

CURRICULUM VITAE

William G. Wright
Associate Professor
Department of Biological Sciences
Chapman University
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Orange, California 92866
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EDUCATION:

Associate Professor

2002-Present: Department of Biological Sciences, Chapman University

1996-2002: Department of Biology, Colorado State University

Assistant Professor

1990-1996: Department of Biology, Colorado State University

Postdoctoral

1986-1990: Department of Psychology, Yale University

1985-1986: Friday Harbor Laboratories, Univ. Washington

Graduate

1979-1985: Scripps Inst. Oceanogr. PhD, Oceanography, August 1985; J. T. Enright, Advisor

1975-1979: Moss Landing Mar. Labs, J. Nybakken, advisor

Undergraduate

1969-1973: Univ. of Calif. Santa Cruz, B.A. Biology

GRANTS:

- 2007-2011 National Science Foundation. \$363,000. Predation-induced sensitization in *Aplysia californica* (IOS-0721800;no-cost extension).
- 2002-2006 National Science Foundation. \$338,000. Evolutionary role of neuromodulation in associative memory (IBN-0131743).
Research Experience for Undergraduates \$14,000.
- 1996-99 National Science Foundation . \$210,000 Evolution of learning-related neuromodulation (IBN-9632069).
Research Experience for Undergraduates \$5000
- 1997, 1999 Colorado State Mathematics and Science Education, \$500 each year.
Experimental trial small group studies in large (ca 400 students) lecture.
- 1995-96 National Science Foundation . \$60,000 Evolution of learning-related neuromodulation (IBN-9511215).
Research Experience for Undergraduates \$5000
- 1995-97 Whitehall Foundation, Inc. \$80,000; The role of serotonin in a parasite-induced change in behavior (#W94-11).
- 1991-95 Hughes Summer Scholar Fellowship. \$15,000. Salary for six separate fellows during four summers.

1991-95 Hughes Foundation. \$3000. Supplement for Hughes Fellows.
 1994 Graduate School, Col. St. Univ. Faculty Research Grant. \$4,500.
 1992 Graduate School, Col. St. Univ. Faculty Research Grant. \$4,000.
 1986-89 National Institutes of Mental Health. \$63996. The development of sensitization in *Aplysia* : Temporal emergence and effects of early experience.

HONORS:

Fall, 2010 J. Neurosci. publication highlighted in Nature (V467, p8).
 Spring, 2006 Valerie Scudder Award of Excellence, Chapman University
 Spring, 2006 Outstanding Faculty Award, Residence Life, Chapman University
 Spring, 2005 Outstanding Faculty Award, Residence Life, Chapman University
 Spring, 2004 Outstanding Faculty Award, Residence Life, Chapman University
 Spring, 2000 Undergraduate Mentor of the Year, Biology Dept. Col. St. Univ.
 Spring, 1995 Undergraduate Teacher of the Year, College Nat. Sci., Col. St. Univ.
 Fall, 1994 Undergraduate Teacher of the Year, Biology Dept., Col. St. Univ.
 1986-90 National Inst. Mental Health Postdoctoral Fellow, Yale University.
 1985-1986 Friday Harbor Laboratories Postdoctoral Fellow
 1979-1980 Regents Fellowship, Univ. of Calif.

TEACHING EXPERIENCE:

2002-pres. Chapman University, Biological Sciences: Professor
 Biostatistics (Biol 250)
 Introduction to Life Science (Biol 103)
 General Biology First Semester (Biol 204)
 General Biology Second Semester (Biol 205)
 Marine Biology (Biol 440)
 2001 University of Puerto Rico, Institute of Neurobiology, Visiting Professor
 Tropical Neuroethology
 1990-2002 Colorado State University, Department of Biology: Professor
 Cellular Basis of Behavior (Z536)
 Principles of Animal Biology (Z110)
 Marine Ecology (Z315).
 1988-1989 Yale University, Guest Lecture
 Neuroethology
 1988-1989 Marine Biological Laboratories, Woods Hole, Mass. Teaching Assistant.
 Neural Systems & Behavior.

PUBLICATIONS (names in **bold** indicate undergraduate or post baccalaureate collaborators).

Manuscripts In Preparation

Cary, S., and W. G. Wright. "Aged" *Aplysia* tissue is more palatable to scavenging hermit crabs than is fresh tissue.

