

CURRICULUM VITAE: WILLIAM K. SCHMIDT, Ph.D.

BUSINESS ADDRESS: NorthStar Consulting, LLC
430 D Street, Suite 2A
Davis, CA 95616
(650) 438-3018

HOME ADDRESS: 4216 Almond Lane
Davis, CA 95618
(530) 759-9802

DATE/PLACE OF BIRTH: August 5, 1950, San Mateo, California

MARITAL STATUS: Married, Linda Catherine Cook, 1974, 3 children

EDUCATION: A.B. University of California, Berkeley,
Biochemistry, 1972
Ph.D. University of California, San Francisco,
Pharmacology, 1978

POSTDOCTORAL TRAINING: Boston University School of Medicine
Postdoctoral Fellow, Pharmacology, 1978

PROFESSIONAL EXPERIENCE:

2006+	President NorthStar Consulting, LLC Davis, CA
2017+	Senior Vice President, Global Clinical Development (part-time) ViroMed Co., Ltd. / VM BioPharma / Helixmith Co., Ltd Seoul, South Korea, and San Diego, CA
2016+	President & CEO Catalina Pharma Inc. Tucson, AZ
2015+	Chief Medical Officer / VP Regulatory and Clinical (part-time) Signature Therapeutics / Ensysce Biosciences Palo Alto, CA / San Diego, CA
2013+	Vice President, Clinical Development (part-time) EicOsis, LLC Davis, CA
2013-2015	Vice President, Clinical & Regulatory (part-time) CapGenesis / Api Genesis, LLC Fairfax, VA
2009-2015	Vice President, Regulatory and Clinical (part-time) Centrexion Corporation / Arcion Therapeutics, Inc. Baltimore, MD
2009-2013	Vice President, Clinical Development (part-time) CG Pharmaceuticals / CrystalGenomics, Inc. Emeryville, CA, and Seoul, South Korea

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2007-2009	Sr. Vice President, Development (part-time) Limerick BioPharma, Inc. South San Francisco, CA
2004-2005	Vice President, Clinical Research Renovis, Inc. South San Francisco, CA
2002-2004 2001	Vice President, Scientific Affairs Acting Vice President, Clinical R&D Adolor Corporation Exton, PA
2000-2001	Vice President, Technical Affairs Adolor Corporation Malvern, PA
1995-2000	President & CEO NorthStar Research & Development, Ltd. Newark, DE
1991-1995	Principal Research Scientist -- Senior Research Associate The DuPont Merck Pharmaceutical Co. Experimental Station, Wilmington, DE
1988-1990	Research Associate E. I. du Pont de Nemours & Co., Inc. Experimental Station, Wilmington, DE
1982-1988	Senior Research Pharmacologist E. I. du Pont de Nemours & Co., Inc. Experimental Station, Wilmington, DE (1984-1988) Glenolden Laboratory, Glenolden, PA (1982-1984)
1978-1982	Research Pharmacologist E. I. du Pont de Nemours & Co., Inc. Glenolden Laboratory, Glenolden, PA (1981-1982) Stine Laboratory, Newark, DE (1978-1981)

PROFESSIONAL SOCIETIES

ACS -- American Chemical Society
APS -- American Pain Society
ASCPT -- American Society for Clinical Pharmacology and Therapeutics
ASPET -- American Society for Pharmacology and Experimental Therapeutics
CPDD -- College on Problems of Drug Dependence
EPA -- Eastern Pain Association
IARS -- International Anesthesia Research Society
IASP -- International Association for the Study of Pain
INRC -- International Narcotic Research Club
NYAS -- New York Academy of Science
OARSI -- Osteoarthritis Research Society International
Sigma Xi Scientific Society
Society for Neuroscience
Western Pain Society

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AWARDS & HONORS

Eastern Pain Association: President Elect (2002-2004); President (2004-2006); Immediate Past-President (2006-2008); Parliamentarian (2008+).
Tufts University School of Medicine Pain Research, Education and Policy Program (PREP) Annual Sackler lecture, "Building a Better Aspirin: The Frontiers of Pain Medicine Development," September 24, 2013.
John J. Bonica Award Lecture, Eastern Pain Association, October 25, 2014.

ADVISORY BOARDS

Advisory Editor, Pain Management book series, Taylor & Francis Group, LLC, NYC (2006)
Scientific Advisory Boards (academic): Tufts Health Care Institute Program on Opioid Risk Management, Boston, MA (2006-2009); Laboratory on the Biology of Addictive Diseases, Rockefeller University (2006-2013); Advisory Board of Innovation Center Denmark (2015-2016).
Scientific or Clinical Advisory Boards (commercial): NanoBy LLC, Bonita Springs, FL (2004); Kalos Therapeutics, San Diego, CA (2006-2007); Limerick NeuroSciences, South San Francisco, CA (2006-2007); AcelRx Pharmaceuticals, Inc., Redwood City, CA (2006-2014); Cerimon Pharmaceuticals, Inc., South San Francisco, CA (2006-2008); Alpharma Pharmaceuticals, Piscataway, NJ (2008); Adynxx, San Francisco, CA (2008-2019); PainReform Tel Aviv, Israel (2008-2010), ARdaix Pharmaceuticals, Meyreuil, France (2010-2011), Trevena, King of Prussia, PA (2010-2017), Temperon, Emeryville, CA (2010-2012), SageMedic, Inc., Larkspur, CA (2013-2014); Signature Therapeutics, Palo Alto, CA (2014-2015); Trigemina Inc. Moraga, CA (2014-2015); Syntrix, Auburn, WA (2015), Bonti Inc., Newport Beach, CA (2016-2018); Ensysce Biosciences (2016+); Goleini, Inc. (2017+); Neumentum Inc. (2017+).
Scientific Advisory Boards (Publishing / Internet): Science Advisory Board: The Pain Research Forum (2012-2014); Webinar Advisory Board: The Pain Research Forum (2014+).

COMMITTEE MEMBERSHIPS, COMMITTEE & BOARD ASSIGNMENTS

ASCPT Analgesic Guidelines Committee, 1993-1996; 1998.
ASCPT Analgesiology Section, 1991-1995.
ASPET Committee on Substance Abuse, 1992-1996, 1997-1998.
ASPET Sub-Committee on Industrial-Academic Relations, 1991-1993.
CPDD Industry Relations Committee 1996-2001. Committee chair: 2000-2001.
CPDD Development Committee, 2001
Eastern Pain Association Program Committee, 2000-2015+
Eastern Pain Association Board of Directors: 2001-2015+
Institute of Medicine (IOM) Committee to Raise the Profile of Substance Abuse Research, 1995-1996

CONFERENCE & SYMPOSIUM CHAIRS

Advances in Therapeutic Development for Chronic Pain. IBC International Business Communications, San Diego, CA, February 24-25, 1994.
Pain Control, New Concepts and Therapeutic Applications. Global Business Research Ltd., Princeton, NJ, October 3-5, 1994.
Current and Investigational Drugs for the Treatment of Acute and Chronic Pain (co-chair). Professional Development Course, American Pain Society, Los Angeles, CA, November 9, 1995.
Therapeutic Developments in Chronic Pain. National Managed Health Care Congress (NMHCC) Bio/Technology Conference Division, Washington, D.C., June 26-27, 1997.
2nd Annual Therapeutic Developments in Chronic Pain. National Managed Health Care Congress (NMHCC) Bio/Technology Conference Division, Annapolis, MD, May 18-20, 1998.
Drug Abuse Pharmacotherapy Development in the Private Sector (co-chair). College on Problems of Drug Dependence (CPDD), Scottsdale, AZ, June 15, 1998.
Symposium on New Approaches to Non-Addictive Analgesics (co-chair). College on Problems of Drug Dependence (CPDD), Acapulco, Mexico, June 14, 1999.
Symposium on Novel Analgesic and Antagonist Drugs (co-chair). College on Problems of Drug Dependence (CPDD), San Juan, Puerto Rico, June 21, 2000.
New Approaches in Pain Management. Eastern Pain Association Annual Meeting, New York, NY, December 8, 2000.

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Recent Advances in Postoperative Ileus and Opioid Bowel Dysfunction. American Pain Society, Phoenix, AZ, April 21, 2001.

Pain Therapeutics for the New Millennium, SMI Conferences, London, UK, June 4-5, 2001.

Publishing and Presenting Industry Sponsored Clinical Trials in Today's Political Environment: The Industry Scientist, the Academic Investigator, and the Journal Editor. (EPA Pharmaceutical Industry Roundtable; moderator). Eastern Pain Association Annual Meeting, New York, NY, September 12, 2003.

Publishing and Presenting Industry Sponsored Clinical Trials in Today's Political Environment: The Industry Scientist, the Academic Investigator, and the Journal Editor. (EPA Pharmaceutical Industry Roundtable; moderator). Eastern Pain Association Annual Meeting, New York, NY, September 10, 2004.

Advancing Preclinical and Clinical Applications of Pain Therapeutics. Center for Business Intelligence, San Diego, CA, October 29, 2004.

Workshop on "Potential Technologies and Strategies for the Development of Abuse-Resistant Analgesics," College on Problems of Drug Dependence (CPDD), Orlando, FL, June 20, 2005.

Symposium on "New Opioid Compounds" (co-chair). International Narcotics Research Conference (INRC), Annapolis, MD, July 14, 2005.

Pharmacologic Interventions. (EPA Pharmaceutical Industry Roundtable; moderator). Eastern Pain Association Annual Meeting, New York, NY, September 16, 2005.

Emerging Pharmaceuticals and Medical Devices for Pain Management. (EPA Pharmaceutical Industry Roundtable; moderator). Eastern Pain Association Annual Meeting, New York, NY, September 29, 2006.

Innovations in Pharmaceutical Clinical Research. (EPA Pharmaceutical Industry Roundtable; moderator). Eastern Pain Association Annual Meeting, New York, NY, September 7, 2007.

Symposium on "Scientific Communications – Trends and Liabilities" (moderator & co-organizer). Bio International Convention, San Diego, June 20, 2008.

Workshop on "Translating Promising Science to CNS Treatments," (moderator). Bio International Convention, Atlanta, GA, May 19, 2009.

Visiongain 6th Annual Pain Management Conference (Chair), London, UK, October 14, 2009.

Arrowhead 4th Annual Pain Therapeutics Summit (Co-Chair), Philadelphia, PA, October 5, 2010.

Arrowhead 5th Annual Pain Therapeutics Summit (Co-Chair), South San Francisco, CA, September 20, 2011.

Novel Therapeutics. (EPA PharmaTech Symposium; co-moderator). Eastern Pain Association Annual Meeting, New York, NY, November 18, 2011.

Arrowhead 6th Annual Pain Therapeutics Summit, San Jose, CA, October 3-4, 2012.

Innovations in Pharmaceutical Clinical Research. (EPA Pharmaceutical Industry Roundtable; moderator). Eastern Pain Association Annual Meeting, New York, NY, December 8, 2012.

