovarian Surface Epithelium Biology and Ovarian Cancer. *Reproductive Bio-Medicine Online* 5(3):254-258. PMID: 12470522

Nilsson EE, Doraiswamy V, Skinner MK. (2003) Transforming growth factor-beta isoform expression during bovine ovarian antral follicle development. *Mol Reprod Dev*. 66(3):237-46. PMID: 14502602

**D.**

**Research Support.** No independent support