Thomas, C. S., A. Rodriguez, S. Tillett, R. Emswiler, and W. G. Wright. Sublethal attack by *Navanax inermis* (Phylum, Mollusca) produces sensitization in *Aplysia californica*.

Cary, S. , I. Guiha, R. Emswiler, W. G. Wright. Both sublethal attack by *Panulirus interruptus* (Crustacea), and electric shock, induce cryptic behavior in *Aplysia californica*.

Fuller, K., M. Mason, C. Whitcomb, C. Wands, and W. G. Wright. Neural correlates of long-term sensitization: Comparisons between natural and unnatural sensitizing stimuli.

Zachary, V., **M. Mason,** and W. G. Wright. Resistance to lift forces in the limpet *Lottia gigantea*: Escalated territorial behavior elevates risk of dislodgement by waves.

Berriman, J. , M. Mason, M. Denny, and W. G. Wright. Water cannon discharges that mimic shear force of moderate waves reveal elevated risk of dislodgment during territorial encounters in the limpet *Lottia gigantea*.

Berriman, J. S., and W. G. Wright. Tenacity during agonistic chase behavior correlates with relative size of neighbors.

Pepino, C., A. Watkins, L. Lee, V. Zachary, and W. G. Wright. Long-term sensitization following attack by two predators of *Aplysia californica*.

Manuscripts submitted; Peer Reviewed Journals

- 2010 **J. S. Berriman, D. A. Goldstein,** W. G. Wright. Unpredicted trait effects amplify the functional consequences of marine reserves. Rejected from Science, May 2010, Nature February 2011.

Manuscripts Published in Peer Reviewed Journals

- 2010 **A. J. Watkins, D. A. Goldstein, L. C. Lee, C. J. Pepino, S. L. Tillett, F. E. Ross, E. L. Wilder,** V. A. Zachary, W. G. Wright. Lobster attack induces sensitization in the sea hare, *Aplysia californica*. J. Neurosci. 30: 11028 –11031.
- 2010 **K. K. Takagi, N., N. Ono,** W. G. Wright. Interspecific variation in palatability suggests cospecialization of antipredator defenses in a sea hares. Mar. Ecol. Progr. Ser. 416:137-144.
- 2007 Wright, W. G. and J. W. Nybakken. Effect of wave action on movement in the owl limpet, *Lottia gigantea*. Bull. Mar. Sci.81: 235-244.

- 2007 **Jami, S. A.**, Wright, W. G., and D. L. Glanzman. Differential classical conditioning of the gill-withdrawal reflex in *Aplysia* recruits both NMDA receptor-dependent enhancement and NMDA receptor-dependent depression of the reflex. *J. Neurosci.* 2007 27: 3064-3068.
- 2006 **Hoover, B. A., H. Nguyen, L. Thompson,** and W. G. Wright. Associative memory in three aplysiids: Correlation with heterosynaptic modulation. *Learn. Mem.* **13**: 820-826.
- 2003 Marinesco, S. K.L. Duran, & W. G. Wright. Evolution of learning in three aplysiid species: Differences in heterosynaptic plasticity contrast with conservation in serotonergic pathways. *J. Physiology-London* 550 (1): 241-253.
- 2000 Wright, W. G. Evolution of mechanisms of sensitization: Experiments in a model lineage. *Bioscience.* 50: 883-894.
- Shivik, J. A., W. G. Wright, and L. Clark. Seasonal variability in brown treesnake (*Boiga irregularis*) response to lures. *Can. J. Zool.* 78: 79-84.
- 1999 **Erixon, N. J., DeMartini, L. J.**, & Wright, W. G. Dissociation between sensitization and learning-related neuromodulation in an aplysiid species. *J. Comp. Neurol.* 408: 506-514.
- 1998 Wright, W. G. Behavioral analysis of a "phylogenetic lesion". *Neurobiology of Learning and Memory* 69:326-337.
- Maynard, B.J., Wellnitz, T.A., Zanini, N., Wright, W.G. & Dezfuli, B.S. Parasite-altered behavior in a crustacean intermediate host: field and laboratory studies. *Journal of Parasitology.* 84:1102-1106
- 1996 Wright, W. G., **D. Kirschman, D. Rozen,** & B. Maynard. Phylogenetic analysis of learning-related neuromodulation in molluscan mechanosensory neurons. *Evolution* 50: 2248-2263.
- Wright, W.G., **E. McCance,** and T.J. Carew. Developmental emergence of long-term memory for sensitization in *Aplysia*. *Neurobiology of Learning and Memory* 65: 261-268.
- Maynard, B.J., **DeMartini, L.** & Wright, W.G. *Gammarus lacustris* harboring *Polymorphus marilis* and *Polymorphus paradoxus* show altered patterns of serotonin-like immunoreactivity. *J. Parasitology* 82: 663-666.
- 1995 Wright, W. G. & **D. Kirschman.** Direct comparison of serotonin effects on siphon versus tail sensory neurons in *Aplysia*. *Learning and Memory* 2:178-184.

