

BIOGRAPHICAL SKETCH

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NAME Louis J. Muglia	POSITION TITLE Edward Clairborne Stahlman Professor of Pediatrics Vice Chair for Research Affairs in Pediatrics		
eRA COMMONS USER NAME LMUGLIA			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Michigan	B.S.	1981	Biophysics
University of Chicago	Ph.D.	1986	Molecular Genetics
University of Chicago	M.D.	1988	Medicine
Children's Hospital Medical Center, Boston, MA		1988-90	Pediatric Residency
Children's Hospital Medical Center, Boston, MA		1990-92	Fellow, Ped. Endocrinol.

A. Positions and Honors

Professional Positions:

- 1992-96 Instructor in Medicine, The Children's Hospital, Boston, MA
1992-96 Instructor in Pediatrics, Harvard Medical School
1996-02 Assistant Professor of Pediatrics and Molecular Biology and Pharmacology
Washington University School of Medicine, St. Louis, MO
1998-02 Assistant Professor of Obstetrics and Gynecology
Washington University School of Medicine, St. Louis, MO
2002-06 Associate Professor of Pediatrics, Molecular Biology and Pharmacology,
and Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, MO
2004-08 Director, Division of Pediatric Endocrinology and Diabetes,
Washington University School of Medicine, St. Louis, MO
2006-08 Professor of Pediatrics, Molecular Biology and Pharmacology, and
Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, MO
2007-08 Alumni Endowed Professor of Pediatrics, Washington University School of Medicine, St. Louis, MO
2008- Edward Claiborne Stahlman Professor of Pediatrics, Professor of Molecular Physiology and
Biophysics, Vice Chair for Research Affairs in Pediatrics, Vanderbilt University Medical Center,
Nashville, TN

Honors/Awards:

- 1977-81 James B. Angell Scholar
1981 Phi Beta Kappa
1981 Graduation with "Highest Distinction for academic performance and "High Honors" for research
1981-87 Medical Scientist Training Program
1988 Graduation with Honors, Alpha Omega Alpha
1992 Markey Scholar
1993 Pfizer Postdoctoral Award in Endocrinology
1994 Clinical Investigator Award, NIDDK
1995 Burroughs-Wellcome Fund Career Development Award in the Biomedical Sciences, 1996-2000
1996 Scholar of the Child Health Research Center at Washington University
1999 Society for Pediatric Research Young Investigator Award
2003 American Society for Clinical Investigation
2008 NICHD Board of Scientific Counselors

B. Selected Peer-Reviewed Manuscripts: (From 132 Total Publications)

- Muglia LJ, Jenkins NA, Gilbert DJ, Copeland NG, Majzoub JA. Expression of the mouse corticotropin-releasing hormone gene in T-cells and other extra-hypothalamic sites. *J. Clin. Invest.* 1994; 93:2066-2072.
- Muglia LJ, Jacobson L, Dikkes P, Majzoub JA. Corticotropin-releasing hormone deficiency reveals major fetal but not adult glucocorticoid need. *Nature* 1995; 373:427-432.

