

CURRICULUM VITAE - ROBERT S. JACOBS

Education:

<u>Institution and Location</u>	<u>Degree</u>	<u>Conferred</u>	<u>Field of Study</u>
Northwestern Univ., Evanston, IL	Ph.B.	1964	Biology
Loyola University Stritch School of Medicine, Chicago, IL	Ph.D.	1971	Pharmacology

Professional Positions:

1995-present	Professor of Pharmacology, Department of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara, CA.
1982-1995	Professor of Pharmacology, Department of Biological Sciences, University of California, Santa Barbara, CA.
1978-1982	Associate Professor of Pharmacology, Department of Biological Sciences, University of California, Santa Barbara, CA.
1974-1978	Assistant Professor of Pharmacology, Department of Biological Sciences, University of California, Santa Barbara, CA.
1971-1974	Assistant Professor of Pharmacology, Department of Pharmacology, Loyola University Stritch School of Medicine, Chicago, IL.
1968-1971	Predocctoral fellow, Department of Pharmacology, Loyola University Stritch School of Medicine, Chicago, IL.
1964-1968	Supervisor, Pharmacology Screening Laboratory, Department of Biological Sciences, G.D. Searle & Co., Skokie, IL.

Professional Societies:

American Society for Pharmacology and Experimental Therapeutics
Western Pharmacology Society
Inflammation Research Association

Honors and Awards:

1973	Recipient, William B. Peck Scientific Research Award
1974-75	Regents' Faculty Fellowship

Research Interests:

Mechanism of action of marine natural products, marine pharmacology, eicosanoid biosynthesis, and inflammation.

Recent University Service:

Biosafety Committee, 1992-95
Curriculum Committee, 1992-95

Ad hoc Review Committee, 1993-95
Academic Ad hoc Committee, 1994-95
UCSB Academic Senate Faculty Review, annually
Dept. of EEMB Faculty Review Panels, annually
UCSB EH &S Chemical Safety committee, 2001-03

Current Research Program:

Our overall goal is to utilize marine natural products as probes in studying the steps of certain molecular and cellular processes; specifically, cell cycle kinetics, synaptic transmission, and pain and inflammatory processes.

All of our research is oriented toward the study of cellular and molecular mechanisms of drug action. Studies include the investigation of marine toxins as well as new classes of natural products from marine invertebrates that inactivate the neurotoxins β -bungarotoxin, bee venom and cobra venom. These marine natural products are purified and identified by collaborators at the Scripps Institute of Oceanography. Some of these agents are potent inactivators of phospholipase A2 and interfere with cellular lysis, chemotactic responses, cellular recognition and inflammatory processes. The phospholipase A2 inactivators have been shown to be potent phorbol ester antagonists and to block tumor promotion and inflammation.

Through collaborative arrangements with participants in bio-organic chemistry we have established a unique program that investigates the pharmacological properties of potent metabolites from colonial invertebrates and algae. This approach the last decade has led to the discovery of a diverse series of marine natural products that established clearly that marine organisms represent a previously untapped genetic pool of extremely important drugs that can be utilized to treat diseases in man. These investigations have also stimulated considerable basic research on ligand reactions with drug receptors, drug targeting and molecular modeling that evolved directly from our mechanism of action studies. In our laboratory we wish to continue to be a resource that serves as a stimulus for new research in organic chemistry, biochemistry and pharmacology. The approach to be used focuses on developing new avenues of investigation into inflammation. We also propose to begin a new investigation of cytotoxin resistant cancer cells. We wish to contribute to a better understanding of inflammatory diseases such as ulcers, inflammatory bowel disease, inflammatory diseases of the lung and heart; diseases of the bone and connective tissue and allergies. From a pharmacological perspective we wish to also contribute to better understanding of drug resistance.

The approach to be used is multifaceted involving mammalian models as well as investigation of analogous processes in marine organisms. In the broadest sense, all our methods and approaches involve simulation of molecular membrane, cell, and tissue reactions that lead to formation and release of oxidation products of arachidonic acid and the activation and release of lipase and proteolytic enzymes. These models are well established in this laboratory. The drug resistant cancer cell to be studied is also activated by a similar phospholipid metabolizing process.