- Wright, W. G. , **K. Jones, P. Sharp**, and B. Maynard. Widespread anatomical projections of the serotonergic modulatory neuron, CB1, in *Aplysia*. *Invert. Neurosci.* 1: 173-183.
- Wright, W. G. and T. J. Carew. A single identified interneuron gates tail-shock induced inhibition in the siphon withdrawal reflex of *Aplysia*. *J. Neurosc.* 15: 790-797.
- Wright, W. G. and A. L. Shanks. Interspecific association between bail-out behavior and habitat is geographically and phylogenetically widespread. *J. exp. mar. Biol. Ecol.* 188: 133-143.
- 1993 Wright, W.G., and A.L. Shanks. Previous experience determines territorial behavior in an archaeogastropod limpet. *J. exp. mar. Biol. Ecol.* 166: 217-229.
- 1991 a. Wright, W. G., E. A. Marcus, T. J. Carew. A cellular analysis of inhibition in the siphon withdrawal reflex of *Aplysia*. *J. Neurosc.* 11: 2498-2509.
- b. Wright, W.G., **E. McCance, T. Lu**, and T.J. Carew. Delayed-onset sensitization emerges after dishabituation in developing *Aplysia*. *Behavioral and Neural Biology.* 57: 170-174.
- 1990 Fitzgerald, K. , W. G. Wright, E.A. Marcus, T. J. Carew. Multiple forms of non-associative plasticity in *Aplysia*: a behavioural, cellular, and pharmacological analysis. *Phil.Trans.R.Soc.Lond.B* 329: 171-178.
- 1989 Wright, W. G. Intraspecific density facilitates sex change in in the territorial patellacean limpet, *Lottia gigantea*. *Marine Biology.* 100:353-364.
- Wright, W. G., E. A. Marcus, and T. J. Carew. Facilitation and inhibition in the siphon withdrawal reflex of *Aplysia*: A behavioral and cellular analysis. In Carew, T. J. and D. B. Kelly. *Perspectives in Neural Systems and Behavior*. New York Alan R. Liss, Inc.
- 1988 Wright, W.G. Sex change in the Mollusca. *Trends in Ecology and Evolution* 3: 137-140..
- 1987 Shanks, A.L. and W.G. Wright. Internal-wave-mediated shoreward transport of cyprids, megalopae, and gammarids, and correlated longshore differences in settling rate of intertidal barnacles. *J. exp. mar. Biol. Ecol.* 114:1-13.
- 1986 Shanks, A.L., W.G. Wright, and **G. Maltz**. What triggers the "bail out" behaviour in the limpet *Lottia gigantea*? *Mar. Behav. Physiol.* 12: 71-79.

- Shanks, A.L., and W.G. Wright. Adding teeth to wave action: the destructive effects of wave-borne rocks on intertidal organisms. *Oecologia* 69: 420-428.
- Huber, M. E., W.G. Wright, and R. A. Lewin. Divalent cations and flagellar autotomy in *Chlamydomonas reinhardtii*. *Phycologia* 25: 408-411.
- 1985 Wright, W. G. The behavioral ecology of the limpet *Lottia gigantea*: interaction between territoriality, demography, and protandric hermaphroditism. PhD. Thesis. University of California San Diego.
- Lindberg, D.R. and W.G. Wright. Patterns of sex change of the protandric patellacean *Lottia gigantea* (Mollusca: Gastropoda) *Veliger* 27(3): 261-265.
- 1982 Wright, W.G. Ritualized behavior in a territorial limpet. *J. exp. mar. Biol. Ecol.* 50 245-251.
- Wright, W.G. and D.R. Lindberg. Direct observation of sex change in the patellacean limpet *Lottia gigantea*. *J. mar. biol. Ass. U.K.* 62: 737-738.
- 1979 Wright, W.G. and D.R. Lindberg. A nonfatal method of sex determination for patellacean gastropods. *J. mar. biol. Ass. U.K.* 59: 803.
- 1978 Wright, W.G. and J.A. Raymond. Air breathing in a California sculpin. *J. exp. Zool.* 203: 171-176.

