

## **Gregory A. Reichard, Ph.D.**

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**Summary:** *Highly motivated, creative, and versatile scientist with fifteen years experience in pharmaceutical discovery with a track record of initiating, leading, delivering, and concluding programs. Experience across the spectrum of the Drug Discovery process from lead discovery to candidate delivery covering the therapeutic areas of CNS, Inflammation, Cardiovascular, Antibacterial, Dermatology, Allergy and Respiratory Diseases. Especially skilled at mentoring project leaders of drug discovery programs across the disciplines of medicinal chemistry, chemoinformatics, pharmacology, pharmacokinetics, and safety sciences. Passion to inspire scientists to leverage their strengths to deliver decisions and products.*

### **Professional Experience: 15 years**

#### **Decision Informatics, Ltd.**

**President and Principal Consultant**

**Oct. 2007 to present**

#### **University of Michigan**

**Adjunct Professor of Medicinal Chemistry**

**Nov. 2007 to present**

- Help develop and teach courses in the College of Pharmacy

#### **Pfizer: 5 years**

**Senior Director, Lead Discovery**

**Feb. 2006 to Oct. 2007**

- Built and led a multidisciplinary group of 31 scientists with the mission of discovering novel lead chemical series for the Ann Arbor (AA) Discovery portfolio.
- Accountabilities, responsibilities and expertise: novel series delivery; cross portfolio resource decisions; talent recruitment and development; effective outsourcing; frontier technology utilization; chemoinformatics and innovation in knowledge management.
- Provide site-wide leadership as a member of the Chemistry Senior Staff, Chemistry Executive Leadership Team and the expanded Discovery Research Management Team.
- Responsible for Pfizer's global strategic direction of the Chemistry Discipline as a member of the Chemistry Discipline Leadership Team.
- Recipient of the 2006 PGRD People Leader Award recognizing the top managers, globally, throughout PGRD for excellence in leadership.

**Director, CNS Chemistry**

**Nov. 2003 to Jan. 2006**

- Led a group of 21 chemists working on multiple projects in the CNS therapeutic area.
- Responsible for target selection, project prosecution and resource prioritization, tracking competitive activity, and therapeutic area strategy as a member and Chair of the AA CNS Management Team.
- Responsible for strategic technology prioritization and technology partner line interfaces for the CNS therapeutic area.
- Led a sustained effort to identify novel indications for established safe drug entities in the CNS area in partnership with the clinical line.

- Responsible for strategic direction for the AA site as a member of the Discovery Management Forum.
- Inspired excellence in the science of medicinal chemistry throughout the Ann Arbor Chemistry Department as a member of the AA Chemistry Senior Staff, with specific accountabilities for Chairing the Department Promotion Committee and helping to define clear roles and responsibilities for the performance evaluation process for the AA Chemistry Department.

**Associate Research Fellow**

**Aug. 2002 to Nov. 2003**

- Led a chemistry team of 8 scientists responsible for the delivery of drug candidates in the Inflammation therapeutic area.
- Responsibilities: Project Leader for programs in rheumatoid arthritis and fibromyalgia.
- Contributed to the development of TA strategy through the Inflammation New Projects team and the Discovery Fellows forum.
- Partnered with PDM to institute an effective paradigm for rapid PK optimization.

**Schering Plough Research Institute: 9 years**

**Section Leader**

**Jan. 2001 to July 2002**

- Led a chemistry team of 4 Ph.D. scientists and 3 associate level scientists; responsible for developing chemistry team goals, prioritizing the efforts of our team in SAR studies and guiding our synthetic strategy in the effort to discover a development candidate for clinical studies.
- Lead chemist on the interdisciplinary Discovery Team, collaborating with scientists from Biology, Drug Metabolism / Pharmacokinetics, Discovery Formulations and Chemical Development.

**Principal Scientist**

**July 1998 to Dec. 2000**

- Responsible for successfully leading a team of scientists in the discovery of a development candidate for clinical studies in the CNS area. In this capacity, I supervised and scientifically contributed to the development of the SAR studies and appropriate synthetic routes necessary to identify and select this candidate.

