

CURRICULUM VITAE

NAME: Nicholas R. Natale

CURRENT ADDRESS: Department of Biomedical and Pharmaceutical Sciences
University of Montana, Missoula MT 59812

EDUCATION: B. S., Chemistry, 1976, Drexel University, Philadelphia, PA
Ph.D., 1979, Drexel University, Mentor: Professor Robert O. Hutchins

EXPERIENCE:

Postdoctoral Fellow, 1979-81, Colorado State University, Mentor: Professor Albert I. Meyers
Assistant Professor of Chemistry, University of Idaho, 1981-87
Department Nominee for Presidential Young Investigator, 1983
Associate Professor of Chemistry, University of Idaho, 1987-94
Alumni Award for Faculty Excellence, 1987
Professor of Chemistry, University of Idaho, 1994-2007
Department Nominee for University Excellence in Teaching Award, 1999
Faculty Fellow in Academic Service-Learning, Dec. 9, 2002
Department Nominee for University Excellence in Outreach Award, 2003
Professor of Medicinal Chemistry, NIH-COBRE Center for Structural & Functional Neuroscience,
2007 - present
Center for Biomolecular Structure & Dynamics, University of Montana, 2007 - 2011
Center for Environmental Health Sciences, 2011- present
Director, Medicinal Chemistry Graduate Program, The University of Montana, August 2008
Visiting Faculty Researcher, University of Colorado, Anschutz Medical Campus, January - May 2015

PROFESSIONAL ORGANIZATIONS:

Phi Lambda Upsilon, Honorary Chemical Society, 1975
American Chemical Society, 1976 to present
Centennial Celebration Award, MARM 1976; Drexel SA-ACS
Organic Program Chairman, NORM 1983, Organic/Biochemistry Session Chair, NORM 1997
Washington-Idaho Border Section (WIBS), Chair, 1996; Newsletter Editor, 1995-7
Alternate Counselor, 1993-5, 1999-2006, NOR Board 2005-6
National Chemistry Week Coordinator, 1996-7, 2000-6
Phoenix Award, 1997, 3 ChemLuminary Awards, 2002
WIBS Special Recognition Award, October 23, 2002
Salute to Excellence, NCW Coordinator Recognition, August 24, 2004
ChemLuminary Award for Outstanding ACS Scholars Program, as mentor, 2006
International Chemistry Celebration Chair, 1998-9
Student Affiliate Advisor, 1999-2000, SA Liaison, 2001-6,
4 Commendable Chapter Awards, 1999-2002, Honorable Mention 2005
Minority Affairs Committee, 2001-6; TRIO Certificate of Appreciation, Feb. 13, 2003
Secretary-Treasurer, 2001-6
Symposium on *Medicinal uses of Northwest Plants*, NORM 2002, Organizer
Joint Board Council Committee on Publications, 2003-9
Copyright Committee, 1998-9, JBCCP Committee Associate, 2000-2
Member, Editor-in-Chief search Committee for *Medicinal Chemistry Letters*, 2009
The 2007 E. Ann Nalley Northwest Regional Award for Volunteer Service
Montana Local Section (Mt-LS), 2007- present; NCW Coordinator, 2007

Natale, N.R.

Mt-LS NOR Board representative, 2007 to present

Symposium on *Bioorganic Chemistry*, NORM 2012, Organizer with Don Warner

Symposium on *Heterocyclic Chemistry*, RMRM 2012, Organizer with Mike Mosher
and Connie Gabel

ACS Chemistry Ambassador, September 30, 2013

69th ACS Northwest Regional Meeting, NORM 2014, June 22-25, General Chair

Symposium on *Translating Chemistry into Medicines*, NORM 2014, Organizer

ChemLuminary Award for *Outstanding Local Section Industry Event* at NORM 2014

Nomination for *Outstanding Regional Meeting ChemLuminary Award*

Sigma Xi, The Scientific Research Society, 1982

American Association for the Advancement of Science, 1983

Idaho Academy of Science, 1983 to present

Executive Committee, 1992-8; Chemistry Session Chair, Annual Meeting 1996

Distinguished Science Communicator Award, March 26, 2004.

American Association of Pharmaceutical Sciences, 2008.

Institute for Translational Health Sciences, University of Washington, 2008.

Montana Academy of Science, member, 2008 to present

Mershon Award, 2011

Society for Neuroscience, 2008.

SpectrUM Discover Area, the University of Montana, Advisor and Master Educator, 2008.

COURSES TAUGHT

University of Montana, 2007 to the present

Pharmacy 331 - Pharmaceutics, Pharm. D.

Pharmacy 362 - Pharmaceutical Science Lab, Pharm. D. Capsules and Powders.

Pharmacy 371 - Integrated Studies I, Pharm. D.

Pharmacy 372 - Integrated Studies II, Pharm. D.

Pharmacy 421 - Medicinal Chemistry I, Pharm. D.

Pharmacy 422 - Medicinal Chemistry II, Pharm. D.

Medicinal Chemistry 622 - Med Chem II and scale-up lab.

Medicinal Chemistry 623 - Med Chem III.

Medicinal Chemistry 624 - Special Topics in Medicinal Chemistry

Medicinal Chemistry 625 - Drug Synthesis

Medicinal Chemistry 627 - Med Chem Professional Development

Medicinal Chemistry 637 - Medicinal Chemistry Colloquium

University of Idaho, 1981 to 2007

Chemistry 050 - Introduction to Chemistry

Chemistry 275 - Carbon Compounds (non-majors)

Chemistry 277 - Organic Chemistry I

Chemistry 372 - Organic Chemistry II

Chemistry 376 - Organic Chemistry Laboratory II

Chemistry 472 - Special Topics: Rational Drug Design (Joint Listing with 572)

Chemistry 473 - Intermediate Organic Chemistry

Chemistry 556 - Chemical Spectroscopy

Chemistry 565 - Organometallic Chemistry

Chemistry 571 - Special Topics: Asymmetric Synthesis

Chemistry 572 - Special Topics: Rational Drug Design

Chemistry 573 - Synthetic Organic Chemistry: The Logic of Chemical Synthesis

Physical Education 204 - In-Line Hockey

SYNERGISTIC ACTIVITIES

1. Innovations in teaching and training (e.g., development of curricular materials and pedagogical methods):
 - (a) Medicinal Chemistry Graduate Program Development Committee, University of Montana, 2007 to present: wrote *and revised* course syllabi for Sept. 28, 2007 submission to Graduate Council, included Med. Chem. 621, 622, 623, 624, 625 and 627 (available on request). Represented committee to the Graduate Council on Dec. 5, 2007. Represented committee to Faculty Senate on Feb. 14, 2008. Named interim director, July 30, 2008.
 - (b) “The Chemistry of Winning Teams” outreach program, cited in ACS Phoenix Award 1997, and “A Periodic Table of the Moles”, cited in 3 ACS ChemLuminary Awards, 2002. ChemLuminary Award for Outstanding ACS Scholars Program, as mentor, 2006.
2. Contributions to the science of learning: Founding member of the interdisciplinary Neuroscience Program, University of Idaho. First organizational meeting April 25, 2000, approved by State Board of Education 2003. Member of the Neuroscience Advisory Group, 2000-6. Established guidelines for Chemistry Pre-med major, which included my course “Rational Design of Pharmaceuticals”, Chem. 472-572, first joint listed undergraduate-graduate medicinal chemistry course at University of Idaho, 1995.
3. Service on national boards and committees: Neuropharmacology, Center for Scientific Review, Special Emphasis Panel, ZRG1 MDCN-R 05 S, National Institutes of Health, April 2, 2014; Drug Discovery for the Nervous System, Biophysics of Neural Systems, NIH, ZRG1 MDCN-B 91 S, October 30, 2013; Medications Development Review Committee, NIDA-L, National Institute on Drug Abuse, February 12, 2009; National Institute of Health, Medicinal Chemistry Study Section, October 18-19, 2000.
4. Department of Energy (DOE) Environmental Science Program Review Panel, Heavy Element Chemistry, June 5-6, 1997; DOE Environmental Science Program Review Panel, June 20-21, 1996.
5. National Institutes of Health, Small Business Innovative Research, Special Study Section Z, November 17–18, 1993.

PUBLICATIONS, PUBLISHED ABSTRACTS, PRESENTATIONS, AND INVITED LECTURES:

Total 526 as of 21 October 2015 [102 publications (4 completed awaiting collaborator input, 3 invited reviews in preparation, 12 solved sc-xrd structures in hand), 72 published abstracts, 258 presentations (0 submitted, others planned), and 94 invited lectures (several standing invitations)]. Intellectual Property: 2 US Patents; 1 International application, 4 Provisional patent applications, 4 disclosures pending. Total grant support, approximately \$28.7 million.

DIRECT CITATION ANALYSIS:

The Hirsch number or h-index is the highest number of publications by an investigator which have more than n citations (Hirsch, J.E. *PNAS*, **2005**, 16569-72), Hirsch has suggested an h-index of 12 for advancement to tenure for faculty at major research institutions, as well as an h-index of 18 for advancement to full professor for faculty at major research institutions, and noted that there was at least one example of a scientist elected to the National Academy of Science in 2005 with a h-index of 18. NRN’s h-index was 20 as of February 2014, and has 37 papers and one patent with 12 or more citations. Therefore, the argument could be made that tenure has been earned three times over. NRN has 138 publications and published abstracts listed on the Web of Science [142 using the CU library search engine which includes patents and patent *applications*], with average citations-per-item of 10.78, and total citations of 1,487. NRN reached 1,000 times cited without self-citations on April 12, 2013, with the current total at 1,097. Average citations per item, not including 37 abstracts and conferences is 14.15, for reference, in 2012 the impact factor for *JACS* was 10.677 and *PNAS* was 9.737 [<http://apps.webofknowledge.com/>] v5.19 last accessed 14 October 2015.

Refereed PUBLICATIONS (total number 102, 4 completed awaiting collaborator input, 12 solved sc-xrd in hand, 3 invited reviews in various stages of completion):

1. "The Selective Reduction of α,β -Unsaturated Esters, Nitriles and Nitro Compounds with Sodium Cyanoborohydride", Robert O. Hutchins, David Rotstein, N. Natale, J. Fanelli, and D. Dimmel, *J. Org. Chem.*, **1976**, *41*, 3328-3329.
2. "A Mass Spectrometric Survey of Some Biologically Important Lipids", N.R. Natale, *Lipids*, **1977**, *12*, 847-856.
3. "An Efficient, General Synthesis of Spiroalkenes and Related Derivatives", N.R. Natale and R.O. Hutchins, *Org. Prep. Proced., Int.*, **1977**, *9*, 103-108.
4. "Orange Benzene. Neutral Dichromate Oxidations in Organic Solvents", R.O. Hutchins, N.R. Natale, W. Cook, and J. Ohr, *Tetrahedron Lett.*, **1977**, 4167-4170.
5. "Sodium Borohydride in Acetic Acid. A Convenient System for the Deoxygenation of Carbonyl Tosylhydrazones", R.O. Hutchins and N.R. Natale, *J. Org. Chem.*, **1978**, *43*, 2299-2301, 5027.
6. "Cyanoborohydride Supported on an Anion Exchange Resin as a Selective Reducing Agent", R.O. Hutchins, N.R. Natale, and I.M. Taffer, *J. Chem. Soc., Chem. Commun.*, **1978**, 1088-1089.
7. "Reductions of Heterocyclic Systems I. The Selective Reduction of 4-Substituted Pyridinium Salts with Cyanoborohydride", R.O. Hutchins and N.R. Natale, *Synthesis*, **1979**, 281-283.
8. "Cyanoborohydride. Utility and Synthetic Applications in Organic Synthesis. A Review", R.O. Hutchins and N.R. Natale, *Org. Prep. Proced., Int.*, **1979**, *11*, 201-246.
9. "Conjugate Reduction of α,β -Unsaturated Tosylhydrazones to Alkenes with Catecholborane: 5 β -Cholestene", G.W. Kabalka, R.O. Hutchins, N.R. Natale, D.T.C. Yang, V. Broach, *Org. Synth.*, **1979**, *59*, 42-48.
10. "An Efficient and Mild Method for the Dehydrogenation of Spiroenones to Spirodienones *via* Organoselenium Reagents", R.E. Zipkin, N.R. Natale, I.M. Taffer, and R.O. Hutchins, *Synthesis*, **1980**, 1035-1037.
11. "Chiral 1,4-Dihydropyridines. Synthesis and Absolute Configuration", A.I. Meyers, N.R. Natale, Wettlaufer, D.G.; S. Rafii, and J. C. Clardy, *Tetrahedron Lett.*, **1981**, 5123-5126.
12. "Regioselective Additions to 3-(Oxazoliny) Pyridine with Organo Lithium Reagents", A.I. Meyers and N.R. Natale, *Heterocycles*, **1982**, *18*, 13-19.
13. "Selective Reduction of Isoxazoles with Samarium Diiodide", N.R. Natale, *Tetrahedron Lett.*, **1982**, 5009-5012.
14. "Neutral Dichromate Oxidations. Preparation and Utility of Isoxazole Aldehydes", N.R. Natale and David A. Quincy, *Synth. Commun.*, **1983**, *13*, 817-822.
15. "Lanthanides in Organic Synthesis", N.R. Natale, *Org. Prep. Proced., Int.*, **1983**, *15*, 387-424.

16. "An Efficient Approach to Spirosesquiterpenes. Synthesis of (\pm)- β -vetivone", Robert O. Hutchins, N.R. Natale, Ira M. Taffer and Robert E. Zipkin, *Synth. Commun.*, **1984**, *14*, 445-51.
17. "A Facile Synthesis of Functionally Complex Isoxazole Derivatives", N.R. Natale and Chorng-Shyr Niou, *Tetrahedron Lett.*, **1984**, 3943-6.
18. "(+)-Cannabispirenone-A: Synthesis and Absolute Configuration", N.R. Natale, Brian E. Marron, E.J. Evain and Craig D. Dodson, *Synth. Commun.*, **1984**, *14*, 599-603.
19. "Heterocycles and Reactive Intermediates in the Undergraduate Organic Lab", K. Dean Bowles, David A. Quincy, Brenda Mallet, John I. McKenna and N.R. Natale, *J. Chem. Ed.*, **1985**, *62*, 1118-20.
20. "Metalation of Isoxazolyloxazolines, A Facile Route to Functionally Complex Isoxazoles: Utility, Scope and Comparison with Dianion Methodology ", N.R. Natale, John I. McKenna, Chorng-Shyr Niou, Mark Borth and Hakon Hope, *J. Org. Chem.*, **1985**, *50*, 5660-6.
21. "The Crystal and Molecular Structure of an Unexpected Product from an Attempted Hantzsch Pyridine Synthesis. Imine-enamine Tautomerism", N.R. Natale and Hakon Hope, *J. Heterocycl. Chem.*, **1986**, *23*, 711-3.
22. "Synthesis, Metalation and Electrophilic Quenching of Alkyl-Isoxazole-4-tertiary carboxamides. A Critical Comparison of Three Isoxazole Lateral Metalation Methods", Chorng-Shyr Niou and N.R. Natale, *Heterocycles*, **1986**, *24*, 401-12.
23. "Selective Oxidation in the Presence of a Heterocycle", K. Dean Bowles, David A. Quincy, John I. McKenna and N.R. Natale, *J. Chem. Ed.*, **1986**, *63*, 358-60.
24. "Structure of 3,5-Dicarboethoxy-2,6-dimethyl-4-(3'-Phenyl-5'methyl-isoxazol-4'-yl)-1,4-dihydropyridine, A Calcium Antagonist", Cynthia K. Schauer, Oren P. Anderson, David A. Quincy, and N.R. Natale, *Acta Crystallogr., Sect. C, Cryst. Struct. Commun.*, **1986**, *C42*, 884-6.
25. "The Reaction of Lithio-Alkyl-Isoxazoles with Acid Chlorides in the Presence of Cerium Trichloride. Direct Preparation of s-isoxazolyl-Ketones", N.R. Natale, Steven G. Yocklovich and Brenda M. Mallet, *Heterocycles*, **1986**, *24*, 2175-2178.
26. "The Mass Spectral Fragmentation of Isoxazolyl-Dihydropyridines", Gary D. Knerr, David A. Quincy, John I. McKenna and N.R. Natale, *J. Heterocycl. Chem.*, **1987**, *24*, 1429-33.
27. "The Synthesis, Structure and Some Reactions of Sterically Hindered Alpha-Silyl-Isoxazoles", Mark L. Borth, K. Dean Bowles, Ludwig Schlicksupp and N.R. Natale, *J. Organomet. Chem.*, **1987**, *331*, 1-9.
28. "Regioselectivity in Lateral Deprotonation of an Isoxazole Carboxamide of (S)-Prolinol. Conformational Correlation by Crystal Structure, Solid State and Solution ^{13}C NMR", Ludwig Schlicksupp and N.R. Natale, *J. Heterocycl. Chem.*, **1987**, *24*, 1345-8.
29. "Cardioactivity and Solid State Structure of Two 4-Isoxazolyl-Dihydropyridines Related to the 4-Aryldihydropyridine Calcium Channel Blockers", John I. McKenna, Ludwig Schlicksupp, N.R. Natale, Bruce E. Maryanoff, Steven F. Flaim and Roger D. Willett, *J. Med. Chem.*, **1988**, *31*, 473-6. PMID: 3339618.