Arrowhead 7th Annual Pain Therapeutics Summit, Boston, MA, September 25-26, 2013, and San Diego, CA, November 7-8, 2013.

Pharma Roundtable. (moderator). Eastern Pain Association Annual Meeting, New York, NY, December 7, 2013.

Innovations in Research. (Co-moderator). Eastern Pain Association Annual Meeting, New York, NY, October 24, 2014.

Arrowhead 8th Annual Pain Therapeutics Summit, Boston, MA, September 24-25, 2014, and Burlingame, CA, November 5-6, 2014.

Arrowhead 9th Annual Pain Therapeutics Summit, Washington, DC, September 23-24, 2015.

Innovations in Research. (Co-moderator). Eastern Pain Association Annual Meeting, New York, NY, October 17, 2015.

Innovations in Research. (Co-moderator). Eastern Pain Association Annual Meeting, New York, NY, October 8, 2016.

Arrowhead 10th Annual Pain Therapeutics Summit, Chicago, IL, October 19-20, 2016.

Arrowhead 11th Annual Pain Therapeutics Summit, San Diego, CA, September 27-28, 2017.

Innovations in Research. (Co-moderator). Eastern Pain Association Annual Meeting, New York, NY, November 11, 2017.

SMI Pain Therapeutics Conference, London, UK, May 21, 2018.

Arrowhead 12th Annual Pain Therapeutics Summit, Burlingame, CA, October 10-11, 2018.

Innovations in Research. (Co-moderator). Eastern Pain Association Annual Meeting, New York, NY, October 20, 2018.

Arrowhead 13th Annual Pain Therapeutics Summit, Arlington, VA, September 23-24, 2019.

Innovations in Research. (Co-moderator). Eastern Pain Association Annual Meeting, New York, NY, October 5, 2019.

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ADDITIONAL POSTGRADUATE TRAINING:

Management Development Seminar, Graduate School of Business, Columbia University, July 14-19, 1991.
Recombinant DNA Methodology, The Center for Advanced Training in Cell and Molecular Biology, The Catholic University of America, May 17-21, 1993.
E. I. DuPont Co. and The DuPont Merck Pharmaceutical Company in-house courses on effective management practices, project development, etc., 1986-1993.

OTHER ACTIVITIES:

UC Berkeley Haas School of Business Executive Education Lecturer (2006)
Consultant: DuPont Merck (1995), NIDA-NIH (1996); RW Johnson Pharmaceutical Research Institute (1997); Epilepsy Branch, NINDS-NIH (1998-1999; 2004); Adolor Corporation (1998-2000; 2004-2011); TL Ventures (2000-2002); Renovis (2006-2010). (Other consulting agreements are confidential).
Editorial Boards: *Analgesia*; *Reviews in Analgesia* (Associate editor) 1994-1995; *CNS Drug Reviews*, 1994-1998; *EPA Newsletter*, 2000-2008
Reviewer for *J. Pharmacol. Exp. Ther.*, *European J. Pharmacol.*, *Life Sciences*, *Neuroscience Letters*, *Synapse*, *Analgesia*, *Regulatory Peptides*, *Pain*
Scientific Peer Advisory Review, American Institute of Biological Sciences, for US Army Medical Research and Materiel Command (USAMRMC) grant requests, 2009, 2012
Science Alliance mentor, 1993-1994.
Ph.D. committee member, Chris Murray, Temple University; Ph.D. awarded January 1989.
President, Board of Trustees, The Independence School, Newark, DE, 1990-1994;
Member, Board of Trustees, 1988-1995; 1999-2005.
Board of Directors, Delaware Cancer Pain Initiative, 1999-2003.
Board of Directors, Epilepsy Foundation of Delaware, 2002-2005; Treasurer, 2003-2005.
Vice Chairman, Freedom Trail District, Del-Mar-Va Council, Boy Scouts of America. 1998-2002.
Board of Directors, Treasurer, Davis Waldorf School, 2011-2014.

BIBLIOGRAPHY

I. Book & Book Chapters

- Bountra C, Munglani R, Schmidt WK. (eds.). Pain -- Current understanding, emerging therapies, and novel approaches to drug discovery. Marcel Dekker, New York, 2003.
- Schmidt WK. An overview of current and investigational drugs for the treatment of acute and chronic pain. pp. 385-406, in: Bountra C, Munglani R, Schmidt WK, eds. Pain: Current Understanding, Emerging Therapies, and Novel Approaches to Drug Discovery. New York, NY: Marcel Dekker; 2003.
- Schmidt WK. Appendix I: Currently marketed analgesics (U.S.A.; 1998-2001). pp. 857-862, in: Bountra C, Munglani R, Schmidt WK, eds. Pain: Current Understanding, Emerging Therapies, and Novel Approaches to Drug Discovery. New York, NY: Marcel Dekker; 2003.
- Schmidt WK. Appendix II: 21-year survey of analgesics in development for treatment of acute or chronic pain. pp. 863-933, in: Bountra C, Munglani R, Schmidt WK, eds. Pain: Current Understanding, Emerging Therapies, and Novel Approaches to Drug Discovery. New York, NY: Marcel Dekker; 2003.
- Foss JF, Schmidt WK. Management of opioid-induced bowel dysfunction and post-operative ileus: potential role of alvimopan. pp. 223-249, in: Yuan C.-S., ed. Handbook of Opioid Bowel Syndrome. New York, NY: The Haworth Medical Press, 2005.

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Baron R, Griffin JW, Dworkin RH, Höke A, Manning DC, Max MB, Petersen KL, Sang CN, Schmidt WK. Disease-specific targets: rapporteur report. pp. 241-270, , *in*: Campbell JN, et al., eds., *Emerging Strategies for the Treatment of Chronic Pain*. Seattle, WA: IASP Press, 2006.

Schmidt WK, Moreadith RW. Tailoring pharmacotherapy to diagnostic subgroups in the treatment of neuropathic pain. pp. 351-358, *in*: Campbell JN, et al., eds., *Emerging Strategies for the Treatment of Chronic Pain*. Seattle, WA: IASP Press, 2006.

II. Published Papers

1. Goodlin, R. C. and Schmidt, W.: Human fetal arousal levels as indicated by heart rate recordings. *Am. J. Obstet. Gynecol.* 114: 613-621, 1972.
2. Goodlin, R. C., Schmidt, W. and Creevy, D. C.: Uterine tension and fetal heart rate during maternal orgasm. *Obstet. Gynecol.* 39: 125-127, 1972.
3. Schmidt, W. K. and Way, E. L.: Does morphine inhibit prostaglandin-stimulated adenylate cyclase in the rat brain? *Proc. Western Pharmacol. Soc.* 19: 55-59, 1976.
4. Schmidt, W. K., Burchiel, S. W. and Meyers, F. H.: The pharmacology of drug abuse--A novel approach to drug education at San Quentin. *Drug and Alcohol Dependence* 2: 175-183, 1977.
5. Schmidt, W. K. and Way, E. L.: Hyperalgesic and antinociceptive effects of divalent cations and a calcium chelator in naive and morphine-dependent mice. *Problems of Drug Dependence 1978, Proceedings of the 40th Annual Scientific Meeting, Committee on Problems of Drug Dependence, Inc.*, pp. 275-289, 1978.
6. Schmidt, W. K., Holaday, J. W., Loh, H. H. and Way, E. L.: Failure of vasopressin and oxytocin to antagonize acute morphine antinociception or facilitate narcotic tolerance development. *Life Sciences* 23: 151-158, 1978.
7. Schmidt, W. K.: The role of calcium ions in narcotic analgesia, tolerance and dependence. *Dissertation, University of California, San Francisco*, 1978.
8. Volicer, L., Schmidt, W. K., Hartz, T. P., Klosowicz, B. A. and Meichner, R.: Cyclic nucleotides and ethanol tolerance and dependence. *Drug and Alcohol Dependence* 4: 295-305, 1979.
9. Schmidt, W. K. and Way, E. L.: Direct assay for calcium in brain homogenates and synaptosomal pellets. *J. Neurochem.* 32: 1095-1098, 1979.
10. Schmidt, W. K. and Way, E. L.: Effect of a calcium chelator on morphine tolerance development. *Eur. J. Pharmacol.* 63: 243-250, 1980.
11. Schmidt, W. K. and Way, E. L.: Hyperalgesic effects of divalent cations and antinociceptive effects of a calcium chelator in naive and morphine-dependent mice. *J. Pharmacol. Exp. Ther.* 212: 22-27, 1980.
12. Schmidt, W. K. and Greenberg, A. J.: The pharmacology of drug abuse: Drug education at San Quentin. *In: Drug Dependence and Alcoholism, Vol. 2, A. J. Schector, ed. Plenum Publishing Co., New York*, pp 269-274, 1981.
13. Schmidt, W. K., Galbraith, W. and Vernier, V. G.: Analgetic potentiation by nalbuphine/acetaminophen and nalbuphine/aspirin combinations. *Problems of Drug Dependence 1982, Proceedings of the 44th Annual Scientific Meeting, Committee on Problems of Drug Dependence, Inc., NIDA Res. Monograph* 43: 381-388, 1983.

