

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

| | | | |
|--|---|-----------|----------------------|
| NAME Richard Hammerschlag, PhD | POSITION TITLE Emeritus Dean of Research | | |
| eRA COMMONS USER NAME Rhammerschlag | | | |
| 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 |
| Massachusetts Inst of Technology, Cambridge, MA | BS | 1960 | Humanities & Science |
| Massachusetts Inst of Technology, Cambridge, MA | BS | 1961 | Chemistry |
| Brandeis University, Waltham, MA | PhD | 1967 | Biochemistry |
| University College, London, England | Post-Doc | 1967-1969 | Neurochemistry |

A. Positions and Honors. List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

PROFESSIONAL EXPERIENCE

1969 – 1970 Wellcome Foundation Visiting Fellow, University College Medical School, Dar es Salaam, Tanzania

1970 – 1975 Assistant Research Scientist, Division of Neurosciences, City of Hope National Medical Center, Duarte, California

1975 – 1984 Associate Research Scientist, Div Neurosciences, City of Hope Research Inst, Duarte, CA

1984 – 1995 Research Scientist, Division of Neurosciences, Beckman Research Institute of the City of Hope, Duarte, CA

1995 – 1999 Academic Dean and Research Director, Yo San University of Traditional Chinese Medicine, Santa Monica, CA

1999 – 2006 Research Director, Oregon College of Oriental Medicine, Portland, OR

2002 – present Adjunct Professor, Dept of Neurology, Oregon Health & Science University, Portland, OR

2006 – 2009 Dean of Research, Oregon College of Oriental Medicine, Portland, OR

2009 – present Emeritus Dean of Research, Oregon College of Oriental Medicine, Portland, OR

2009 – present Institute Scholar, The Institute for Integrative Health, Baltimore, MD

HONORS, AWARDS, AND PROFESSIONAL ACTIVITIES

Associate Chair, Division of Neurosciences, Beckman Research Institute, City of Hope, 1986 – 1995

National Institutes of Health, Jacob Javits Neuroscience Investigator Award, April 1989 – March 1996

Editorial Board, *Journal of Neurochemistry*, 1986 - 1993

Chair, Program Committee, American Society for Neurochemistry, 1993

Council Member, International Society for Neurochemistry, 1991 – 1995

Acupuncture-related

Chair, Research Methodology Panel, OAM/FDA Workshop: Status of the Acupuncture Needle, April 1994

Invited Presenter, NIH Consensus Development Conference on Acupuncture, November 1997

President, Society for Acupuncture Research, 1997 – 2003

Board Member, Society for Acupuncture Research, 1994 - present

Editorial Board, *Clinical Acupuncture and Oriental Medicine*, 1999 – 2003

Editorial Board, *Journal of Alternative and Complementary Medicine*, 2000 – present

Executive Editor, *Journal of Alternative and Complementary Medicine*, 2006 – present

Editorial Board, *Explore: The Journal of Science and Healing*, 2005 - present

FEDERAL GOVERNMENTAL ADVISORY COMMITTEES

NIH/NINDS Neurological Sciences 1 Study Section, 1985 – 1987

Panel member, Acupuncture Grants Review, Office of Alternative Medicine, NIH, July 1993

Member, Special Study Sections, Office of Alternative Medicine: July 1998; March 1999; June 1999

Member, NCCAM/NIH Special Emphasis Panels: December 2000; November 2001; March 2002; July 2003

Member, NCCAM Special Emphasis Panel: March, 2010

B. Selected peer-reviewed publications (in chronological order). Do not include publications submitted or in preparation. **(NOTE: Acupuncture-related only)**

Hammerschlag R, Parfitt A (1994) Research proposals on the clinical effectiveness of acupuncture: guidelines and suggestions for grant writing. *Am J Acupunct* 22:55-60.

Birch S, Hammerschlag R, Berman BM (1996) Acupuncture in the treatment of pain. *J Altern Complement Med* 2:101-124.

Birch S, Hammerschlag R (1996) *Acupuncture Efficacy: A Compendium of Controlled Clinical Trials*. National Academy of Acupuncture and Oriental Medicine, Tarrytown, NY.

Hammerschlag R, Morris MM (1997) Clinical trials comparing acupuncture to biomedical standard care: A criteria-based evaluation of research design and reporting. *Complement Ther Med* 5:133-140.

Hammerschlag R (1998) Methodological and ethical issues in clinical trials of acupuncture. *J Altern Complement Med* 4:159-171.

Hammerschlag R (2000) Funding of acupuncture research by the National Institutes of Health: A brief history. *Clin Acupunct Orient Med* 1:133-138.

Stux G, Hammerschlag R (eds) (2001) *Clinical Acupuncture: Scientific Basis*. Springer, Berlin.

