

BIOGRAPHICAL SKETCH

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NAME Maureen Keller-Wood		POSITION TITLE Professor	
eRA COMMONS USER NAME (credential, e.g., agency login) kellerwood		Department of Pharmacodynamics University of Florida	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Vassar College, Poughkeepsie, NY University of California, San Francisco University of Florida, Gainesville	A.B. Ph.D. Post-doc	1977 1982 1983-1985	Biochemistry Endocrinology Physiology

A. Personal Statement

My research focuses on the role of the adrenal "stress" hormones, cortisol and aldosterone in normal pregnancy, including effects on the maternal cardiovascular system and effects on the late gestation fetus. In particular I am interested in the adverse maternal and fetal consequences of elevation in cortisol or insufficiencies in cortisol and aldosterone. My laboratory focus at the present time is the effects of elevated maternal cortisol on fetal cardiac function at birth. My laboratory uses a sheep model of cardiac development and techniques include use of telemetry for measurement of blood pressure, heart rate and ECG and for assessment of fetal responses to physiologic insults (such as contraction-induced hypoxia), and use of a variety of biochemical and molecular techniques, including histochemical techniques, genomic analysis using ovine gene arrays, biochemical techniques to assess mitochondrial function, and metabolomics.

B. Positions and Honors

Positions and Employment

1985-1988: Assistant Research Scientist, Department of Physiology, UF College of Medicine
1988-1993: Assistant Professor, Department of Pharmacodynamics, UF College of Pharmacy
1988- Affiliate faculty, Department of Physiology, University of Florida
1993-2000: Associate Professor, Department of Pharmacodynamics, UF College of Pharmacy
2000- Professor, Department of Pharmacodynamics, UF College of Pharmacy
2002- Chair, Department of Pharmacodynamics, UF College of Pharmacy

Other Experience

1991, 1998 Special Reviewer, Endocrine Study Section, NIH
1994 NIH Site Visit Member
1998-2000 Member, Endocrinology and Metabolism Subcommittee B
2000, 2003 Ad hoc Reviewer HED1 study section
2004-2008 Member, NIH PN study section
2008- Member, editorial board, American Journal of Physiology, Endocrinology and Metabolism
2012 Ad hoc Reviewer, PN study section
2013- Associate Editor, American Journal of Physiology: Regulatory, Integrative and Comparative

Honors

1977 General and Departmental Honors, Vassar College; Phi Beta Kappa
1977-1978 Regents Fellow, Univ. of California, San Francisco
1979-1980 Predoctoral Traineeship, Univ. of California, San Francisco
1984-1985 NRSA Postdoctoral Fellowship

1985-1988 NIH New Investigator Award
1989-1994 NIH Research Career Development Award
2000-2003 UF Research Foundation Professor
2012-2015 UF Research Foundation Professor
2013- UF College of Pharmacy CVS Professorship

C. Selected peer-reviewed publications (15 most relevant)

Keller-Wood M, Feng X, Wood CE, Richards EM, Anthony RV, Dahl GE, Tao S. Elevated maternal cortisol leads to relative maternal hyperglycemia and increased stillbirth in ovine pregnancy. *Am J Physiol Regul Integr Comp Physiol*. 2014 Jun 11. [Epub ahead of print] PubMed PMID: 24920731.

Richards EM, Wood CE, Rabaglino MB, Antolic A, Keller-Wood M. Mechanisms for the adverse effects of late gestational increases in maternal cortisol on the heart revealed by transcriptomic analyses of the fetal septum. *Physiol Genomics*. 2014 Aug 1;46(15):547-59. Epub 2014 May 27. PubMed PMID: 24867915.

Feng X, Reini SA, Richards E, Wood CE, Keller-Wood M. Cortisol stimulates proliferation and apoptosis in the late gestation fetal heart: differential effects of mineralocorticoid and glucocorticoid receptors. *Am J Physiol Regul Integr Comp Physiol*. 2013 Aug 15;305(4):R343-50. PMID: PMC3833392.

Wood CE, Rabaglino MB, Chang EI, Denslow N, Keller-Wood M, Richards E. Genomics of the fetal hypothalamic cellular response to transient hypoxia: endocrine, immune, and metabolic responses. *Physiol Genomics*. 2013 Jul 2;45(13):521-7. PMID: PMC3727022.

Rabaglino MB, Richards E, Denslow N, **Keller-Wood M**, Wood CE. Genomics of estradiol-3-sulfate action in the ovine fetal hypothalamus. *Physiol Genomics*. 2012 Jul 3;44(13):669-77. PMID: PMC3426428.

Keller-Wood M, Wood CE, McCartney J, Jesse NM, Perrone D. A role for mineralocorticoid receptors in the physiology of the ovine fetus: effects on ACTH and lung liquid composition. *Pediatr Res*. 2011 Jun;69(6):491-6. PMID: PMC3132803.

Jesse NM, McCartney J, Feng X, Richards EM, Wood CE, **Keller-Wood M**. Expression of ENaC subunits, chloride channels, and aquaporins in ovine fetal lung: ontogeny of expression and effects of altered fetal cortisol concentrations. *Am J Physiol Regul Integr Comp Physiol*. 2009 Aug;297(2):R453-61. PMID: PMC2724229.