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14. Schmidt, W. K.: In vivo differentiation of mu and kappa opiate ligands--implications for pharmaceutical development. In: Neuronal Communications, Proceedings of the Symposium on Neuronal Communications, B. J. Meyer and S. Kramer, eds. A. A. Balkema, Cape Town, pp 232-241, 1984.
15. Vernier, V. G. and Schmidt, W. K.: The preclinical pharmacology of nalbuphine. In: Nalbuphine as a Component of Surgical Anesthesia, Proceedings of a Symposium held in Conjunction with the 8th World Congress of Anaesthesiologists, Q. J. Gomez, ed. Excerpta Medica, Amsterdam, pp 1-9, 1985.
16. Schmidt, W. K., Tam, S. W., Sholtzberger, G. S., Smith, D. H., Jr., Clark, R., and Vernier, V. G.: Nalbuphine. Drug and Alcohol Dependence 14: 339-362, 1985.
17. Schmidt, W. K., Alberici, G. P. and Cook, L.: Development of a computerized system for inventory of controlled drug substances. Problems of Drug Dependence 1987, Proceedings of the 49th Annual Scientific Meeting, Committee on Problems of Drug Dependence, Inc., NIDA Res. Monograph 81: 163-166, 1988.
18. De Souza, E. B., Schmidt, W. K. and Kuhar, M. J.: Nalbuphine: an autoradiographic opioid receptor binding profile in the central nervous system of an agonist/antagonist. J. Pharmacol. Exp. Ther., 244: 391-402, 1988.
19. Gans, K. R., Galbraith, W., Roman, R. J., Haber, S. B., Kerr, J. S., Schmidt, W. K., Smith, C., Hewes, W. E. and Ackerman, N. R.: Anti-inflammatory and safety profile of DuP 697, a novel orally effective prostaglandin synthesis inhibitor. J. Pharmacol. Exp. Ther. 254: 180-187, 1990.
20. Rajagopalan, P., Scribner, R. M., Pennev, P., Schmidt, W. K., Tam, S. W., Steinfels, G. F., and Cook, L.: DuP 747: a new, potent, kappa opioid analgesic. Synthesis and pharmacology. Bioorganic Med. Chem. Lett. 2: 715-720, 1992.
21. Rajagopalan, P., Scribner, R. M., Pennev, P., Mattei, P. L., Kezar, H. S., Cheng, C. Y., Cheeseman, R. S., Ganti, V. R., Johnson, A. L., Wuonola, M. A., Schmidt, W. K., Tam, S. W., Steinfels, G. F., and Cook, L.: DuP 747: SAR study. Bioorganic Med. Chem. Lett. 2: 721-726, 1992.
22. Gilligan, P. J., Cain, G. A., Christos, T. E., Cook, L., Drummond, S., Johnson, A. L., Kergaye, A. A., McElroy, J. F., Rohrbach, K. W., Schmidt, W. K., and Tam, S. W.: Novel piperidine sigma receptor ligands as potential antipsychotic drugs. J. Med. Chem. 35: 4344-4361, 1992.
23. Tam, S. W., Steinfels, G. F., Gilligan, P. J., Schmidt, W. K., and Cook, L.: DuP 734 [1-(cyclopropylmethyl)-2-(4"-fluorophenyl)-2'-oxoethyl]piperidine HBr] a sigma and 5-HT₂ receptor antagonist: receptor binding, electrophysiological, and behavioral effects. J. Pharmacol. Exp. Ther. 263: 1167-1174, 1992.
24. Christos, T. E., Arvanitis, A., Cain, G. A., Johnson, A. L., Pottorf, R. S., Tam, S. W., and Schmidt, W. K.: Stable isosteres of neurotensin C-terminal pentapeptides derived by modification of the amide function. Bioorganic Med. Chem. Lett. 3: 1035-1040, 1993.
25. Hussain, M. A., Schmidt, W. K., and Buehler, J. D.: Intranasal absorption of a kappa agonist analgesic. Pharm. Res. 10: 1083-1086, 1993.
26. Cain, G. A., Christos, T. E., Johnson, A. L., Pottorf, R. S., Tam, S. W., and Schmidt, W. K.: Identification of simpler analogs of neurotensin(9-13) which retain antinociceptive activity. Bioorganic Med. Chem. Lett. 3: 1767-1772, 1993.
27. Cain, G. A., Christos, T. E., Johnson, A. L., Pottorf, R. S., Confalone, P.N., Tam, S. W., and Schmidt, W. K.: Neurotensin receptor binding and antinociceptive activity for lipophilic Na-amido neurotensin(9-13) analogs. Bioorganic Med. Chem. Lett. 3: 2055-2060, 1993.

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28. Holtzman, S. G., Steinfelds, G. F., and Schmidt, W. K.: Assessing spiradoline-like discriminative effects of DuP 747: Influence of route of administration. *Pharm. Biochem. Behav.* 47: 487-491, 1994.
29. Cheng, C.-Y., Hsin, L.-W., Schmidt, W. K., Smith, C., and Tam, S. W.: Synthesis and opioid activity of 7-oxygenated 2,3,4,4a,5,6,7,7a-octahydro-1H-benzofuro[3,2-e]isoquinolin-9-ols. *J. Med. Chem.* 37: 3121-3127, 1994.
30. Christos, T. E., Cain, G. A., Johnson, A. L., Schmidt, W. K., and Tam, S. W.: Novel ether derivatives of alkyl piperidines as potential sigma / 5HT₂ antipsychotic agents. *Bioorganic Med. Chem. Lett.* 4: 2347-2352, 1994.
31. Baskin, D. S., Widmayer, M. A., Browning, J. L., Heizer, M. L., and Schmidt, W. K.: Evaluation of delayed treatment of focal cerebral ischemia with three selective kappa opioid agonists in cats. *Stroke (USA)* 25: 2047-2054, 1994.
32. Nugiel, D. A., Wagner, R. M., and Schmidt, W. K.: Preparation of neurotensin analogs with a novel Pro-Tyr replacement. *Bioorganic Med. Chem. Lett.* 5: 1203-1206, 1995.
33. Choi, H., Murray, T. F., DeLander, G. E., Schmidt, W. K., and Aldrich, J. V.: Synthesis and opioid activity of [D-Pro¹⁰]Dynorphin A-(1-11) analogs with N-terminal alkyl substitution. *J. Med. Chem.* 40: 2733-2739, 1997.
34. Schmidt, W. K.: Drug development for disorders of the nervous system: challenge and opportunity at the pharmaceutical-biotech-academic interface. *Neuroscientist* 4: 9-13, 1998.
35. Schmidt, W. K.: Alvimopan (ADL 8-2698) is a novel peripheral opioid antagonist. *Am. J. Surgery* 182 (Suppl. 5A): 27S-38S, 2001.
36. Paulson DM, Kennedy DT, Donovick RA, Carpenter RL, Cherubini M, Techner L, Du W, Ma Y, Schmidt WK, Wallin B, Jackson D. Alvimopan: an oral, peripherally acting, μ opioid receptor antagonist for the treatment of opioid-induced bowel dysfunction--a 21-day treatment-randomized clinical trial. *J Pain.* 6(3):184-192, 2005.
37. Delaney CP, Weese JL, Hyman NH, Bauer J, Techner L, Gabriel K, Du W, Schmidt WK, Wallin BA. Alvimopan Postoperative Ileus Study Group. Phase III trial of alvimopan, a novel, peripherally acting, mu opioid antagonist, for postoperative ileus after major abdominal surgery. *Dis Colon Rectum.* 2005;48:1114-1129.
38. Zuniga JR, Noveck RJ, Schmidt WK, Boesing SE, Hersh EV. Onset of action of diclofenac potassium liquid-filled capsules in dental surgery patients. *Curr Med Res Opin.* 2011;27:1733-1739.
39. Schmidt WK, Patou G, Joshi GP. Evaluating therapeutic benefit in postsurgical analgesia requires global assessment: an example from liposome bupivacaine in hemorrhoidectomy. *Hosp Pract (Minneapolis).* 2012; 40:160-165.
40. Campbell CM, Kipnes MS, Stouch BC, Brady KL, Kelly M, Schmidt WK, Petersen KL, Rowbotham MC, Campbell JN. Randomized control trial of topical clonidine for treatment of painful diabetic neuropathy. *Pain.* 2012;153:1815-1823.
41. Mamet J, Klukinov M, Yaksh TL, Malkmus SA, Williams S, Harris S, Manning DC, Taylor BK, Donahue RR, Porreca F, Xie J, Oyarzo JY, Brennan TJ, Subieta A, Schmidt WK, Yeomans DC. Single intrathecal administration of the transcription factor decoy AYX1 prevents acute and chronic pain following incisional, inflammatory or neuropathic injuries. *Pain.* 2014;155:322-333.
42. Harper WL, Schmidt WK, Kubat NJ, Isenberg RA. An open-label pilot study of pulsed electromagnetic field therapy in the treatment of failed back surgery syndrome pain. *Int Med Case Rep J* 2014;8:13-22.

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43. Campbell CM, Diamond E, Schmidt WK, Kelly M, Allen R, Houghton W, Brady KL, Campbell JN. A randomized, double blind, placebo controlled trial of injected capsaicin for pain in Morton's neuroma. *Pain*. 2016;157(6):1297-1304.
44. Pergolizzi JV Jr, Raffa RB, Zampogna G, Breve F, Colucci R, Schmidt WK, LeQuang JA. A Pain Specialist's Comments and Suggestions Regarding the CDC's Proposed Opioid Guidelines. *Pain Pract*. 2016;16(7):794-808.
45. Kirkpatrick DL, Schmidt WK, Morales R, Cremin J, Seroogy J, Husfeld C, Jenkins T. *In vitro* and *in vivo* assessment of the abuse potential of PF614, a novel BIO-MDTM prodrug of oxycodone. *J Opioid Manag*. 2017;13(1):39-49.
46. Schmidt WK. Turning up the heat on surgical cold. *Temperature (Austin)*. 2017;4(2):1-4.
47. Wagner KM, McReynolds CB, Schmidt WK, Hammock BD. Soluble epoxide hydrolase as a therapeutic target for pain and inflammatory diseases. *Pharmacol Ther*. 2017 Dec;180:62-76.
48. Schmidt WK. An Ode to Our Mentor: Professor Edward Leong Way (1916-2017). *Pharmacologist*. 2017;59(3):193-200.
49. Patwardhan A, Porreca F, Schmidt WK, Romanovsky A. The opioid crisis and ... reconsidering the use of drugs that affect body temperature. *Temperature (Austin)*. 2018;5(1):1-3.
50. Webster L, Schmidt WK. Dilemma of addiction and respiratory depression in the treatment of pain: A prototypical endomorphin as a new approach. *Pain Med*, in press, 2019.
51. McReynolds CB, Hwang SH, Yang J, Wan D, Wagner K, Morisseau C, Li D, Schmidt WK, Hammock B. Pharmaceutical effects of inhibiting the soluble epoxide hydrolase in canine osteoarthritis. *Front Pharmacol*. 2019;10:1-12.