Lao L, Ezzo J, Berman B, Hammerschlag R (2001) Assessing clinical efficacy of acupuncture: Considerations for designing future acupuncture trials, In: *Clinical Acupuncture: Scientific Basis*, (ed. Stux G, Hammerschlag R) Springer, Berlin, pp.187-209.

Hammerschlag R, Lao L (2001) Future directions for research on the physiology of acupuncture. In: *Clinical Acupuncture: Scientific Basis*. (ed. Stux G, Hammerschlag R) Springer, Berlin, pp.211-219.

Williams LA, Hammerschlag R (2001) Designing clinical research comparing multiple complementary and alternative medicine systems: the experience of an NCCAM Center. *Altern Ther Health Med* 7:S37 (Abstr.)

Hammerschlag R, Kaneko R, Bourdette D (2001) Treatment of multiple sclerosis-specific fatigue with traditional Chinese medicine: development of a randomized, controlled pilot study, *Altern Ther Health Med* 7:S14 (Abstr.)

Hammerschlag R (2002) Physiology of acupuncture. In: *Contemporary Practice of Acupuncture and Oriental Medicine* (ed: Cassidy CM) Churchill-Livingstone, New York, pp. 203-222.

Birch S, Hammerschlag R, Trinh K, Zaslowski C (2002) Non-specific effects of acupuncture treatment: When and how to control for them. *Clin Acupunct Orient Med*, 3:20-25.

White AR, Trinh K, Hammerschlag R (2002) Performing systematic reviews of clinical trials of acupuncture: problems and solutions. *Clin Acupunct Orient Med*, 3:26-31.

MacPherson H, Sherman K, Hammerschlag R, Birch S, Lao L, Zaslowski C (2002) Clinical Evaluation of Traditional East Asian Systems of Medicine. *Clin Acupunct Orient Med*, 3:16-19.

Hintz KJ, Yount GL, Kadar I, Schwartz G, Hammerschlag R, Lin S (2003) Bioenergy definitions and research guidelines. *Altern Ther Health Med*, 9(3): A13-A30.

Hammerschlag R (2003) Acupuncture: On what should its evidence base be based? *Altern Ther Health Med* 9(5): 34-35.

Nielsen A, Hammerschlag R (2004) Acupuncture and East Asian Medicine. In: *Integrative Medicine: Principles for Practice* (ed: Kligler B, Lee R) McGraw-Hill, New York, pp. 177-217.

Colbert AP, Hammerschlag R, Aickin M, McNames J (2004) Reliability of *Prognos* for electrodermal measurements at acupuncture points, *J Altern Complement Med* 10(4):610-616.

Tsunami D, Colbert A, Lu Z, Pearson S, McNames J, Hammerschlag R (2004) Physiologic responses to acupuncture point stimulation: A pilot study to evaluate methods and instrumentation. *Proc 26th Ann Int Conf IEERE EMBS* 3611-3614.

Ahn AC, Wu J, Badger GJ, Hammerschlag R, Langevin HM (2005) Electrical impedance along connective tissue planes associated with acupuncture meridians. *BMC Complement Altern Med* 5:10.

Colbert AP, Hayes M, Aickin M, Hammerschlag R (2006) Physiologic variability of electrical skin resistance measurements at the Ting acupuncture points. *Med Acupunct* 17(2):12-19.

Sinclair-Lian N, Hollifield M, Menache T, Warner T, Viscaya J, Hammerschlag R (2006) Developing a Traditional Chinese Medicine diagnostic structure for post-traumatic stress disorder. *J Altern Complement Med* 12(1):45-57.

Hammerschlag R, Zwickey H (2006) Evidence-based complementary and Alternative Medicine: back to basics. *J Altern Complement Med* 12(4):349-350.

Napadow V, Webb JM, Pearson N, Hammerschlag R. (2006) Neurobiological correlates of acupuncture: November 17-18, 2005. *J Altern Complement Med* 12(9):931-935.

Langevin HM, Hammerschlag R, Lao L, Napadow V, Schnyer RN, Sherman KJ (2006) Controversies in acupuncture research: selection of controls and outcome measures in acupuncture clinical trials. *J Altern Complement Med* 12(10):943-953.