Recently we have begun an in depth investigation of the effects of marine natural products on G-protein regulated phagocytosis and its relation to wound healing.

Recent Research Support:

- 1992-94 Marine Inflammation Research Program 1. Pharmacological Studies of Inflammatory Processes, USDC Sea Grant R/MP-52, \$134,651 2nd. yr., \$149,583 3rd. yr.
- 1992-95 Marine Inflammation Research in Collaboration with OsteoArthritis, Inc., OsteoArthritis Sciences, Inc. OSI 525200-11, \$220,000
- 1994-98 Marine Inflammation Research Program 1. Pharmacological Studies of Inflammatory Processes, USDC Sea Grant R/MP-58, \$121,061 1st. yr., \$158,721 2nd. yr., \$165,692 3rd. yr., \$33,609 4th. yr.
- 1995-98 The Regulation of Gene Expression in Rheumatoid Arthritis: An Investigation of the Role of Marine Natural Products in Transcription Factor Modulation, USDC Sea Grant E/IF-1, \$23,390 1st. yr., \$24,010 2nd. yr. with matching industrial fellowship funds provided by SmithKline Beecham Pharmaceuticals Inc. \$22,103.24.
- 1995-98 The Oxidation and Metabolism of Polyunsaturated Fatty Acids (PUFA) by Marine Organisms, USDC Sea Grant R/MP-71, \$84,512 1st. yr., \$93,000 2nd. yr., \$92,999 3rd. yr.
- 1998-01 Marine Natural Products that Modulate Platelet-derived Growth Factor Receptor Activation and Fibroblast Proliferation, USDC Sea Grant E-IF-1, \$90,000 with matching industrial fellowship funds provided by SmithKline Beecham Pharmaceuticals, Inc.
- 1998-01 Marine Inflammation Research Program 1. Pharmacological Studies of Inflammatory Processes, USDC Sea Grant R-MP-81, \$123,258 1st. yr., \$115,853 2nd. yr.
- 1999-00 Determining the Pseudopterosin Pharmacophore, Nereus Pharmaceuticals Inc. contract, \$93,000.
- 1999-00 California Alliance for Minority Participation (CAMP) Award (Lin/Jacobs), \$300
- 1999-00 California Alliance for Minority Participation (CAMP) Award (Gallegos/Jacobs), \$300
- 2000-01 Pharmacological Adaptation of Protoctista as Novel Models to Study Inflammation, USDC Sea Grant R/MP-85, \$150,000 total
- 2000-01 California Alliance for Minority Participation (CAMP) Award (Reyes/Jacobs), \$900
- 2001 California Alliance for Minority Participation (CAMP) Award (Duran/Jacobs), \$300
- 2000-03 Advancing Marine Biotechnology: Use of OCS Oil Platforms as Sustainable Sources of Marine Natural Products, U.S. Dept. of Interior, Mineral Management Services, MMS-17609, \$802,291 total (7 PI's), \$171,564 R.S. Jacobs..
- 2001-02 Letters and Science Genesis Award (Jacobs/Reyes), \$780
- 2001-02 The Physiology of Wound Plug Formation in *Dasycladus vermicularis*, USDC Sea Grant R/MP-67, \$26,570 total funds
- 2000-03 General Affiliates Undergraduate Pharmacology Research Award (Hensic/Jacobs), \$2000
- 2002-03 General Affiliates Undergraduate Pharmacology Research Award (Centerwall/Jacobs), \$2000
- 2002-03 California Alliance for Minority Participation (CAMP) Award (Mazul/Jacobs), \$300
- 2002-03 California Alliance for Minority Participation (CAMP) Award (Day/Jacobs), \$300
- 2002-03 California Alliance for Minority Participation (CAMP) Award (Sandoval/Jacobs), \$300
- 2006-2010 The role of the Pseudopterosins and their analogs in wound healing. United States Army Medical Research and Materiel Command \$990,000 (R.D. Little/R.S. Jacobs)

Industrial Affiliates – Teaching Program Support:

Amgen Inc.
Signal Research Division of Celgene Corp.