III. Published Abstracts/Presentations/Seminars

1. Schmidt, W. K. and Way, E. L.: Withdrawal induced hypergesia in morphine dependent mice. *The Pharmacologist* 19: 166 Abs., 1977.
2. Schmidt, W. K. and Way, E. L.: Effect of chronic intraventricular infusion of ethyleneglycol-bis-(β -aminoethyl ether)-N,N'-tetra-acetic acid (EGTA) on narcotic tolerance development. *Fed. Proc.* 37: 2920 Abs., 1978.
3. Schmidt, W. K. and Vernier, V. G.: Aspects of the pharmacology of nalbuphine. In: *Symposium on Use of Nalbuphine as Supplement to Surgical Anesthesia, Seventh World Congress of Anaesthesiologists, Hamburg, West Germany, September 16, 1980.*
4. Schmidt, W. K.: Preclinical pharmacology and dependence liability of nalbuphine. *WHO Review of Agonist/Antagonist Analgesics, World Health Organization, Geneva, Switzerland, September 10, 1981.*
5. Schmidt, W. K. and Vernier, V. G.: The preclinical pharmacology of nalbuphine: Profile of a narcotic antagonist analgesic. *Abstract Bulletin, 16th Middle Atlantic Regional Meeting, American Chemical Society, p 137, 1982.*
6. Tam, S. W., Schmidt, W. K. and Vernier, V. G.: Mu opiate receptor binding using 3H-naloxone: Correlation of in vitro receptor binding with in vivo pharmacological activities. *Delaware Area Chapter, Society for Neuroscience, Newark, DE, September 1, 1982.*

William K. Schmidt, Curriculum Vitae

7. Schmidt, W. K. and Vernier, V. G.: The preclinical pharmacology of nalbuphine. Canadian Oral & Maxillofacial Surgeons Society, Toronto, Ontario, October 16, 1982.
8. Schmidt, W. K.: Pharmacology of nalbuphine: profile of an agonist- antagonist analgesic. University of California, San Francisco, January 28, 1983.
9. Schmidt, W. K.: Review of nalbuphine (Nubain). CPDD Symposium on Agonist-Antagonist Analgesics, Committee on Problems of Drug Dependence, Inc., Tarpon Springs, FL, February 15, 1983.
10. Schmidt, W. K.: The pharmacology of nalbuphine: profile of an agonist-antagonist analgesic. WHO 7th Review of Psychoactive Substances, World Health Organization, Geneva, Switzerland, March 2, 1983.
11. Schmidt, W. K.: Pharmacology of nalbuphine. FDA Drug Abuse Advisory Committee, Washington, DC, April 29, 1983.
12. Schmidt, W. K.: Pharmacology of agonist and antagonist analgesics. Workshop on Neurotransmission and Receptors, Stellenbosch University Medical School, Tygerberg, South Africa, April 19, 1983.
13. Schmidt, W. K.: Review of nalbuphine. South African Medicines Control Council, Pretoria, South Africa, June 24, 1983.
14. Schmidt, W. K.: Nalbuphine pharmacology and abuse potential. Canadian Health Protection Branch, Ottawa, Quebec, January 11, 1984.
15. Vernier, V. G. and Schmidt, W. K.: Assessing the abuse potential of analgesics in animals and man. 8th World Congress of Anaesthesiologists, Abstracts, Vol. I, p 62, January 22-27, 1984.
16. Schmidt, W. K. and Vernier, V. G.: The pharmacology of nalbuphine: Profile of an agonist/antagonist analgesic. 8th World Congress of Anaesthesiologists, Abstracts, Vol. I, p 99, January 22-27, 1984.
17. Schmidt, W. K. and Vernier, V. G.: In vivo differentiation of mu and kappa opiate ligands--implications for pharmaceutical development. 8th World Congress of Anaesthesiologists, Abstracts, Vol. II, p A437, January 22-27, 1984.
18. Schmidt, W. K.: The pharmacology of nalbuphine: profile of an agonist/antagonist analgesic. State of Delaware Controlled Substances Advisory Committee, Wilmington, DE, February 22, 1984.
19. Schmidt, W. K.: Centrally-acting analgesics. In: Workshop on Animal Models as Predictors of Analgesia in Man, Am. Soc. Clin. Pharmacol. Ther., Atlanta, GA, March 15, 1984.
20. Schmidt, W. K.: The pharmacology of nalbuphine: profile of an agonist/antagonist analgesic. State of Washington Board of Pharmacy, Seattle, WA, May 17, 1984.
21. Schmidt, W. K.: Equi-analgesic dose models for quantitative physical dependence assessment in the mouse: single dose suppression, precipitated abstinence, and primary dependence induction tests. 46th Annual Scientific Meeting, Committee on Problems of Drug Dependence, St. Louis, MO, June 4, 1984. Problems of Drug Dependence 1984, NIDA Res. Monograph 55: 269-270, 1985.
22. Schmidt, W. K.: Comparative pharmacology of nalbuphine. State of Washington Board of Pharmacy, Bellevue, WA, October 17, 1984.
23. Schmidt, W. K.: The pharmacology and abuse liability of nalbuphine. National Drugs Advisory Board, Republic of Ireland, Dublin, Ireland, March 28, 1985.

William K. Schmidt, Curriculum Vitae

24. Schmidt, W. K., Marynowski, M. E., and Smith, C.: Nalbuphine, pentazocine, and butorphanol interactions with tripeleminamine in mice. 47th Annual Scientific Meeting, Committee on Problems of Drug Dependence, Baltimore, MD, June 11, 1985. *Problems of Drug Dependence 1985*, NIDA Res. Monograph 67: 145-146, 1986.
25. De Souza, E. B., Schmidt, W. K., and Kuhar, M. J.: Nalbuphine: an autoradiographic opioid receptor binding profile of an agonist/antagonist analgesic. International Narcotics Research Conference (INRC), North Falmouth, MA, June 25, 1985.
26. Schmidt, W. K., Smith, C., Tam, S. W., Uyeda, R. T., and Wuonola, M. A.: 10-Keto opiates. International Congress on Natural Products, University of North Carolina, Chapel Hill, July 7, 1985.
27. Schmidt, W. K., De Souza, E. B., and Kuhar, M. J.: Nalbuphine: an autoradiographic opioid receptor binding profile of an agonist/antagonist analgesic. Society for Neuroscience Abstracts, p 758, Dallas, TX, October 23, 1985.
28. Ackerman, N. R., Galbraith, W., Gans-Brangs, K. R., Haber, S., Schmidt, W. K., Smith, C., and Hewes, W.: The pharmacologic profile of a 5-bromo-2-[4-fluorophenyl]-3-[4-methylsulfonyl-phenyl]-thiophene (BFMT). 2nd World Congress on Immunomodulation, Monte Carlo, Monaco, March 19-22, 1986.
29. Cheng, C.-Y., Tam, S. W., Smith, C. and Schmidt, W. K.: 7-Oxygenated octahydro-1H-benzo[4,5]furo[3,2-e]-isoquinolines as analgesics. 20th National Medicinal Chemistry Symposium, Univ. North Carolina, Chapel Hill, N. C., June 15-19, 1986.
30. Ciganek, E., Schmidt, W. K., Smith, C., Steinfels, G. F., Tam, S. W. and Wong, B. K.: Benzofuroisoquinolines, a novel class of opioid agonists and antagonists. Medicinal Chemistry Gordon Research Conference, New London, NH, July 27-August 1, 1986.
31. Schmidt, W. K. and Cook L.: Antidepressants in mouse narcotic dependence tests. 49th Annual Scientific Meeting, Committee on Problems of Drug Dependence, Philadelphia, PA, June 15-17, 1987. *Problems of Drug Dependence 1987*, NIDA Res. Monograph 81: 145-146, 1986.
32. Tam, S. W., James, D. W. and Schmidt, W. K.: Mu, kappa, and delta opioid receptor binding in intact brain cells. *Am. Soc. Pharmacol. Ther. (ASPET)*, Honolulu, HI, August 17-20, 1987; *The Pharmacologist* 29: 166, 1987.
33. Gans, K. R., Balles, E. A., Galbraith, W., Haber, S. B., Kerr, J. S., Newton, R. C., Schmidt, W. K., Smith, C., Hewes, W. E. and Ackerman, N. R.: Pharmacologic profile of S-6907 (5-bromo-2,4-fluorophenyl-3,4-methylsulfonylphenyl thiophene), a novel anti-inflammatory agent. *Am. Soc. Pharmacol. Ther. (ASPET)*, Honolulu, HI, August 17-20, 1987; *The Pharmacologist* 29: 138, 1987.
34. Schmidt, W. K.: Review of nalbuphine. WHO 25th Expert Committee on Drug Dependence, World Health Organization, Geneva, Switzerland, April 18, 1988.
35. Przewlocka, B., Lipkowski, A. W., Misicka, A., Tam, S. W., Schmidt, W. K. and Przewlocki, R.: Characteristics of β -naltrexamine-peptide hybrids with high affinity to the kappa opioid receptor. International Narcotics Research Conference (INRC), Albi, France, July 4-8, 1988.
36. Schmidt, W. K.: Pharmacologic profile of DuP 747, a kappa agonist analgesic. Temple University School of Medicine, Philadelphia, PA, February 21, 1990.
37. Rajagopalan, P., Scribner, R. M., Pennev, P., Mattei, P. L., Kezar, H. S., Cheng, C. Y., Cheeseman, R. S., Ganti, V. R., Johnson, A. L., Wuonola, M. A., Schmidt, W. K., and Tam, S. W.: DuP 747, a new, potent, kappa opioid analgesic; synthesis and SAR studies. American Chemical Society (ACS) 200th Meeting,

William K. Schmidt, Curriculum Vitae

- Washington, DC, August 26, 1990. Abstracts of Papers of the American Chemical Society, 200: p 58-MEDI, 1990.
38. Schmidt, W. K., Rajagopalan, P., Cook, L., Marynowski, M. E., Tam, S. W., Johnson, L. C., Steinfels, G. F., Scribner, R. M., Pennev, P., Mattei, P. L., and Johnson, A. L.: Preclinical pharmacology of DuP 747 -- a new, potent, kappa-opioid analgesic. American Chemical Society (ACS) 200th Meeting, Washington, DC, August 26, 1990. Abstracts of Papers of the American Chemical Society, 200: p 59-MEDI, 1990.
 39. Schmidt, W. K.: Pharmacological profile of DuP 747, a kappa agonist analgesic. The Kappa Receptor 1990, University of Michigan Symposium, Asilomar, Pacific Grove, CA, September 26-27, 1990.
 40. Schmidt, W. K.: Mechanisms of analgesia. Case Conference, Department of Anesthesiology, Jefferson Medical College, Philadelphia, PA, November 29, 1990.
 41. Spellmeyer, D., Pottorf, R., Tam, S., Schmidt, W., Blaney, J., and Ripka, W.: Ensemble dynamics: common conformations of flexible molecules that bind to the same receptor. Conformation of delta-binding enkephalin analogs. Scripps/UCSF Joint Research Meeting, Cabo San Lucas, Mexico, April 28, 1991.
 42. Schmidt, W. K.: The Pharmacology of nalbuphine (Nubain): profile of an agonist/antagonist analgesic. Nubain Symposium, Seoul, Pusan, and Taegu, South Korea, May 27-30, 1991.
 43. Schmidt, W.K., Colona, L.C., Crow, R.G., and Keim, W.J.: Evaluation of kappa agonist behavioral effects in cats: prediction of psychotomimetic activity? INRC/FASEB Research Conference, Copper Mountain, CO, July 2, 1991.
 44. Cook, L., Tam, S. W., Schmidt, W. K., and Rohrbach, K. W.: The pharmacology of a sigma receptor antagonist antipsychotic: DuP 734. Soc. for Neuroscience, 21st Ann. Meeting, New Orleans, LA, November 10-15, 1991. Soc. Neurosci. Abstr. 17(1): 333, 1991.
 45. Cain, G. A., Christos, T. E., Drummond, S., Johnson, A. L., McElroy, J. F., Rohrbach, K. W., Schmidt, W., and Tam, S. W.: Unsaturated ether derivatives of alkyl piperidines and pyrrolidines as potential antipsychotic drugs. Southeastern Regional ACS Meeting, Richmond, VA, November 13, 1991.
 46. Cain, G. S., Christos, T. E., Gilligan, P. A., Grigoriadis, D. E., Cook, L., Johnson, A. L., McElroy, J. F., Rohrbach, K. W. Schmidt, W. K., and Tam, S. W.: Conjugated aromatic 4-amino and -amido piperidines as novel sigma receptor ligands. American Chemical Society (ACS) 203rd National Meeting, San Francisco, CA, April 5-10, 1992. Abstracts of Papers of the American Chemical Society, 203: p 76-MEDI, 1992.
 47. Cain, G. S., Christos, T. E., Johnson, A. L., Pottorf, R. S., Schmidt, W. K., and Tam, S. W.: Neurotensin based analgesics: identification of the minimally active fragment; enhancement of potency, duration of action and transport properties. American Chemical Society (ACS) 203rd National Meeting, San Francisco, CA, April 5-10, 1992. Abstracts of Papers of the American Chemical Society, 203: p 84-MEDI, 1992.
 48. Kezar, H. S. III, Johnson, A. L., Cheeseman, R. S., Scribner, R. M., Schmidt, W. K., and Tam, S. W.: Novel N-substituted piperidine kappa agonist analgesics. Chemistry and structure-activity relationships of enantiomeric 2-(amidomethyl) piperidines. American Chemical Society (ACS) 203rd National Meeting, San Francisco, CA, April 5-10, 1992. Abstracts of Papers of the American Chemical Society, 203: p 79-MEDI, 1992.
 49. Schmidt, W. K., Cain, G. A., Christos, T. E., Confalone, P. N., Johnson, A. L., Amy, K. A., Aungst, B. J., Colona, L. C., Glick, S. J., Keim, W. J., Kelly, C. J., Marshall, A. P., Maciag, C. M., Marynowski, M. E., and Tam, S. W.: Adamantoyl-Lys-Pro-Tyr-Ile-Leu (ADA-KPYIL), a systemically-active neurotensin 9-13 analog with an analgesic and antipsychotic profile in mice and rats. American Chemical Society (ACS)

