BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
McGaugh, James L.	Research Professor
eRA COMMONS USER NAME	

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
San Jose State University	B.A.	1953	Psychology
University of California, Berkeley	Ph.D.	1959	Physiol. Psychology
Instituto Superiore di Sanita, Rome	Postdoc	1961-62	Neuropharmacology

A. Personal Statement: The research in my laboratory has focused on the neurobiological systems that modulate the formation of lasting memory in rats as well as human subjects. The findings have revealed the involvement of stress hormones released by emotional arousal and the consequent activation of the amygdala. Such activation influences consequent interactions with other brain systems involved in processing different kinds of information. The recent research has begun to examine memory in human subjects who have exceptionally strong autobiographical memories. The aim is to understand the processes that enable such naturally occurring strong memories and to determine whether the processes are the same as or related to those we previously found in our research on endogenous processes that modulate memory formation. I currently teach both undergraduate and graduate courses in the neurobiology of learning and memory and direct the research of graduate students and postdoctoral researchers. The many graduate students and postdoctoral researchers who have collaborated in this research are now faculty members at many universities in the U.S., Europe and Asia.

B. Positions and Honors

Positions: San Jose State University: Psychology Department, Assistant Professor, 1957-60; Associate Professor, 1960-61 University of Oregon: Associate Professor, Department of Psychology, 1961-64 (on leave, 1961-62) University of California, Irvine: Neurobiology and Behavior: Associate Professor (1964-66), Professor (19966-94), Research Professor (1994-), Founding Chair (1964-67), Chair (1971-74, 1986-89); Director, Center for the Neurobiology of Learning and Memory, l983-2004

Honors: Member, U.S. National Academy of Sciences; Fellow, American Academy of Arts and Sciences; Fellow, American Association for the Advancement of Science; Foreign Member, Brazilian Academy of Sciences; Corresponding member, Mexican Academy of Sciences; Laurea honoris causa, University of L'Aquila, Italy; William James Fellow, American Psychological Society; Distinguished Scientific Contribution Award, American Psychological Association; Fellow, Society of Experimental Psychologists; John P. McGovern Award, American Association for the Advancement of Science; Robert S. Dow Neuroscience Award; Norman Anderson Lifetime Achievement Award; Karl Lashley Prize in Neuroscience, American Philosophy Society, 2009

Editor: Behavioral and Neural Biology, 1972-1994, Neurobiology of Learning and Memory, 1995-1998

C. Selected peer-reviewed publications *(total of 535)*

McGaugh, J. L. 1966. Time-dependent processes in memory storage. *Science* 153, 1351-1358.

McGaugh, J. L. 1973. Drug facilitation of learning and memory. *Ann. Rev. Pharmacol.* 13, 229-241.

McGaugh, J. L. 1983. Hormonal influences on memory. *Annu. Review of Psychol.* 34, 297-323.

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Brioni, J.D., Nagahara, A.H., McGaugh, J.L. 1989. Involvement of the amygdala GABAergic system in the modulation of memory storage. *Brain Res.* 487, 105-112.

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Bermudez-Rattoni, F., Introini-Collison, I.B., McGaugh, J.L. 1991. Reversible inactivation of the insular cortex by tetrodotoxin produce retrograde and anterograde amnesia for inhibitory avoidance and spatial learning. *PNAS,* 88, 5379-5382.

McGaugh, J.L. 1992. Affect, neuromodulatory systems and memory storage. In S.-A. Christianson, ed., *Handbook of Emotion and Memory: Current Research and Theory*. Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 245-268.

Packard, M.G., Cahill, L., McGaugh, J.L. 1994. Amygdala modulation of hippocampal-dependent and caudate nucleus-dependent memory processes. *PNAS,* 91, 8477-8481.

Cahill, L., Prins, B., Weber, M., McGaugh, J.L. 1994. β-adrenergic activation and memory for emotional events. *Nature* 371, 702-704.

Cahill, L., Babinsky, R., Markowitsch, H.J., McGaugh, J.L. 1995. The amygdala and emotional memory. *Nature* 377, 1995, 295-296.

Roozendaal, B., McGaugh, J.L. 1996. Amygdaloid nuclei lesions differentially affect glucocorticoid-induced memory enhancement in an inhibitory avoidance task. *Neurobiol. Learn. Mem.* 65, 1-8.

Roozendaal, B., Carmi, O., McGaugh, J.L. 1996. Adrenocortical suppression blocks the memory-enhancing effects of amphetamine and epinephrine. *PNAS,. USA.* 93, 1429-1433.

Cahill, L. , McGaugh, J.L. 1996. Modulation of memory storage. *Curr. Opin. Neurobiol.* 6, 237-242.

Cahill, L., Haier, R.J., Fallon, J., Alkire, M., Tang, C., Keator, D., Wu, J., McGaugh, J.L. 1996. Amygdala activity at encoding correlated with long-term, free recall of emotional information. *PNAS,* 93, 8016-8021.

McGaugh, J.L., Cahill, L., Roozendaal, B. 1996. Involvement of the amygdala in memory storage: interaction with other brain systems. *PNAS,* 93, 13508-13514.

Roozendaal, B. Portillo-Marquez, G., McGaugh, J.L. 1996. Basolateral amygdala lesions block glucocorticoid-induced modulation of memory for spatial learning. *Behav. Neurosci.* 110, 1074-1083.