**Associate Principal Scientist**

**Sept. 1995 to July 1998**

- Discovered a process for the synthesis of an optically pure fragment of a development candidate which was used by Chemical Development to ensure delivery of kilogram quantities for toxicological studies.
- President's Award for Discovery for work on "The Design, Synthesis and Characterization of Novel Dual NK<sub>1</sub> / NK<sub>2</sub> Antagonists".

**Senior Scientist**

**Sept. 1993 to Sept. 1995**

- Discovered the first dual active oxime lead in the dual NK<sub>1</sub> / NK<sub>2</sub> antagonist project resulting in the delivery of a recommendation candidate for clinical studies.

**Education**

**Harvard University: Ph.D.**

**Sept. 1988 to Aug. 1993**

Department of Chemistry  
 Research Advisor, Professor E. J. Corey  
 Dissertation: "The First Total Synthesis of Lactacystin"

**The Ohio State University: B.S.**

**Sept. 1983 to June 1988**

Summa Cum Laude with Honors in the Liberal Arts and Distinction in Chemistry  
 Research Advisor, Professor J. S. Swenton  
 Thesis: "An Investigation of the Synthesis and Annelating Properties of Cyanophthalide Analogs of Indole"

## Publications and Presentations

1. "Discovery of a novel, potent and orally active series of  $\gamma$ -lactams as selective NK<sub>1</sub> antagonists." Paliwal, S.; Reichard, G. A.; Shah, S.; Wroblewski, M. L.; Wang, C.; Stengone, C.; Tsui, H.-C.; Xiao, D.; Duffy, R. A.; Lachowicz, J. E.; Nomeir, A. A.; Varty, G. B.; Shih, N.-Y. *Bioorg. Med. Chem. Lett.* **2008**, *18*(14), 4168.
2. "SARVision Plus by ChemApps" Reichard, G. A. *J. Chem. Inf. Model.* **2008**, *48*(6), 1287.
3. "Practical asymmetric synthesis of potent NK<sub>1</sub> antagonists" Tsui, H.-C.; Paliwal, S.; Reichard, G. A.; Xiao, D.; Wang, C.; Wroblewski, M. L.; Shah, S.; Duffy, R. A.; Lachowicz, J.; Morgan, C.; Nomeir, A.; Varty, G.; Shih, N.-Y. Abstracts of Papers, 234th ACS National Meeting, Boston, MA, United States, August 19-23 (2007), MEDI-421.
4. "Novel  $\gamma$ -lactams as potent, selective and orally active NK<sub>1</sub> antagonists" Paliwal, S.; Reichard, G. A.; Shah, S.; Wroblewski, M. L.; Wang, C.; Stengone, C.; Tsui, H.-C.; Xiao, D.; Duffy, R. A.; Lachowicz, J. E.; Liu, F.; Nomeir, A. A.; Varty, G. B.; Shih, N.-Y. Abstracts of Papers, 234th ACS National Meeting, Boston, MA, United States, August 19-23 (2007), MEDI-422.
5. "Two complementary, diversity-driven asymmetric syntheses of a 2,2-disubstituted piperidine NK<sub>1</sub> antagonist" Xiao, D.; Wang, C.; Palani, A.; Reichard, G. A.; Aslanian, R.; Shih, N.-Y.; Buevich, A. *Tetrahedron: Asymmetry* **2006**, *17*, 2596.
6. "Improving metabolism of novel cyclic urea NK<sub>1</sub> antagonists with amine capping groups" Xiao, D.; Stengone, C.; Reichard, G. A.; Shih, N.-Y.; Duffy, R. A.; Randolph, G.; Lachowicz, J.; Varty, G.; Morgan, C.; Liu, F.; Nomeir, A. Abstracts of Papers, 232nd ACS National Meeting, San Francisco, CA, United States, Sept. 10-14 (2006), MEDI-477.