William K. Schmidt, Curriculum Vitae

- 203rd National Meeting, San Francisco, CA, April 5-10, 1992. Abstracts of Papers of the American Chemical Society, 203: p 81-MEDI, 1992.
50. Schmidt, W. K., Kezar, H. S. III, Cheeseman, R. S., Johnson, A. L., Colona, L. C., Cornwell, K. D., Keim, W. J., Kelly, C. J., Rule, B. L., and Tam, S. W.: Analgesic and antagonist evaluation of N-alkyl substituted kappa agonist analgesics. American Chemical Society (ACS) 203rd National Meeting, San Francisco, CA, April 5-10, 1992. Abstracts of Papers of the American Chemical Society, 203: p 80-MEDI, 1992.
 51. Wright, A. S., Ciganek, E., Grigoriadis, D. E., McElroy, J., Rohrbach, K. W., Schmidt, W. K., and Tam, S. W.: Novel piperidineimides as potential sigma antipsychotics. American Chemical Society (ACS) 203rd National Meeting, San Francisco, CA, April 5-10, 1992. Abstracts of Papers of the American Chemical Society, 203: p 77-MEDI, 1992.
 52. Glick, S. J., Lischwe, M. A., and Schmidt, W. K.: IL-1 receptor antagonist inhibits IL-1 beta induced fever in rats and hypothermia in mice. FASEB 76th Annual Meeting, Anaheim, CA, April 5-10, 1992. FASEB Journal 6(5): A1779, 1992.
 53. Maciag, C. M., Goodman, R., Mantegna, L. R., Lischwe, M. A., Kerr, J. S., and Schmidt, W. K.: IL-1 receptor antagonist inhibits yeast-induced hyperalgesia and carrageenan paw inflammation in rats. FASEB 76th Annual Meeting, Anaheim, CA, April 5-10, 1992. FASEB Journal 6(4): A1330, 1992.
 54. Schmidt, W. K., Aungst, B. J., Boswell, G. A., Jr., Maciag, C. M., Marynowski, M. E., Stampfli, H. F., Steinfels, G. F., Sunshine, A., and Cook, L.: Nalbuphine N-oxide prodrug: analgesia and nalbuphine serum levels following administration of DuP 769 in rats and dogs. College on Problems of Drug Dependence (CPDD), Keystone, CO, June 20-25, 1992. Problems of Drug Dependence 1992, NIDA Res. Monograph 132: 147, 1993.
 55. Ciganek, E., Schmidt, W. K., Tam, S. W., and Cook, L.: Synthesis and structure-activity relationship of a series of analgesic 4-aryl-4-piperidinemethanol derivatives. International Narcotic Research Conference (INRC), Keystone, CO, June 24-27, 1992.
 56. De Lucca, G. V., Ripka, W. C., Schmidt, W. K., and Tam, S. W.: Peptide beta-turn mimetics: design, synthesis and evaluation of a delta selective enkephalin mimic. International Narcotic Research Conference (INRC), Keystone, CO, June 24-27, 1992.
 57. Marynowski, M. E., Tam, S. W., and Schmidt, W. K.: Effects of DuP 631, a novel non-narcotic analgesic, in the guinea pig ileum bioassay. International Narcotic Research Conference (INRC), Keystone, CO, June 24-27, 1992.
 58. Schmidt, W. K., Ciganek, E., Tam, S. W., Cook, S. G., and Cook, L.: DuP 631: analgesia and biochemical profile of a unique, non-narcotic, naloxone-reversible, centrally-acting analgesic. International Narcotic Research Conference (INRC), Keystone, CO, June 24-27, 1992.
 59. Schmidt, W. K., Colona, L., Crow, R. G., and Keim, W. J.: Comparison of DuP 747 and spiradoline behavioral effects in cats. International Narcotic Research Conference (INRC), Keystone, CO, June 24-27, 1992.
 60. Tam, S. W., Krause, C. M., Rule, B., Rominger, D., Schmidt, W. K., and De Souza, E. B.: [3H]DuP 631: Receptor binding and autoradiographic profiles in rat brain of a novel non-narcotic centrally acting analgesic. International Narcotic Research Conference (INRC), Keystone, CO, June 24-27, 1992.
 61. Maduskuie, T. P., Jr., Schmidt, W. K., Bleicher, L. S., Cacciola, J., Cheatham, W., Fevig, J. M., Johnson, A. L., McComb, S. A., Nugiel, D. A., Spellmeyer, D. A., Tam, S. W., Voss, M. E., and Wagner, R. M.: The design and synthesis of a peptidomimetic for neurotensin. Keystone Symposium, Prospects and Progress in Drug Design Based on Peptides and Proteins, Taos, NM, March 11, 1993. J. Cellular Biochem. Supp. 17C: 232, 1993.

William K. Schmidt, Curriculum Vitae

62. Schmidt, W. K., Cain, G. A., Christos, T. E., Confalone, P. N., Johnson, A. L., Aungst, B. J., and Tam, S. W.: Adamantoyl-Lys-Pro-Tyr-Ile-Leu (ADA-KPYIL), a systemically-active neurotensin 9-13 analog with an analgesic and antipsychotic profile in mice and rats. Keystone Symposium, Prospects and Progress in Drug Design Based on Peptides and Proteins, Taos, NM, March 11, 1993. *J. Cellular Biochem. Supp.* 17C: 234, 1993.
63. Schmidt, W. K.: A new potent kappa opioid analgesic, DuP 747. Cambridge Healthtech Institute conference "Advances in Treatment of Chronic Pain," Philadelphia, PA, May 6-7, 1993.
64. Schmidt, W. K.: Investigation of neurotensin analogs and peptidomimetics for analgesic and antipsychotic activities. Temple University School of Medicine, Philadelphia, PA, June 9, 1993.
65. Rajagopalan, P., Smith, D. H., and Schmidt, W. K.: The synthesis and potent anticonvulsant activity of the novel 1,2,6 α ,7,8 α ,9,10 α -octahydro-[1,4]thiazino[2,3,4-*jk*]carbazol-8-amine dihydrochloride. International Congress for Heterocyclic Chemistry, Antwerp, Belgium, August 1-6, 1993.
66. Schmidt, W. K.: Pharmacological approaches to the treatment of chronic pain: current and investigational drugs. IBC International Business Communications conference on "Advances in Therapeutic Development for Chronic Pain," San Diego, CA, February 24-25, 1994; Grand Rounds, Department of Anesthesiology, Jefferson Medical College, Philadelphia, PA, March 17, 1994.
67. Schmidt, W. K.: Survey of current and investigational drugs for the treatment of acute and chronic pain. Global Business Research Ltd. conference on "Pain Control, New Concepts and Therapeutic Applications," Princeton, NJ, October 3-5, 1994.
68. Ho, S. P., Conklin, D., Britton, D., Bao, Y., Leshner, T., Cramer, M., Livanov, V., Sakai, R. R., Fluharty, S. J., Hartig, P., and Schmidt, W. K.: The inhibition of angiotensin type I receptor synthesis in tissue culture and *in vivo* by several antisense oligonucleotides. Practical Approaches to the Regulation of Gene Expression: Progress in Neuroscience, Wadham College, University of Oxford, U.K., March 27-28, 1995.
69. Schmidt, W. K.: Current state of development of opioid analgesics in human analgesia. American Chemical Society (ACS) 209th National Meeting, Anaheim, CA, April 2-6, 1995. Abstracts of Papers of the American Chemical Society, 209: p 139-MEDI, 1995; Delaware State University, Dover, DE, April 20, 1995.
70. Schmidt, W. K.: Dependence liability and abuse of nalbuphine hydrochloride (Nubain®). Ministry of Health, Caracas, Venezuela, August 28, 1995.
71. Schmidt, W. K.: Survey of current and investigational drugs for the treatment of acute and chronic pain. American Pain Society, November 9, 1995.
72. Schmidt, W. K.: Medications development: participation by the pharmaceutical industry. Institute of Medicine Symposium, "Neuroscience Research: Advancing Our Understanding of Drug Addiction," Washington, DC, July 29, 1996.
73. Schmidt, W. K.: An Overview of the Market. 8th World Congress on Pain Satellite Symposium, "Spinal Analgesics: From Animals to Humans," Whistler, British Columbia, August 15, 1996.
74. Schmidt, W. K.: Survey of current and investigational drugs for the treatment of acute and chronic pain. Grand Rounds, Department of Rheumatology, Roger Williams General Hospital, Brown University School of Medicine, Providence, RI, January 17, 1997.
75. Schmidt, W. K.: An overview of current and investigational drugs for the treatment of chronic pain. National Managed Health Care Congress (NMHCC) conference on "Therapeutic Developments in Chronic Pain," Washington, D.C., June 26, 1997.