3. Muglia L, Jacobson L, Weninger SC, Luedke CE, Bae DS, Jeong K-H, and Majzoub JA. Impaired diurnal adrenal rhythmicity restored by constant infusion of corticotropin-releasing hormone in CRH-deficient mice. *J. Clin. Invest.* 1997; 99:2923-2929.
4. Gross, G., Imamura, T., Luedke, C., Vogt, S. K., Olson, L. M., Nelson, D. M., Sadovsky, Y., and Muglia, L. J. Opposing actions of prostaglandins and oxytocin determine the onset of murine labor. *Proc. Natl. Acad. Sci. USA* 1998; 95: 11871-11875.
5. Muglia, L., Bae, D., Brown, T. T., Vogt, S. K., Alvarez, J. G., Sunday, M., and Majzoub, J. A. Proliferation and differentiation defects during lung development in corticotropin-releasing hormone deficient mice. *Am. J. Resp. Cell Mol. Biol.* 1999; 20: 181-188.
6. Muglia, L. M., Schaefer, M. L., Vogt, S. K., Gurtner, G., Imamura, A., and Muglia, L. J. The 5'-flanking region of the mouse adenylyl cyclase type VIII gene imparts tissue-specific expression in transgenic mice. *J. Neurosci.* 1999; 19: 2051-2058.
7. Karalis, K., Kontopoulos, E., Muglia, L. J., and Majzoub, J. A. Proinflammatory action of epinephrine revealed by corticotropin-releasing hormone deficiency. *Proc. Natl. Acad. Sci. USA*, 1999; 96: 7093-7.
8. Weninger, S., Dunn, A. J., Muglia, L. J., Dikkes, P., Miczek, K. A., Swiergiel, A. H., Berridge, C. W., and Majzoub, J. A. Stress-induced behaviors require the CRH receptor, but not CRH. *Proc. Natl. Acad. Sci. USA*, 1999; 96: 8283-8.
9. Wong, S. T., Athos, J., Figueroa, X. A., Pineda, V. V., Schaefer, M. L., Chavkin, C. C., Muglia, L. J., and Storm, D. R. Calcium-stimulated adenylyl cyclase activity is critical for hippocampus dependent long-term memory and late-phase LTP. *Neuron.* 1999; 23: 787-98.
10. Muglia, L. J., Jacobson, L., Luedke, C. E., Vogt, S. K., Schaefer, M. L., Dikkes, P., Fukuda, S., Sakai, Y., Suda, T., and Majzoub, J. A. Corticotropin-releasing hormone links pituitary adrenocorticotropin gene expression and release during adrenal insufficiency. *J Clin Invest.* 2000; 105: 1269-77.
11. Schaefer, M. L., Wong, S. T., Wozniak, D. F., Muglia, L. M., Liauw, J. A., Zhuo, M., Nardi, A., Hartmann, R. E., Vogt, S. K., Luedke, C. E., Storm, D. R., and Muglia, L. J. Altered stress-induced anxiety in adenylyl cyclase type VIII-deficient mice. *J Neurosci.* 2000; 20: 4809-20.
12. Bethin K. E., Vogt, S. K., and Muglia, L. J. Interleukin-6 is an essential, corticotropin-releasing hormone independent, stimulator of the adrenal axis during immune system activation. *Proc Natl Acad Sci USA* 2000; 97: 9317-22.
13. Rudnick, D. A., Perlmutter, D. H., and Muglia, L. J. Prostaglandins are required for CREB activation and cellular proliferation during liver regeneration. *Proc Natl Acad Sci USA* 2001; 98: 8885-90.
14. Johnson PM, Vogt SK, Burney MW, and Muglia LJ. Cyclooxygenase-2 inhibition attenuates anorexia during systemic inflammation without impairing cytokine production. *Am. J. Physiol. Endocrinol. Metab.* 2002; 282: E650-6.
15. Brewer JA, Sleckman BP, Swat W, Muglia LJ. Green fluorescent protein-glucocorticoid receptor knockin mice reveal dynamic receptor modulation during thymocyte development. *J Immunol* 2002; 169: 1309-1318.
16. Brewer JA, Kanagawa O, Sleckman BP, Muglia LJ. Thymocyte apoptosis induced by T cell activation is mediated by glucocorticoids in vivo. *J Immunol* 2002; 169: 1837-1843.
17. Bethin KE, Nagai Y, Sladek R, Asada M, Sadovsky Y, Hudson TJ, Muglia LJ. Microarray analysis of uterine gene expression in mouse and human pregnancy. *Mol Endocrinol* 2003; 17: 1454-1469.
18. Brewer JA, Khor B, Vogt SK, Muglia LM, Fujiwara H, Haegele KE, Sleckman BP, Muglia LJ. T-cell glucocorticoid receptor is required to suppress COX-2-mediated lethal immune activation. *Nat Med* 2003; 9: 1318-1322.
19. Wozniak DF, Hartman RE, Boyle MP, Vogt SK, Brooks AR, Tenkova T, Young C, Olney JW, Muglia LJ. Apoptotic neurodegeneration induced by ethanol in neonatal mice is associated with profound learning/memory deficits in juveniles followed by progressive functional recovery in adults. *Neurobiol Dis* 2004; 17: 403-414.
20. Boyle MP, Brewer JA, Funatsu M, Wozniak DF, Tsien JZ, Izumi Y, Muglia LJ. Acquired deficit of forebrain glucocorticoid receptor produces depression-like changes in adrenal axis regulation and behavior. *Proc Natl Acad Sci USA* 2005; 102: 473-478.
21. Maas JW Jr, Indacochea RA, Muglia LM, Tran TT, Vogt SK, West T, Benz A, Shute AA, Holtzman DM, Mennerick S, Olney JW, Muglia LJ. Calcium-stimulated adenylyl cyclases modulate ethanol-induced neurodegeneration in the neonatal brain. *J Neurosci* 2005; 25: 2376-2385.
22. Bernal-Mizrachi C, Gates AC, Weng S, Imamura T, Knutsen RH, DeSantis P, Coleman T, Townsend RR, Muglia LJ, Semenkovich CF. Vascular respiratory uncoupling increases superoxide, blood pressure and atherosclerosis. *Nature* 2005; 435: 502-506.