7. "Series of potent, orally active alpha,alpha-disubstituted piperidine NK<sub>1</sub> antagonists" Xiao, D.; Wang, C.; Reichard, G. A.; Tsui, H.-C.; Paliwal, S.; Palani, A.; Shih, N.-Y.; Duffy, R. A.; Randolph, G.; Lachowicz, J.; Varty, G.; Morgan, C.; Liu, F.; Nomeir, A. Abstracts of Papers, 232nd ACS National Meeting, San Francisco, CA, United States, Sept. 10-14 (2006), MEDI-476.
8. "An efficient approach for the rapid assessment of oral rat exposures for new chemical entities in drug discovery" Han, H.-K.; Sadagopan, N.; Reichard, G.A.; Yapa, U.; Zhu, T.; Hubbel, A.; Johnson, K.; Brodfuehrer, J. *Journal of Pharmaceutical Sciences* **2006**, *95*, 1684.
9. "Cyclobutane derivatives as potent NK<sub>1</sub> selective antagonists" Wroblewski, M. L.; Reichard, G. A.; Paliwal, S.; Shah, S.; Tsui, H.-C.; Duffy, R. A.; Lachowicz, J. E.; Morgan, C. A.; Varty, G. B.; Shih, N.-Y. *Bioorg. Med. Chem. Lett.* **2006**, *16*, 3859.
10. "Cyclic urea derivatives as potent NK<sub>1</sub> selective antagonists. Part II: Effects of fluoro and benzylic methyl substitutions" Shue, H. J.; Chen, X.; Schwerdt, J. H.; Paliwal, S.; Blythin, D. J.; Lin, L.; Gu, D.; Wang, C.; Reichard, G. A.; Wang, H.; Piwinski, J. J.; Duffy, R. A.; Lachowicz, J. E.; Coffin, V. L.; Nomeir, A. A.; Morgan, C. A.; Varty, G. B.; Shih, N.-Y. *Bioorg. Med. Chem. Lett.* **2006**, *16*, 1065.
11. "Cyclic urea derivatives as potent NK<sub>1</sub> selective antagonists" Shue, H. J.; Chen, X.; Shih, N.-Y.; Blythin, D. J.; Paliwal, S.; Lin, L.; Gu, D.; Schwerdt, J. H.; Shah, S.; Reichard, G. A.; Piwinski, John J.; Duffy, R. A.; Lachowicz, J. E.; Coffin, V. L.; Liu, F.; Nomeir, A. A.; Morgan, C. A.; Varty, G. B. *Bioorg. Med. Chem. Lett.* **2005**, *15*, 3896.
12. "The Asymmetric Synthesis of 4,4-Disubstituted-2-Imidazolidinones: Potent NK<sub>1</sub> Antagonists" Reichard, G. A.; Stengone, C. A.; Paliwal, S.; Mergelsberg, I.; Majmundar, S.; Wang, C.; Tiberi, R.; McPhail, A. T.; Piwinski, J. J.; Shih, N.-Y. *Org. Lett.* **2003**, *5*, 4249.
13. "Development and Potential Utility of Dual and Triple NK Receptor Antagonists" Rizzo, C. A.; Anthes, J. C.; Corboz, M. R.; Chapman, R. W.; Shih, N.-Y.; Reichard, G. A.; Ng, Kwokei J.; Hey, J. A. *Current Topics in Medicinal Chemistry*. **2003**, *3*, 1410.
14. "Isolation of Circulating Metabolites in Drug Discovery Using High-Performance Liquid Chromatography, and their Identification by Liquid Chromatography Coupled with Tandem Mass Spectrometry and Nuclear Magnetic Resonance Spectroscopy" Kim, H.; Feng, W.; Chan, T.-M.; Rindgen, D.; Bryant, M.; Cox, K. A.; Xia, Y.; Reichard, G.; Paliwal, S.; Hesk, D.; Palamanda, J.; White, R. E.; Nomeir, A. A. *Journal of Separation Science*. **2002**, *25*, 877.
15. "SCH 206272: A Potent, Orally Active Tachykinin NK<sub>1</sub>, NK<sub>2</sub>, and NK<sub>3</sub> Receptor Antagonist" Anthes, J. C.; Chapman, R. W.; Reichard, G. A.; Eckel, S.; Corboz, M.; Hey, J. A.; Fernandez, X.; Greenfeder, S.; McLeod, R.;