- Hollifield M, Sinclair-Lian N, Warner T, Hammerschlag R (2007) Acupuncture for posttraumatic stress disorder: A randomized controlled pilot trial. *J Nerv Ment Dis* 195(6):504-13.
- Pearson S, Colbert AP, McNames J, Baumgartner M, Hammerschlag R (2007) Electrical skin impedance at acupuncture points. *J Altern Complement Med* 13(4):409-18.
- Nedrow AR, Istvan J, Haas M, Barrett R, Salveson C, Moore G, Hammerschlag R, Keenan E (2007) Implications for education in complementary and alternative medicine: a survey of entry attitudes in students at five health professional schools. *J Altern Complement Med* 13(3):381-386.
- MacPherson H, Hammerschlag R, Lewith G, Schnyer R (eds) (2007) *Acupuncture Research: Strategies for Establishing an Evidence Base*, Churchill Livingstone/Elsevier, Edinburgh.
- Hammerschlag R, Langevin H, Lao L, Lewith G (2007) Physiological dynamics of acupuncture: Correlations and mechanisms, In: *Acupuncture Research: Strategies for Establishing an Evidence Base* (ed: MacPherson H, Hammerschlag R, Lewith G, Schnyer R) Churchill Livingstone/Elsevier, Edinburgh, pp.181-197.
- Linde K, Hammerschlag R, Lao L (2007) Evidence overviews: The role of systematic reviews and meta-analyses, In: *Acupuncture Research: Strategies for Establishing an Evidence Base* (ed: MacPherson H, Hammerschlag R, Lewith G, Schnyer R) Churchill Livingstone/Elsevier, Edinburgh, pp.199-217.
- Benjamin PJ, Phillips R, Warren D, Salveson C, Hammerschlag R, Snider P, Haas M, et al (2007) Response to a proposal for an integrative medicine curriculum. *J Altern Complement Med* 13(9):1021-1033.
- Ahn AC, Colbert AP, Anderson BJ, Martinsen OG, Hammerschlag R, Cina S, Wayne PM, Langevin HM (2008) Electrical properties of acupuncture points and meridians: A systematic review. *Bioelectromagnetics* 29(4):245-56.
- Hammerschlag R, Lasater K, Salanti S, Fleishman S (2008) Research Scholars Program: A faculty development initiative at the Oregon College of Oriental Medicine. *J Altern Complement Med* 14(4):437-443.
- Ritenbaugh C, Hammerschlag R, Calabrese C, Mist S, Aickin M, Sutherland E, Leben J, DeBar L, Elder C, Dworkin S (2008) A pilot whole systems clinical trial of traditional Chinese medicine and naturopathic medicine for the treatment of temporomandibular disorders. *J Altern Complement Med* 14(5):475-487.
- Schnyer RN, Hammerschlag R (2008) Acupuncture research: colonization or interdependence? *J Altern Complement Med* 14(6):617.
- MacPherson H, Nahin R, Paterson C, Cassidy CM, Lewith GT, Hammerschlag R (2008) Developments in acupuncture research: big-picture perspectives from the leading edge. *J Altern Complement Med* 14(7):883-7.
- Wayne PM, Hammerschlag R, Langevin HM, Napadow V, Park JJ, Schnyer RN (2009) Resolving paradoxes in acupuncture research: a roundtable discussion. *J Altern Complement Med* 15(9):1039-44.
- Lasater K, Salanti S, Fleishman S, Coletto J, Jin H, Lore R, Hammerschlag R (2009) Learning activities to enhance research literacy in a CAM college curriculum. *Altern Ther Health Med* 15(4):46-54.
- Wayne PM, Hammerschlag R, German JS, Chapman T (2010) Attitudes and interests toward research among students at two colleges of acupuncture and Oriental medicine. *Explore* 6(1):22-28.
- MacPherson H, Altman DG, Hammerschlag R, Youping L, Taixiang W, White A, Moher D (2010) Revised Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA): extending the CONSORT statement. *PLoS Med* 2010;7(6):e1000261.
- Hammerschlag R, Milley R, Colbert AP, Weih J, Yohalem-Ilsley B, Mist S, Aickin M (2011) Randomized Controlled Trials of Acupuncture, 1997-2007: An Assessment of Reporting Quality with a CONSORT and STRICTA Based Instrument. *Evid Based Complement Alternat Med*. 2011;2011. pii: 183910.
- Langevin HM, Wayne PM, Macpherson H, Schnyer R, Milley RM, Napadow V, Lao L, Park J, Harris RE, Cohen M, Sherman KJ, Haramati A, Hammerschlag R. (2011) Paradoxes in acupuncture research: strategies for moving forward. *Evid Based Complement Alternat Med* 2011:180805.
- Witt CM, Manheimer E, Hammerschlag R, Lüdtke R, Lao L, Tunis SR, Berman BM. (2012) How well do randomized trials inform Decision making: systematic review using comparative effectiveness research measures on acupuncture for back pain. *PLoS One* 7(2):e32399.
- MacPherson H, Hammerschlag R. (2012) Acupuncture and the emerging evidence base: contrived controversy and rational debate. *J Acupunct Meridian Stud* 5(4):141-7.
- Hammerschlag R, Jain S, Baldwin AL, Gronowicz G, Lutgendorf SK, Oschman JL, Yount GL (2012) Biofield Research: A Roundtable Discussion of Scientific and Methodological Issues. *J Altern Complement Med* 18(12):1-6.
- Ritenbaugh C, Hammerschlag R, Dworkin SF, Aickin MG, Mist SD, Elder CR, Harris RE (2012) Comparative effectiveness of Traditional Chinese Medicine and psychosocial care in the treatment of temporomandibular disorders-associated chronic facial pain. *J Pain* 13(11):1075-89.
- Elder C, Ritenbaugh C, Aickin M, Hammerschlag R, Dworkin S, Mist S, Harris RE. (2012) Reductions in pain medication use associated with traditional chinese medicine for chronic pain. *Perm J* 16(3):18-23.