23. Maas JW Jr, Vogt SK, Chan GCK, Pineda VV, Storm DR, Muglia LJ. Calcium-stimulated adenylyl cyclases are critical modulators of neuronal ethanol sensitivity. *J Neurosci* 2005; 25: 4118-4126.
24. Boyle MP, Kolber BJ, Vogt SK, Wozniak DF, Muglia LJ. Forebrain glucocorticoid receptors modulate anxiety-associated locomotor activation and adrenal responsiveness. *J Neurosci* 2006; 26: 1971-1978.
25. Manary MJ, Muglia LJ, Vogt SK, Yarasheski KE. Cortisol and its action on the glucocorticoid receptor in malnutrition and acute infection. *Metabolism* 2006; 55: 550-554.
26. Kavaliers M, Choleris E, Agmo A, Braun J, Colwell DD, Muglia LJ, Ogawa S, Pfaff DW. Inadvertent social information and the avoidance of parasitized individuals: a novel role for oxytocin. *Proc Natl Acad Sci USA* 2006; 103: 4293-4298.
27. Howell MP, Muglia LJ. Effects of genetically altered brain glucocorticoid receptor action on behavior and adrenal axis regulation in mice. *Front Neuroendocrinol*; 2006; 27: 275-84.
28. Pennell CE, Jacobsson B, Relton C, Williams SM, Buus RM, Muglia LJ, Dolan SM, Morken N-H, Ozcelik H, PREBIC Genetics Working Group. Genetic Epidemiological Studies of Preterm Birth – Guidelines for Research. *Am J Obstet Gynecol* 2007; 196: 107-118.
29. Kistka Z A-F, Palomar P, Lee KA, Boslaugh SE, Wangler MF, Cole FS, DeBaun MR, Muglia LJ. Racial disparity in the frequency of recurrence of preterm birth. *Am J Obstet Gynecol* 2007; 196: 131.e1-131.e6.
30. Kim H-J, Zhao H, Kitaura H, Bhattacharyya S, Brewer JA, Muglia LJ, Ross FP, Teitelbaum SL. Glucocorticoids suppress bone formation via the osteoclast. *J Clin Invest* 2006; 116: 2152-2160.
31. Kistka Z A-F, Palomar L, Boslaugh SE, DeBaun MR, DeFranco EA, Muglia LJ. Risk for post-term delivery after previous post-term delivery. *Am J Obstet Gynecol* 2007; 196: 241.e1-241.e6.
32. Bhattacharyya S, Brown DE, Brewer JA, Vogt SK, Muglia LJ. Macrophage glucocorticoid receptors regulate Toll-like receptor-4-mediated inflammatory responses by selective inhibition of p38 MAP kinase. *Blood* 2007; 109: 4313-4319.
33. Conti AC, Maas, JW Jr, Muglia LM, Dave BA, Vogt SK, Tran TT, Rayhel EJ, Muglia LJ. Distinct regional and subcellular localization of adenylyl cyclases type 1 and 8 in mouse brain. *Neuroscience* 2007; 146: 713-729.
34. Liu Q, Zerbinatti CV, Zhang J, Hoe HS, Wang B, Cole SL, Herz J, Muglia L, Bu G. Amyloid precursor protein regulates brain apolipoprotein E and cholesterol metabolism through lipoprotein receptor LRP1. *Neuron*. 2007; 56: 66-78.
35. Kozlov SV, Bogenpohl JW, Howell MP, Wevrick R, Panda S, Hogenesch JB, Muglia LJ, Van Gelder RN, Herzog ED, Stewart CL. The imprinted gene *Magel2* regulates normal circadian output. *Nat Genet*. 2007 39: 1266-72.
36. Roizen J, Luedke CE, Herzog ED, Muglia LJ. Oxytocin in the circadian timing of birth. *PLoS ONE* 2007; 2; e922.
37. Roizen J, Asada M, Tong M, Tai H-H, Muglia LJ. Preterm birth without progesterone withdrawal in 15-hydroxyprostaglandin dehydrogenase hypomorphic mice. *Mol Endocrinol* 2008; 22: 105-112.
38. Sun L, Trausch-Azar JS, Muglia LJ, Schwartz AL. Glucocorticoids differentially regulate degradation of MyoD and Id1 by N-terminal ubiquitination to promote muscle protein catabolism. *Proc Natl Acad Sci USA* 2008; 105: 3339-3344.
39. Kolber BJ, Wiczorek L, Muglia LJ. Hypothalamic-pituitary-adrenal axis dysregulation and behavioral analysis of mouse mutants with altered glucocorticoid or mineralocorticoid receptor function. *Stress* 2008; 11: 321-328.
40. Kolber BJ, Roberts MS, Howell MP, Wozniak DF, Sands MS, Muglia LJ. Central amygdala glucocorticoid receptor action promotes fear-associated CRH activation and conditioning. *Proc Natl Acad Sci USA* 2008; 105: 12004 - 12009.

