

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format on for each person. (See attached sample). **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Ronald M. Harper, Ph.D.		Professor of Neurobiology, UCLA	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Dalhousie University, Halifax, N.S., Canada	B.A.	1962	First Class Honors
Tufts University, Medford, MA	M.S.	1964	Physiol. Psychology
McMaster University, Hamilton, Ont., Canada	Ph.D.	1968	Physiol. Psychology
Postdoctoral Fellow, UCLA, Los Angeles, CA		1968-70	Neurophysiology

**A. Positions and Honors.****Positions and Employment**

1970 – 1972 Postgraduate Research Anatomist, UCLA  
 1973 – 1977 Assistant Professor of Anatomy and Cell Biology, UCLA  
 1977 – Present Member, Brain Research Institute, UCLA  
 1977 – 1982 Associate Professor of Anatomy and Cell Biology, UCLA  
 1982 – Present Professor of Neurobiology, School of Medicine, UCLA

**Other Experience and Professional Memberships**

1987 – Present Member, Society for Neuroscience  
 1978 – Present Member, American Association of Anatomists  
 1985 – 1987 Vice-Chair, Interdepartmental Neuroscience Program, UCLA  
 1987 – 1989 Chairman, Interdepartmental Neuroscience Program, UCLA  
 1992 – 1993 President, Sleep Research Society

**Honors**

1994 & 2000 Visiting Professor, Toho University, Tokyo, Japan  
 1996 U.S. Patent 5,517,251 "Acquisition of Video Images Simultaneously With Analog Signals"  
 1997 Annenberg Award for Sudden Infant Death Syndrome

**B. Selected peer-reviewed publications (Publications selected from 199 peer-reviewed publications, 46 book chapters and 361 abstracts in chronological order).**

1. Gozal D, Hathout G, Kirlew K, Tang H, Woo M, Zhang J, Lufkin R, **Harper RM**. Localization of putative neural respiratory regions in the human by functional magnetic resonance imaging. *J Appl Physiol* 1994;76:2076-83.
2. Fried I, Gozal D, Kirlew KAT, Tang H, Zhang J, Lufkin RB, **Harper RM**. Dynamic magnetic resonance imaging of human Rolandic cortex. *NeuroReport* 1994;5:1593-1596.
3. Hathout G, Kirlew K, So G, Hamilton D, Zhang J, Sinha U, Sinha S, Sayre J, Gozal D, **Harper RM**, Lufkin RB. MR imaging signal response to sustained stimulation in human visual cortex. *J Magn Reson Imag* 1994;4:537-43.
4. Gozal D, Omidvar O, Kirlew KAT, Hathout GM, Hamilton R, Lufkin RB, **Harper RM**. Identification of human brain regions underlying responses to resistive inspiratory loading with functional magnetic resonance imaging. *Proc Natl Acad Sci USA* 1995;92:6607-6611.
5. Gozal D, Ben-Ari J, **Harper RM**, Keens TG. Ventilatory responses to repeated, short hypercapnic challenges. *J Appl Physiol* 1995;78:1374-1381.
6. Hathout G, Gambhir S, Gopi R, Kirlew K, Choi Y, So G, Gozal D, **Harper RM**, et al. A quantitative physiologic model of blood oxygenation for functional magnetic resonance imaging. *Inv Rad* 1995;30:669-82.
7. Gozal D, Omidvar O, Kirlew K, Hathout G, Lufkin RB, **Harper RM**. Functional magnetic resonance imaging reveals brain regions mediating the response to resistive expiratory loads in humans. *J Clin Invest* 1996;97:1-7.
8. **Harper RM**. The cerebral regulation of cardiovascular and respiratory functions. *Sem Pediatr Neurol* 1996;3:13-22.
9. **Harper RM**. Higher brain areas involved in respiratory control. In: Miller AD, Bianchi AL, Bishop BP (Eds.), *Neural Control of the Respiratory Muscles*. Boca Raton, FL: CRC Press, Inc., 1997, pp 107-117.