30. "Conjugate Reduction of α,β -Unsaturated p-Toluenesulfonylhydrazones to Alkenes with Catecholborane: 5 β -Cholest-3-ene", G.W. Kabalka, Robert O. Hutchins, N.R. Natale, D.T.C. Yang and V. Broach, *Org. Synth.*, **1988**, *Coll. Vol. VI*, 293-8
31. "An Asymmetric Isoxazole Annulation", Brian E. Marron, Ludwig Schlicksupp and N.R. Natale, *J. Heterocycl. Chem.*, **1988**, *25*, 1067-70.
32. "Structure of Ethyl 2-Chloro-4-methyl-6-(Pyrrolydin-1yl) benzoate", Ludwig Schlicksupp, David A. Quincy, and N.R. Natale, *Acta Crystallogr., Sect. C., Cryst. Struct. Commun.*, **1989**, *C45*, 1561-3. PMID: 2610957.
33. "The Use of Phosphonitrilic Dichloride Cyclic Trimer in Oligopeptide Synthesis. Synthesis of Isoxazolyl-Prodrugs of Netropsin and Distamycin", Erik J. Verner, Bradford J. Oliver, Ludwig Schlicksupp, and N.R. Natale, *Heterocycles*, **1990**, *31*, 327-39.
34. "Metalation and Electrophilic Quenching of C-4 Functionalized Isoxazoles. VIII. Preparation of C-5-Thiomethyl Isoxazoles", T.N. Balasubramaniam, Yousef R Mirzaei, and N.R. Natale, *Synthesis*, **1990**, 1076-9.
35. "Structure Calculations on Calcium Channel Drugs: Is Electron Transfer Involved Mechanistically?", Peter Kovacic, W. Daniel Edwards, N.R. Natale, R. Sridhar, P. Kiser, *Chem. Biol. Interactions*, **1990**, *75*, 61-70. PMID: 2364458.
36. "4-Isoxazolyl-Dihydropyridines: Biological, Theoretical and Structural Studies", N.R. Natale, David J. Triggler, Robert B. Palmer, Barbara J. Lefler and W. Daniel Edwards, *J. Med. Chem.*, **1990**, *33*, 2255-9. PMID: 2142737.
37. "Synthesis of Isoxazolylphosphazene", Mark S. Munsey and N.R. Natale, *Heterocycles*, **1990**, *31*, 851-4.
38. "Selective Lateral Metalation and Electrophilic Quenching of C-4 Functionalized Isoxazoles. IX. Direct Formation of the C-N Bond Utilizing an Electrophilic Nitrogen Source", Yousef R. Mirzaei, T.N. Balasubramaniam, Barbara J. Lefler, and N.R. Natale, *J. Heterocyclic Chem.*, **1990**, *27*, 2001-4.
39. "The Structure of an Isoxazole Amino-Ester", Miles P. Smith, Yousef R. Mirzaei, Roger D. Willett, Brian Scott, and N.R. Natale, *Acta Cryst.*, **1991**, *C47*, 1328-1330. PMID: 1953984.
40. "Preparation of Crown Ethers with Isoxazolyl- Lariats: Homologation of Isoxazole Aldehydes, and a Critical Comparison of Functional Moieties for Lanthanide Extraction", Xiong Bing Xia, Mark S. Munsey, Hongshan Du, Chien M. Wai, and N.R. Natale, *Heterocycles*, **1991**, *32*, 711-722.
41. "The Coordination Chemistry of Isoxazoles", M.S. Munsey and N.R. Natale, *Coord. Chem. Rev.*, **1991**, *109*, 251-81.
42. "Tricarbonyl Chromium Complexes of Hantzsch Esters Possess Robust Calcium Antagonist Activity", Timothy L. Hubler, Scott B. Meikrantz, Thomas E. Bitterwolf, N.R. Natale, David J. Triggler, and Yong-Wha Kwon, *J. Med. Chem.*, **1992**, *35*, 1165-1168. PMID: 1552509.

43. "The Preparation of Perfluoroaryl Substituted Isoxazoles via Nucleophilic Aromatic Substitution with Lithioalkylisoxazoles", Xiongbing Xia, Gary Knerr and N.R. Natale, *J. Heterocycl. Chem.*, **1992**, *29*, 1297-1299.
44. "Diastereoselectivity in the Lateral Metalation and Electrophilic Quenching of Isoxazolyl- Oxazolines", Yousef R. Mirzaei, Brenda Mallet Simpson, D.J. Triggle and N.R. Natale, *J. Org. Chem.*, **1992**, *57*, 6271-6279.
45. "Electrophilic Quenching of Dianions of 4-[5'-sulfonylmethyl]isoxazolyl]-1,4-dihydropyridines. A Direct Route to Functionalized Hantzsch Esters", T.N. Balasubramaniam and N.R. Natale, *Tetrahedron Lett.*, **1993**, *34*(7), 1099-1102.
46. "The Lateral Metalation of Isoxazoles. A Review", N.R. Natale and Yousef R. Mirzaei, *Org. Prep. Proced., Int.*, **1993**, *25*, 515-556.
47. "Separation of ⁹⁰Y from ⁹⁰Sr by Solvent Extraction with Ionizable Crown Ethers", D.J. Wood, S. Elshani, N.R. Natale, and C.-M. Wai, *Anal. Chem.*, **1993**, *65*, 1350-1354.
48. "Improved Routes to Homologated Isoxazoles", S.B. Meikrantz, M.P. Smith, X. Xia, and N.R. Natale, *Synth. Commun.*, **1994**, *24*, 399-407.
49. "The Preparation of Intercalating Isoxazoles via a Nitrile Oxide Cycloaddition", Michael D. Mosher and N.R. Natale, *J. Heterocycl. Chem.*, **1995**, *32*, 779-781.
50. "Nucleophilic Aromatic Substitution with the Anion of 3,5-Disubstituted-Isoxazole 4-carboxylic Acids", Michael D. Mosher, and N.R. Natale, *J. Heterocycl. Chem.*, **1995**, *32*, 1385-1387.
51. "Conformational Preferences and Dynamics of 4-Isoxazolyl-1,4-dihydropyridine Calcium Channel Antagonists as Determined by Variable Temperature NMR and NOE Experiments", Robert B. Palmer, Tina M. Andro, N.R. Natale, N.H. Andersen, *Magnetic Resonance Chem.*, **1996**, *34*, 495-504.
52. "Synthesis of N-Methyl-2-trichloroacetyl-pyrrole. A Key Building Block in Peptides that Bind DNA. Micro-, Semi-micro, and Macro-scale Organic Lab Experiments", M.D. Mosher, E.J. Verner, B.J. Oliver, Daniel Hamlin, N. Vietri, R.B. Palmer, T.V. Arnold and N.R. Natale, *J. Chem. Ed.*, **1996**, 1036-1039.
53. "Intercalating Isoxazoles", Michael D. Mosher, N.R. Natale, and Ashwani Vij, *Acta Cryst.*, **1996**, *C52*, 2513-2515.
54. "The Direct Synthesis of 2-Oxazolines from Carboxylic Esters using Lanthanide Chloride as Catalyst", P. Zhou, J.E. Blubaum, C.T. Burns and N.R. Natale, *Tetrahedron Lett.*, **1997**, *38*, 7019-7020.
55. "Double Activation Preparation of an Acridinyl - Isoxazolyl- Lexitropsin", Peiwen Zhou, M.D. Mosher, Wendy D. Taylor, Gregory A. Crawford, and N.R. Natale, *Bioorg. & Med. Chem. Lett.*, **1997**, *7*, 2455-2456.
56. "Regiospecific Control of Additions of 4-Substituted 3,5-dimethylisoxazoles to α,β -Unsaturated Carbonyls" Jason R. Stenzel, N.R. Natale, *Synthesis*, **1997**, 1041-1043.

57. "Lanthanide Catalyzed Synthesis of β -Hydroxyl Amides", Peiwen Zhou and N.R. Natale, *Synth. Commun.*, **1998**, 28, 3317-3330.
58. "New Lipophilic Crown Ethers Containing Carboxylic and Hydroxamic Functional Moieties - Synthesis and Complexation Properties", Sadik Elshani, R. Noriyuki, C.M. Wai, N.R. Natale, and R. Bartsch *J. Heterocycl. Chem.*, **1998**, 35, 875-885.
59. "Lateral Lithiation of Ethyl 4-acetyl-5-methyl-3-Isoxazolyl with 5,5-Dimethyl-1,3-Dioxanyl as a Directing Group", Peiwen Zhou and N.R. Natale, *Tetrahedron Letters*, **1998**, 8249-8252.
60. "Preparation of New Proton Ionizable and Neutral Macrocyclic, Macrobicyclic and Macrotricyclic Compounds", Sadik Elshani, M. X.B. Xia, C.W. Wai, N.R. Natale, Rexford K. Widener, and R. Bartsch *J. Het. Chem.*, **1998**, 35, 1381-1387.
61. "Lipophilic 4-Isoxazolyl-1,4-Dihydropyridines: Synthesis and Structure Activity Relationship", N.R. Natale, M. E. Rogers, R. Staples, D.J. Triggle and A. Rutledge, *J. Med. Chem.*, **1999**, 42, 3087-3093. PMID: 10447952.
62. "Synthesis of New Lipophilic Acyclic Di-ionizable Polyethers, Bis (Crown Ethers) and Macrocyclic Diamides", S. Elshani, C.M. Wai, N.R. Natale, and R. Bartsch, *Tetrahedron*, **1999**, 55, 9425-9438.
63. "The Structure Based Design of Novel AMPA Bioisosteres", David J. Burkhart, Ashwani Vij and N.R. Natale, *J. Chem. Crystallogr.*, **1999**, 29, 749-758.
64. "Lariat Ether Carboxylic Acids, O-Benzylhydroxamates and Hydroxamic Acids with Fluorinated Substituents: Synthesis, Metal Ion Complexation and Solubility in Supercritical Carbon Dioxide", S. Elshani, H. Du, K.E. Laintz, N.R. Natale, C.M. Wai, N.S.A. Elkarim, and R. Bartsch, *Tetrahedron*, **2000**, 56, 4651-4657.
65. "Ethyl 4-[1-(5,5-Dimethyl-1,3-Dioxanyl)]-Ethyl-5-Methyl-3-Isoxazolyl carboxylate", Peiwen Zhou, Richard J. Staples, J.D. Fisher, A. Vij, and N.R. Natale, *Acta Crystallographica, Section C, Cryst. Struct. Commun.*, **2000**, C56, 1146-1147. PMID: 10986513.
66. "Learning from the Hantzsch Synthesis", N.R. Natale, *Chemical Innovation (American Chemical Society)*, November, **2000**, 22-28. [<http://pubs.acs.org/subscribe/archive/ci/30/i11/html/11natale.html>]
67. "Design and Synthesis of a Novel Intercalating Bis-lexitropsin Conjugate", Xiaochun Han and N.R. Natale, *J. Heterocycl. Chem.*, **2001**, 38, 415-418.
68. "An Improved Procedure for the Lateral Metalation of Ethyl 4-acetyl-5-methyl-Isoxazolyl Carboxylate", David J. Burkhart, Peiwen Zhou, Alex Blumenfeld, Brendan Twamley, and N.R. Natale *Tetrahedron*, **2001**, 57, 8039-8046.
69. "A New Direct Synthesis of ACPA and Novel AMPA Analogues", David J. Burkhart, Brendan Twamley and Nicholas R. Natale, *Tetrahedron Lett.*, **2001**, 42, 8415-8418.
70. "The Isoxazole as a linchpin for molecules which target folded DNA conformations: Selective Lateral Lithiation and Palladation", Xiaochun Han, Chun Li, Kevin C. Rider, Alex Blumenfeld, Brendan Twamley, and N.R. Natale, *Tetrahedron Lett.*, **2002**, 43, 7673-7677.

71. "Building Bridges to Native American Students: Chapter Outreach Activities at the University of Idaho", N. R. Natale, invited contribution, in *Chemistry* (American Chemical Society), **2002**, *12*, November/December, 15-17.
72. "Unique Structure Activity Relationship of 4-Isoxazolyl-1,4-dihydropyridines", Gerald Zamponi, Stephanie C. Stotz, Richard J. Staples, Tina A. Rogers, Jared K. Nelson, Victoria Hulubei, Alex Blumenfeld, and N.R. Natale, *J. Med. Chem.*, **2003**, *46*, 87-96. PMID: 12502362.
73. "Preparation of 3-(10'-Halo-9'-anthracenyl)-5-methyl isoxazolecarboxylic Esters", Xiaochun Han, Brendan Twamley and Nicholas R. Natale, *J. Heterocycl. Chem.*, **2003**, *40*, 539-545.
74. "Preparation of Keto-Isoxazole Polyketide Synthons", Jared K. Nelson, David J. Burkhart, Andrew McKenzie, and Nicholas R. Natale, **2003**, *Synlett*, 2213-2215.
75. "The Catalytic Asymmetric Synthesis of Glutamate Analogues", David J. Burkhart, Andrew R. McKenzie, Jared K. Nelson, Katherine I. Myers, Xue Zhao, Kathy R. Magnusson, and Nicholas R. Natale, *Org. Lett.*, **2004**, *6*, 1285-8. PMID: 15070318.
76. "5-(5-Oxo-2,3-dihydro-5H-oxazolo[2,3-a]isoindol-9b-ylmethyl)-4-(2,5,5-trimethyl-[1,3]dioxan-2-yl)-isoxazole-3-carboxylic acid ethyl ester: a novel synthetic method", Jared Nelson, Brendan Twamley, and Nicholas R. Natale, *Acta Cryst.*, **2004**, E60, 2255-2257.
77. "Isoxazole Ionotropic Glutamate Neurotransmitters", David J. Burkhart and N.R. Natale, *Current Medicinal Chemistry*, invited review, **2005**, *12*, 617-627. PMID: 15777216.
78. "Ethyl 3-(10-chloroanthracenyl)-5-(1-phenyl-2-hydroxyethylenyl) isoxazole-4-carboxylate: an enol from Dess-Martin oxidation", Chun Li, Brendan Twamley, and N.R. Natale, *Acta Cryst.*, **2006**, E62, o854-o856.
79. "Can Selective Ligands for Glutamate Binding Proteins be Rationally Designed?", N.R. Natale, K. Magnusson, and J.K. Nelson, *Current Topics in Medicinal Chemistry*, Symposium-in-print, **2006**, *6*, 823-846. PMID: 16719820.
- §80. "Ethyl-5-methyl-4-(2-bromomethyl-5,5-dimethyl-1,3-dioxan-2-yl)isoxazole-3-carboxylate", Brendan Twamley, Monika Szabon-Watola, Shikha Sharma and N.R. Natale, *Acta Cryst.*, **2007**, E63, o2258-o2260.
- §81. "Preparation and Crystal Structures of Two 3-Anthracenyl Isoxazolyl Sulfonamides", Chun Li, Brendan Twamley and N.R. Natale, *J. Heterocycl. Chem.*, **2008**, *45*, 259-264.
- §82. "Synthetic Utility of Epoxides for Chiral Functionalization of Isoxazoles", Jared K. Nelson, Christopher T. Burns, Miles P. Smith, Brendan Twamley and N.R. Natale, *Tetrahedron Lett.*, **2008**, *49*, 3078-82. Pubmed Central NIHMS47600. PMID: 21103024.
- §83. "The Catalytic Asymmetric Addition of Alkyl- and Aryl- zinc Reagents to an Isoxazolyl Aldehyde", Jared K. Nelson, Brendan Twamley, Trinidad J. Villalobos, and N.R. Natale, *Tetrahedron Lett.*, **2008**, *49*, 5957-5960. Pubmed Central NIHMS69826. PMID: 19812681.