Roche Biosciences
SmithKline Glaxo

Professional Recognition and Experience:

- 1978-84 Committee on Educational Affairs, American Society for Pharmacology and Experimental Therapeutics
- 1980-84 Chairman, Subcommittee on Undergraduate Education, American Society for Pharmacology and Experimental Therapeutics
- 1990 Chairman, Sea Grant Director's Council Study Group on Marine Bio-Organic Chemistry and Pharmacology
- 1992-96 Committee on Educational Affairs, American Society for Pharmacology and Experimental Therapeutics
- 1992-96 Subcommittee on Undergraduate Education, , American Society for Pharmacology and Experimental Therapeutics

Consulting:

Estee Lauder Inc.	Searle Research and Development
Harbor Branch Oceanographic Institution	Smithsonian Research Institute
Osteoarthritis Sciences Inc.	Lipo Chemicals Inc.
NIEHS	

Journal Refereeing:

Archives Internationales de Pharmacodynamie et de Therapie
Biological Bulletin
Biochemical Pharmacology
Journal of Pharmacology and Experimental Therapeutics
Molecular Pharmacology
Bioorganic and Medicinal Chemistry
Lipids
Organic Letters
FASEB Letters
Journal of Natural Products
Journal of the American Chemical Society

Grant Reviews:

NOAA-Sea Grant College Program	National Institutes of Health
National Science Foundation	U.S. Department of Energy

Recent Symposia, Workshops, and Conferences:

<u>Date</u>	<u>Location and Title</u>
Feb. 2000	Gordon Conference on Marine Natural Products, Ventura, CA.

- May 2000 Invited speaker at the International Symposium on Non-mammalian Eicosanoids and Bioactive Lipids, Berlin, Germany.
- June 2000 Invited speaker at the 11th International Conference on Advances in Prostaglandin and Leukotriene Research: Basic Science and New Clinical Applications, Florence, Italy.
- June 2001 Plenary lecture, Florida Marine Biotechnology Conference, June 15 and 16, 2001, Tampa Bay, Florida.
- Aug. 2001 Grant Reviewer and presenter, State of Florida Sea Grant Program Panel Review, Aug. 23-27, 2001, University of Florida, Gainesville, Florida.
- Feb. 2002 Chair of session, Gordon Research Conference on Marine Natural Products, Ventura, CA.
- Aug. 2002 Invited speaker at the John Faulkner Symposium, Scripps Institution of Oceanography, La Jolla, CA.
- Nov. 2002 Invited speaker at the Symposium on Life Histories of Marine Invertebrates in honor of Mary Rice's retirement, Nov. 14-15, 2002, at the Smithsonian Marine Station at Ft. Pierce, Ft. Pierce, FL
- Dec. 2002 Invited speaker at the workshop "Marine Natural Products: Studies on their Discovery, Biosynthesis, Pharmacology and Utility" sponsored by the Joint Science & Technology Fund of the US-Egypt Partnership for Economic Growth and Development, Dec. 10-11, 2002, Ismalia, Egypt.
- June 2003 Special Emphasis Panelist for National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, North Carolina.
- Aug. 2003 Invited speaker at the 6th World Congress on Inflammation 2003, organized by the Inflammation Research Association under the auspices of the International Association of Inflammation Societies, Aug. 3-7, 2003, Vancouver, Canada.
- Nov. 2005 R.S. Jacobs. Pseudopterosins Development and Clinical Results. National Marine Biotechnology Briefings US Congress Washington DC
- Jan. 2006 R.S. Jacobs. Terosin Methyl Ether (TMO). BIO International Conference, Honolulu, HI

Publications:

- 1959 Kagawa, C.M. and R.S. Jacobs. Action of testosterone in blocking urinary electrolyte effects of deoxycorticosterone. *Proc. Soc. Exptl. Biol. Med.* 102: 521-523.
- 1960 Kagawa, C.M. and R.S. Jacobs. Mineral corticoid effects of 9-fluorodeoxycorticosterone in adrenalectomized rats. *Proc. Soc. Exptl. Biol. Med.* 104: 60-62.
- 1965 Jacobs, R.S., M.S. Grebner and D.L. Cook. Effect of nicotinic acid on serum triglyceride cholesterol and chylomicrons in rats. *Proc. Soc. Exptl. Biol. Med.* 119: 1117-1120.
- 1967 Hofmann, L.M., H.A. Wagner and R.S. Jacobs. Azido pyrimidine diuretics: structure-activity relationships. *Arch. Int. Pharmacodyn.* 165: 476-482.
- 1969 Jacobs, R.S., J. Jiu and L.M. Hofmann. Spironolactone: reversal of Na retention in the bilateral adrenal enucleated rat. *Arch. Int. Pharmacodyn.* 177: 245-251.
- 1971 Jacobs, R.S. Investigation of the anticurare effect of sodium fluoride at the neuromuscular junction of cat tenuissimus muscle. *Neuropharm.* 10: 607-612.
- 1971 Jacobs, R.S., Brumlik, J. and A.G. Karczmar. Theophylline and the treatment of myasthenia gravis. *Trans. Amer. Neurol. Assoc.* 96: 158-161.

- 1973 Jacobs, R.S. and P.L. Shinnick. Facilitatory sites of action of theophylline in isolated cat tenuissimus muscle. *Neuropharmacol.* 12: 885-895.
- 1973 Jacobs, R.S., Brumlik and A.G. Karczmar. Theophylline compounds and myasthenia gravis I. *In vitro* studies. *Clin. Pharmacol. Therap.* 14: 374-379.
- 1973 Brumlik, J., R.S. Jacobs and A.G. Karczmar. Theophylline compounds and myasthenia gravis II. Clinical report of 9 cases. *Clin. Pharmacol. Therap.* 14: 380-385.
- 1974 Brumlik, J. and R.S. Jacobs. Myasthenia gravis associated with diphenylhydantoin therapy for epilepsy. *Can. J. Neurol. Sci.* 1: 127-129.
- 1976 Hinman, D.J., R.S. Jacobs and A.G. Karczmar. Effects of (+)-tubocurarine on neuromuscular facilitation and depression in rat diaphragm. *Neuropharm.* 15: 427-432.
- 1976 Shinnick-Gallager, P.L. and R.S. Jacobs. An analysis of the subsynaptic site of action of theophylline on isolated cat tenuissimus muscle. *J. Pharm. and Exp. Ther.* 197: 647-652.
- 1977 Jacobs, R.S. and D.M. McNiece. Motor nerve terminal facilitatory action of SQ20009. An inhibitor of cyclic nucleotide phosphodiesterase. *J. Pharm. and Exp. Ther.* 202: 404-410.
- 1978 Jacobs, R.S. and E.S. Burley. Nerve terminal facilitatory action of 4-aminopyridine: an analysis of the rising phase of the end-plate potential. *Neuropharm.* 17: 439-444.