William K. Schmidt, Curriculum Vitae

76. Cook, L. and Schmidt, W. K.: DuP 631: Unique analgesic and biochemical profile of a serotonin-norepinephrine uptake inhibitor. American College of Neuropsychopharmacology (ACNP), Kamuela, HI, December 8-12, 1997.
77. Schmidt, W. K.: Investigational drugs and pain. Astra Research Centre Montreal, Ville St-Laurent (Montreal), Quebec, January 23, 1998.
78. Schmidt, W. K.: Overview of current and investigational drugs for the treatment of chronic pain. National Managed Health Care Congress (NMHCC) "2nd Annual Conference on Therapeutic Developments in Chronic Pain," Annapolis, MD, May 18, 1998.
79. Schmidt, W. K.: Introduction: Current medications and recent advances in therapeutics. Symposium on "Drug Abuse Pharmacotherapy Development in the Private Sector," College on Problems of Drug Dependence (CPDD), Scottsdale, AZ, June 15, 1998. Problems of Drug Dependence 1998, NIDA Res. Monograph 179: 20-23, 1998.
80. Schmidt, W. K.: Current status on the clinical development of kappa-opioid receptor agonists for analgesia and the treatment of drug abuse. Symposium on "Evaluation of Kappa-Opioid Receptor Ligands for the Treatment of Cocaine Addiction," College on Problems of Drug Dependence (CPDD), Scottsdale, AZ, June 18, 1998.
81. Schmidt, W. K.: Current and novel investigational drugs for the treatment of acute and chronic pain. Symposium on "Contemporary Issues and Challenges for Today's Pain Practitioner," Eastern Pain Association, New York, NY, December 11, 1998.
82. Schmidt, W. K.: Emerging analgesics: regulatory issues. 2nd International Conference on Mechanisms and Treatment of Neuropathic Pain, Arlington, VA, June 4, 1999.
83. Schmidt, W. K.: Central and peripheral kappa agonist analgesics. Symposium on "New Approaches to Non-Addictive Analgesics," College on Problems of Drug Dependence (CPDD), Acapulco, Mexico, June 14, 1999. Problems of Drug Dependence 1999, NIDA Res. Monograph 180: 28-31, 1999.
84. Schmidt, W. K.: Potential of delta opioid agonists as therapeutics. Symposium on "Pharmacology and Clinical Potential of Delta Opioid Agonists," College on Problems of Drug Dependence (CPDD), Acapulco, Mexico, June 15, 1999. Problems of Drug Dependence 1999, NIDA Res. Monograph 180: 39-40, 1999.
85. Schmidt, W. K.: Incentives and disincentives to drug development: the case of ibogaine. First International Conference on Ibogaine, New York University School of Medicine, New York, NY, November 6, 1999.
86. Schmidt, W. K.: Advances in Analgesic Pharmacology: Current & Novel Investigational Drugs for the Treatment of Acute and Chronic Pain. American Academy of Pain Medicine, New Orleans, LA, February 25, 2000.
87. Schmidt, W. K.: Winners & Losers in Analgesic Drug Development '98-'00. Symposium on "Novel Analgesic and Narcotic Antagonist Drugs," College on Problems of Drug Dependence (CPDD), San Juan, Puerto Rico, June 21, 2000. Problems of Drug Dependence 2000, NIDA Res. Monograph 181: 66-68, 2000.
88. Schmidt, W. K.: Discovering novel treatments for opioid bowel dysfunction. Conference on "Clinical Trials and Drug Development in Novel Pain Therapeutics," Institute for International Research, Litchfield Park, AZ, December 4, 2000.
89. Schmidt, W. K.: Drug development for analgesia. Conference on "Contemporary Issues and Challenges for Today's Pain Practitioner," Eastern Pain Association Scientific Meeting 2000, New York, NY, December 8, 2000.

William K. Schmidt, Curriculum Vitae

90. Schmidt, W. K.: New directions in analgesic drug development. American Society for Addiction Medicine, Los Angeles, CA, April 19, 2001.
91. Schmidt, W. K.: ADL 8-2698: Profile of a novel GI-tract restricted mu opioid receptor antagonist. Symposium on "Recent Advances in the Treatment of Opioid Bowel Dysfunction and Postoperative Ileus," American Pain Society, Phoenix, AZ, April 21, 2001.
92. Schmidt, W. K.: Current and future opportunities in acute & chronic pain management. Therapeutic Insight 2001, New York City, NY, April 23, 2001.
93. Schmidt, W. K.: ADL 8-2698: Profile of a novel G.I. tract-restricted mu opioid receptor antagonist. Symposium on "ADL 8-2698, a New Peripheral Opioid Antagonist: Pharmacology and Clinical Trials in the Management of Postoperative Ileus and Opioid-Related Gastrointestinal Symptoms," Japan Society of Pain Clinicians, Gifu City, Japan, July 13, 2001.
94. Kurz, A., Taguchi, A., Sharma, N., Carpenter, R. L., Suntrup, P., Garver, D. D., Seyedsadr, M., and Schmidt, W. K.: Evaluation of ADL 8-2698, a novel GI-tract restricted opioid antagonist, for management of postoperative ileus (POI) and opioid-induced bowel dysfunction (OBD). Scientific and Educational Exhibit, American Society of Anesthesiologists, New Orleans, LA, October 14-16, 2001.
95. Bernstein LR, Koo PJS, Taylor EC, Schmidt WK. Current and emerging pharmacotherapy for postoperative ileus. Symposium held preceding the Annual Midyear Clinical Meeting of the American Society of Health-System Pharmacists (ASHP) in New Orleans, Louisiana on Sunday, December 2, 2001. Available at http://www.medscape.com/viewprogram/1696_pnt.
96. Schmidt, W. K.: Postoperative ileus: emerging therapies. Symposium on "Postop Gut Grief; Quantifying and minimizing Postoperative Ileus," American Society of Health-System Pharmacists, Baltimore, MD, June 3, 2002.
97. Fleshman, J. W. Jr., Kurz, A., Bailey, H. R., Delaney, C., Techner, L., Schmidt, W. K.: Managing postoperative ileus: evaluation of alvimopan in three phase II clinical studies. Educational Exhibit, American College of Surgeons, San Francisco, October 6-11, 2002.
98. Sharma, N., Akca, O., Schmidt, W. K., Kurz, A. Evaluation of a new μ -opioid antagonist for the management of postoperative ileus; additional phase II study results. American Society of Anesthesiologists, Orlando, FL, October 12-16, 2002. *Anesthesiology* 2002;96:A452.
99. Schmidt, W. K.: Planning systems and strategies for managing regulatory and approval matters. HCMG-867/MGMT-847: Health Care Entrepreneurship, Wharton School of Business, Philadelphia, PA, February 5, 2003.
100. Schmidt, W. K.: Regulatory planning and management; clinical trials strategy. HCMG-867/MGMT-847: Health Care Entrepreneurship, Wharton School of Business, Philadelphia, PA, February 4, 2004.
101. Schmidt, W. K.: New opportunities in opioid analgesia. Panel Discussion: Gains in pain: a multibillion dollar marketplace is finally getting some respect. Bio CEO & Investor Conference, New York, NY, February 24, 2004.
102. Paulson, D. M., Kennedy, D., Donovan, R., Carpenter, R., Cherubini, M., Techner, L., Du, W., Ma, Y., Schmidt, W., Wallin, B., Jackson, D. Alvimopan, a novel, peripherally-acting, mu-opioid receptor antagonist for the management of opioid-induced bowel dysfunction (OBD): Positive results from a phase III randomized, placebo-controlled, 21-day trial. Presented at American Pain Society; May 7, 2004; Vancouver, BC. Abstract No. 796. 2004 APS Abstract Database. Glenview, IL: American Pain Society, 2004. Online. *J Pain* 2004;5(1 Suppl):57.

William K. Schmidt, Curriculum Vitae

103. Schmidt WK. Peripherally acting opioid receptor antagonists. Conference on “Advancing Preclinical and Clinical Applications of Pain Therapeutics,” Center for Business Intelligence, San Diego, CA, October 29, 2004.
104. Schmidt WK. What drugs are in the neuropathic pain pipeline? 7th International Conference on the Mechanisms and Treatment of Neuropathic Pain, Bermuda, November 4-6, 2004.
105. Schmidt WK. Development of Abuse-Resistant Opioid Formulations. Conference on “Opioid Risk Management,” Boston, MA, March 29, 2005.
106. Panchal S, Foss J, Techner L, Gabriel K, Baumann J, Schmidt WK, Jackson D. Safety and tolerability of alvimopan in healthy volunteers following opioid withdrawal. Presented at American Pain Society; March 31, 2005; Boston, MA. Abstract No. 730. *J Pain*. 2005;6(1 Suppl):S41.
107. Schmidt WK. Exciting times for novel opioids, 2005. Symposium on “New Opioid Compounds” (co-chair). International Narcotics Research Conference (INRC), Annapolis, MD, July 14, 2005.
108. Schmidt WK. Pharmacological management: emerging medications for back pain. Workshop on Interdisciplinary Treatment, Vol. 1, Focus on Back Pain. Eastern Pain Association Annual Meeting, New York, NY, September 17, 2005.
109. Schmidt WK. Analgesic drug development: what’s in the pipeline. UCSF Pain Day, University of California, San Francisco, October 27, 2005.
110. Schmidt WK. Module 1: R&D and Preclinical Testing Phases. Third Annual Global BioExecutive Program, Haas School of Business, University of California, Berkeley, March 8, 2006.
111. Carragee EJ, Klapper JA, Schaufele MK, Karppinen J, Levine J, Shabe P, Botwick WA, Miller B, Huff FJ, Oshtory R, Moreadith RW, Schmidt WK. Oral REN-1654 in sciatica: a phase 2, randomized, double-blind, placebo-controlled, multi-center study in subjects with pain due to lumbosacral radiculopathy. International Society for the Study of the Lumbar Spine (ISSLS), Bergen Norway, June 15-16, 2006.
112. Schmidt WK. New directions in analgesic drug development (a critic’s choice). American Academy of Pain Management (AAPM), Orlando, FL, September 7, 2006.
113. Carragee EJ, Klapper JA, Schaufele MK, Karppinen J, Levine J, Shabe P, Botwick WA, Miller B, Huff FJ, Moreadith RW, Schmidt WK. Oral REN-1654 in sciatica: a phase 2, randomized, double-blind, placebo-controlled, multi-center study in subjects with pain due to lumbosacral radiculopathy. North American Spine Society (NASS), Seattle, WA, September 26-30, 2006.
114. Schmidt WK. New directions in analgesic drug development (a critic’s choice). BioScience Forum, Millbrae, CA, November 15, 2006.
115. Gordon S, Coletti D, Bergman S, Shimizu N, Caccamese J, Laska G, Lee V, Schmidt W, Robbins W. LNS5662 (Flavonol-PgP Modulator) ameliorates CNS effects of oxycodone in an acute pain model. Presented at American Pain Society; May 4, 2007; Washington, D.C. Abstract No. 6845. *J Pain*. 2007;8(1 Suppl):S777.
116. Schmidt WK. Innovations in Pain Management Pharmaceuticals. California Society of Addiction Medicine, Universal City (Los Angeles), CA, October 19, 2007.
117. Schmidt WK. New Directions in Analgesic Drug Development. Israel Pain Association, Tiberius, Israel, November 14, 2007.