- §84. "4-{1-[(2,4-Dinitro-phenyl)-hydrazono]-ethyl}-5-(naphthalen-2-ylmethoxymethyl)-isoxazole-3-carboxylic acid ethyl ester", N.R. Natale, Monica I. Szabon-Watola, Brendan Twamley, Richard J. Bridges, Sarjubhai Patel and Trideep Rajale, *Acta Cryst.*, **2009**, *E65*, o144-0145. PMID: 21581603.
- §85. "Design, Synthesis and Biological Evaluation of A Novel Class of Anticancer Agents: Anthracenylisoxazole Lexitropsin Conjugates", Xiaochun Han, Chun Li, Michael D. Mosher, Kevin C. Rider, Peiwen Zhou, Ronald L. Crawford, William Fusco, Andrzej Paszczynski, and Nicholas R. Natale, *Bioorg. Med. Chem.*, **2009**, *17*, 1671-1680. Pubmed Central NIHMS99529. PMID: 19167892.
- §86. "Bis-Anthracenyl Isoxazolyl Amides have Enhanced Anticancer Activity", Mariusz P. Gajewski, Howard Beall, Mark Schnieder, Sarah M. Stranahan, Michael D. Mosher, Kevin C. Rider, and Nicholas R. Natale, *Bioorg. Med. Chem. Lett.* **2009**, *19*, 4067-4069. PMID: 19560922.
- §87. "Isoxazole analogues bind the System x_c^- Transporter: Structure-activity Relationship and Pharmacophore Model", Sarjubhai A. Patel, Trideep Rajale, Erin O'Brien, David J. Burkhart, Jared K. Nelson, Brendan Twamley, Alex Blumenfeld, Monika I. Szabon-Watola, John M. Gerdes, Richard J. Bridges, and Nicholas R. Natale, *Bioorg. Med. Chem.*, **2010**, *18*, 202-213. PMID: 19932968.
- §88. "Preparation of chiral isoxazole carbinols via catalytic asymmetric Corey-Bakshi-Shibata reduction", Kevin C. Rider, David J. Burkhart, Chun Li, Andrew R. McKenzie, Jared K. Nelson, and Nicholas R. Natale, *ARKIVOC*, **2010**, *part (viii)*, pages 97-107. Commemorative issue in honor of Drs. Bruce E. and Cynthia A. Maryanoff.
- §89. "Suzuki-Miyaura Cross-Coupling of Benzylic Bromides Under Microwave Conditions", Steven W. McDaniel, Charles M. Keyari, Kevin C. Rider, N.R. Natale and Philippe Diaz, *Tetrahedron Lett.*, **2011**, *52*, 5656-5658. PMID: 21966033.
- §90. "System x_c^- Glutamate/Cystine Antiporter: An Update on Molecular Pharmacology and Roles Within the CNS", Richard J. Bridges, N.R. Natale, Sarjubhai A. Patel, *British J. Pharm.*, **2012**, *165*, 20-34. PMID: 21564084.
- §91. "4-Isoxazolyl-1,4-dihydropyridines exhibit binding at the multidrug resistance transporter", Victoria Hulubei, Scott B. Meikrantz, David A. Quincy, Tina Houle, John I. McKenna, Mark E. Rogers, Scott Steiger, N.R. Natale, *Bioorg. Med. Chem.*, **2012**, *20*, 6613-6620. Pubmed Central NIHMS410433. PMID: 23063517.
- §92. "Improved synthesis of 3-aryl isoxazoles containing fused aromatic rings", Yousef R. Mirzaei, Matthew J. Weaver, Scott A. Steiger, Alison K. Kearns, Mariusz P. Gajewski, Kevin C. Rider, Howard D. Beall, and N.R. Natale, *Tetrahedron*, **2012**, *68*, 10360-10364. Pubmed Central NIHMS410467.
- §93. "Microwave accelerated synthesis of Isoxazole inhibitors of the System x_c^- transporter: initial homology model", Afnan A. Matti, J. Mirzaei, John Rudolph, Stephen A. Smith, J. Newell, S.A. Patel, M. Braden, R.J. Bridges, and N.R. Natale, *Bioorg. Med. Chem. Lett.*, **2013**, *23*, 5931-5935. NIHMS 527036. PMID: 24042010.
- §94. "3-(1,3-Diphenylpropan-2-yl)-4-methyl-6-phenylisoxazolo[3,4-*d*]pyridazin-7(6*H*)-one", Campana, C.; Mirzaei, J.; Koerner, C.; Gates, C.; Natale, N.R. *Acta Cryst.*, **2013**, *E69*, o1680-o1681. PMID: 24454112.
- §95. "Ethyl 3-(10-bromo-anthracen-9-yl)-5-methyl-1,2-oxazole-4-carboxylate", Chun Li, Michael J.

Campbell, M.J. Weaver, N.S. Duncan, Janet L. Hunting and N.R. Natale, *Acta Cryst.*, **2013**, *E69*, o1804-o1805. PMID: 24860293.

- §96. "Fluorescent probes of the Isoxazole-Dihydropyridine Scaffold: MDR-1 Binding and homology model", Monika I. Szabon-Watola, Sarah Ulatowski, Kathleen M. George, Christina D. Hayes, Scott A. Steiger, and N.R. Natale, *Bioorg. Med. Chem. Lett.*, **2014**, *24(1)*, 117-121. NIHMS 551141. PMID: 24342237.
- §97. "Ethyl 3-(9'-chloro-10'-oxo-9',10'-dihydroanthracen-9'-yl)-5-methylisoxazole-4-carboxylate", Nathan S. Duncan, Howard D. Beall, Alison K. Kearns, Chun Li and N.R. Natale, *Acta Cryst*, **2014**, *E70*, o315-o316. PMID: 24765016.
- §98. "Novel Di-aryl-substituted Isoxazoles act as noncompetitive inhibitors of the XC- Glutamate Cystine exchanger", J. Newell, C.M. Keyari, P. Diaz, N.R. Natale, S. Patel, R. Bridges, *Neurochem. International*, **2014**, *73*, 132-138. PMID: 24333322.
- §99. "Diethyl 4-(biphenyl-4-yl)-1,4-dihydropyridine-3,5-dicarboxylate", Scott A. Steiger, Anthony J. Monacelli, Chun Li, Janet L. Hunting and N. R. Natale, *Acta Cryst.*, **2014**, *E70*, o791-o792. PMID: 25161575.
- §100. "4-Isoxazolyl-1,4-dihydropyridines: a tale of two scaffolds", Natale, N.R. and Steiger, S.A. *Future Med. Chem.*, **2014**, *6(8)*, 923-943. PMID: 24962283.
- §101. "The effect of bromine scanning around the phenyl group of 4-phenyl-hexahydroquinolone derivatives", Scott A. Steiger, Anthony J. Monacelli, Chun Li, Janet L. Hunting, N.R. Natale, *Acta Cryst.*, **2014**, *C70*, 790-795. PMID: 25093361.
- §102. "AIMing toward improved antitumor efficacy", Matthew J. Weaver, Alison K. Kearns, Mariusz P. Gajewski, Kevin C. Rider, Chun Li, Donald S. Backos, Philip R. Reigan, Howard D. Beall, N.R. Natale, *Bioorg. Med. Chem. Lett.*, **2015**, *25*, 1765-1770. NIHMS 672906. PMID: 25782743.

‡ submitted for publication; * accepted for publication; § University of Montana by-line

In preparation:

- § "Endocannabinoid Uptake Studies Using a Fluorescent Analog of Anandamide", S. Agarwal, D. Bonislawski, J. Pauli, N.R. Natale, M.P. Kavanaugh, *J. Biol. Chem.*, in preparation, alleged August 2012 submission. See presentations #126, 130 and 131.
- § "3-Aryl isoxazoles exhibit atropisomerism", Richard V. Williams, Alexander Blumenfeld, Nathan S. Duncan, Kevin C. Rider, Matthew J. Weaver, Leonardo Cappeletti da Silva, Michael J. Campbell, Mariusz P. Gajewski, and N.R. Natale, *Eur. J. Org Chem.*, in preparation, 5 manuscript pages, 10 pages Supporting Information.

Invited Reviews:

- § "Metalation of isoxazoles, the sequel", Yousef R. Mirzaei, Matthew J. Weaver, and N.R. Natale, *Canadian J. Chemistry*. Invited Review, Up-date of our 1993 review, curent draft 21 mauscript pages, over 3,000 words.

§ “Isoxazole ligands in the Protein Data Bank” N.R. Natale, Nathan S. Duncan, *Future Med. Chem.*, invited review, in preparation, >3,300.

§ “Glutamate Binding Proteins: Structural and computational ligand binding Studies, an up-date”, Brent Lyda, N.R. Natale, in preparation, current draft 22 manuscript pages, over 3,800 words.

Invited Book Proposal to John Wiley, “Synthetic Medicinal Chemistry”, under negotiation.

PATENT ACTIVITY. Total 14 invention disclosures, 4 provisional, 1 International application, 2 U.S. patents.

“Calcium Channel Blockers: Isoxazole Aldehydes”, N.R. Natale, Research Corporation Disclosure No. 139-D283-83, filing Date April 1983.

“Calcium Channel Blockers: Isoxazole Oxazolines”, N.R. Natale, Research Corporation Disclosure No. 139-D057-84, filing Date March 20, 1984.

“Sterically Hindered Isoxazolyl-dihydropyridines: Calcium Channel Blocker Compounds”, Invention Disclosure, Research Corporation Disclosure No. 139-D264-85, filing Date August 26, 1985.

“Solid/Liquid Extraction of Cobalt”, N.R. Natale, Invention Disclosure, Idaho Research Foundation, File 506-000, Leydig, Voit & Mayer File No. 35473, filing date, January 2, 1990.

“Hydrazino Isoxazoles”, N.R. Natale, Invention Disclosure, Idaho Research Foundation, IRF Case No. 90-010/509 filing Date February 16, 1990.

“Chiral IDHP’s”, N.R. Natale, Invention Disclosure, Idaho Research Foundation, IRF File No. 509-000, Leydig, Voit & Mayer File No. 35691, filing date: April 20, 1990.

“Highly Fluorinated Isoxazole Derivatives”, N.R. Natale, Invention Disclosure, Idaho Research Foundation, IRF Case No. 91-009/515, filing date: February 22, 1991.

“Hydroxamic Acid Crown Ethers”, N.R. Natale, S. Elshani and C.M. Wai, **U.S. Patent No. 5,274,129**, filing date: June 12, 1991, issued December 28, 1993.

“ η^6 [eta6, hexahapto] Metal Complexes of 4-Aryl-1,4-Dihydropyridines”, Natale, Nicholas, R.; Bitterwolf, Thomas, E.; Hubler, Timothy, International Application No. PCT/US1993/002682, filing date: March 19, 1993. **WO/1993/019076** [<http://www.wipo.int/pctdb/en/wo.jsp?wo=1993019076>].

“Compositions with Anti-tumor Activity”, N.R. Natale, Michael D. Mosher, Peiwen Zhou, and L. Czuchajowski, Provisional Patent Application, filing date: June 18, 1999.

§ “Isoxazoles with *in vivo* anti-convulsive activity”, Natale, N.R.; Bridges, R.J.; Patel, S.; Rajale, T. UM Technology Transfer Office, The University of Montana, Date of disclosure: July 28, 2008. U.S. Provisional Patent Application No. UMT-120P, Docket Serial No. 61/089,484, filed August 15, 2008.

§ “Fluorophoric probe of the major endocannabinoid in the brain”, Natale, N.R.; Kavanaugh, M.; Agarwal, S.; Bonislowski, D. Technology Transfer Office, The University of Montana, Date of disclosure: July

28, 2008. No. UMT-121P. U.S. Provisional Patent Application Docket Serial No. 61/093,265; filed August 29, 2008.

§ "Alkyl, Alkyl-Ether, Aryl or Aryl-Ether Hydroxy Proline Derivatives as Inhibitors of the Amino Acid Transporter ASCT2 (SLC1A5)", Brent Lyda, C.S. Esslinger, N.R. Natale and M. Kavanaugh, UM Technology Transfer Office, The University of Montana, Date of disclosure: September 27, 2010. No. UMT-129P. U.S. Provisional Patent Application No. 61/508,512, filed July 15, 2011. "Inhibitors of the Amino Acid Transporters ASCT1 AND ASCT2", **US Patent 8,895,607**, filing date: July 16, 2012, issued November 25, 2014.

§ "Novel Natural Product Analogs with Antiprotozoal and Antibacterial activity", John Hoody, David Bolstad, T.J. Lanoue, N. Natale, N. Priestly, Invention Disclosure UM Docket No. 2012-007, October 19, 2011.

§ "Novel Isoxazole Dihydropyridines as Inhibitors of the Multi-Drug Resistance Protein (MDR-1) with Application as Adjuvants in Chemotherapy ", N.Natale, H. Beall, A. Kearnes, D. Quincy, S. Meikrantz, M. Szabon-Watola, S. Steiger, M. Gajewski, M. Weaver, Invention Disclosure UM Docket No. UMT-2013-007, August 2, 2012. U.S. Provisional Patent Application in preparation.

§ "Isoxazolyl[3,4-d]pyridazinones selectively bind metabotropic glutamate receptors", N.R. Natale, Y.R. Mirzaei, C.Gates and C. Koerner, Invention Disclosure UM Docket No. UMT-2013-00x, filed March 4, 2013.

§ "Asymmetric Synthesis of Chiral Heterocyclic Isoxazolyl-1,4-Quinolones", S.Steiger, N.R.Natale, UM Technology Transfer Office, The University of Montana, Date of disclosure: June 6, 2014. Invention Disclosure UM- 20014-004.

§ "Organocatalytic Synthesis of Heterocyclic Isoxazolyl-1,4-Quinolones", S.Steiger, N.R.Natale, UM Technology Transfer Office, The University of Montana, Date of disclosure: June 6, 2014. Invention Disclosure UM Docket No. UMT-2014-005.

§ "Dimeric 4-Isoxazolyl-1,4-dihydropyridines synthesis and activity at MDR1", S. Steiger, N.R. Natale, UM Technology Transfer Office, The University of Montana, Date of disclosure: June 6, 2014. Invention Disclosure UM Docket No. UMT-2014-006.

§ "Novel Isoxazoles as Allosteric Inhibitors of System Xc-transporter", N.R. Natale, R.J. Bridges, S.A. Patel, UM Technology Transfer Office, The University of Montana, Date of disclosure: June 13, 2014. U.S. Provisional Patent Application US 62/015,178, June 20, 2014.

§ "Radiolabeled inhibitors of the amino acid transporters ASCT1 and ASCT2", Esslinger, Christopher Sean; Kavanaugh, Michael P.; Lyda, Brent; Natale, Nicholas R. U.S. Pat. Appl. Publ. (2015), US 20150056138 A1 20150226.

OTHER PUBLICATIONS (including published abstracts, total number 72, to June 2007):

1. "Applications of Mass Spectrometry to Clinical Biochemistry", N.R. Natale, *Drexel Tech. J.*, **1975**, 37, 5-9, 23.