- 1980 Langdon, B. R. and R.S. Jacobs. An inexpensive frequency-modulated (FM) audio monitor of time-dependent analog parameters. *J. Pharmacol. Methods*, 3: 181-190.
- 1981 Jacobs, R. S., S. White and L. Wilson. Selective compounds derived from marine organisms: effects on cell division in fertilized sea urchin eggs. *Fed. Proc.* 40(1): 26-29.
- 1981 Fenical, W. F., R. K. Okuda, M. Bandurraga, P. Culver and R. S. Jacobs. Lophotoxin: A novel neuromuscular toxin from Pacific sea whips of the genus *Lophogorgia*. *Science*, 212: 1512-1514.
- 1981 Burley, E. S. and R. S. Jacobs. The effects of 4-aminopyridine on nerve terminal action potentials. *J. Pharm. Exp. Ther.* 219: 268-273.
- 1981 Culver, P. and R. S. Jacobs. Lophotoxin: A neuromuscular toxin from the sea whip *Lophogorgia rigida*. *Toxicon*, 19: 825-830.
- 1981 White, S. J. and R. S. Jacobs. Inhibition of cell division and of microtubule assembly by elatone, a halogenated sesquiterpene. *Mol. Pharm.* 20: 614-620.
- 1983 Langdon, R. and R. S. Jacobs. Quantal analysis indicates an alpha -toxin-like block by lophotoxin, a non-ionic marine natural product. *Life Sci.* 32: 1223 -1228.
- 1983 de Freitas, J. C. and R. S. Jacobs. Biotoxins in brachyuran decapod crustaceans. *Toxicon*, Suppl. 3: 157-160.
- 1983 O'Brien, T., R. S. Jacobs and L. Wilson. Inhibition of bovine brain microtubule assembly *in vitro* by stypoldione. *Mol. Pharm.* 24: 493-499.
- 1983 White, S. J. and R. S. Jacobs. Effect of stypoldione on cell cycle progression, DNA and protein synthesis, and cell division in cultured sea urchin embryos. *Mol. Pharm.* 24: 500-508.
- 1983 O'Brien, E. T., S. White, R. S. Jacobs, G. B. Boder and L. Wilson. Pharmacological properties of a marine natural product, stypoldione, obtained from the brown alga, *Styopodium zonale*. *Hydrobiologia*, 116/117: 141-145.
- 1984 de Freitas, J. C., L. A. Blankemeier and R. S. Jacobs. *In vitro* inactivation of the neurotoxic action of β -bungarotoxin by the marine natural product, manoalide. *Experientia*, 40(7): 864-865.
- 1985 Jacobs, R. S., P. Culver, R. Langdon, T. O'Brien and S. White. Some pharmacological observations on marine natural products. *Tetrahedron Lett.* 41(6): 981-984.
- 1985 Langdon, R. B. and R. S. Jacobs. Irreversible autonomic actions by Lophotoxin suggest utility as a probe for both C6 and C10 nicotinic receptors. *Brain Res.* 359: 233-238.