10. **Harper RM**, Poe GR, Rector DM, Kristensen MP. Relationships between hippocampal activity and breathing patterns. *Neurosci Biobehav Rev* 1998;22:233-236.
11. Rector DM, Poe GR, **Harper RM**. A miniature CCD video camera for high-sensitivity measurements in freely behaving animals. *J Neurosci Meth* 1998;78:85-91.
12. **Harper RM**, Gozal D, Bandler R, Spriggs D, Lee J, Alger J. Regional brain activation in humans during respiratory and blood pressure challenges. *Clin Exp Pharmacol Physiol* 1998;25:483-486.
13. **Harper RM**, Richard CA, Rector DM. Physiological and ventral medullary surface activity during hypovolemia. *Neuroscience* 1999;94:579-586.
14. Richard CA, Rector DM, Harper RK, **Harper RM**. Optical imaging of the ventral medullary surface across sleep-wake states. *Am J Physiol* 1999;277:R1239-R1245.
15. Parker JM, Alger JR, Woo MA, Spriggs D, **Harper RM**. Acquisition of electrophysiologic signals during magnetic resonance imaging. *Sleep* 1999;22:1125-1126.
16. Gozal D, **Harper RM**. Maturation of central components in cardiovascular and respiratory control. In: Loughlin GM, Marcus CL, Carroll JL, (Eds.), *Sleep and Breathing in Children: A Developmental Approach*, New York, NY: Marcel Dekker, 2000, pp 207-299.
17. **Harper RM**, Bandler R, Spriggs D, Alger JR. Lateralized and widespread brain activation during transient blood pressure elevation revealed by magnetic resonance imaging. *J Comp Neurol* 2000;417:195-204.
18. Macey PM, Richard CA, Rector DM, Harper RK, **Harper RM**. State Influences on ventral medullary surface and physiological responses to sodium cyanide challenges. *J Appl Physiol* 2000;89:1919-1927.
19. Rector DM, Richard CA, Staba RJ, **Harper RM**. Sleep states alter ventral medullary surface responses to blood pressure challenges. *Am J Physiol* 2000;278:R1090-R1098.
20. Verrier RL, **Harper RM**, Hobson AJ. Central and autonomic mechanisms regulating cardiovascular function during sleep. In: Kryger MH, Roth T, Dement WC (Eds.), *Principles and Practice of Sleep Medicine*, 3<sup>rd</sup> ed. Philadelphia: W.B. Saunders, 2000, pp 179-191.
21. **Harper RM**, Woo MA, Alger JR. Visualization of sleep influences on cerebellar and brainstem cardiac and respiratory control mechanisms. *Brain Res Bull* 2000;53:125-131.
22. **Harper RM**, Kinney HC, Fleming PJ, Thach BT. Sleep influences on homeostatic functions: implications for sudden infant death syndrome. *Respir Physiol* 2000;119:123-132.
23. **Harper RM**. Sudden Infant Death Syndrome: A failure of compensatory cerebellar mechanisms? *Pediatr Res* 2000;48:140-142.
24. Henderson LA, Frysinger RC, Yu PL, Bandler R, **Harper RM**. A device for feline positioning and stabilization during magnetic resonance imaging. *Magn Reson Imag* 2001;19:1031-1036.
25. **Harper RM**. Autonomic control during sleep and risk for sudden death in infancy. *Arch Ital Biol* 2001;131:1-10.
26. **Harper RM**. The cerebellum and respiratory control. *The Cerebellum* 2001;1:1-2.
27. **Harper RM**, Parker JM, Frysinger RC, Henderson LA, del Veechio W, Woo MA. Infrared transfer of electrophysiologic signals during magnetic resonance imaging. *Sleep Research Online* 2001;4:13-15.
28. Kim AK, Macey P, Woo MA, Yu PL, Keens T, Alger JR, Gozal D, Harper RK, **Harper RM**. Cardiac responses to pressor challenges in Congenital Central Hypoventilation Syndrome. *Somnology* 2002;6:109-115.
29. Henderson LA, Yu PL, Frysinger RC, Galons J-P, Bandler R, **Harper RM**. Neural responses to intravenous serotonin revealed by functional magnetic resonance imaging. *J Appl Physiol* 2002;92:331-342.
30. Macey P, Henderson L, Macey K, Alger J, Frysinger R, Woo MA, Harper RK, Yan-Go F, **Harper RM**. Brain morphology associated with obstructive sleep apnea. *Am J Respir Cri. Care Med* 2002;166:1382-1387.
31. Henderson L, Macey P, Macey K, Frysinger R, Woo M, Harper RK, Alger J, Yan-Go F, **Harper RM**. Brain responses associated with the Valsalva maneuver revealed by functional magnetic resonance imaging. *J Neurophysiol* 2002;88:3477-3486.
32. Woo MA, Macey PM, Fonarow GC, Hamilton MA, **Harper RM**. Regional brain gray matter loss in heart failure. *J Appl Physiol* 2003. (In Press) (Online: 10.1152/japplphysiol.00101.2003).
33. Poe GR, Rector DM, **Harper RM**. State-dependent columnar organization of dorsal hippocampal activity in the freely-behaving cat. *Behav Brain Res* 2002;138:107-112.
34. Henderson LA, Woo M, Macey PM, Macey KE, Frysinger RC, Alger JR, Yan-Go F, Harper RM. Neural responses during Valsalva maneuvers in Obstructive Sleep Apnea Syndrome. *J Appl Physiol* 2003;94:1063-1074.
35. **Harper RM**, Macey PM, Henderson LA, Woo MA, Macey KE, Frysinger RC, Alger JR, Nguyen KP, Yan-Go FL. *fMRI* responses to cold pressor challenges in control and obstructive sleep apnea subjects. *J Appl Physiol* 2003;94:1583-1595.