2. "Stress in Potatoes", N.R. Natale, S.R. Thomas, and M.J. Kurantz, *Drexel Tech. J.*, **1976**, 38, 8-11, 44.
See also: *Chem. Abstracts*, **1978**, 88, 3038w.
3. "Synthetic Approaches to Cannabispirenone-A", Brian E. Marron, and N.R. Natale, *Proceedings of the 25th Annual Meeting of the Idaho Academy of Science*, The College of Idaho, April 15-16, 1983. Abstract C3. P. 13.
4. "Synthesis of Isoxazole Dihydropyridines", David A. Quincy and N.R. Natale, *Proceedings of the 25th Annual Meeting of the Idaho Academy of Science*, The College of Idaho, April 15-16, 1983. Abstract C4. P. 14.
5. "Synthesis and Structure of an Isoxaolyl-Dihydropyridine", David A. Quincy, K. Dean Bowles, N.R. Natale, O.P. Anderson and C.K. Schauer, *Proceedings of the 26th Annual Meeting of the Idaho Academy of Science*, Lewis-Clark State College, April 13-14, 1984. Abstract C-8.
6. "Synthetic Approaches to Fredericamycin-A", Ludwig Schlicksupp, Brian Thompson, and N.R. Natale, *Proceedings of the 26th Annual Meeting of the Idaho Academy of Science*, Lewis-Clark State College, April 13-14, 1984. Abstract C-9.
7. "Chiral Vinylogous Imidates: Generation and Electrophilic Quenching", Brenda Mallett and N.R. Natale, *J. Idaho Acad. Sci.*, **1987**, 23, 5.
8. "Synthetic Studies on Isoxazolyl-phosphazenes", Mark S. Munsey and N.R. Natale, *J. Idaho Acad. Sci.*, **1987**, 23, 5.
9. "Synthesis of Prodrugs of the Antiviral Oligopeptide Netropsin. The use of cyclic (phosphonitrilic dichloride) trimer for peptide synthesis", Eric J. Verner, Bradford J. Oliver and N.R. Natale, *J. Idaho Acad. Sci.*, **1987**, 23, 6.
10. "Chiral Vinylogous Imidates. II. Ring opening of Oxazolidinones with Organolithium Reagents", Barbara J. Lefler, Brenda M. Mallet and N.R. Natale, *Proceedings of the 30th Annual Meeting of the Idaho Academy of Science*, April 14-6, 1988, Boise, ID. Abstract C-5.
11. "Tris-(2,2'-dioxy-1,1'-Binaphthyl)-Cyclotriphosphazene; Synthesis and Kinetic resolution Studies", Mark S. Munsey, and N.R. Natale, *Proceedings of the 30th Annual Meeting of the Idaho Academy of Science*, April 14-6, 1988, Boise, ID. Abstract C-6.
12. "Selective Reduction of Pyridinium Salts with Sodium Cyanoborohydride: the Synthesis of N-[N-isoxazolyl-4-alkyl-]-1,2,3,6-tetrahydropyridines", N.R. Natale, *J. Idaho Acad. Sci.*, **1990**, 26, 2.
13. "4-Isoxazolyl-1,4-dihydropyridines: Biological, Theoretical and Structural Studies", Robert B. Palmer, D.J. Triggle, W.D. Edwards, and N.R. Natale, *J. Idaho Acad. Sci.*, **1990**, 26, 2.
14. "Vinylogous Imidates III. Selective Metalation and Electrophilic Quenching using Disulfides", T.N. Balasubramaniam, Y.R. Mirzaei, N.R. Natale, *J. Idaho Acad. Sci.*, **1990**, 26, 3.
15. "Recent Applications of Crystallography to Problems in Synthetic Chemistry", M.P. Smith, Y.R. Mirzaei, B.J. Lefler, N.R. Natale, *J. Idaho Acad. Sci.*, **1990**, 26, 5.

16. "Isoxazolyl Lexitropsins. Crystal Structure of an Isoxazolyl-pyrrole Peptide, Implications for Drug-DNA Binding", N.R. Natale, B.D. Smith, L. Schlicksupp, *J. Idaho Acad. Sci.*, **1990**, 26, 5.
17. "A Rationally Designed Ligand for the Selective Extraction of Lanthanides", X.B. Xia, H. Du, C.M. Wai, N.R. Natale, *J. Idaho Acad. Sci.*, **1990**, 26, 6.
18. "Vinylogous Imidates. IV. Direct Incorporation of Nitrogen Electrophiles", N.R. Natale, Y.R. Mirzaei, and T.N. Balasubramaniam, *J. Idaho Acad. Sci.*, **1990**, 26, 6.
19. "Bis-(Binaphthyl)-Phosphazenes: A Reinvestigation", Miles P. Smith and N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 3.
20. "An Efficient Method for the Preparation of Hydroxamic Acid Lariat Crown Ethers", R. Noriyuki, R.K. Widener, C.M. Wai and N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 3.
21. "A New and Improved route for Isoxazole Homologation", Scott B. Meikrantz and X.B. Xia, N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 4.
22. "Synthesis of Novel Lariat Crown Ethers via Crown tertiary Alcohols", S. Elshani, C.M. Wai, H. Du, and N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 4.
23. "Lateral Metalation and Electrophilic Quenching. Preparation of C-4 Functionalized Isoxazoles", T. N. Balasubramaniam, and N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 4-5.
24. "Isoxazolyl Lexitropsins. The Synthesis and NOESY study of Isoxazole analogs of Pyrrole peptide DNA Minor groove Binders", T. V. Arnold and N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 5.
25. "Synthesis and Structure of 4-isoxazolyl-1,4-Dihydropyrimidines", K.A. Nelson and N.R. Natale, *J. Idaho Acad. Sci.*, **1991**, 27, 5.
26. "Visualizing Organic Chemistry", N.R. Natale, *J. Idaho Acad. Sci.*, **1993**, 29, 10-11.
27. "A Macromolecular Assembly of Transition Metals and Polyphosphazenes", Miles P. Smith and N.R. Natale, *J. Idaho Acad. Sci.*, **1993**, 29, 4.
28. "Synthetic Approaches towards Time Release Calcium Antagonists", Suzanne L. Edwards and N.R. Natale, *J. Idaho Acad. Sci.*, **1993**, 29, 2-3.
29. "Synthetic Approaches to Time Release Antibiotics", Christopher T. Burns, N.R. Natale, *J. Idaho Acad. Sci.*, **1993**, 29, 2.
30. "Regioselective Ring Opening of Epoxides with Lithio-alkylisoxazoles", C.T. Burns and N.R. Natale, *J. Idaho Acad. Sci.*, **1994**, 30, 4.
31. "Lateral Metalation of Isoxazoles. Higher Order Cuprate mediated conjugate Addition to 3,5-dimethyl-4-substituted isoxazoles", J.R. Stenzel and N.R. Natale, *J. Idaho Acad. Sci.*, **1994**, 30, 5.
32. "The ID Model for Calcium Antagonism", N.R. Natale, *J. Idaho Acad. Sci.*, **1995**, 31, 40.

33. "The Preparation of Axially Chiral Isoxazolylacridines for use in DNA Drug Therapy", Troy D. Morris, N.R.Natale and M. Mosher, *J. Idaho Acad. Sci.*, **1995**, *31*, 39.
34. "Intercalating Lexitropsins as DNA Minor Groove Binders", M. Mosher and N.R. Natale, *J. Idaho Acad. Sci.*, **1995**, *31*, 39-40.
35. "Nucleophilic Aromatic Substitution of lithioalkylisoxazoles to Iron Cation Complexes. III. A New Route to 5-Benzyl Isoxazoles", J.R. Stenzel and N.R.Natale, *J. Idaho Acad. Sci.*, **1995**, *31*, 41-2.
36. "A New Route to Ferrocenyloxazolines", Jason E. Blubaum, Jason R. Stenzel, and N.R. Natale; *J. Idaho Acad. Sci.*, **1996**, *32*, 6.
37. "The Preparation of Axially Chiral Isoxazolylacridines for use as DNA Minor Groove Binders", Troy D. Morris, M. D. Mosher, N.R. Natale, *J. Idaho Acad. Sci.*, **1996**, *32*, 40.
38. "Synthesis and Conformational Studies of C3'-Aryl-4-isoxazolyl-1,4- dihydropyridines", T.M.A. Rogers, R.J. Staples, and N.R. Natale, *J. Idaho Acad. Sci.*, **1996**, *32*, 41.
39. "Lipophilic 4-isoxazolyl-1,4-dihydropyridines: Synthesis and Structure Activity Relationship", N.R. Natale, M.E. Rogers, R.J. Staples, D.J. Triggler, A. Rutledge, *J. Idaho Acad. Sci.*, **1996**, *32*, 41-2.
40. "Synthesis of an Isoxazole-pyrrole Oligopeptide for Minor Groove Binding", W.D. Taylor, N.R. Natale, *J. Idaho Acad. Sci.*, **1996**, *32*, 55.
41. "A New Route to Chiral Ferrocenyloxazolines", Jason E. Blubaum, Jason R. Stenzel, and N.R. Natale; *J. Idaho Acad. Sci.*, **1997**, *33*, 14.
42. "Ferrocenyl Isoxazole Oxazolines", Jason R. Stenzel, and N.R. Natale; *J. Idaho Acad. Sci.*, **1997**, *33*, 15.
43. "Synthetic Approaches Towards a Sequence Specific Anticancer Prodrug", Devin Bolz and N.R. Natale, *J. Idaho Acad. Sci.*, **1998**, *34*, 15.
44. "Approaches Toward Radical Trapping in Intact Cells", Casey S. Butterfield, N.R. Natale, John K. Fellman and Harold N. Fonda, *J. Idaho Acad. Sci.*, **1998**, *34*, 16.
45. "Bioisosteres designed as AMPA antagonists", David J. Burkhart and N.R. Natale, *J. Idaho Acad. Sci.*, **1998**, *34*, 16.
46. "The Chemistry of Winning Teams", N.R. Natale, Wendy Taylor, Chris O'Connor, Alexander C. Natale, Elizabeth M. Stypa, Kristy L. Henscheid, Eric E. Nuxoll, Ryan D. Carlson, Casey S. Butterfield, C.T. Burns, Kama S. White, and Jason R. Stenzel, *J. Idaho Acad. Sci.*, **1998**, *34*, 45-6.
47. "Progress Towards the Synthesis of AMPA Analogs for the Treatment of Neurological Disorders", David J. Burkhart, N.R. Natale, J. Eric Gouaux and G. Chen, *J. Idaho Acad. Sci.*, **1999**, *35*, 14.
48. "Studies on Sterically Hindered Nitrile Oxide Cycloadditions", X. Han, and N.R. Natale, *J. Idaho Acad. Sci.*, **1999**, *35*, 14.

49. "Models for Radical Trapping in Intact Cells", Casey S. Butterfield and N.R. Natale, and John K. Fellman, *J. Idaho Acad. Sci.*, **1999**, 35, 15.
50. "A Century of the Hantzsch Pyridine Synthesis: The Value of this Venerable Process Continues to Appreciate", Nicholas R. Natale, T. Todd Wixson, David A. Quincy, John I. McKenna, Barbara J. Lefler, Yousef R. Mirzaei, Robert B. Palmer, Scott B. Meikrantz, Katrina Nelson, and Tanjore N. Balasubramaniam, *J. Idaho Acad. Sci.*, **2000**, 36, 34.
51. "Modifying AMPA to Increase Glutamate Receptor Ligand-Binding", Matthew J. Grieser, David J. Burkhart and N.R. Natale, *J. Idaho Acad. Sci.*, **2000**, 36, 25.
52. "Designing Telomerase Inhibitors", Kevin Hobdey, P. Zhou, X. Han, C. Kang and N.R. Natale, *J. Idaho Acad. Sci.*, **2000**, 36, 26.
53. "Synthesis and Molecular Modeling of Calcium Antagonists", Victoria Hulubei, Jared Nelson, and N.R. Natale, *J. Idaho Acad. Sci.*, **2002**, 38, 30.
54. "Progress in Anti-tumor Drug Discovery", Kevin Rider, Chun Li, Xiaochun Han, and N.R. Natale, *J. Idaho Acad. Sci.*, **2002**, 38, 30.
55. "Asymmetric Synthesis of Neurotransmitters", Andrew McKenzie, D.J. Burkhart and N.R. Natale, *J. Idaho Acad. Sci.*, **2002**, 38, 30.
56. "A Periodic Table of the Moles", N.R. Natale and Feather D.R. Broncheau, *J. Idaho Acad. Sci.*, **2002**, 38, 45.
57. "Synthesis Of Anti-Cancer Candidates that Potentially Inhibit Telomerase Activity", Chun Li, Xiaochun Han, and Nicholas R. Natale, *J. Idaho Acad. Sci.*, **2003**, 39, 22.
58. "Diamond Anniversary of the Washington-Idaho Border Section", N.R. Natale, *J. Idaho Acad. Sci.*, **2003**, 39, 23-24.
59. "Asymmetric Synthesis Of Novel Analogues That Target The AMPA Subtype Of Glutamate Receptors", Jared Nelson, and N.R. Natale, *J. Idaho Acad. Sci.*, **2003**, 39, 24.
60. "Rational design and synthesis of preorganized-isoxazoles as antitumor agents", Kevin C. Rider and N.R. Natale, *J. Idaho Acad. Sci.*, **2003**, 39, 25-26.
61. "Academic Service-Learning and The Student Affiliates", Michael D. Weinberg, Jason E. Blubaum, Hilary L. Robbeloth, and N.R. Natale, *J. Idaho Acad. Sci.*, **2003**, 39, 44.
62. "Design and Synthesis of Anti-cancer Agents", Myers, K.I.; K. Rider, C. Li, N.R. Natale, *J. Idaho Acad. Sci.*, **2004**, 40, 6-7.
63. "Asymmetric synthesis and study of glutamate analogues", Nelson, J.K.; N.R. Natale, K.R. Magnusson, X. Zhao, K.I. Myers, A.R. McKenzie, D.J. Burkhart, *J. Idaho Acad. Sci.*, **2004**, 40, 23.
64. "Synthetic approaches towards molecules to study ion channels", Natale, N.R.; M. Szabon-Watola, J.K. Nelson, *J. Idaho Acad. Sci.*, **2004**, 40, 23.

65. "Academic Service-Learning: Building Bridges from Chemists to the Native American Community", Natale, N.R.; Brejna, P.R.; Holland, R.; Keller, R.; Nelson, J.K.; Szabon-Watola, M.; Villalobos, T.J. *J. Idaho Acad. Sci.*, **2005**, *41*, 32.
66. "Structural Basis for Glutamate Recognition: Can Small Molecules which Bind Selectively be Developed?", Natale, N.R., Nelson, J.K.; Burkhart, D.J.; Magnusson, K.R.; Zhao, X.; Bridges, R.J. *J. Idaho Acad. Sci.*, **2005**, *41*, 39-40.
67. "Chemical Analysis of the Constituents of Qaws-Qaws", Natale, N.R.; Villalobos, T.J.; Taylor, J.; Knerr, G.; Greene, S. *J. Idaho Acad. Sci.*, **2005**, *41*, 40.
68. "Hypothesis-Driven, Structure-Based Drug Design Using Isoxazole Chemistry", Elizabeth Scott, Jared K. Nelson, Monika Szabon, N.R. Natale, Proceedings of the Sigma Xi Annual Meeting, Seattle WA, November 3-6, 2005. Abstract IR-09, p. 102.
69. "Structure Based Design of Glisoxepid Analogs", Trinidad J. Villalobos and N.R. Natale, *McNair Research J.*, **2006**, *2*, 58-65.
70. "Academic service-learning, Part 3: building bridges to Native American Students and Teachers", N.R. Natale, Jennifer Sorenson, Alexander C. Natale, Kirsten Canady, and Trinidad J. Villalobos, *J. Idaho Acad. Sci.*, **2006**, *42*, 50.
71. "Element-ary enthusiasm – University of Idaho Student Affiliates", N.R. Natale, Seth Novak, Sadie Sprague, Marie Freeman, Jamie Freeman, Lucas Knowles, Hilary Robbeloth, Kirsten Canady, and T.E. Bitterwolf, *J. Idaho Acad. Sci.*, **2006**, *42*, 50-1.
72. "Conjugating Magnetic Nanoparticles for Application in Health and Environmental Research", Michael J. Hansen, Nick Natale, Pawel Kornacki, and Andrzej Paszczyski, *J. Idaho Acad. Sci.*, **2006**, *42*, 58.