C. Research Support

ONGOING

1R01MH079010-01A2 (Muglia PI)

12/01/08-11/30/13

NIH/NIMH

Amygdala Glucocorticoid Receptor Function in Stress

The goals of this project are to determine the consequences of glucocorticoid action in the amygdala for behavior and neuroendocrine responses. Experiments will exploit a novel lentiviral based system for gene disruption.

Pfizer, Inc. (Muglia PI) 09/26/06-09/25/09
Dissociated Agonists of the Glucocorticoid Receptor: Mechanisms and Novel Applications

The goal of this project is to identify different mechanisms of signal transduction by the glucocorticoid receptor in inflammatory and non-inflammatory cells to facilitate the development of ligands that maintain anti-inflammatory effects and lack detrimental actions.

March of Dimes (Muglia, PI) 03/01/05 – 2/29/11
Genetic Analysis of Human Preterm Birth

The goal of this proposal is to determine human genetic mutations resulting in preterm birth by analyzing families with recurrent preterm infants.

U01 HG004423 Jeffrey Murray (PI; Muglia Subcontract) 08/06/06 – 05/31/09
NIH/NHGRI
Genome-Wide Association Studies of Prematurity and its Complications

The goal of this proposal is to identify genes leading to preterm birth and its complications by performing genome wide association studies

COMPLETED

R01 AA12957 Louis Muglia, MD PhD (PI) 09/30/01-08/31/07
NIH/NIAAA
Genetic Analysis of Ethanol Sensitivity in Mice

R01 AG18876 Louis Muglia, MD PhD (PI) 07/01/01-07/31/07
NIH/NIA
Adenylyl Cyclases in the Behavioral Response to Stress

5 P50HL56419-09 (Holtzman, Michael-PI) 09/01/03 – 08/31/06
NIH/NHLBI
Mechanisms of Airway Inflammation and Remodeling
Project 4 (Muglia) PI

Research Grant Louis Muglia, MD PhD (PI) 06/01/00-05/31/03
March of Dimes
Hormonal Modulation of Pregnancy

Research Grant Louis Muglia, MD PhD (PI) 11/01/00-12/31/03
McDonnell Center for Higher Brain Function
Adenylyl Cyclases in Stress Adaptation