Book Chapters

- 2000 W. M. Timpson & Wright, B. G. From big water to reflective pools: Study groups in large lecture classes. In H. Edwards, B. Smith, & G. Webb (Eds.), *Lecturing: Case Studies, Experience and Practice* London: Kogan Page Publ. Ltd. 192 pp.
- 1989 Wright, W. G., E. A. Marcus, and T. J. Carew. Facilitation and inhibition in the siphon withdrawal reflex of *Aplysia*: A behavioral and cellular analysis. In Carew, T. J. and D.B. Kelly (eds.), *Perspectives in Neural Systems and Behavior*.

Book Review

Wright, W. G., 2003. Book Review. Ron Chase. *Behavior and its Neural Control in Gastropod Molluscs*. *Comp. Bioch. Physiol. A.* 136: 791-792

Meeting Abstracts

- 2011 Mason, M.J., A. J. Watkins, M. Brown, J. Buechler, J. Wakabayashi, and W. G. Wright. Repeated lobster attack, like repeated electric shock,

- produces long-lasting sensitization and reduces spike threshold of tail mechanosensory neurons. Soc. Neurosci. Ann Meeting. 297.29.
- 2009 **Goldstein, D. A., J. S. Berriman,** and W. G. Wright. Spiny lobsters, *Panulirus interruptus*, from inside marine life protected areas, exhibit unprecedented attack behavior on sea hares (*Aplysia californica*). West. Soc. Nat. Ann Meeting.
- Berriman, J. S.,** and W. G. Wright. Do territorial owl limpets (*Lottia gigantea*) assess risk? Tenacity and speed of chase behavior correlate with local neighborhood. West. Soc. Nat. Ann Meeting.
- 2008 Zachary, V.A. , **M. J. Mason,** and W. G. Wright. Battles against competitors and waves in the California rocky intertidal: A study of the tenacity of the territorial owl limpet, *Lottia gigantea*. West. Soc. Nat. Ann Meeting
- Berriman, J. S. , M. J., Mason,** M. W. Denny, and W.G. Wright. Water cannon discharges that mimic moderate waves reveal elevated risk of dislodgment during territorial encounters in the intertidal limpet, *Lottia gigantea*. West. Soc. Nat. Ann Meeting
- 2006 **Thomas, C. S., A. Rodriguez, S. L. Tillett,** and W. G. Wright. Sublethal attack by *Navanax inermis* (Phylum, Mollusca) produces sensitization in *Aplysia californica*. Program No. 813.11. 2006 Neuroscience Meeting Planner Atlanta GA: Society for Neuroscience, 2006. Online.
- Ross, F, E. L. Wilder, S. L. Tillet,** and W. G. Wright. Sub-lethal attack by *Panulirus interuptus* (Crustacea) produces sensitization in *Aplysia californica*. Program No. 813.12. 2006 Neuroscience Meeting Planner Atlanta GA: Society for Neuroscience, 2006. Online.
- 2005 **Takagi, K. K., N. Reihanifam, B. Freitas,** and W. G. Wright. Chemical versus cognitive defenses in opisthobranch mollusks. Soc. Integr. Comp. Biol. Ann. Meeting: 23.4, pg42.
- 2004 **Koltavary, E.,** B. Hoover, **K. Koltavary,** T. Capo, and W. G. Wright. Experimentally compromised chemical defenses enhances sensitization in *Aplysia*. Soc. Neurosci. Abstr. 34. 778.15
- 2003 **Takagi, K.,** & W. G. Wright. Chemical versus cognitive defenses in opisthobranch mollusks. West. Soc. Naturalists. Annual Meeting.
- Marinesco, S., K.L. Duran, & W. G. Wright. Evolution of learning in three aplysiid species: Differences in heterosynaptic plasticity contrast with

conservation in serotonergic pathways. Cold Spring Harbor Symposium on Learning and Memory.