PRESENTATIONS AT SCIENTIFIC MEETINGS (speaker underlined, total number 258, 0 submitted, several others planned)

1. "Synthetic Approaches to Naturally Occurring Spiro Sesquiterpenes", R.O. Hutchins and N.R. Natale, 10th ACS Middle Atlantic Regional Meeting, Philadelphia, PA, February 23-26, 1976. Abstract N-13. *Chem. Eng. News*, January 12, 1976, p. 51.
2. "The Chemistry of Camphene and Applications to the Synthesis of Spiro Sesquiterpenes", N.R. Natale, M.J. Pacana, and R.O. Hutchins, 30th Eastern College Science Conference, Providence, Rhode Island, April 1-3, 1976.
3. "Selective Reductions with Sodium Cyanoborohydride in Acidic Media", R.O. Hutchins, W. Burgoyne, N. Natale, J. Fanelli, D. Rotstein and J. Dalessandro, 172nd National ACS Meeting, San Francisco, CA, August 29-September 3, 1976. Abstract ORGN-173. *Chem. Eng. News*, July 26, 1976, p. 69.
4. "A Mass Spectrometric Survey of some Biologically Important Lipids", December 9, 1976, Drexel University, Philadelphia, PA.

5. "Orange Benzene. Neutral Dichromate Oxidations in Organic Solvents", R.O. Hutchins, N.R. Natale, W. Cook, and J. Ohr, 11th ACS Middle Atlantic Regional Meeting, Newark, Delaware, April 20-22, 1977. Abstract ORGN-22. *Chem. Eng. News*, March 14, 1977, p. 32.
6. "Selective Reductions of Pyridinium Salts with Sodium Cyanoborohydride", R.O. Hutchins, and N.R. Natale, M. Chaudhry, and Y.B. Park, 11th ACS Middle Atlantic Regional Meeting, Newark, Delaware, April 20-22, 1977. Abstract ORGN-34. *Chem. Eng. News*, March 14, 1977, p. 32.
7. "Orange Benzene. Neutral Dichromate Oxidations in Organic Solvents", R.O. Hutchins, N.R. Natale, W. Cook, and J. Ohr, 174th National ACS Meeting, Chicago, Illinois, August 28-September 2, 1977. Abstract ORGN-166. *Chem. Eng. News*, July 25, 1977, p. 54.
8. "Sodium Borohydride in Acetic Acid. A Convenient System for the Deoxygenation of Carbonyl Tosylhydrazones", R.O. Hutchins, and N.R. Natale, 175th National ACS Meeting, Anaheim, CA, March 12-17, 1978. Abstract ORGN-84. *Chem. Eng. News*, February 6, 1978, p. 66.
9. "Ion Exchange Resin-Bound Cyanoborohydride: Preparation and Synthetic Utility", I. Taffer, N.R. Natale, and R.O. Hutchins, 12th ACS Middle Atlantic Regional Meeting, Hunt Valley, MD, April 5-7, 1978. Abstract 16. *Chem. Eng. News*, March 6, 1978, p. 31.
10. "Efficient Synthesis of an Appropriately Functionalized Precursor for Conversion to Several Spirovetivanes", R.E. Zipkin, R. Brown, M.J. Pacana, N.R. Natale, R.O. Hutchins, 12th ACS Middle Atlantic Regional Meeting, Hunt Valley, MD, April 5-7, 1978. Abstract 17. *Chem. Eng. News*, March 6, 1978, p. 31.
11. "Synthetic Approaches to Cannabispirenone-A", N.R. Natale and C.D. Dodson, 37th ACS Northwest Regional Meeting, Eugene, Oregon, June 16-18, 1982. Abstract 98. *Chem. Eng. News*, April 26, 1982, p. 35.
12. "Lanthanide Mediated Reduction. The Reduction of 4-Substituted Pyridinium Salts to Tetrahydropyridines", N.R. Natale, 37th ACS Northwest Regional Meeting, Eugene, Oregon, June 16-18, 1982. Abstract 110. *Chem. Eng. News*, April 26, 1982, p. 35.
13. "Lanthanide Solutions to Problems in Heterocyclic Chemistry", N.R. Natale, E.C. Beedle, E.J. Evain, B.E. Marron, D.A. Quincy, J. Johnson and J.D. Hendrix, 2nd IUPAC Symposium on Organometallic Chemistry Directed towards Organic Synthesis, Dijon, France, August 28-September 2, 1983. Abstract Sm-01.
14. "Synthesis and Structure of Isoxazole-Dihydropyridines", D.A. Quincy, K.D. Bowles, N.R. Natale, O.P. Anderson, and C.K. Schauer, 39th ACS Northwest Regional Meeting, Moscow, Idaho, June 13-15, 1984. Abstract 60. *Chem. Eng. News*, April 30, 1984, p. 84.
15. "A Facile Synthesis of Isoxazole Derivatives", N.R. Natale, D.A. Quincy, J. McKenna, O.P. Anderson, C.K. Schauer, ACS National Meeting, August 26-31, 1984, Philadelphia, PA. Abstract ORGN-122. *Chem. Eng. News*, July 9, 1984, p. 81.
16. "Studies on Asymmetric Annulation", N.R. Natale, B.E. Marron, L. Schlicksupp, B. Thompson, National ACS Meeting, August 26-31, 1984, Philadelphia, PA. Abstract ORGN-145. *Chem. Eng. News*, July 9, 1984, p. 82.

17. "Organocerium and Organosamarium Approaches Towards Branched Polyketide Synthons", N.R. Natale, 189th National ACS Meeting, Miami Beach, Florida, April 28 - May 3, 1985. Abstract ORGN-257. *Chem. Eng. News*, March 18, 1985, p. 76.
18. "Synthesis, Metalation and Electrophilic Quenching of Isoxazolyloxazolines and Tertiary Amides", C.S. Niou, and N.R. Natale, 40th ACS Northwest Regional Meeting, Sun Valley, Idaho, June 19-21, 1985. Abstract 89. *Chem. Eng. News*, May 13, 1985, p. 84.
19. "Formation and Utility of Dianions of Isoxazolyl-Carboxylic Acids", J.I. McKenna, and N.R. Natale, 40th ACS Northwest Regional Meeting, Sun Valley, Idaho, June 19-21, 1985. Abstract 92. *Chem. Eng. News*, May 13, 1985, p. 84.
20. "Applications of X-ray Crystallography and CP-MAS to Problems in Isoxazole Chemistry", Ludwig Schlicksupp, D.A. Quincy, M.L.Borth, N.R. Natale, 41st ACS Northwest Regional Meeting, Portland, Oregon, June 16-18, 1986. Abstract 127. *Chem. Eng. News*, May 5, 1986, p.67.
21. "Synthesis and Utility of α -Silyl Isoxazoles", M.L.Borth, K.D. Bowles, N.R. Natale, 41st ACS Northwest Regional Meeting, Portland, Oregon, June 16-18, 1986. Abstract 238. *Chem. Eng. News*, May 5, 1986, p.67.
22. "Synthesis of Prodrugs of the Antiviral Oligopeptide Distamycin. The Use of Phosphonitrilic Dichloride Cyclic Trimer for Peptide Synthesis", N.R. Natale, B.J. Oliver and E.J. Verner, 42nd ACS Northwest Regional Meeting, Bellingham, WA, June 17-19, 1987. Abstract 179. *Chem. Eng. News*, May 4, 1987, p.30.
23. "Chiral Vinylogous Imidates, I. Diastereoselectivity in the Lateral Metalation and Electrophilic Quenching of Isoxazolyl-4-oxazolines", N.R. Natale, B.M.Mallet, Y.R. Mirzaei, and B.J. Lefler, 43rd ACS Northwest Regional Meeting, Spokane WA, June 30-July 1, 1988. Abstract 134. *Chem. Eng. News*, May 9, 1988, p. 56.
24. "Tris-(2,2'-Dioxy-1,1'-Binaphthyl)-Cyclotriphosphazene: Synthesis and Kinetic Resolution", M.S. Munsey, and N.R. Natale, 43rd ACS Northwest Regional Meeting, Spokane WA, June 30-July 1, 1988. Abstract 140. *Chem. Eng. News*, May 9, 1988, p. 56.
25. "Spectroscopic Characterization of Lanthanide Crown Ether Carboxylate Complexes", I.Q. Lee, C.M. Wai, N.R. Natale, and X.B. Xia, 43rd ACS Northwest Regional Meeting, Spokane WA, June 30-July 1, 1988. Abstract 148. *Chem. Eng. News*, May 9, 1988, p. 56.
26. "Chiral Vinylogous Imidates, II. Ring Opening of Oxazolidones with Organolithium Reagents", B.J. Lefler, B.M.Mallet, and N.R. Natale, 43rd ACS Northwest Regional Meeting, Spokane WA, June 30 - July 1, 1988. Abstract 177. *Chem. Eng. News*, May 9, 1988, p. 56.
27. "Theoretical Calculations on Calcium Channel Drugs: Is Electron Transfer Involved Mechanistically?", P. Kovacic, W.D. Edwards, N.R. Natale, R. Sridhar, and P.F. Kiser, 45th ACS Southwest Regional Meeting, Baton Rouge, Louisiana, December 6-8, 1989, Abstract 128.

28. "Vinylogous Imidates III. Direct Incorporation of Nitrogen Electrophiles", Y.R. Mirzaei, T.N. Balasubramaniam, N.R. Natale, ACS Joint 45th Northwest 10th Rocky Mountain Regional Meeting, University of Utah, June 13-15, 1990. Abstract 193. *Chem. Eng. News*, April 23, 1990, p. 60.
29. "4-Isoxazolyl-1,4-Dihydropyridines: Biological, Theoretical and Structural Studies", R.B. Palmer, D.J. Trigg, W.D. Edwards and N.R. Natale, ACS Joint 45th Northwest 10th Rocky Mountain Regional Meeting, University of Utah, June 13-15, 1990. Abstract 257, *Chem. Eng. News*, April 23, 1990, p. 60.
30. "Synthesis and Characterization of Lariat Crown Ethers Containing Carboxylic Acid And Hydroxamic Functional Moieties for Selective Extraction of Lanthanides", S. Elshani, N.R. Natale, C.M. Wai, 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 118. *Chem. Eng. News*, April 15, 1991, p. 46.
31. "Preparation of Crown Ethers with Isoxazolyl Lariats", X.B. Xia, N.R. Natale, C.M. Wai. 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 121. *Chem. Eng. News*, April 15, 1991, p. 46.
32. "Molecular Modeling Studies of Lariat Ethers", N.R. Natale, C.M. Wai, and A. L. Rheingold, 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 122. *Chem. Eng. News*, April 15, 1991, p. 46.
33. "Synthesis and Structure of 4-Aryl-4,5-dihydropyrimidones", K. A. Nelson and N.R. Natale, 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 125. *Chem. Eng. News*, April 15, 1991, p. 46.
34. "Lateral Metalation and Electrophilic Quenching with Disulfides. Preparation of C-4 Functionalized Thioalkyl Isoxazoles", T.N. Balasubramaniam and N.R. Natale, 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 140. *Chem. Eng. News*, April 15, 1991, p. 46.
35. "Bis-(Binaphthyl)-Phosphazene: A Reinvestigation", Miles P. Smith, N.R. Natale, 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 141. *Chem. Eng. News*, April 15, 1991, p. 46.
36. "An Efficient Method for the Preparation of Hydroxamic Acid Lariat Crown Ethers: A study on the Effect of Ring Size", R. Noriyuki, R.K. Widener, N.R. Natale and C.M. Wai, 46th ACS Northwest Regional Meeting, Eastern Oregon State College, LaGrande OR, June 12-14, 1991. Abstract 193. *Chem. Eng. News*, April 15, 1991, p. 46.
37. "Selective Formation and Quenching of Dianions of 4[5'-phenylsulfonylmethylisoxazolyl]-1,4-dihydropyridines: An Expedient Approach Towards Chiral Calcium Antagonists", N.R. Natale, Gordon Research Conference, Frontiers of Science meeting on Heterocyclic Chemistry, New Hampton School, New Hampshire, July 7-12, 1991.
38. "Separation of Alkali Metal and Alkaline Earth Metal Ions from Trivalent Lanthanides with Ionizable Crown Ethers", D.J. Wood, S. Elshani, N.R. Natale, and C.-M. Wai, PITTCON '92, New Orleans, March 9-13, 1992. Abstract 1242.

39. "Chromium Tricarbonyl Complexes of 4-Aryl-1,4-Dihydropyridines exhibit Calcium Antagonists Activity", T.L. Hubler, S.B. Meikrantz, T.E. Bitterwolf, N.R. Natale, D.J. Triggle, and A.L. Rheingold, 203rd ACS National Meeting, San Francisco, CA, April 5-10, 1992, Abstract INOR-316. *Chem. Eng. News*, March 2, 1992, p. 85.
40. "New Lipophilic Crown Ether Carboxylic and Hydroxamic Acids. Synthesis and Application for the Extraction of F-Block Elements", S. Elshani, C.M. Wai, H. Du, N.R. Natale, 203rd ACS National Meeting, San Francisco, CA, April 5-10, 1992, Abstract ORGN-196. *Chem. Eng. News*, March 2, 1992, p. 98.
41. "4-[5'-sulfonylmethylisoxazolyl]-1,4-dihydropyridines: A Direct and Efficient Route to Chiral Hantzsch Esters", T.N. Balasubramaniam and N.R. Natale, 203rd ACS National Meeting, San Francisco, CA, April 5-10, 1992, Abstract ORGN-205. *Chem. Eng. News*, March 2, 1992, p. 98.
42. "Studies on the Synthesis of Phosphazenes with Heterocyclic Substituents", N.R. Natale, and Miles P. Smith, Gordon Research Conference, Frontiers of Science meeting on Heterocyclic Chemistry, at the New Hampton School, New Hampshire, July 6-10, 1992.
43. "Influence of Molecular Structure of Lariat Crown Ethers Containing Carboxylic and Hydroxamic Acid Moieties on Selective Extraction of Lanthanides", C.M. Wai, S. Elshani, H.S. Du, D.J. Wood, N.R. Natale, XVII International Symposium on Macrocyclic Chemistry, Provo, Utah, 1992.
44. "Studies on the Synthesis of Phosphazenes with Heterocyclic Substituents", N.R. Natale and Miles P. Smith, A.I. Meyers Symposium, 48th ACS Southwest Regional Meeting, October 21-3, 1992, Lubbock, Texas. Abstract 129. *Chem. Eng. News*, August 31, 1992, p. 61.
45. "Regioselective Ring Opening of Epoxides with Lithio-alkyl Isoxazoles", C.T. Burns and N.R. Natale, 49th ACS Northwest Regional Meeting, Anchorage Alaska, June 15-18, 1994. Abstract 37. *Chem. Eng. News*, April 25, 1994, p. 51.
46. "Lateral Metalation of Isoxazoles: Higher Order Cuprate Mediated Conjugate Additions of 3,5-Dimethyl-4-Substituted-Isoxazoles", J.R. Stenzel and N.R. Natale, 49th ACS Northwest Regional Meeting, Anchorage Alaska, June 15-18, 1994. Abstract 93. *Chem. Eng. News*, April 25, 1994, p. 53.
47. "The Preparation of Isoxazolylacridines for use in DNA Drug Therapy", Troy D. Morris, N.R. Natale, M.D. Mosher, ACS Undergraduate Research Symposium, April 29, 1995, Evergreen State College, Olympia WA. Abstract 4.
48. "Nucleophilic Aromatic Substitution of Lithioalkylisoxazoles to Iron Cation Complexes, III. A New Route to 5-Benzyl Isoxazoles", J.R. Stenzel and N.R. Natale, Joint Meeting of the 12th Rocky Mountain and 50th Northwest Regions, Park City, UT. Abstract 97. *Chem. Eng. News*, April 24, 1995, p. 62.
49. "Lateral Metalation of Isoxazoles. A New Route to 5-Benzylisoxazoles", J.R. Stenzel and N.R. Natale, 210th ACS National Meeting, Chicago, August 20-24, 1995. Abstract ORGN 398. *Chem. Eng. News*, July 17, 1995. p. 120.
50. "Intercalating Lexitropsins as DNA Minor Groove Binders", M.D. Mosher and N.R. Natale, 30th ACS Midwest Regional Meeting, November 1-3, 1995, Joplin, MO. Abstract 125. *Chem. Eng. News*, September 11, 1995. p. 53.