- 1986 Jacobs, R. S. and L. Wilson. Fertilized sea urchin eggs as a model for detecting cell division inhibitors. in "Modern Analysis of Antibiotics" Adorjan Aszalos (Ed.) Marcel Dekker Publ. p. 481-493.
- 1986 Glaser, K. B. and R. S. Jacobs. Molecular pharmacology of manoalide inactivation of bee venom phospholipase A₂. *Biochem. Pharm.* 35(3): 449-453.
- 1986 Look, Sally A., William Fenical, Robert S. Jacobs and Jon Clardy. The pseudopterosins: anti-inflammatory and analgesic natural products from the sea whip *Pseudopterozorgia elisabethae*. *Proc. Natl. Acad. Sci. USA*, 38: 6238-6240.
- 1986 O'Brien, E. Timothy, David J. Asai, Amiram Groweiss, Bruce H. Lipshutz, William Fenical, Robert S. Jacobs and Leslie Wilson. Mechanism of action of the marine natural product stypoldione: evidence for reaction with sulfhydryl groups. *J. Med. Chem.* 29: 1851-1855.
- 1987 Albizati, Kim F., Theodore Holman, D. John Faulkner, Keith B. Glaser and Robert S. Jacobs. Luffariellolide, an anti-inflammatory sesterterpene from the marine sponge *Luffariella* sp. *Experientia*, 43: 949-950.
- 1987 Ettouati, William S. and Robert S. Jacobs. Effect of pseudopterosin A on cell division, cell cycle progression, DNA and protein synthesis in cultured sea urchin embryos. *Mol. Pharm.* 31:500-505.
- 1987 Glaser, K. B. and R. S. Jacobs. Inactivation of bee venom phospholipase A₂ by manoalide: a model based on the reactivity of manoalide with amino acids and peptide sequences. *Biochem. Pharm.* 36 (13): 2079-2086.
- 1987 Tjeerdema, Ronald S. and Robert S. Jacobs. Elimination of 2,4,5,2',4',5'-hexachlorobiphenyl by the purple sea urchin, *Strongylocentrotus purpuratus*, following single exposure. *Bull. Environ. Contam. Toxicol.* 38: 1029-1036.
- 1987 Kernan, Michael R. and D. John Faulkner and R. S. Jacobs. The luffariellins, novel anti-inflammatory sesterterpenes of chemotaxonomic importance from the marine sponge *Luffariella variabilis*. *J. Org. Chem.* 52 (14): 3081-3083.
- 1988 Mayer, Alejandro M. S., Keith B. Glaser and Robert S. Jacobs. Regulation of eicosanoid biosynthesis *in vitro* and *in vivo* by the phospholipase A₂ inactivator manoalide. *J. Pharm. Exp. Ther.* 244: 871-878.
- 1988 Estrella, D., K. L. Green, C. B. Prior, J. Dempster, R. F. Halliwell, R. S. Jacobs, S. M. Parsons, R. L. Parsons and I. G. Marshall. A further study of the neuromuscular effects of vesamicol (AH5183) and of its enantiomer specificity. *Brit. J. Pharm.* 93: 759-768.
- 1988 Glaser, K. B., Thomas S. Vedvick and R. S. Jacobs. Inactivation of phospholipase A₂ by manoalide: localization of the manoalide binding site on bee venom phospholipase A₂. *Biochem. Pharm.* 37(19): 3639-3646.
- 1988 Mayer, A. M. S. and R. S. Jacobs. Manoalide: An anti-inflammatory and analgesic marine natural product. *Proc. Calif. Acad. Sci.* 13: 133-142.
- 1989 O'Brien, E. T., D. J. Asai, R. S. Jacobs, and L. Wilson. Selective inhibition of cytokinesis in *Strongylocentrotus purpuratus* embryos by low concentrations of stypoldione, a marine natural product that reacts with sulfhydryl groups. *Mol. Pharm.* 35: 635-642.
- 1989 Kernan, M. R., D. J. Faulkner, L. Parkanyi, J. Clardy, M. S. de Carvalho, and R. S. Jacobs. Luffolide, a novel anti-inflammatory terpene from the sponge, *Luffariella* sp. *Experientia*, 45: 388-390.
- 1989 Rogers, G. A., S. M. Parsons, D. C. Anderson, L. M. Nilsson, B. A. Bahr, W. D. Kornreich, R. Kaufman, R. S. Jacobs, and B. Kirtman. Synthesis, *in vitro* acetylcholine-storage-blocking