Shekib, A., W. G. Wright, D. L., Glanzman. Differential classical conditioning of the *Aplysia* gill-withdrawal reflex depends upon NMDA receptor activation and a competitive interaction between the neural pathways. Soc. For Neurosc. Abstr 28: 520.4.

- 2001 **Hoover, B.**, **L. Thompson**, W. G. Wright. Evolutionary loss of modulation by serotonin is correlated with shorter memory of classical conditioning in an aplysiid clade. Soc. Neurosci. Abstr. 27: 644.24
- 2000 Wright, W. G., and D. L. Glanzman. Synaptic plasticity depends upon synaptic milieu: Observations from co-cultures of *Aplysia* neurons. Soc. Neurosci. Abstr. Soc. Neurosc. Abstr. 26: 1525
- Wright, W. G. A phylogenetic analysis of non-associative learning mechanisms in a molluscan lineage. The XVIIIth (New) International Congress of Zoology.
- 1999 Wright, W.G. , **R. Yong**, and D. L. Glanzman. Synaptic competition at the *Aplysia* sensorimotor synapse: Tetanic stimulation of one presynaptic input depresses a second presynaptic input. Soc. Neurosc. Abstr. 25: 1314.
- 1998 Duran, K. L., J. W. Kinney, and W. G. Wright. Site-specific sensitization in a species lacking generalized sensitization. Soc. Neurosc. Abstr. 24: 1190
- Maynard, B. J., **N. J. Erixon**, **L. J. DeMartini**, and W. G. Wright. Dissociation between sensitization and learning-related neuromodulation in an aplysiid species. Soc. Neurosc. Abstr. 24: 1190.
- 1997 Wright, W. G. 1997. Evolution of non-associative learning: Behavioral analysis of an evolution-induced neuromodulatory lesion. Soc. Neurosc. Abstr. 23: 1959.
- 1995 Wright, W. G., **K. Jones**, **P. Sharp**, and B. Maynard. Does the serotonergic neuron, CB1, modulate multiple reflexes in *Aplysia*? Anatomical evidence. Soc. Neurosc. Abstr. 21: 1024.
- 1994 Wright, W. G., and B. Maynard. Evolution of learning-related neuromodulation in opisthobranch molluscs. Soc. Neurosc. Abstr. 20: 230.
- 1993 Wright, W. G. , **D. Kirschman**, and **D. Rozen**. Evolution of serotonin-induced changes in firing properties of opisthobranch mechanosensory neurons. Cold Spring Harbor Symposium: Neurobiology of *Aplysia*.

- 1992 Wright, W. G. , and **D. Kirschmann**. Serotonin-induced increases in excitability and action potential duration in mechanosensory neurons: similarity across ganglia and between species. Soc. Neurosc. Abstr. 18: 16.
- 1990 Wright, W. G. and T. J. Carew. Contributions of interneurons to tail-shock induced inhibition of the siphon withdrawal reflex in *Aplysia*. Soc. Neurosc. Abstr. 16: 20.
- Wright, W. G. , E. M. Marcus, and T. J. Carew. Multiple sites of synaptic modulation mediate behavioral plasticity in *Aplysia*. Am. Malacol. Un. 56th Ann. meeting.
- 1989 Wright, W.G., E. A. Marcus, and T.J. Carew. Dissociation of monosynaptic and polysynaptic contributions to dishabituation, sensitization, and inhibition in *Aplysia*. Soc. Neurosci. 15: 1265.
- Carew, T.J., W. G. Wright, and E. McCance. Development of long-term memory in *Aplysia*: Long-term sensitization is present when short-term sensitization first emerges. Soc. Neurosci 15: 1285.
- 1988 Marcus, E.A., W.G. Wright, and T.J.Carew. Behavioral and cellular dissociation of multiple components of nonassociative learning in *Aplysia*. Cold Spring Harbor Symposium: Cell and Molecular Neurobiology of *Aplysia*: 50.
- Wright, W.G., E.A.Marcus, H. Thaker, and T.J. Carew 1988. A cellular analysis of tail-shock induced inhibition in the siphon withdrawal reflex of *Aplysia*. Soc. Neurosci. 14: 841.
- 1987 Wright, W. G. An indirect method to detect predation of the owl limpet, *Lottia gigantea*. 2nd Calif. Isl. Symposium, St. Barbara, Calif.
- 1984 Wright, W. G. Fight or flee in a territorial limpet: Substratum cues and previous experience. Am Zool. 24: 101A.
- Wright, W. G. Is sex change in limpets socially mediated? Am. Zool. 24: 60A.
- 1981 Wright, W.G. Ritualized behavior in a territorial limpet. West.Soc.Natur. 62nd Ann. Meeting.: 47.
- Wright, W.G. Behavioral plasticity in a territorial limpet. West. Soc. Natur. 63rd Ann. Meeting: 57.
- 1978 Wright, W.G. Aspects of the ecology and behavior of the owl limpet, *Lottia gigantea*. West. Soc Malacol. Ann. Rep. 11: 7.