51. "Lateral Lithiation of Ethyl 5- Methyl-4-Acetyl-Isoxazole-3-Carboxylate", Peiwen Zhou, and N.R. Natale, 51st ACS Northwest Regional Meeting, Oregon State University, June 19-22, 1996. Abstract 116. See also, *Chem. Eng. News*, May 6, 1996, p. 54.
52. "Double Activation Preparation of Acridinylisoxazolyppyroles", N. Natale, P. Zhou, W. Taylor, G. Crawford and M. Mosher, 214th ACS National Meeting, Las Vegas NV, September 7-11, 1997. MEDI-254. See also, *Chem. Eng. News*, August 4, 1997, p. 96.
53. "Double Activation Preparation of Acridinylisoxazolyppyroles", N. Natale, P. Zhou, W. Taylor, G. Crawford and M. Mosher, 52nd ACS Northwest Regional Meeting, University of Idaho, June 18-21, 1997. Abstract 21. See also, *Chem. Eng. News*, May 12, 1997, p. 52.
54. "Bioisosteres of Aminomethylisoxazolepropionic Acid (AMPA): Preparation and Lateral Metalation Studies", N. Natale, D. Burkhart, T. Wixson and P. Zhou, 52nd ACS Northwest Regional Meeting, University of Idaho, June 18-21, 1997. Abstract 22. See also, *Chem. Eng. News*, May 12, 1997, p. 52.
55. "The Preparation of Axially Chiral Isoxazolyacridines for use as DNA Minor Groove Binders, as Viral Inhibitors", Morris, T.D., Mosher, M.D. and Natale, N.R. 52nd ACS Northwest Regional Meeting, University of Idaho, June 18-21, 1997. Abstract 23. See also, *Chem. Eng. News*, May 12, 1997, p. 52.
56. "New Route to Ferrocenyloxazolines", Blubbaum, J.E., Stenzel, J.R. and Natale, N.R. 52nd ACS Northwest Regional Meeting, University of Idaho, June 18-21, 1997. Abstract 101. See also, *Chem. Eng. News*, May 12, 1997, p. 54.
57. "Ferrocenyl Isoxazole Oxazolines", J. Stenzel, and N.R. Natale, 52nd ACS Northwest Regional Meeting, University of Idaho, June 18-21, 1997. Abstract 102. See also, *Chem. Eng. News*, May 12, 1997, p. 54.
58. "The Use of Guaiazulene Derivatives to Investigate the Cause of Scalding in Apples", Casey S. Butterfield and N.R. Natale, John K. Fellman, and Harold N. Fonda, Gordon Research Conference, Frontiers of Science, on Postharvest Physiology, July 12-17, 1998.
59. "The Chemistry of Winning Teams", N.R. Natale, Wendy Taylor, Chris O'Connor, Alexander C. Natale, Elizabeth M. Stypa, Kristy L. Henscheid, Eric E. Nuxoll, Ryan D. Carlson, Casey S. Butterfield, C.T. Burns, Kama S. White, and Jason R. Stenzel*, 53rd ACS Northwest Regional Meeting, Richland WA, June 17-20, 1998. Abstract 46. See also, *Chemical and Engineering News*, April 27, 1998, p.56.
60. "Bioisosteres Designed as AMPA antagonists", David J. Burkhart and N.R. Natale, 53rd ACS Northwest Regional Meeting, Richland WA, June 17-20, 1998. Abstract 129. See also, *Chemical and Engineering News*, April 27, 1998, p.58.
61. "Synthetic Approaches Towards a Sequence Specific Anticancer Prodrug", Devin Bolz and N.R. Natale, 53rd ACS Northwest Regional Meeting, Richland WA, June 17-20, 1998. Abstract 161. See also, *Chemical and Engineering News*, April 27, 1998, p.59.
62. "Approaches Toward Radical Trapping in Intact Cells", Casey S. Butterfield and N.R. Natale, John K. Fellman and Harold N. Fonda, 53rd ACS Northwest Regional Meeting, Richland WA, June 17-20, 1998. Abstract 162. See also, *Chemical and Engineering News*, April 27, 1998, p.59.

63. "Preparation of Conformationally Restricted Analogs of NSC D 694332", N.R. Natale, P. Zhou, K. Hobdey and X. Han, Inland Northwest Cancer Conference, Spokane WA, Poster # 35. Nov. 5-6, 1999.
64. "Combilexins with Rigid Tethers: Molecules Designed to not Bind B-DNA", N.R. Natale, K. Hobdey, D.D. Bolz, 54th ACS NORM, June 20-23, 1999, Portland OR. Abstract 163. See also: *Chemical and Engineering News*, April 26, 1999, p. 42.
65. "Models for Radical Trapping in Intact Cells", Casey S. Butterfield, N. R. Natale, J. Fellman, 54th ACS NORM, June 20-23, 1999, Portland OR. Abstract 168. See also: *Chemical and Engineering News*, April 26, 1999, p. 42.
66. "Studies on Sterically hindered Nitrile Oxide Cycloadditions", X. Han and N.R. Natale, 54th ACS NORM, June 20-23, 1999, Portland OR. Abstract 170. See also: *Chemical and Engineering News*, April 26, 1999, p. 42.
67. "Progress towards the synthesis of AMPA analogs for the Treatment of Neurological Disorders", David J. Burkhart, N.R. Natale, J. Eric Gouaux and G. Chen, 54th ACS NORM, June 20-23, 1999, Portland OR. Abstract 228. See also: *Chemical and Engineering News*, April 26, 1999, p. 43.
68. "Malcolm MacKenzie Renfrew: Polymer Pioneer", N.R. Natale, 218th ACS National Meeting, New Orleans, LA August 22-26, 1999. Global Salute to Polymers Symposium, HIST 007. See also: *Chem. Eng. News*, July 26, 1999, p. 95.
69. "A Century of the Hantzsch Pyridine Synthesis: The Value of this Venerable Process Continues to Appreciate", James R. Jeitler, T. Todd Wixson, David A. Quincy, John I. McKenna, Barbara J. Lefler, Yousef R. Mirzaei, Robert B. Palmer, Scott B. Meikrantz, Katrina Nelson, Tanjore N. Balasubramaniam, Kim T. Henon, and Nicholas R. Natale, 219th ACS National Meeting, San Francisco, March 26, 2000. CHED 104. See also, *Chem. Eng. News*, February 28, 2000. Page 82.
70. "Apple Scald Chemistry", J. Fellman, S. Mattinson, N. R. Natale and Jason Parrish, presented to the U.S. Department of Agriculture, July 2000.
71. "Unique Structure Activity Relationship for 4-Isoxazolyl-1,4-Dihydropyridines", Gerald W. Zamponi, Stephanie C. Stotz, Richard J. Staples, Tina A. Rogers and N.R. Natale, 220th ACS National Meeting, Washington, D.C. August 20-24, 2000. MEDI 161. See also, *Chem. Eng. News*, July 24, 2000, page 104.
72. "Combilexin binding to Quadruplex DNA: A Molecular Graphics Study", Kevin Hobdey, X.C. Han, A.J. Paszcynski, and N.R. Natale, 2nd Annual Inland Northwest Cancer Conference, Spokane WA, November 3-4, 2000, Poster #7.
73. "Kids + Chemistry = Fun: University of Idaho Student Affiliate Activities", Lawrence M. Daniels, Jeff Leitch, Sharon LaMont, Jason Robinson, Kristy Henscheid, Robin Rogers, and N.R. Natale, 56th ACS Northwest Regional Meeting, Seattle, WA June 14-17, 2001, Abstract 280.
74. "Design and Synthesis of Novel Isoxazole-type Anti-tumor Agents-Isoxazolyl Intercalating Lexitropsin Conjugates", Xiaochun Han, and N.R. Natale, 56th ACS Northwest Regional Meeting, Seattle, WA June 14-17, 2001, Abstract 287.

75. "Hunting A Molecular Target: Identification of DNA binding using Fluorescence spectrometry and Molecular Modeling", Kevin Rider, Alex Blumenfeld, N.R. Natale, 56th ACS Northwest Regional Meeting, Seattle, WA, June 14-17, 2001, Abstract 290.
76. "The Rational Design of Novel AMPA Bioisosteres", David J. Burkhardt, and N.R. Natale, 56th ACS Northwest Regional Meeting, Seattle, WA June 14-17, 2001, Abstract 294.
77. "Direct asymmetric synthesis of ACPA and novel AMPA analogues", David J. Burkhardt and N.R. Natale, 223rd ACS National Meeting, Orlando FL, April 10, 2002. Abstract ORGN 269. See also, Supplement to *Chem. Eng. News*, March 4, **2002**, p. 222.
78. "A Periodic Table of the Moles", N.R. Natale and Feather D.R. Broncheau, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002, Abstract 79.
79. "Direct Asymmetric Synthesis of ACPA and Novel AMPA Analogues", David J. Burkhardt, Brendan Twamley and N.R. Natale, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002, Abstract 100.
80. "Beta- and Gamma- hydroxy isoxazoles: theory and practice", Jared Nelson, N.R. Natale, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002 Abstract 102.
81. "A Chiral and lipophilic 4-isoxazolyl-1,4-dihydropyridine", Victoria Hulubei, N.R. Natale, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002, Abstract 104.
82. "Versatile Isoxazole Derivatization: Working with Nature's Biological Handle", Kevin Rider, Xiaochun Han, and N.R. Natale, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002, Abstract 106.
83. "Synthesis of Anti-Cancer Candidates that Target G-Quadruplex DNA", Chun Li, X. Han, and N.R. Natale, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002, Abstract 108.
84. "Asymmetric synthesis of 5-alpha-hydroxy isoxazoles", Andrew McKenzie, D.J. Burkhardt and N.R. Natale, 57th ACS Northwest Regional Meeting, Spokane WA, June 20-1, 2002, Abstract 164.
85. "Isoxazole as Linchpin for molecules which target folded DNA conformations: lateral lithiation and palladation", K. Rider, X. Han, C.Li, and N.R. Natale, 224th ACS National Meeting, Boston MA, August 18-22, 2002, Abstract MEDI-235, *Chem. Eng. News*, July 22, **2002**, p. TECH-97.
86. "Diamond Anniversary of the Washington Idaho Border Section", N.R. Natale, Washington Idaho Border Section 75th Anniversary Celebration, May 1, 2003.
87. "Diamond Anniversary of the Washington Idaho Border Section", N.R. Natale, 58th ACS Northwest Regional Meeting, Bozeman, MT, June 12-14, 2003.
88. "Rational Design and Synthesis of Preorganized-isoxazoles as Antitumor Agents", Kevin C. Rider, Katherine I. Myers, and N.R. Natale, 58th ACS Northwest Regional Meeting, Bozeman, MT, June 12-14, 2003.

Natale, N.R.

89. "Academic Service-Learning and the Student Affiliates", Jason E. Blubaum, Hilary L. Robbeloth, Michael D. Weinberg, and N.R. Natale, 58th ACS Northwest Regional Meeting, Bozeman, MT, June 12-14, 2003.
90. "Synthesis Of Anti-Cancer Candidates That Potentially Inhibit Telomerase Activity", Chun Li, Rebecca Memmott, and N.R. Natale, 58th ACS Northwest Regional Meeting, Bozeman, MT, June 12-14, 2003.
91. "Asymmetric Synthesis Of Novel Analogues That Target The AMPA Subtype Of Glutamate Receptors", Jared Nelson, Benjamin J. Werner, and N.R. Natale, 58th ACS Northwest Regional Meeting, Bozeman, MT, June 12-14, 2003.
92. "Exploring Calcium Channels Through the Synthesis of Hantzsch Esters", Tabitha L. Good, N.R. Natale, NSF REU Poster Session, Summer 2003.
93. "Isoxazole Intermediates in Medicinal Chemistry Synthesis", Steven M. Kennedy, Kevin C. Rider, Chun Li, Jared K. Nelson, N.R. Natale, 226th ACS National Meeting, New York City, September 7-11, 2003. CHED 170.
94. "Synthesis and Activity of Anti-cancer Compounds that Target G-quadruplex DNA", Chun Li, Kevin Rider, William Fusco, N.R. Natale, and Ronald Crawford, 227th ACS National Meeting, Anaheim, CA, March 28-April 1, 2004. MEDI 142. See also, *Chem. Eng. News*, March 8, 2004, p. TECH-76.
95. "Asymmetric synthesis and study of glutamate analogues", Jared K. Nelson, David J. Burkhart, Andrew McKenzie, Katherine I. Myers, Xue Zhao, Kathy R. Magnusson and N.R. Natale, 228th ACS National Meeting, Philadelphia PA, August 22-24, 2004, MEDI 72.
96. National Chemistry Week Mini-Symposium on the "Use of Native Plants as Medicines", N.R. Natale, session chair and organizer, Steve Gill and Trinidad Villalobos, University of Idaho, Oct. 21, 2004.
97. Mole Dance Presentation, N.R. Natale, Tutximepu Pow-wow, University of Idaho, Oct. 22-23, 2004.
98. Mole Dance Presentation, N.R. Natale, Native American Awareness Week Pow-wow, Lewis Clark State College, Lewiston ID, March 10, 2005.
99. "Academic Service-Learning: Building Bridges from Chemists to the Native American Community", N.R. Natale, Przemyslaw Brejna, Trinidad J. Villalobos, Monika Szabon-Watola, Seth Novak, Ryan Holland, Jared K. Nelson, Chun Li, Rose Keller and Michael Beery, 60th ACS Northwest Regional Meeting, Fairbanks, AK, June 16-18, 2005.
100. "Catalytic Asymmetric Nucleophilic Hydride Addition to Isoxazole Ketones", N.R. Natale, Jared K. Nelson, Chun Li, Kevin C. Rider, David J. Burkhart and Andrew McKenzie, 60th ACS Northwest Regional Meeting, Fairbanks, AK, June 16-18, 2005.
101. "Catalytic Asymmetric Nucleophilic Organozinc Addition to Isoxazole Carbonyls", N.R. Natale, Jared K. Nelson and Brendan Twamley, 60th ACS Northwest Regional Meeting, Fairbanks, AK, June 16-18, 2005.