C. Research Support. List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and your role (e.g. PI, Co-Investigator, Consultant) in the research project. Do not list award amounts or percent effort in projects.

COMPLETED

1) “Oregon Center for Complementary and Alternative Medicine Research in Craniofacial Disorders (OCCAM)”

PI: Alexander B. White, DDS, DrPH

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: P50 (AT00076); Period: 9/30/99 – 7/31/04 [No cost extension through 2/28/05]

Phase II clinical trials compared complementary and alternative therapies with each other and with biomedical approaches for relief of temporomandibular disorders (projects 1 & 2) and periodontal disease (project 3). Richard Hammerschlag, PhD, served as Co-Investigator on projects 1 & 2. In addition, Dr. Hammerschlag served as PI on a project, **“Bioelectrical measurements of acupuncture points and meridians”**, awarded by OCCAM as a developmental research project (8/1/03 – 7/31/04).

2) “Oregon Center for Complementary and Alternative Medicine in Neurological Disorders (ORCCAMIND)”

PI: Barry Oken, MD

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: P50 (AT00066); Period: 9/30/99 – 7/31/04 [No cost extension through 12/31/04]

The Oregon College of Oriental Medicine had no direct role in the 4 major projects of ORCCAMIND but was represented by Richard Hammerschlag, PhD on the executive committee and the Education and Information Transfer Core. In addition, Dr. Hammerschlag served as PI on a project, **“Treatment of Multiple Sclerosis-Specific Fatigue with Traditional Chinese Medicine: A randomized, placebo-controlled pilot study”**, awarded by ORCCAMIND as a developmental research project (8/1/02 – 7/31/04).

3) “Endometriosis Pain: Chinese Medicine vs. Hormone Therapy”

PI: Richard Hammerschlag, PhD

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: R21 (AT00453); Period: 9/30/01 – 8/31/03; No cost extension: through 8/31/05

This clinical trial tested the hypothesis that traditional Chinese medicine (acupuncture and herbal therapy) relieves endometriosis-related pelvic pain at least as effectively as hormone therapy (gonadotropin releasing hormone agonist) and does so without producing the hormone-therapy induced pseudo-menopausal side effects.

4) “Oregon CAM Project”

PI: Edward Keenan, PhD

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: R25 (AT001173-03); Period: 7/15/02 – 4/30/07; **Percent effort: 10**

This education grant was designed to develop a CAM curriculum for medical students at Oregon Health & Science University. Dr. Hammerschlag served on the Evaluation Committee.

5) “Complementary and Alternative Medicine: Expectancy and Outcomes”

PI: Barry Oken, MD

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: U19 (AT002656-01); Period: 9/30/04 – 9/29/07; **Percent effort: 15**

This Developmental Center for Research in CAM (DCRC) award included a project, “Effect of expectancy on the response of Parkinson’s disease patients to placebo L-DOPA and to sham acupuncture”. Dr. Hammerschlag was co-investigator on this project.

6) “TCM for TMD: A Multi-Site Whole-Systems Trial”

PI: Cheryl Ritenbaugh, PhD, MPH

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: R01 (AT002570); Period: 9/30/05 – 8/31/09; **Percent effort: 10**

This multi-site trial, between the University of Arizona and the Oregon College of Oriental Medicine, was designed to test the effectiveness of Traditional Chinese Medicine delivered as a whole system of care to women with complex temporomandibular disorder. Dr. Hammerschlag served as the Portland site PI.

7) “Acupuncture Practitioner Research Education Enhancement”

PI: Richard Hammerschlag, PhD

Agency: NIH, National Center for Complementary and Alternative Medicine

Type: R25 (AT002879); Period: 9/01/05 – 8/31/09; **Percent effort: 15**

This grant was awarded as part of an NIH/NCCAM initiative to enhance research education at CAM colleges.