William K. Schmidt, Curriculum Vitae

118. Schmidt WK. The current status of [analgesic drug] development efforts. Painstaking Investing: Investment Meets Innovation. SIGNificant Investment Options in Healthcare Conference, New York City, NY, March 4, 2008.
119. Rolan P, Mokhtarani M, Nelson W, Schmidt W, Barelka P, Lee V, Robbins W. Dose dependent effects of morphine on cold pain and circulating testosterone levels in normal subjects. 28th Annual Scientific Meeting of the Australian Pain Society, Perth, Australia, March 30, 2008.
120. Schmidt WK, Niforos DA, Boesing SE. Analgesic onset of a novel liquid-gel formulation of diclofenac potassium in post-surgical dental pain. American Pain Society, Tampa, FL, May 8, 2008. *J. Pain.* 2008;9 (Supplement 2):33.
121. Lee C, Yang J, Kang S, Seo H, Kim C, Kim S, Park M, Chang H, Schmidt W, Cho J, Ro S. CG100649, a novel dual-acting COX-2 and carbonic anhydrase inhibitor: Preclinical pharmacology. American Pain Society, Tampa, FL, May 8, 2008. *J. Pain.* 2008;9 (Supplement 2):5.
122. Lee C, Yang J, Kang S, Seo H, Kim C, Kim S, Park M, Chang H, Schmidt W, Cho J, Ro S. CG100649, a novel dual-acting COX-2 and carbonic anhydrase inhibitor: Preclinical safety evaluations. American Pain Society, Tampa, FL, May 9, 2008. *J. Pain.* 2008;9 (Supplement 2):6.
123. Ro S, Park Y, Mant T, Schmidt W, Kang M, Cho J. CG100649, a novel dual-acting COX-2 and carbonic anhydrase inhibitor: Ascending single dose and multi-dose pharmacokinetics and safety evaluation in healthy male subjects. American Pain Society, Tampa, FL, May 9, 2008. *J. Pain.* 2008;9 (Supplement 2):34.
124. Schmidt W, Chung B, Fong K, Swan S, Cannon C, Alcorn H, Liang H, Zhu Y, Kang M, Lee C, Kim C, Kim S, Yang J, Park M, Chang H, Ro S, Cho J. CG100649, a novel dual-acting COX-2 and carbonic anhydrase inhibitor: Multi-dose pharmacokinetics and safety evaluation in healthy male and female subjects. American Pain Society, Tampa, FL, May 9, 2008. *J. Pain.* 2008;9 (Supplement 2):34.
125. Schmidt WK. Abuse-resistant opioid formulations: Current status. Symposium on "Opioid Analgesics: Protecting their Use and Preventing Abuse," College on Problems of Drug Dependence (CPDD), San Juan, Puerto Rico, June 18, 2008.
126. Schmidt WK. Introduction & objectives. Symposium: "Scientific Communications – Trends and Liabilities," Bio International Convention, San Diego, June 20, 2008.
127. Cowan A, Adler A, Drewe J, Gutmann H, Okochi H, Huang Y, Lee V, Robbins W, Schmidt, W. Effect of bioflavonoids on BBB efflux transport of opioid compounds. Gordon Research Conference: Barriers of the CNS, Tilton, NH, June 22-27, 2008
128. Rolan P, Schmidt W, Lee V, Laska E, Gordon S, Robbins W. Impact of P-gp transport activation of opioid ligands in human subjects. Gordon Research Conference: Barriers of the CNS, Tilton, NH, June 22-27, 2008.
129. Schmidt WK. New directions in analgesic drug development. 6th Annual James Black Conference, "New Pain Concepts and Future Treatments," British Pharmacological Society, St. Andrews, Scotland, August 16, 2008.
130. Rolan P, Mokhtarani M, Schmidt W, Lee V, Nelson B, Lee M, Barad M, Robbins W. Protective effects of LNS-5310 on morphine-induced hypogonadism. World Congress on Pain, Glasgow, Scotland, August 19, 2008.
131. Schmidt WK, Chung B, Cho JM, Ro S. CG100649, a novel dual-acting COX-2 and carbonic anhydrase inhibitor: Review of preclinical and Phase I clinical data. World Congress on Pain, Glasgow, Scotland, August 21, 2008.

William K. Schmidt, Curriculum Vitae

132. Schmidt WK. Selective antagonism of opioid-induced hypogonadism. Workshop on "Opioids: Endocrinological Effects of Long-Term Treatment," World Congress on Pain, Glasgow, Scotland, August 21, 2008.
133. Schmidt WK. Patient recruitment and the effect on clinical trials. Workshop on "Outsourcing Clinical Trials," Next Generation Pharmaceutical NGP Summit, Scottsdale, AZ, September 3, 2008.
134. Schmidt WK, Boesing, SE, Campbell JH, Malmström H, Noveck RJ, Tomasetti BJ, Zuniga JR. Time to onset of pain relief in dental surgery patients administered oral diclofenac potassium liquid filled soft gelatin capsule. PAINWeek 2008, Las Vegas, NV, September 6, 2008.
135. Campbell CM, Stouch B, Brady K, Schmidt WK, Campbell JN. Topical clonidine gel reduces pain caused by diabetic neuropathy: Results of a multicenter, placebo-controlled clinical trial. 11th International Conference on the Mechanisms and Treatment of Neuropathic Pain, Bermuda, November 6-8, 2008.
136. Johnson GS, Dray A, Piomelli D, Schmidt WK, Verburg KM. Game changing plays in the pain market. Therapeutic Insight 2009, New York City, NY, April 1, 2009.
137. Campbell CM, Stouch B, Brady K, Schmidt B, Campbell JN. Topical clonidine gel (ARC-4558) reduces pain caused by diabetic neuropathy: Results of a multicenter, placebo-controlled clinical trial. American Pain Society, San Diego, CA, May 7-9, 2009. Abstract No. 324. J Pain 2009; 10:4 (supplement 1); S55.
138. Schmidt WK, Lehnhardt K, Hettwer J, Nadashkevich O, Szombati I, Povoroznyuk V, Chung B, Nam HS, Cho S, Ro S, Cho, JM. CG100649, a tissue-specific dual inhibitor of COX-2 and carbonic anhydrase: Phase 2a clinical trial in hip & knee osteoarthritis. OARSI World Congress on Osteoarthritis, Montreal, September 11-12, 2009. Abstract No. 324. Osteoarthritis Cartilage 2009;17(supplement 1):S173.
139. Schmidt WK. Development of novel NSAIDs and COX-2 inhibitors in the post-Vioxx era. Visiongain 6th Annual Pain Management Conference, London, UK, October 14, 2009.
140. Schmidt WK. Industry perspective. Consensus meeting on Mechanisms and Pharmacology of Human Surrogate Models of (neuropathic) Pain. Special Interest Group on Neuropathic Pain of the International Association for the Study of Pain (IASP NeuPSIG), San Francisco, Nov. 22, 2009.
141. Robbins WR, Schmidt WK, Lee VJ. LIM-0705, an activator of specific ABC transporters, prevents and treats tacrolimus-induced hyperglycemia in the rat. 2010 American Transplant Congress, San Diego, May 2, 2010.
142. Robbins WR, Schmidt WK, Adler MW, Eisenstein TK, Meissler JJ. LIM-0705, an activator of specific ABC transporters, prevents and treats tacrolimus-induced hyperglycemia and renal vacuolization but does not impair cellular immunosuppressive effects of tacrolimus. 2010 American Transplant Congress, San Diego, May 2, 2010.
143. Robbins WR, Schmidt WK, Lee VJ, Brennan DC, Halks-Miller M. LIM-0705, an activator of specific ABC transporters, prevents and treats tacrolimus-induced renal tubular vacuolization in a rat model. 2010 American Transplant Congress, San Diego, May 2, 2010.
144. Schmidt WK. In search of safer NSAIDs in the post-Vioxx era. Asan Medical Center, Seoul, South Korea, May 19, 2010.
145. Cabrera J, Schmidt WK, Cho JM, Ro S, Singh G. Pharmacokinetic / Pharmacodynamic (PK/PD) analysis of CG100649, a dual COX-2 & Carbonic Anhydrase inhibitor, in Primary Osteoarthritis of the Hip or Knee. EULAR 2010, Rome, Italy, June 17, 2010. Ann Rheum Dis 2010;69(Suppl3):291.
146. Schmidt WK. Selective Publication (II): How publically-accessible clinical trial data are portrayed in communications to the Medical Community, Investors, and the FDA. IASP Workshop: Selective publication

William K. Schmidt, Curriculum Vitae

- of clinical research: Public-access tools for navigating around bias and spin, Montreal, Quebec, August 31, 2010.
147. Schmidt WK. Development of CG100649, a tissue-selective dual inhibitor of COX-2 and carbonic anhydrase for treatment of osteoarthritis. Arrowhead 4th Annual Pain Therapeutics Summit, Philadelphia, PA, October 5, 2010.
 148. Schmidt WK. Workshop: "Pain Research – The Way Forward." UCSF Pain Day, University of California, San Francisco, October 13, 2010.
 149. Schmidt WK. Advances in Clinical Pain Therapeutics for Cancer Patients. Forget-Me-Not Annual Symposium, Fox Chase Cancer Center, Philadelphia, October 29, 2010.
 150. Schmidt WK. Advances in Clinical Pain Therapeutics for Cancer Patients. Eastern Pain Association Annual Scientific Meeting, New York City, December 3, 2010.
 151. Campbell JN, Kipnes MS, Rowbotham M, Petersen K, Stouch BC, Kelly M, Campbell CM, Brady K, Schmidt WK. Topical clonidine for treatment of painful diabetic neuropathy: a randomized double blind Phase IIb clinical trial. American Diabetes Association 71st Scientific Sessions, San Diego, June 25-27, 2011.
 152. Campbell JN, Kipnes MS, Rowbotham M, Petersen K, Stouch BC, Kelly M, Campbell CM, Brady K, Schmidt WK. Response to topical capsaicin correlates with the efficacy of topical clonidine as a treatment for painful diabetic neuropathy. Peripheral Nerve Society Annual Meeting, Potomac, Maryland, June 25-29, 2011. JPNS. 2011; 16(Supplement):S17-S18.
 153. Schmidt WK. Formulation Strategies to Reduce Abuse of Pharmaceuticals. SAHMSA Open Dialogue IV Meeting, U.S. Substance Abuse and Mental Health Services Administration, Washington, DC, September 7, 2011.
 154. Schmidt WK. An Update on the Clinical Development of COX-2 Inhibitors in the Post-Vioxx Era. Arrowhead 5th Annual Pain Therapeutics Summit, South San Francisco, September 21, 2011.
 155. Schmidt WK. Clinical Development of Next-Generation NSAIDs in the Post-Vioxx Era. Eastern Pain Association Annual Scientific Meeting, New York City, November 18, 2011.
 156. Schmidt WK. Roundtable 2: Regional focus – Europe. Outsourcing in Clinical Trials West Coast, Burlingame, CA, February 16, 2012.
 157. Malcolm R, Trejo D, Bacha J, Schmidt W, Hart D, Pecota N. Ten tips to accelerate clinical trials and do them well. CALBio2012, San Francisco, CA, March 8, 2012.
 158. Mamet J, Klukinov M, Yaksh T, Malkmus S, Williams S, Taylor B, Donahue R, Porreca F, Xie J, Oyarzo J, Brennan T, Subieta A, Harris S, Schmidt W, Yeomans D. AYX1 DNA-decoy compound prevents the maintenance of pain after incisional, inflammatory or neuropathic injury. American Pain Society, Honolulu, HI, May 17, 2012.
 159. Mamet JR, Yaksh TL, Malkmus S, Williams S, Klukinov M, Harris S, Schmidt WK, Miljanich GP, Rogers B, Cavagnaro J, Manning DC, Yeomans DC. Pharmacokinetics and toxicology profile after a bolus intrathecal injection of the DNA decoy AYX1. International Association for the Study of Pain, Milan, Aug. 28, 2012.
 160. Schmidt WK. Clinical development of CG100649, a dual inhibitor of COX-2 and carbonic anhydrase, for treatment of osteoarthritis pain and disability. 1st China Forum of Pain Medicine, Beijing, China, Sept. 22, 2012.