102. "Synthetic Approaches Towards Selective Glutamate Transporter Ligands", Christina Velten, N.R. Natale, Jared Nelson, Monika Szabon, NSF-MRCI Neuroscience REU Poster Session, University of Idaho, July 29, 2005.
103. "Structure Based, Hypothesis Driven Drug Design Using Isoxazole Chemistry to Target the NMDA Receptor", Elizabeth Scott, N.R. Natale, Jared K. Nelson, Monika Szabon, NSF-MRCI Neuroscience REU Poster Session, University of Idaho, July 29, 2005.
104. "Structure-Based Drug Design of Glisoxepid Analogs", Trinidad J. Villalobos, N.R. Natale, McNair Research Symposium, University of Idaho, August 4, 2005.
105. "Magnetic Nanoparticle Conjugates for Health and Environmental Applications", Michael Hanson, Pawel Kornacki, Andrzej Paszczyski, N.R. Natale, Proceedings of the 4th Annual INBRE Conference, Northwest Nazarene University, Nampa ID, August, 7-9, 2005, page 43.
106. "Synthesis of an Anthracenyl Isoxazolyl Amide: A Quadruplex DNA Binding Element", Sarah Stranahan, Chun Li, Kevin Rider, N. R. Natale, NSF REU Green Chemistry on the Palouse Poster Session, August 11, 2005.
107. "Academic service-learning, Part 3: building bridges to Native American students and teachers", N.R. Natale, Kirsten Canady, Alexander C. Natale, Jennifer Sorenson, Trinidad J. Villalobos, 231st ACS National Meeting, March 26, 2006, Atlanta, GA. CHED 86. See Also *Chem. Eng. News*, March 6, 2006, page TECH-17.
108. "Hypothesis-Driven, Structure-Based Drug Design Using Isoxazole Chemistry", Elizabeth Scott, Monika Szabon, Jared K. Nelson, N.R. Natale, 231st ACS National Meeting, March 26 - 30, 2006, Atlanta, GA. MEDI 155. See Also *Chem. Eng. News*, March 6, 2006, page TECH-73.
- §109. "Structural Basis for Glutamate Recognition: Can Small Molecules which Bind Selectively be Developed?", N. R. Natale, M. Szabon-Watola, J. K. Nelson, D. J. Burkhart, R. J. Bridges, M. Gajewski, C. S. Esslinger, Proceedings of the 61st ACS Northwest Regional Meeting, June 25-28, 2006, Reno, NV. Abstract 134, pages 104-105.
110. "Academic Service-learning, Part 3: building bridges to Native American students and teachers", Kirsten Canady, Alexander C. Natale, Jennifer Sorenson, Trinidad J. Villalobos and N.R. Natale, Proceedings of the 61st ACS Northwest Regional Meeting, June 25-28, 2006, Reno, NV. Abstract 225, Page 143.
111. "Synthesis of Isoxazole Ligands to Study Glutamate Receptors and Transporters", John Rudolph, Stephen Smith and N.R. Natale, NSF-MRCI Neuroscience REU Poster Session, University of Idaho, July 28, 2006.
- §112. "Characterization of Novel Inhibitors of System Xc-: Development of a Binding Site Pharmacophore Model", S.A. Patel, N.R. Natale, C.S. Esslinger, M. Gajewski, J.F. Rhoderick, E. O'Brien, J. Gerdes and R.J. Bridges, 36th Annual Meeting of the Society for Neuroscience, Atlanta, GA, Oct. 14-18, 2006.
113. "What Chemists Need to Know about Copyright", N.R. Natale, William Leong, Kevin P. Gable, Leah Solla, Grace Baysinger, S. Scott Zimmerman, and Eric S. Slater, 62nd ACS Northwest Regional Meeting, Boise, ID, June 17-20, 2007. Abstract 3.

114. "Ethyl 4-(2-methyl-5,5-dimethyl-1,3-dioxan-2-yl)-5-formylisoxazole-3-carboxylate, a Branched Pentacarbonyl Synthone", N.R. Natale, Jared K. Nelson, Monika I. Szabon-Watola, Trinidad J. Villalobos, and Shikha Sharma, 62nd ACS Northwest Regional Meeting, Boise, ID, June 17-20, 2007. Abstract 196.
- §115. "Key Intermediate in a strategy for Isoxazole Glutamate Analogues", Rakesh Kumar, N.R. Natale, 7th Annual Graduate Student and Faculty Research Conference, University of Montana, Missoula MT, April 5, 2008, Abstract 23.
- §116. "General and Flexible Approach to the Synthesis of Selective Ligands for Glutamate Binding Proteins", Shikha Sharma, N.R. Natale, 7th Annual Graduate Student and Faculty Research Conference, University of Montana, Missoula MT, April 5, 2008. Abstract 25.
- §117. "Conformational Analysis of AMPA Hydrazone Bioisosteres", Trideep Rajale, N.R. Natale, 7th Annual Graduate Student and Faculty Research Conference, University of Montana, Missoula MT, April 5, 2008. Abstract 29.
- §118. "Spectrum of Interactive Activity for NCW", Holly Truitt, Joseph W. Harworth, Brent R. Lyda, Krispen Nelson, Trideep Rajale, Rebecca Schaffer, Shikha Sharma, and N.R. Natale, 235th ACS National Meeting, New Orleans, LA, April 6-10, 2008. CHED 85. See also *Chem. Eng. News*, March 17, 2008, p. TECH 23.
- §119. "Key Intermediate in a strategy for Isoxazole Glutamate Analogues", Rakesh Kumar, Jared K. Nelson, Brendan Twamley and N.R. Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 11, 2008, Abstracts, page 17.
- §120. "Conformational Analysis of AMPA Hydrazone Bioisosteres", Trideep Rajale, Monika Szabon-Watola, Brendan Twamley, and N.R. Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 11, 2008, Abstracts, page 22.
- §121. "General and Flexible Approach to the Synthesis of Selective Ligands for Glutamate Binding Proteins", Shikha Sharma, N.R. Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 11, 2008, Abstracts, page 23.
- §122. "Conformational Analysis of AMPA Hydrazone Bioisosteres", Trideep Rajale, Monika Szabon-Watola, Brendan Twamley, and N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 13-15, 2008.
- §123. "General and Flexible Approach to the Synthesis of Selective Ligands for Glutamate Binding Proteins", Shikha Sharma, N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 13-15, 2008.
- §124. "Anthracenyl Isoxazole Amide anti-cancer agents: AIMing at CNS cancer", M. Gajewski, Natale, N., Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 13-15, 2008.

- §125. “Key Intermediate in a strategy for Isoxazole Glutamate Analogues”, Rakesh Kumar, Jared K. Nelson, Brendan Twamley and N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 13-15, 2008.
- §126. “Distinct uptake patterns for fluorescein-labeled anandamide and 2-aracidonyl glycerol in cell culture and live mouse brain slices”, Shailesh Agarwal, D. Bonislowski, J. Pauli, N. Natale, M.P. Kavanaugh, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 13-15, 2008.
- §127. "A Second SpectrUM of Interactive Activities for NCW", Holly Truitt, Katie George, Krispen Nelson, Rebecca Schaffer, Charles M. Thompson, Natale, N.R., NORM/RMRM ACS meeting June 15-18, 2008, Park City, UT, Abstract 169.
- §128. “Dihydropyridines with Fluorescent probes”, Christina D. Hayes, and N.R. Natale, NSF-Research Experience for Undergraduates, July 25, 2008, The University of Montana, Missoula MT.
- §129. “Diverse isoxazole glutamate analogs arise from a common intermediate”, Nicholas R. Natale, Trideep Rajale, Shikha Sharma, Rakesh Kumar, Richard J. Bridges, Sarjubhai A. Patel, John M. Gerdes, and C. Sean Esslinger, 236th ACS National Meeting, Philadelphia, PA, August 6-10, 2008, MEDI. See also: *Chem. Eng News*, July 28, 2008. p. 82-TECH.
- §130. “Novel fluorescent endocannabinoid probes of transport”, Natale, N.R.; Agarwal, S.; Bonislowski, D.; Kavanaugh, M. 38th Annual Meeting of the Society for Neuroscience, Washington D.C., November 15-19, 2008. Presentation number 626.23/C29.
- §131. ”Endocannabinoid Uptake Studies Using a Fluorescent Analog of Anandamide”, S. Agarwal, D. Bonislowski, J. Pauli, N. Natale, M.P. Kavanaugh, 38th Annual Meeting of the Society for Neuroscience, Washington D.C., November 15-19, 2008. Presentation number 626.23/C30.
- §132. “Synthetic Strategy For Isoxazole Glutamate Analogues”, Shikha Sharma and Nicholas R Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 10-11, 2009.
- §133. “Bioisosteres of AMPA that bind the System Xc- Transporter”, Trideep Rajale, S.A. Patel, R. J. Bridges, and Nicholas R. Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 10-11, 2009.
- §134. “G-4 DNA Ligands as Anticancer Agents”, Mariusz Gajewski, Howard Beall, Mark Schnieder, Sarah M. Stranahan, Michael D. Mosher, Kevin C. Rider, and N.R. Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 10-11, 2009.
- §135. “Synthetic Strategy For Isoxazole Glutamate Analogues”, Shikha Sharma and N.R Natale, Montana ACS Meeting-in-Miniature, April 18, 2009, Montana State University - Bozeman.
- §136. “Bioisosteres of AMPA that bind the System Xc- Transporter”, Trideep Rajale, S.A. Patel, R. J. Bridges, and Nicholas R. Natale, Montana ACS Meeting-in-Miniature, April 18, 2009, Montana State University – Bozeman.
- §137. “Bis-Anthracenyl Isoxazolyl Amides have Enhanced Anticancer Activity”, N.R. Natale, Mariusz Gajewski, Howard Beall, Mark Schnieder, Sarah M. Stranahan, Michael D. Mosher, and Kevin C. Rider,

Montana ACS Meeting-in-Miniature, April 18, 2009, Montana State University – Bozeman.

- §138. “Biological Significance of Axial Chirality”, Mariusz P. Gajewski, Richard V. Williams, N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Seeley Lake MT, June 5-7, 2009.
- §139. “Diverse isoxazole glutamate analogs arise from a common intermediate”, N.R. Natale, Trideep Rajale, Shikha Sharma, Rakesh Kumar, Richard J. Bridges, Sarjubhai A. Patel, John M. Gerdes, and C. Sean Esslinger, June 7-11, 2009, National Organic Symposium, Boulder CO. Abstract B2, page 57.
- §140. "Diverse isoxazole glutamate analogs arise from a common intermediate", N.R. Natale, Kevin C. Rider, Philippe Diaz, Richard J. Bridges, Sarjubhai A. Patel, John M. Gerdes, C. Sean Esslinger, Charles M. Thompson, ACS 64th NORM, Tacoma, WA, June 28 to July 1, 2009.
- §141. “Novel isoxazole-based inhibitors of the System Xc- cystine/glutamate transporter”, Patel, S.A., Rajale, T., Rhoderick, J.F., Gerdes, J.M., Natale, N.R., and Bridges, R.J., Western Regional COBRE-INBRE Scientific Conference, Big Sky, MT, September 17-18, 2009.
- §142. “Characterization of novel isoxazole-based inhibitors of the system Xc- cystine/glutamate exchanger”, S. A. Patel, T. Rajale, J. F. Rhoderick, J. M. Gerdes, N. R. Natale, R. J. Bridges, 39th Annual Meeting of the Society for Neuroscience, Chicago, IL, October 17-21, 2009.
- §143. "P-glycoprotein's function in multiple drug resistance and its effect in improved pharmaceutical intervention ", Scott Steiger, N.R. Natale, Montana ACS Local Section Meeting-in-Miniature, February 20, 2010, Butte, MT.
- §144. “Unsymmetrical 3-aryl isoxazoles exhibit axial chirality”, N.R. Natale, Mariusz P. Gajewski, Richard V. Williams, Montana ACS Local Section Meeting-in-Miniature, February 20, 2010, Butte, MT.
- §145. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, and N.R. Natale, Montana ACS Local Section Meeting-in-Miniature, February 20, 2010, Butte, MT.
- §146. “Testing the pharmacophore model for the system Xc- transporter: one less carbon”, Kevin C. Rider, Sarjubhai A. Patel, John M. Gerdes, Richard J. Bridges, C. Sean Esslinger, Charles M. Thompson, Philippe Diaz, Lilly Matti, N.R. Natale, 239th ACS National Meeting, March 21 – 25, 2010, San Francisco, California, Abstract MEDI-40.
- §147. “Unsymmetrical 3-aryl isoxazoles exhibit axial chirality”, N. R. Natale, Mariusz P. Gajewski, Kevin C. Rider, Alexander Blumenfeld, Richard V. Williams, Montana Academy of Science Annual Meeting, April 9-10, 2010, Montana Tech, Butte, Montana, page 6.
- §148. "Microwave accelerated synthesis of isoxazole inhibitors of the system Xc- transporter", Lilly Matti, N.R. Natale, Montana Academy of Science Annual Meeting, April 9-10, 2010, Montana Tech, Butte, Montana, page 7.
- §149. "P-glycoprotein's function in multiple drug resistance and its effect in improved pharmaceutical intervention", Scott Steiger, N.R. Natale, Montana Academy of Science and Montana Sigma Xi Annual Meeting, April 9-10, 2010, Montana Tech, Butte, Montana, page 28.

- §150. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, and N.R. Natale, Montana Academy of Science Annual Meeting, April 9-10, 2010, Montana Tech, Butte, Montana, page 29.
- §151. "P-glycoprotein's function in multiple drug resistance and its effect in improved pharmaceutical intervention", Scott Steiger, N.R. Natale, National Conference on Undergraduate Research, April 15-17, 2010, Missoula, Montana, Poster session 7-25B.
- §152. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, and N.R. Natale, National Conference on Undergraduate Research, April 15-17, 2010, Missoula, Montana, Poster session 7-26B.
- §153. "Microwave accelerated synthesis of isoxazole inhibitors of the system Xc- transporter", Lilly Matti, N.R. Natale, 9th Graduate Student and Faculty Research Conference, The University of Montana, Missoula MT, April 24, 2010. Abstract 4D-2.
- §154. "Isoxazole analogues targeting System x_c- Transporter", Charles M. Keyari, Philippe Diaz, Sarjubhai A. Patel, John M. Gerdes, Richard J. Bridges, Kevin C. Rider, C. Sean Esslinger, Charles M. Thompson, N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 4-6, 2010. Poster #3.
- §155. "Microwave accelerated synthesis of isoxazole inhibitors of the system Xc- transporter", Lilly Matti, Yousef R. Mirzaei, N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 4-6, 2010. Poster #11.
- §156. "Fluorescent-based probes for the glutamate-cystine System Xc- exchange transporter ", Yousef R. Mirzaei, Sarjubhai A. Patel, Mariusz P. Gajewski, Richard J. Bridges, C. Sean Esslinger, Lilly Matti, N.R. Natale, Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 4-6, 2010. Poster #12.
- §157. "P-glycoprotein's function in multiple drug resistance and its effect in improved pharmaceutical intervention", Scott Steiger, Alana A. White, Erica L. Woodahl, N.R. Natale, ACS Joint 65th Northwest / 22nd Rocky Mountain Regional Meeting, June 20 - June 23, 2010, Pullman, WA, Abstract 96.
- §158. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, and N.R. Natale, ACS Joint 65th Northwest / 22nd Rocky Mountain Regional Meeting, June 20 - June 23, 2010, Pullman, WA, abstract 97.
- §159. "AIMing towards Improved Pharmacokinetic properties", Alison Kearns, Howard D. Beall, Mariusz P. Gajewski, Kevin C. Rider, Mark Schnieder, N.R. Natale ACS Joint 65th Northwest / 22nd Rocky Mountain Regional Meeting, June 20 - June 23, 2010, Pullman, WA, Abstract 98.
- §160. "Microwave accelerated synthesis of isoxazole inhibitors of the system Xc- transporter", Lilly Matti, Yousef R. Mirzaei, N.R. Natale, ACS Joint 65th Northwest / 22nd Rocky Mountain Regional Meeting, June 20 - June 23, 2010, Pullman, WA, Abstract 214.
- §161. "Isoxazole analogues targeting System x_c- Transporter", Charles M. Keyari, Philippe Diaz, Sarjubhai A. Patel, John M. Gerdes, Richard J. Bridges, Kevin C. Rider, C. Sean Esslinger, Charles M. Thompson,

N.R. Natale, ACS Joint 65th Northwest / 22nd Rocky Mountain Regional Meeting, June 20 - June 23, 2010, Pullman, WA, Abstract 219.