- Sehring, S.; Rizzo, C.; Crawley, Y.; Shih, N.-Y.; Piwinski, J.; Reichard, G.; Ting, P.; Carruthers, N.; Cuss, F. M.; Billah, M.; Kreutner, W.; Egan, R. W. *European Journal of Pharmacology* **2002**, *450*, 191.
16. "Preparation of Oxime Dual NK<sub>1</sub>/NK<sub>2</sub> Antagonists with Reduced NK<sub>3</sub> Affinity" Reichard, G. A.; Grice, C. A.; Shih, N.-Y.; Spitler, J.; Majmundar, S.; Wang, S. D.; Paliwal, S.; Anthes, J. C.; Piwinski, J. J. *Bioorg. Med. Chem. Lett.* **2002**, *12*, 2355.
17. "The Asymmetric Synthesis of (3*R*)-*N*-Methyl-2-oxo-[1,4'-bipiperidine]-3-acetamide in Quantity" Reichard, G. A.; Spitler, J.; Mergelsberg, I.; Miller, A.; Wong, G.; Raghavan, R.; Jenkins, J.; Gan, T.; McPhail, A. T. *Tetrahedron: Asymmetry* **2002**, *13*, 939.
18. "Structure Activity Relationships of Oxime Neurokinin Antagonists: Oxime Modifications" Reichard, G. A.; Spitler, J.; Aslanian, R.; Mutahi, M.; Shih, N.-Y.; Lin, L.; Ting, P. C.; Anthes, J. C.; Piwinski, J. J. *Bioorg. Med. Chem. Lett.* **2002**, *12*, 833.
19. "Synthesis and Structure-Activity Relationships of Oxime Neurokinin Antagonists: Discovery of Potent Arylamides." Shih, N.-Y.; Albanese, M.; Anthes, J. C.; Carruthers, N. I.; Grice, C.A.; Lin, L.; Mangiaracina, P.; Reichard, G. A.; Schwerdt, J.; Seidl, V.; Wong, S.-C.; Piwinski, J. J. *Bioorg. Med. Chem. Lett.* **2002**, *12*, 141.
20. "The Design and Synthesis of Novel NK<sub>1</sub>/NK<sub>2</sub> Dual Antagonists" Reichard, G. A.; Ball, Z. T.; Aslanian, R.; Anthes, J. C.; Shih, N.-Y.; Piwinski, J. J. *Bioorg. Med. Chem. Lett.* **2000**, *10*, 2329.
21. "Design and Synthesis of the Novel and Orally Active Dual NK<sub>1</sub>/NK<sub>2</sub> Antagonist, Sch 205528" Shih, N.-Y.; Albanese, M.; Aslanian, R.; Blythin, D.; Chen, X.; Duguma, L.; Gu, D.; Friary, R.; Lee, J.; Lin, L.; Mangiaracina, P.; McCormick, K.; Mohrbutter, R.; Mutahi, M.; Piwinski, J.; Reichard, G.; Schwerdt, J.; Shue, H.-J.; Spitler, J.; Ting, P.; Wong, J.; Wong, S.-C.; Carruthers, N.; Grice, C.; Lupo, A. Jr.; Anthes, J.; Chapman, R.; Hey, J.; Kreutner, W.; Rizzo, C. Book of Abstracts, 220th ACS National Meeting, Washington, DC, August 20-24 (2000), MEDI-129.