Reini SA, Wood CE, **Keller-Wood M**. The ontogeny of genes related to ovine fetal cardiac growth. *Gene Expr Patterns*. 2009 Feb;9(2):122-8. PMID: PMC2652708.

Keller-Wood M, von Reitzenstein M, McCartney J. Is the fetal lung a mineralocorticoid receptor target organ? Induction of cortisol-regulated genes in the ovine fetal lung, kidney and small intestine. *Neonatology*. 2009;95(1):47-60. PMID: PMC2654587.

Reini SA, Dutta G, Wood CE, **Keller-Wood M**. Cardiac corticosteroid receptors mediate the enlargement of the ovine fetal heart induced by chronic increases in maternal cortisol. *J Endocrinol*. 2008 Aug;198(2):419-27. PMID: PMC2742944.

Reini SA, Wood CE, Jensen E, **Keller-Wood M**. Increased maternal cortisol in late-gestation ewes decreases fetal cardiac expression of 11beta-HSD2 mRNA and the ratio of AT1 to AT2 receptor mRNA. *Am J Physiol Regul Integr Comp Physiol*. 2006 Dec;291(6):R1708-16. PMID: 16902187.

Keller-Wood M, Powers MJ, Gersting JA, Ali N, Wood CE. Genomic analysis of neuroendocrine development of fetal brain-pituitary-adrenal axis in late gestation. *Physiol Genomics*. 2006 Feb 14;24(3):218-24. PMID: 16352695.

Keller-Wood M, Wood CE, Hua Y, Zhang D. Mineralocorticoid receptor expression in late-gestation ovine fetal lung. *J Soc Gynecol Investig.* 2005 Feb;12(2):84-91. PMID: 15695102.

Jensen E, Wood CE, **Keller-Wood M**. Chronic alterations in ovine maternal corticosteroid levels influence uterine blood flow and placental and fetal growth. *Am J Physiol Regul Integr Comp Physiol.* 2005 Jan;288(1):R54-61. PMID: 15231491.

Jensen E, Wood CE, **Keller-Wood M**. Alterations in maternal corticosteroid levels influence fetal urine and lung liquid production. *J Soc Gynecol Investig.* 2003 Dec;10(8):480-9. PMID: 14662161.

D. Research Support

Ongoing Research Support

ONGOING ACTIVE SUPPORT

2 R01 HD056288 (Keller-Wood, PI) 6/1/08 – 2/28/15 2.0 calendar months
The baroreflex in pregnancy: effects of adrenal and placental steroids

This work tests effects of cortisol on baroreflex responsiveness in pregnant nonpregnant ewes. The hypothesis that the steroids exert their effects on the baroreflex via changes in volume or and/or changes in expression of putative steroid-regulated genes in the brainstem nuclei will also be tested.

R01 HD57871 (Keller-Wood, PI) 12/29/08-6/30/15 3.0 calendar months
Effect of maternal cortisol on fetal and neonatal growth and metabolism

The goal of this project is to test effects of increases and decreases in maternal cortisol on fetal growth and fetal metabolism, and to determine if these effects occur as a consequence of changes in maternal physiology, maternal food intake or metabolism, and/or changes in fetal IGF and gene expression.

1R01HL093186 (Scheuer and Summers, PIs) 08/01/09 – 07/31/15 0.5 calendar months
Paraventricular nucleus regulatory mechanisms in stress and hypertension

The goal of this grant is to investigate mechanisms within the PVN critical for controlling blood pressure responses to stress, and the contribution of these pathways to the development of hypertension.

2 R01 HL07680 (Scheuer, PI) 7/1/11-6/30/16 0.5 calendar months
Glucocorticoids, stress and blood pressure regulation

The primary goal of this application is to determine the roles of mineralocorticoid receptors, glucocorticoid receptors and catecholaminergic neurons within the nucleus of the solitary tract in mediating adverse cardiovascular consequences of acute and chronic stress.

1P01 HD065647 (Conrad, PI; Keller-Wood, co-I Project I, PI of Core C) 9/27/11-6/30/16 1.5 calendar months

Corpus Luteal Contribution to Maternal Pregnancy Physiology and Outcomes in ART

The goal of this application is to determine the effects of hormones produced by the corpus luteum on the normal cardiorenal adaptations and outcomes of pregnancies in a population of normal pregnant women and women with pregnancies resulting from egg donation or induced superovulation through assisted reproductive technologies, ART.

Completed Research Support relevant to this project

1 R01 DK62080 Keller-Wood, PI 2/15/03-1/31/09

Cortisol at MR mediate fetal physiologic/genomic effects

The goal of this study is to identify the roles of mineralocorticoid and glucocorticoid receptors in the control of electrolyte and fluid balance by the fetal lung and kidney, and on control of the fetal pituitary-adrenal axis using both physiologic endpoints (amniotic fluid production through lung liquid and urine production and composition and plasma ACTH), and molecular markers of steroid action in these cells (serum and glucocorticoid –induced kinase, sgk1; sodium channel, ENaC; Na/K ATPase; and serotonin receptor 5HT1A protein and mRNA).

Role:PI

2 R01 HD38114 Keller-Wood, PI 2/1/03 – 1/30/08

Control of Corticotropin during Pregnancy

The major goals of this project were to determine the mechanism for the alteration in plasma ACTH regulation and mineralocorticoid function by progesterone and during pregnancy.