Galvez, R., Mesches, M., McGaugh, J.L. 1996. Norepinephrine release in the amygdala in response to footshock stimulation. *Neurobiol. Learn. Mem.* 66, 253-257.

Roozendaal, B., McGaugh, J.L. 1997. Basolateral amygdala lesions block the memory-enhancing effect of glucocorticoid administration in the dorsal hippocampus of rats. *Eur. J. Neurosci.* 9, 76-83.

Roozendaal, B., McGaugh, J.L. 1997. Glucocorticoid receptor agonist and antagonist administration into the basolateral but not central amygdala modulates memory storage. *Neurobiol. Learn. Mem.* 67, 176-179.

Guzowski, J.F., McGaugh, J.L. 1997. Antisense oligodeoxynucleotide-mediated disruption of hippocampal CREB protein levels impairs memory of a spatial task. *PNAS,* 94, 2693-2698.

Quirarte, G.L., Roozendaal, B.,McGaugh, J.L.1997. Glucocorticoid enhancement of memory storage involves noradrenergic activation in the basolateral amygdala. *PNAS,.* 94, 14048-14053.

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deQuervain, D. J.-F., Roozendaal, B., McGaugh, J.L. 1998. Stress and glucocorticoids impair retrieval of long-term spatial memory. *Nature* 394, 787-790.

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Hatfield, T., McGaugh, J.L. 1999. Norepinephrine infused into the basolateral amygdala posttraining enhances retention in a spatial water maze task. *Neurobiol. Learn. Mem.* 71, 232-239.

Ferry, B., Roozendaal, B., McGaugh, J.L. 1999. Basolateral amygdala noradrenergic influences on memory storage are mediated by an interaction between beta- and alpha$_1$-receptors. *J. Neurosci.* 19, 5119-5123.

Vazdarjanova, A., McGaugh, J.L. 1999. Basolateral amygdala is involved in modulating consolidation of memory for classical fear conditioning. *J. Neurosci.* 19, 6615-6622.

Roozendaal, B., Williams, C.L., McGaugh, J.L. 1999. Glucocorticoid receptor activation in the rat nucleus of the solitary tract facilitates memory consolidation: involvement of the basolateral amygdala. *Eur. J. Neurosci.* 11, 1317-1323.

Hatfield, T., Spanis, C., McGaugh, J.L. 1999. Response of amygdalar norepinephrine to footshock and GABAergic drugs using *in vivo* microdialysis and HPLC. *Brain Res.* 835, 340-345.

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McGaugh, J. L. 2000. Memory: A Century of Consolidation. *Science* 287, 248-251.

Setlow, B., Roozendaal, B., McGaugh, J.L. 2000. Involvement of a basolateral amygdala complex – nucleus accumbens pathway in glucocorticoid-induced modulation of memory storage. *Eur. J. Neurosci.* 12, 367-375.

de Quervain, D.J.-F., Roozendaal,B.,Nitsch, R.M., McGaugh, J.L., Hock, C. 2000. Acute cortisone administration impairs retrieval of long-term declarative memory in healthy subjects. *Nat.Neurosci.* 3, 313-14.

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Hui, G.K., Figueroa, I.R., Poytress, B.S., Roozendaal, B. McGaugh, J.L., Weinberger, N.M. 2004. Memory enhancement of classical fear conditioning by post-training injections of corticosterone in rats. *Neurbiol. Learn. Mem.* 81, 67-74.

Okuda, S., Roozendaal, B., McGaugh, J.L. 2004. Glucocorticoid effects on object recognition memory require training-associated emotional arousal. *PNAS,* 101, 853-858.

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Roozendaal, B., de Quervain, D. J.-F, Schelling, G., McGaugh, J.L. 2004. A systemically administered β-adrenoceptor antagonist blocks corticosterone-induced impairment of contextual memory retrieval in rats. *Neurbiol. Learn. Mem.* 81, 150-154.

Miranda, M.I., McGaugh, J.L. 2004. Enhancement of inhibitory avoidance and conditioned taste aversion memory with insular cortex infusions of 8-Br-cAMP: involvement of the basolateral amygdala. *Learn. Mem.* 11, 312-317.

LaLumiere, R.T., Nguyen, L., McGaugh, J.L. 2004. Posttraining intra-basolateral amygdala infusions of dopamine modulate consolidation of inhibitory avoidance memory: Involvement of noradrenergic and cholinergic systems. *Eur. J. Neurosci.* 20, 2804-2810.

LaLumiere, R.T., Nawar, E.M., McGaugh, J.L. 2005. Modulation of memory consolidation by the basolateral amygdala or nucleus accumbens shell requires concurrent dopamine receptor activation in both brain regions. *Learn. Mem.* 12, 296-301.

Bermudez-Rattoni, F., Okuda, S., Roozendaal, B., McGaugh, J.L. 2005. Insular cortex is involved in consolidation of object recognition memory. *Learn. Mem.* 12, 447-449.

McIntyre, C.K., Miyashita, T., Setlow, B., Marjon, K.D., Steward, O., Guzowski, J.F., McGaugh, J.L. 2005. Memory-influencing intra-basolateral amygdala drug infusions modulate expression of Arc protein in the hippocampus. *PNAS,* 102, 10718-10723.

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.McIntyre, C.K., McGaugh, J.L. and Williams, C.L. Interacting brain systems modulate memory consolidation. Neuroscience & Biobehavioral Reviews, 36, 2012, 1750-1762.

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