William K. Schmidt, Curriculum Vitae

161. Schmidt WK. Providing insight into what it takes to conduct a sound, successful study in South Korea. Outsourcing Clinical Trials West Coast, Burlingame, CA, Jan. 29, 2013.
162. Schmidt WK. FDA Hearing: Impact of Approved Drug Labeling on Chronic Opioid Therapy. Bethesda, MD, Feb. 8, 2013.
163. Schmidt WK. NSAIDs and acetaminophen: which role in chronic pain management? SIMPAR 2013 - Study In Multidisciplinary PAin Research, Pavia, Italy, Mar. 22, 2013. *Minerva Anesthesiol.* 2013;79(3, Suppl. 1): 15-17.
164. Mamet J, Manning D, Harris S, Schmidt W, Klukinov M, Yeomans D. AXY1: a single-dose intrathecal DNA-decoy for the prevention of acute and chronic postsurgical pain. SIMPAR 2013 - Study In Multidisciplinary PAin Research, Pavia, Italy, Mar. 22, 2013. *Minerva Anesthesiol.* 2013;79(3, Suppl. 1): 77-78.
165. Schmidt WK. Building a better aspirin: the frontiers of pain medicine development. Annual Sacker Lecture, Pain Research, Education and Policy Program, Tufts University School of Medicine. September 24, 2013. Available online: <http://publichealth.tufts.edu/Academics/MS-Pain-Research-Education-and-Policy/PREP-Events/Videos>.
166. Manning D, Hebert K, Harris S, Schmidt W, Mamet J. ADYX-001: A Phase 1 Safety Study of AXY1, A Transcription Factor Decoy Against EGR1 Intended To Reduce Acute And Prevent Persistent Post-Operative Pain. American Society of Anesthesiologists Annual Meeting, San Francisco, CA, October 12-16, 2013.
167. Inceoglu B, McReynolds C, Wagner K, Schmidt WK, Hammock BD. Soluble Epoxide Hydrolase Inhibitors are first-in-class therapeutic candidates for chronic and intractable pain in man and companion animals. Arrowhead 7th Annual Migraine & Pain Therapeutics Summit, San Diego, November 7-8, 2013.
168. Schmidt WK. Building a better aspirin: the frontiers of pain medicine development. Blaustein Pain Grand Rounds, Departments of Neurology and Neurosurgery, Johns Hopkins School of Medicine. March 7, 2014.
169. Schmidt WK. Building a better aspirin: the frontiers of pain medicine development. Webinar, Pain Research Forum, September 10, 2014. Available online: www.painresearchforum.org/forums/webinar/44095-webinar-building-better-aspirin-frontiers-pain-medicine-development.
170. Wagner K, Lee S, Inceoglu B, Schmidt W, McReynolds C, Hammock BD. Newly designed soluble epoxide hydrolase inhibitors are a first in class candidate therapy for chronic painful conditions. IASP 15th World Congress on Pain, Buenos Aires, Argentina, October 9, 2014.
171. Schmidt WK. Standing on the Shoulders of Giants: Innovations in Analgesic Drug Development. John J. Bonica Award Lecture, Eastern Pain Association, New York, NY, October 25, 2014.
172. Schmidt WK, Lee KSS, Wagner KM, Inceoglu B, Hammock BD. Newly designed potent small molecule inhibitors of soluble epoxide hydrolase (sEH) target chronic inflammatory & neuropathic pain. Neuroscience 2014, Society for Neuroscience, Washington, DC, November 19, 2014.
173. Schmidt WK. Standing on the Shoulders of Giants: Innovations in Analgesic Drug Development. Pain Research Group, University of California, San Francisco, December 4, 2014.
174. Schmidt WK. A Bright Future for Pain Drug Development: A Conversation with William Schmidt. Podcast, RELIEF / Pain Research Forum, June 8, 2016. Available online: <http://relief.news/bright-future-pain-drug-development>.
175. Pergolizzi JV Jr, Raffa RB, Zampogna G, Breve F, Colucci R, Schmidt WK, LeQuang JA. Will the new opioid guidelines from the CDC have unintended consequences? PAINWeek 2016, Las Vegas, NV, September 6-10, 2016.

William K. Schmidt, Curriculum Vitae

176. Pergolizzi JV Jr, Raffa RB, Zampogna G, Breve F, Colucci R, Schmidt WK, LeQuang JA. Hydrocodone rescheduling revisited. PAINWeek 2016, Las Vegas, NV, September 6-10, 2016.
177. Schmidt WK. Barriers and facilitators to the development of novel analgesics. National Academy of Sciences, Washington, D.C., September 22, 2016.
178. Schmidt WK. Soluble epoxide hydrolase inhibitors. Acute Pain SIG Satellite Symposium, IASP 16th World Congress on Pain, Yokohama, Japan, September 25, 2016. Video link: www.youtube.com/watch?v=X79-BMeIuil&index=12&list=PLsCqqM167wVEGqZ4BgzmFixtsfzAaNH28&t=9s.
179. Schmidt WK. Build an oxycodone prodrug with MPAR (Multi-Pill Abuse Resistance) overdose protection technology. 3rd Human Abuse Liability & Abuse-Deterrent Formulations Conference, Arlington, VA, Nov. 2-3, 2016.
180. Schmidt WK. What's New in the Analgesic Drug Discovery Pipeline – and how it got there. Pain Management Center Retreat, Dept. Anesthesia, University of California, San Francisco, Dec. 3, 2016.
181. Schmidt WK, Dickerson DS, Fisher DM, Kirkpatrick, DL. First-in-human pharmacokinetics & safety study of PF614: orally activated oxycodone prodrug. International Anesthesia Research Society Annual Meeting, Pittsburgh, PA, May 7, 2017. PM 7 (2122) Anesth Analg. 2017;124(5):752-753. Available online: <https://iars.app.box.com/v/IARS2017AbstractSupplement>.
182. Schmidt WK. Advancing the technical and clinical development of oral overdose preventative formulations. 4th Human Abuse Liability & Abuse-Deterrent Formulations Conference, Bethesda, MD, November 7, 2017.
183. Schmidt WK. Clinical Path for Soluble Epoxide Hydrolase Inhibitors to Treat Neuropathic Pain. ASPET Symposium: Clinical Paths for Soluble Epoxide Hydrolase Inhibitors, Experimental Biology Meeting, San Diego, April 21, 2018.
184. McReynolds C, Hwang SH, Yang J, Wagner K, Schmidt WK, Hammock B. Advancing soluble epoxide hydrolase inhibitors for the treatment of osteoarthritis in companion animals. Experimental Biology Meeting, San Diego, April 22, 2018.
185. Schmidt WK. VM202, a DNA-based, potential disease-modifying treatment for painful diabetic neuropathy. SMi Pain Therapeutics Conference, London, May 21, 2018.
186. Schmidt WK. Gene Therapy for Painful Diabetic Neuropathy. SMi Pain Therapeutics Conference, London, May 13, 2019.

William K. Schmidt, Curriculum Vitae

IV. Patents

1. Schmidt, W. K., Smith, C., Smith, D. H., Jr., and Vernier, V. G.: Treating pain with acetaminophen and 1,4-dimethyl-5-p-chloro-benzoyl-pyrrole-2-acetic acid. U.S. Patent 4,260,629, April 7, 1981.
2. Dudzinski, J. R. and Schmidt, W. K.: Analgesic mixture of nalbuphine and acetylsalicylic acid, derivative or salt thereof. U.S. Patent 4,282,215, August 4, 1981.
3. Schmidt, W. K.: Analgesic mixture of nalbuphine and 4,5-bis(4-methoxy-phenyl)-2-(trifluoromethylsulfonyl)-1H-imidazole. U.S. Patent 4,402,962, September 6, 1983.
4. Schmidt, W. K.: Analgesic mixture of nalbuphine and tiplamizole. U.S. Patent 4,404,208, September 13, 1983.
5. Schmidt, W. K.: Analgesic mixture of nalbuphine and sulindac. U.S. Patent 4,404,209, September 13, 1983.
6. Schmidt, W. K.: Analgesic mixture of nalbuphine and ibuprofen. U.S. Patent 4,404,210, September 13, 1983.
7. Schmidt, W. K.: Analgesic mixture of nalbuphine and flurbiprofen. U.S. Patent 4,404,211, September 13, 1983.
8. Schmidt, W. K.: Analgesic mixture of nalbuphine and indomethacin. U.S. Patent 4,407,804, October 4, 1983.
9. Schmidt, W. K.: Analgesic mixture of nalbuphine and zomepirac. U.S. Patent 4,407,805, October 4, 1983.
10. Baker, G. L. and Schmidt, W. K.: Analgesic mixture of oxycodone and ibuprofen. U.S. Patent 4,569,937, February 11, 1986.
11. Farrar, J. F., Schied, P. J., Schmidt, W. K., and Carpenter, R. L. Novel methods for the treatment and prevention of ileus. U.S. Patent 6,469,030, October 22, 2002.
12. Farrar, J. F., Schied, P. J., Schmidt, W. K., and Carpenter, R. L. Methods for the treatment or inhibition of ileus. U.S. Patent 7,696,220, April 13, 2010.
13. Christ DD, Wallin BA, Garver DD, Schmidt WK, Jackson D. Methods of preventing and treating gastrointestinal dysfunction. U.S. Patent 8,946,262, February 3, 2015.