- activities, and biological properties of derivatives and analogues of trans-2-(4-phenylpiperidino)cyclohexanol (Vesamicol). *J. Med. Chem.* **32**: 1217-1230.
- 1989 Glaser, K. B., M. S. de Carvalho, R. S. Jacobs, M. R. Kernan and D. J. Faulkner. Manoalide: structure-activity studies and definition of the pharmacophore for phospholipase A₂ inactivation. *Mol. Pharm.* **36**: 782-788.
- 1990 Jacobson, P. B., L. A. Marshall, A. Sung, and R. S. Jacobs. Inactivation of human synovial fluid phospholipase A₂ by the marine natural product, manoalide. *Biochem. Pharm.* **39**: 1557-1564.
- 1990 Tjeerdema, R. S. and R. S. Jacobs. Partitioning of 2,4,5,2',4',5'-hexachlorobiphenyl between seawater and air. *Bull. Environ. Contam. Toxicol.* **44**: 572-578.
- 1991 Burgess, J. R., Roger I. de la Rosa, R. S. Jacobs and A. Butler. A new eicosapentaenoic acid formed from arachidonic acid in the coralline red algae *Bossiella orbigniana*. *Lipids*, **26**: 162-165.
- 1991 de Carvalho, Marianne S. and Robert S. Jacobs. Two-step inactivation of bee venom phospholipase A₂ by scalaradial. *Biochem. Pharm.* **42**:1621-1626.
- 1991 Marine Pharmacology: Prospects for the 1990s. Summary of a California Sea Grant Workshop. May 7-9, 1990, Univ. of CA, Santa Barbara. Robert S. Jacobs and Marianne de Carvalho (Eds.). Report No. T-CSGCP-022, California Sea Grant College, Univ. of CA, La Jolla.
- 1991 Jacobs, Robert S. Biological and pharmacological activity of marine natural products. In The 1990 United States-Japan Seminar on Bioorganic Marine Chemistry, Meeting Report (F. J. Schmitz and T. Yasumoto, eds.), *J. Natural Products*, **54**:1469-1490.
- 1992 Potts, Barbara, C. M., Marianne S. de Carvalho, Robert S. Jacobs and D. John Faulkner. Chemical mechanism of inactivation of bee venom phospholipase A₂ by the marine natural products manoalide, luffariellolide and scalaradial. *J. Amer. Chem. Soc.* **114**:5093-5100.
- 1992 Grace, Krista J. S., Mary Medina, Robert S. Jacobs and Leslie Wilson. Selective inhibition of cytokinesis in sea urchin embryos by the marine natural product, pseudopterolide, *Mol. Pharm.* **41**:631-638.
- 1992 Jacobson, Peer B. and Robert S. Jacobs. Selective inhibition of leukotriene biosynthesis by fuscocide, a novel antiinflammatory marine natural product isolated from the Caribbean soft coral, *Eunicea fusca*. Part I: Physiological and biochemical studies in murine inflammatory models¹. *J. Pharm. Exp. Ther.* **262**:866-873.
- 1992 Jacobson, Peer B. and Robert S. Jacobs. Selective inhibition of leukotriene biosynthesis by fuscocide, a novel antiinflammatory marine natural product isolated from the Caribbean soft coral, *Eunicea fusca*. Part II: Biochemical studies in the Human Neutrophil¹. *J. Pharm. Exp. Ther.* **262**:874-882.
- 1992 Potts, Barbara, C. M., D. John Faulkner and Robert S. Jacobs. Phospholipase A₂ inhibitors from marine organisms. *J. Natural Products*, **55**:1701-1717.
- 1993 Jacobs, R. S., Mary A. Bober, Isabel Pinto, Allen B. Williams, Peer B. Jacobson and Marianne de Carvalho. Pharmacological studies of marine novel marine metabolites. In: Advances of Marine Biotechnology, Vol. 1, Plenum, NY, p. 77-99.
- 1993 Mayer, Alejandro M.S., Valerie J. Paul, William Fenical, James N. Norris, M. S. de Carvalho and Robert S. Jacobs. Phospholipase A₂ inhibitors from marine algae, *Hydrobiologia*, **260/1**:1-9.
- 1993 Williams, Allen B. and Robert S. Jacobs. A marine natural product, Patellamide D, reverses multidrug resistance in a human leukemic cell line. *Cancer Letters*, **71**:97-102.
- 1994 Grace, Krista J. S., David Zavortink and Robert S. Jacobs. Inactivation of bee venom phospholipase A₂ by a sesquiterpene furanoic acid marine natural product. *Biochem. Pharm.* **47**:1427-1434.