1977 Wright, W.G. Avoidance and escape: Two responses of Intertidal limpets to the presence of the territorial owl limpet *Lottia gigantea*. West. Soc. Nat. 58th Ann. Meeting: 50.

Wright, W.G. and J. A. Raymond. Air-breathing in California sculpin. West. Soc. Nat. 58th Ann. Meeting: 55.

INVITED SEMINARS

Fall, 2010	California State University, Fullerton, Biology
Spring, 2010	Univ. Calif., Santa Cruz, Ecol. Evol. Biol.
Spring, 2007	University of Oregon, Or. Inst. Mar. Biol.
Spring, 2006	Univ. Calif., Santa Cruz, Conf celebrating John Pearse
Fall 2004	Northern Arizona University, Tuscon, AR
Fall 2004	California State University Fullerton, CA
Spring 2004	University of Idaho, Biological Sciences
Spring, 2002	Cornell University, Neurob. & Behav.
Spring, 2002	University of Maryland, Psychology
Fall, 2001	Ohio University, Athens, Ohio
Spring, 2001	Southampton College, NY
Spring, 2001	Caltech, Biology Department
Summer, 2000	Am. Psych. Ass., Washington D. C.
Summer, 2000	International Congress Zoology, Athens, Greece
Fall, 1999	UCLA, Psychology
Spring, 1998	University of Denver, Biology
Spring, 1998	University of Oregon, Inst. Mar. Biol.
Summer, 1995	Krasnow Inst. Workshop, Fairfax, VA
Winter, 1995	NSF Workshop, Arlington, VA
Fall, 1994	Dept. Anat.Neurobiol., Col. St. Un.
Spring, 1994	Ev. Pop. Org. Biol., CU, Boulder
Winter, 1994	Wint. An. Behav. Conf., Jackson
Winter, 1994	Col. St. Univ., Psychology
Spring 1993	Biology Dept., Col.St.Univ.
Spring 1993	Univ.Oregon Institute of Neuroscience.
Summer 1991	Univ. Calif. Irvine, CntrNeurLearnMemory
Fall 1990	Col. St. Univ.,Prgm Neur. Growth Devel.
Summer 1990	Am. Mal. U., Symp Neurobiol Moll., Woods Hole
Spring 1990	Cornell Medical School, NY
Fall 1989	SUNY, Brooklyn, Neural Behavioral Sciences
Fall 1987	SUNY, Stonybrook, Oceanography

PROFESSIONAL SERVICES

Grant reviewer:

National Science Foundation,
National Institute of Health

West Coast National Undersea Research Center
Israel Science Foundation

Journal reviewer:

American Naturalist
American Zoologist
Behavioral and Neural Biology
Biological Bulletin
Brain, Behavior, and Evolution
Ecology
Invertebrate Neuroscience
Journal of Comparative Physiology
Journal of Neuroscience
Journal of Neurophysiology
Journal of Parasitology
Learning and Memory
Marine Biology
Neurobiology of Learning and Memory
Systematic Biology
Veliger

Professional Societies:

Society for Neuroscience
American Society of Zoologists
Western Society of Naturalists

Honor Society

Phi Kappa Phi