22. "Synthetic and Biological Studies with Lactacystin and Analogs" Corey, E. J.; Reichard, G. A.; Li, W. -D. Z.; Choi, S.; Nagamitsu, T.; Fenteany, G.; Schreiber, S. L. Book of Abstracts, 216th ACS National Meeting, Boston, August 23-27 (1998), ORGN-500.
23. "A New Magnesium-Catalyzed Doubly Diastereoselective *anti*-Aldol Reaction Leads to a Highly Efficient Process for the Total Synthesis of Lactacystin in Quantity" Corey, E. J.; Li, W.; Reichard, G. A. *J. Am. Chem. Soc.* **1998**, *120*, 2330.
24. "Total Synthesis of Lactacystin. An Enantioselective Synthesis of (5*R*)-Lactacystin. Total Synthesis of (+)-Lactacystin, the First Non-Protein Neurotrophic Factor. Total Synthesis of (+)-Lactacystin from (*R*)-Glutamate" Corey, E. J.; Reichard, G. A.; Corey, E. J.; Choi, S.; Sunazuka, T.; Nagamitsu, T.; Matsuzaki, K.; Tanaka, H.; Omura, S.; et al. *Chemtracts: Org. Chem.* **1994**, *7*(4), 266.
25. "A  $\beta$ -Lactone Related to Lactacystin Induces Neurite Outgrowth in a Neuroblastoma Cell Line and Inhibits Cell Cycle Progression in an Osteosarcoma Cell Line" Fenteany, G., Standaert, R. F., Reichard, G. A., Corey, E. J., Schreiber, S. L. *Proc. Natl. Acad. Sci. USA.*, **1994**, *91*, 3358.
26. "Synthesis and X-Ray Structure of a Potent Superpositional Analog of the Enantiomeric Forms of Fluoxetine" Corey, E. J.; Reichard, G. A., Sarshar, S. *Bioorg. Med. Chem. Lett.* **1993**, *3*, 2635.
27. "Studies on the Total Synthesis of Lactacystin. An Improved Aldol Coupling Reaction and a  $\beta$ -Lactone Intermediate in Thiol Ester Formation" Corey, E. J.; Reichard, G. A., Kania, R. *Tetrahedron Lett.* **1993**, *34*, 6977.
28. "Synthesis of (6*R*, 7*S*)-Lactacystin and 6-Deoxylactacystin from a Common Intermediate" Corey, E. J.; Reichard, G. A. *Tetrahedron Lett.* **1993**, *34*, 6973.
29. "Total Synthesis of Lactacystin" Corey, E. J.; Reichard, G. A. *J. Am. Chem. Soc.* **1992**, *114*, 10677.
30. "(+)-1(*S*), 5(*R*), 8(*S*)-8-Phenyl-2-azabicyclo[3.3.0]octan-8-ol *N,O*-methylboronate and its Enantiomer, Chiral Chemzymes which Serve as Catalysts for their Own Synthesis" Corey, E. J.; Chen, C.-P.; Reichard, G.A. *Tetrahedron Lett.* **1989**, *30*, 5547.
31. "Enantioselective and Practical Syntheses of *R*- and *S*-Fluoxetine" Corey, E. J.; Reichard, G. A. *Tetrahedron Lett.* **1989**, *30*, 5207.