- 1994 Marshall, L. A., J. D. Winkler, D. E. Griswold, B. Bolognese, A. Roshak, S. M. Sung, E. F. Webb and R. S. Jacobs. Effects of scaradial, a type II phospholipase A₂ inhibitor on human neutrophil arachidonic acid mobilization and lipid media for formation. *J. Pharm. Exp. Ther.* 268:709-717.
- 1995 DeVries and R.S. Jacobs. Poster discussion lipid mediators - new agents. *Agent and Actions* 47:203-5.
- 1995 Michailova, M. V., D. L. Bemis, M. L. Wise, W. H. Gerwick, J. N. Norris and R. S. Jacobs. Structure and synthesis of novel conjugated polene fatty acids from the marine green alga, *Anadyomene stellata*. *Lipids*, 30:583-589.
- 1996 MacPherson, Jennifer C., J.G. Pavlovich and R. S. Jacobs. Biosynthesis of arachidonic acid metabolites in *Limulus polyphemus* ameobocytes: Analysis by liquid chromatography-electrospray ionization mass spectrometry. *Biochim. Biophys. Acta.* 1303(2):127-36.
- 1997 Wylie, Bryan L., Nadia B. Ernst, Krista J. Grace and Robert S. Jacobs. Marine natural products as phospholipase A₂ inhibitors. In: *Progress in Surgery*, Eds. W. Uhl, T.J. Nevalainen, M.W. Büchler. Basel, Karger. 24:146-152.
- 1998 Mayer, A.M.S., P.B. Jacobson, W. Fenical, R.S. Jacobs, and K.B. Glaser. Pharmacological characterization of the pseudopterogens: Novel anti-inflammatory natural products isolated from the caribbean soft coral, *Pseudopterogorgia elisabethae*. *Life Sciences* 62(26):401-407.
- 1998 MacPherson, J.C., J.G. Pavlovich and R.S. Jacobs. Phospholipid composition of the granular ameobocyte from the horseshoe crab, *Limulus polyphemus*. *Lipids* 33(9):931-40.
- 1999 MacPherson, J.C., D.L. Bemis, R.S. Jacobs, W.H. Gerwick and J. Todd. NMR in conjunction with GC-MS and UV methods; a case study in marine lipids. In: *Spectral Properties of Lipids*, Eds. R. Hamilton and J. Cast, Sheffield Academic Press Ltd., England, pgs. 97-122.
- 1999 Qureshi, A., C.S. Stevenson, C.L. Albert, R.S. Jacobs, and D.J. Faulkner. *Homo-* and *Nor-*Plakotenin, new carboxylic acids from the Palauan sponge *Plakortis lita*. *J. Nat. Prod.* 62(8):1205-07.
- 1999 Pennings, S.C., V.J. Paul, D.C. Dunbar, M.T. Hamman, W.A. Lumbang, B. Novack, and R.S. Jacobs. Unpalatable compounds in the marine gastropod *Dolabella auricularia*: distribution and effect of diet. *J. Chem. Ecology* 25(4):735-55.
- 2000 Tan, L.T., R.T. Williamson, K.S. Watts, W.H. Gerwick, K. McGough, and R.S. Jacobs. *cis*, *cis* and *trans*, *trans*-Ceratospongamide, new bioactive hepatapeptides from the Indonesian red alga *Ceratdictyon spongiosum* and symbiotic sponge *Sigmatocia symbiotica*. *J. Org. Chem.* 65(2):419-425.
- 2000 Bemis, D.L., V. Roussis, C. Vagias and R.S. Jacobs. Chloroplast fatty acid composition in mediterranean populations of the marine chlorophyte, *Anadyomene stellata*. *Verlag der Zeitschrift für Naturforschung* 55:569-75.
- 2000 MacPherson, J.C. and R.S. Jacobs. An 18.5 kDa protein from the ameobocyte of *Limulus polyphemus*, homologous to the previously described ameobocyte aggregation factor, expresses alternative phospholipase A₂ activity. *Comp. Biochem. and Physiol. Part B* 127:31-44.
- 2001 Jacobs, R.S. Maribel Reyes: UC Santa Barbara CAMP Student. The California Alliance for Minority Participation (CAMP) Quarterly, pg. 10-13, Spring 2001.
- 2002 Stevenson, CS, E.A. Capper, A.K. Roshak, B. Marquez, E. Eichman, J.R. Jackson, M. Mattern, W.H. Gerwick, R.S. Jacobs, and L.A. Marshall. The identification and characterization of the marine natural product scytonemin as a novel antiproliferative pharmacophore. *J. Pharm. Exp. Ther.* 303(2): 858-66.

- 2002 Stevenson, CS, E.A. Capper, A.K. Roshak, B. Marquez, K. Grace, W.H. Gerwick, R.S. Jacobs, and L.A. Marshall. Scytonemin— A marine natural product inhibitor of kinases key in hyperproliferative inflammatory diseases. *Inflammation Research* **51**(2): 112-4.
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