## C. Research Support

### Ongoing Research Support

RO1 HL 60296 Siegel (PI) 9/1/98 – 8/31/03 (pending 9/01/03 – 8/31/08)

PHS/NHLBI

SCOR on the Neurobiology of Sleep and Sleep Apnea (Program Title)

Project 1: Neural Sites Mediating Obstructive Sleep Apnea

The objectives are to determine, using functional magnetic resonance techniques, the location and time course of activation of brain structures activated during obstructive sleep apnea.

Role: PI of Project 1

RO1 HD 22695 Harper (PI)

12/1/86 – 6/30/04

NIH/NICHD

Physiological Development in SIDS

The major goals are to use  $f$ MRI to examine signal changes in the brains of controls, Prader-Willi, and Congenital Central Hypoventilation patients to ventilatory, thermal, passive movement and state challenges.

Role: PI

RO1 HL 22418 Harper (PI)

4/1/01 – 2/28/05

NIH/NHLBI

Neural Control of Cardiorespiratory Function 1978-2005

The major goals of this project are to examine control of breathing associated with sleep and waking states in adult animals by assessing brainstem and forebrain regional neural activity during different states following ventilatory and pressor challenges.

Role: PI

### Completed Research Support

RO1 HD 22506 Harper (PI) 6/1/96 – 5/31/03

NIH/NICHD

Cardiorespiratory Patterns During Sleep and SIDS Risk

The objective is to identify rostral brain influences on development of respiratory patterning during sleep in the kitten, and thus to assist determination of mechanisms of failure in the Sudden Infant Death Syndrome.

Role: PI

RO3 HD 36228 Harper (PI)

4/1/98 – 3/31/01

NIH/NICHD

Neural Activity in Congenital Central Hypoventilation

The objective of this small grant is to identify brain structures deficient in children with Congenital Central Hypoventilation Syndrome (CCHS) using  $f$ MRI procedures.

Role: PI

RO1 HD 22695 Harper (PI)

12/1/86 – 11/30/98

NIH/NICHD

Development of Sleep States and SIDS Risk

The major goals are to use  $f$ MRI to examine signal changes in the brains of controls, Prader-Willi, and Congenital Central Hypoventilation patients to ventilatory, thermal, passive movement and state challenges.

Role: PI

1182-CV1 Dracup (PI)

7/1/98 – 6/30/02

American Heart Association

Exercise Training in Heart Failure: Effects on Autonomic, Immune, Quality of Life, Clinical, and Cost Outcomes

The objective of these studies is to examine the effects of exercise in advanced heart failure patients in relation to immune function, autonomic nervous system function, quality of life and cost factors.

Role: Co-Investigator

Principal Investigator/Program Director (Last, First, Middle):

RR13065 Alger (PI)

4/1/99 – 3/31/02

NIH Shared Instrumentation

Research Animal Magnetic Resonance Imaging Instrument

The objective is to procure an MRI scanner for animal studies as a shared resource.

Role: Co-Investigator