## Patents

1. "Preparation of pyrrolyl-substituted pyrido[2,3-d]pyrimidin-7-ones as phosphoinositide 3-kinase inhibitors" Bruendl, M. M.; Gogliotti, R. D.; Goodman, A. P.; Reichard, G. A. PCT Int. Appl. (2005), 64 pp. WO 2005105801.
2. "Substituted morpholine compounds for the treatment of central nervous system disorders, their preparation and pharmaceutical compositions" Barta, N. S.; Glase, S. A.; Gray, D. L.; Reichard, G. A.; Simons, L. J.; Xu, W. U.S. Pat. Appl. Publ. (2005), 85 pp. US 2005245519.
3. "Preparation of fused-ring heterocyclic NK1 antagonists for treatment of emesis, depression, anxiety and cough" Xiao, D.; Palani, A.; Wang, C.; Tsui, H.-C.; Shih, N.-Y.; Reichard, G. A. PCT Int. Appl. (2005), 102 pp. WO 2005100358.
4. "Preparation of halo-substituted N-tetrazolylbenzo[b]thiophenecarboxamides with PI3K inhibitory activity as therapeutic agents" Connolly, M. K.; Gogliotti, R. D.; Hurt, C. R.; Reichard, G. A.; Visnick, M. PCT Int. Appl. (2005), 82 pp. WO 2005023800.
5. "Preparation of N-tetrazolyl benzo[b]thiophenecarboxamides as phosphoinositide-3-kinase (PI3K) inhibitors for the treatment of cancer, inflammatory and cardiovascular diseases" Bruendl, M. M.; Connolly, M. K.; Goodman, A. P.; Gogliotti, R. D.; Lee, H. T.; Plummer, M. S.; Sexton, K. E.; Reichard, G. A.; Visnick, M.; Wilson, M. W. PCT Int. Appl. (2004), 101 pp. WO 2004108715.
6. "Preparation of 1-amido-4-phenyl-4-benzyloxymethylpiperidine derivatives and related compounds as neurokinin-1 (NK-1) antagonists for the treatment of emesis, depression, anxiety and cough" Shih, N.-Y.; Wang, S.; Reichard, G. A.; Xiao, D.; Wang, C. PCT Int. Appl. (2004), 91 pp. WO 2004004722.
7. "Preparation of Cyclobutane Derivatives as NK<sub>1</sub> Antagonists" Wroblewski, M. L.; Reichard, G. A.; Shih, N.-Y.; Xiao, D. PCT Int. Appl. (2003), 160 pp. WO 2003078376, AN 2003:757661.
8. "Preparation of Pyrrolidine and Piperidine Derivatives for Therapeutic Use as Neurokinin 1 (NK<sub>1</sub>) Receptor Antagonists" Paliwal, S.; Reichard, G. A.; Wang, C.; Xiao, D.; Tsui, H.-C.; Shih, N.-Y.; Arredondo, J. D.; Wroblewski, M. L.; Palani, A. PCT Int. Appl. (2003), 133 pp. WO 2003051840, CAN 139:69145.
9. "Preparation of Arylpyrrolidinones as Neurokinin-1 (NK<sub>1</sub>) Antagonists" Reichard, G. A.; Paliwal, S.; Shih, N.-Y.; Xiao, D.; Tsui, H.-C.; Shah, S.; Wang, C.; Wroblewski, M. L. PCT Int. Appl. (2003), 81 pp. WO 2003042173, CAN 138:401597.
10. "Use of Neurokinin Receptor Antagonists to Treat Androgen-Dependent Diseases" Leach, M. W.; Berardi, M. R.; Mirro, E. J.; Sinha, D.; Pachter, J.; Cartwright, M. E.; Reichard, G. A. PCT Int. Appl. (2002), 42 pp, WO 2002089802, CAN 137:346212.
11. "Preparation of 2-Imidazolidinones and Related Compounds as Selective Neurokinin Antagonists." Shih, N.-Y.; Shue, H.-J.; Reichard, G. A.; Paliwal, S.; Blythin, D. J.; Piwinski, J. J.; Xiao, D.; Chen, X.. PCT Int. Appl. (2001), 108 pp. WO 0144200, CAN 135:61331.
12. "Preparation of Substituted Oximes and Hydrazones as Neurokinin Antagonists" Reichard, G. A.; Shih, N.-Y.; Wang, D. U.S. (2001), 36 pp. US Patent 6204265, CAN 134:237490 AN 2001:195199
13. "Preparation of Piperidinylpentanone Oximes as Neurokinin Antagonists." Reichard, G. A.; Alaimo, C. A.; Shih, N.-Y.; Ting, P. C.; Carruthers, N. I.; Lavey, B. J. U.S. (2000), 67 pp. US Patent 6063926, CAN 132:334363.
14. "Preparation of Spiroindolepiperazine Oximes, Hydrazones and Olefins as Neurokinin Antagonists." Shih, N.-Y.; Reichard, G. A.; Aslanian, R. G. U.S. (1999), 28 pp. US Patent 5945428 A 19990831 CAN 131:170343.
15. "Preparation of Piperidinylaralkylamines as Neurokinin Antagonists." Reichard, G. A.; Aslanian, R. G. U.S. (1998), 16 pp. US Patent 5789422, CAN 129:161494 AN 1998:534887.
16. "Substituted Oximes, Hydrazones and Olefins as Neurokinin Antagonists." Reichard, G. A.; Aslanian, R. G.; Alaimo, C. A.; Kirkup, M. P.; Lupo, A., Jr.; Mangiaracina, P.; McCormick, K. D.; Piwinski, J. J.; Shankar, B. B.; Shih, N.-Y.; Spittler, J. M.; Ting, P. C.; Ganguly, A. Carruthers, N. I. U.S. (1997), 80 pp. US Patent 5696267 A 19971209 CAN 128:75317.