- §162. "3-aryl isoxazoles exhibit axial chirality", Richard V. Williams, Alexander Blumenfeld, Mariusz P. Gajewski, Kevin C. Rider, N.R. Natale, ACS Joint 65th Northwest / 22nd Rocky Mountain Regional Meeting, June 20 - June 23, 2010, Pullman, WA, Abstract 226.
- §163. "P-glycoprotein's function in multiple drug resistance and its effect in improved pharmaceutical intervention", Scott Steiger, N.R. Natale, Summer Undergraduate research fellowship poster session, CSFN, Aug 11, 2010.
- §164. "Characterization of multiple lipophilic binding domains of the System x_c^- cystine/glutamate exchanger", S. A. Patel, Joseph Mirzaei, Charles Keyari, Philippe Diaz, J. M. Gerdes, N.R. Natale, R.J. Bridges. Neuroscience 2010, 40th Annual Meeting, Society for Neuroscience, November 13-17, 2010, San Diego. Abstract 2010-S-14845-SfN.
- §165. "AIMing towards an alternate working hypothesis for anticancer activity ", Nathan S. Duncan, Alison K. Kearns, Howard D. Beall, Mariusz P. Gajewski, Philip Reigan, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstract pp. 39-42.
- §166. "Lateral metalation studies of isoxazolo[3,4-d]pyridazinones", Chris Koerner, Joseph Mirzaei, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstracts p. 43.
- §167. "Microwave Accelerated Synthesis of isoxazole inhibitors of the System X_c^- transporter ", Lilly Matti, Jayme Newell, Richard J. Bridges, Sarjubhai A. Patel, Michael Braden, Joseph Mirzaei, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstracts p. 47.
- §168. "Suzuki-Miyaura Cross-Coupling of benzylic bromides under microwave conditions" Steven W. McDaniel, Charles M. Keyari, Kevin C. Rider, N.R. Natale, and Philippe Diaz, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstracts p. 48.
- §169. "Synthesis of highly functionalized aromatic Isoxazoles", Joseph Mirzaei, Matthew J. Weaver, Scott Steiger, Lilly Matti, and N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstracts p. 49.
- §170. "Synthesis of a divalent isoxazole-dihydropyridine for use as a potential drug to combat multiple drug resistance", Scott Steiger, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstracts p. 50.
- §171. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, Joseph Mirzaei, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 15, 2011, Abstracts p. 52-53.
- §172. "An improved synthesis of sterically hindered aromatic Isoxazoles", Joseph Mirzaei, Matthew J. Weaver, Scott Steiger, Lilly Matti, and N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 16, 2011. Abstracts, p. 5.

- §173. "Anthracenyl isoxazole amides (AIMs) as potential anticancer therapeutics", Nathan S. Duncan, Alison K. Kearns, Howard D. Beall, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 16, 2011. Abstracts, p. 35.
- §174. "Lateral metalation studies of isoxazolo[3,4-d]pyridazinones", Chris Koerner, N.R. Natale, Joseph Mirzaei, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 16, 2011. Abstracts p. 35.
- §175. "Synthesis of divalent isoxazole-dihydropyridine for use as a potential drug to combat multiple drug resistance", Scott Steiger, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 16, 2011. Abstracts p. 36.
- §176. "Microwave Accelerated Synthesis of isoxazole inhibitors of the System X_c⁻ transporter ", Lilly Matti, Joseph Mirzaei, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 16, 2011. Abstracts, p. 36.
- §177. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, Joseph Mirzaei, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 16, 2011. Abstracts, p. 38.
- §178. "Suzuki-Miyaura Cross-Coupling of Benzylic Bromides Under Microwave Conditions" Steven W. McDaniel, Charles M. Keyari, Kevin C. Rider, N.R. Natale, Philippe Diaz, 66th ACS Northwest Regional Meeting, June 26-29, 2011, Portland, OR. Submitted, Abstract 152.
- §179. "Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?", Matthew J. Weaver, Joseph Mirzaei, N.R. Natale, 66th ACS Northwest Regional Meeting, June 26-29, 2011, Portland, OR. Abstract 232.
- §180. "Synthesis of a divalent isoxazole-dihydropyridine for use as a potential drug to combat multiple drug resistance", Scott Steiger, N.R. Natale, 66th ACS Northwest Regional Meeting, June 26-29, 2011, Portland, OR. Abstract 233.
- §181. "Microwave accelerated synthesis of isoxazole inhibitors of the system X_c⁻ transporter", N.R. Natale, Lilly Matti, Jayme Newell, Richard J. Bridges, Sarjubhai A. Patel, Michael Braden, Joseph Mirzaei, 66th ACS Northwest Regional Meeting, June 26-29, 2011, Portland, OR. Abstract 234.
- §182. "Anthracenyl isoxazole amides (AIMs) as potential anticancer therapeutics", Nathan S. Duncan, Alison K. Kearns, Howard D. Beall, Philip Reigan, N.R. Natale, 66th ACS Northwest Regional Meeting, June 26-29, 2011, Portland, OR. Abstract 235.
- §183. "Base-promoted cyclocondensation of functionalized aromatic nitrile oxides with β -ketoamides, β -diketones, and β -ketoesters", Joseph Mirzaei, Lilly Matti, Matthew J. Weaver, Scott Steiger, N.R. Natale, 66th ACS Northwest Regional Meeting, June 26-29, 2011, Portland, OR. Abstract 236.
- §184. "Unsymmetrical 3-aryl isoxazoles exhibit axial chirality", N.R. Natale, Joseph Mirzaei, Mariusz P. Gajewski, Scott Steiger, Mathew Weaver, Alexander Blumenfeld, Richard Vaughan Williams, 242nd ACS National Meeting, Denver, CO, August 28-September 1, 2011, ORGN-352.
- §185. "Structural modeling of substrate binding domains on the xCT subunit of the System x_c⁻ cystine/glutamate exchanger", S. A. Patel, J. Newell, M. Braden, J.M. Gerdes, N.R. Natale, R. J. Bridges, Society for Neuroscience, Washington, D.C., November 12-16, 2011.

- §186. "Anthracenyl isoxazole amides (AIMs) as novel agents for brain tumors", Alison Kearns, Howard Beall, M.P. Gajewski, N.R. Natale, American Association for Cancer Research, March 31-April 4, 2012, Chicago IL. Published Abstract: *Cancer Res.*, April 15, 2012, 72; 1767. doi: 10.1158/1538-7445.AM2012-1767.
- §187. "Characterization of multiple lipophilic binding pockets on the L-cystine/L-glutamate antiporter, System xc-", Jayme Newell, S. Patel, N.R. Natale, P. Diaz, R. Bridges, UM Conference on Undergraduate Research, April 13, 2012.
- §188. "AIMing activity", Nathan S. Duncan, Alison K. Kearns, Howard D. Beall, Mariusz P. Gajewski, N.R. Natale. Annual Meeting of the Montana Academy of Science, Montana Tech, April 13, 2012.
- §189. "4-Isoxazolyl-1,4-dihydropyridines inhibit the multidrug transporter", Scott Steiger, Victoria Hulubei, Scott B. Mekrantz, Tina Houle, John I McKenna, Mark E. Rogers, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, April 13, 2012.
- §190. "Improved Synthesis of Anti-tumor AIMs: Molecular Targets and the Big Picture", Matthew Weaver, Yousef R. Mirzaei, Mariusz Gajewski, Nathan Duncan, Scott Steiger, Alison Kearns, Howard Beall, Philip Reigan, Richard V. Williams, Alexander Blumenfeld, N.R. Natale. Annual Meeting of the Montana Academy of Science, Montana Tech, April 13, 2012.
- §191. "Cytotoxicity of novel anthracenyl isoxazole amide (AIM) anti-cancer agents", Alison K. Kearns, Mariusz P. Gajewski, N.R. Natale, Howard D. Beall, Graduate Student & Faculty Research Conference - University of Montana, Missoula, April 14, 2012. Poster 3.
- §192. "4-Isoxazolyl-1,4-dihydropyridines inhibit the multidrug transporter", Scott Steiger, Victoria Hulubei, Scott B. Mekrantz, Tina Houle, John I McKenna, Mark E. Rogers, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 14, 2012.
- §193. "G-4 Quadruplex DNA as an Anti-cancer Target", Matthew Weaver, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 14, 2012.
- §194. "Computational Studies on anti-tumor AIMS", Nathan Duncan, Alison K. Kearns, Howard D. Beall, N.R. Natale, Montana ACS Local Section Meeting-in-miniature, Montana Tech, April 14, 2012.
- §195. "Computational Studies on AIMs to pre-organize Quadruplex DNA", Nathan Duncan, Howard Beall, Alison Kearns, and N.R. Natale, 67th Northwest Regional Meeting of the American Chemical Society, June 24-27, 2012, Boise ID. Abstract 2.
- §196. "Anti-tumor AIMs: an improved synthesis", Matthew Weaver, N.R. Natale, 67th Northwest Regional Meeting of the American Chemical Society, June 24-27, 2012, Boise ID. Abstract 3.
- §197. "4-Isoxazolyl-1,4-dihydropyridines used as inhibitors for multidrug resistance transporters", Scott Steiger, David A. Quincy, Victoria Hulubei, Scott B. Meikrantz, N.R. Natale, 67th Northwest Regional Meeting of the American Chemical Society, June 24-27, 2012, Boise ID. Abstract 4.
- §198. "Improved Synthesis of Anti-tumor Aryl Isoxazole Amides (AIMs): Molecular Targets and the Big Picture", Matthew Weaver, Yousef R. Mirzaei, Mariusz Gajewski, Kevin C. Rider, Nathan S. Duncan, Scott Steiger, Philip Reigan, Alison K. Kearns, Howard D. Beall, Richard V. Williams, Alexander

- Blumenfeld, N.R. Natale, L.S. Skaggs Research Symposium, Univeristy of Colorado, Anshutz Medical campus, September 27-28, 2012, Poster 14.
- §199. "Characterization of multiple lipophilic binding pockets on the L-cystine/L-glutamate antiporter, System xc-", Jayme L. Newell, S.A. Patel, N.R. Natale, P.J. Diaz, R.J. Bridges, L.S. Skaggs Research Symposium, Univeristy of Colorado, Anshutz Medical campus, September 27-28, 2012, Poster 15.
- §200. "Anthracenyl isoxazole amide (AIM) antitumor agents: AIMing for more selective cancer drugs", Howard D. Beall, A.K. Kearnes, Matthew Weaver, Scott Steiger, N.R. Natale, L.S. Skaggs Research Symposium, Univeristy of Colorado, Anshutz Medical campus, September 27-28, 2012.
- §201. "Effect of lipophilic binding domains on substrate transport and kinetics of the System xc⁻ cystine/glutamate antiporter", S. A. Patel, J. Newell, M. Braden, P. Diaz, J.M. Gerdes, N. R. Natale, R. J. Bridges, Society for Neuroscience, New Orleans, Oct. 13-17, 2012, Abstract 332.02.
- §202. "Attenuation of ischemic/reperfusion induced loss of surface GluR2 through liposome facilitated delivery of PICK1 inhibitor FSC231", Jaydene Topenio McDaniel, F. Diaz, P. Beske, N.R. Natale Darrell A. Jackson, Society for Neuroscience, New Orleans, Oct. 13-17, 2012, Abstract 765.24.
- §203. "Potential treatment of Parkinson and Schizophrenia/anxiety using Isoxazolo[3,4-d]pyridazinones selective for mGluR 2 and 4", Christina Gates, N.R. Natale, 12th UM Conference on Undergraduate Research, April 12, 2013. Abstract #140.
- §204. "Axial Chirality to increase selectivity of AIMs as anti tumor agents", Michael Campbell, M. Weaver and N.R. Natale, 12th UM Conference on Undergraduate Research, April 12, 2013. Abstract#161.
- §205. "Structure-Based Hypothesis Driven Drug Design, How Computational Modeling aides in the Development of Novel Multidrug Resistance Reversing Agents ", Scott A. Steiger, Monika Szabon-Watola, David A. Quincy, Victoria Hulubei, Scott B. Mekrantz, Tina Houle, John I McKenna, Mark E. Rogers, N.R. Natale, UM Graduate Student and Faculty Research Conference, April 13, 2013, p. 7
- §206. "Novel G-quadruplex binders with a potential dual DNA cross-linking mechanism of action", Nathan Duncan and N.R. Natale, UM Graduate Student and Faculty Research Conference, April 13, 2013, p. 11.
- §207. "Structure Elucidation of an antitumor agent interaction with a quadruplex forming telomeric oligomer", Matthew J. Weaver, Earle Adams, Alison Kearns, Howard Beall, Philip Reigan, N.R. Natale, UM Graduate Student and Faculty Research Conference, April 13, 2013, p. 12.
- §208. "Characterization of Multiple Lipophilic Binding Pockets on the L-cystine/L-glutamate Antiporter System xc- ", Jayme L. Newell, Sarj A. Patel, Nick R. Natale, Philippe J. Diaz, Richard J. Bridges, Graduate Student and Faculty Research Conference, April 13, 2013, Poster 21, p.15.
- §209. "Axial Chirality to increase selectivity of AIMs as anti-tumor agents", Michael J. Campbell, Matthew J. Weaver, and N.R. Natale, ACS Montana Local Section Meeting-in-Miniature, Montana Tech, Butte MT, April 20, 2013.
- §210. "Novel G-quadruplex binders with a potential dual DNA cross-linking mechanism of action", Nathan S. Duncan, Howard D. Beall, Alison K. Kearns and N.R. Natale, ACS Montana Local Section Meeting-in-Miniature, Montana Tech, Butte MT, April 20, 2013.

- §211. "Structure Elucidation of an antitumor agent interaction with a quadruplex forming telomeric oligomer", Matthew J. Weaver, Earle Adams, Howard Beall, Alison Kearns, Philip Reigan, N.R. Natale, ACS Montana Local Section Meeting-in-Miniature, Montana Tech, Butte MT, April 20, 2013.
- §212. "Isoxazolo[3,4-d]pyridazinones are positive modulators of the 7TM metabotropic glutamate receptors, and selective for subtypes 2 and 4", Christina Gates, Joseph Mirzaei and Chris Koerner, and N.R. Natale, ACS Montana Local Section Meeting-in-Miniature, Montana Tech, Butte MT, April 20, 2013.
- §213. "Pharmacological Specificity of the System x_c^- Cystine/Glutamate Antiporter", R.J. Bridges, S. A. Patel, N. Natale, P. Diaz, M. Braden, International Society for Neurochemistry - American Society for Neurochemistry, 24th Biennial Joint Meeting, Cancun, Mexico, April 20-24, 2013.
- §214. "Axial Chirality to increase selectivity of AIMS as anti-tumor agents", Campbell, M.J.; Li, C.; Weaver, M.J.; Natale, N.R. 68th Northwest Regional Meeting of the American Chemical Society, Corvallis, OR, June 21-24, 2013. Abstract 145.
- §215. "Isoxazolo[3,4-d]pyridazinones are positive modulators of the 7TM metabotropic glutamate receptors", Gates, C.; Mirzaei, J.; Koerner, C.; Campana, C.; Natale, N.R. 68th Northwest Regional Meeting of the American Chemical Society, Corvallis, OR, June 21-24, 2013. Abstract 169.
- §216. "Structure elucidation of an antitumor agent interaction with a quadruplex forming telomeric oligomer", Weaver, M.J.; Reigan, P.; Beall, H.D.; Adams, E.; Li, C.; Kearns, A.K.; Natale, N.R. 68th Northwest Regional Meeting of the American Chemical Society, Corvallis, OR, June 21-24, 2013. Abstract 170.
- §217. "Novel G-quadruplex binders with potential for a dual DNA cross-linking mechanism of action", Duncan, N.; Kearns, A.K.; Bell, H.D. Li, C.; Natale, N.R. 68th Northwest Regional Meeting of the American Chemical Society, Corvallis, OR, June 21-24, 2013. Abstract 172.
- §218. "Bivalent 4-Isoxazolyl-1,4-Dihydropyridines have enhanced binding at the multidrug resistance transporter", Steiger, S.A., Campana, C.; Natale, N.R. 68th Northwest Regional Meeting of the American Chemical Society, Corvallis, OR, June 21-24, 2013. Abstract 174.
- §219. "Axial chirality to improve efficacy of AIMS as anti-tumor agents", Michael J. Campbell, Matthew J. Weaver, Chun Li, Janet L. Hunting, Alison K. Kearns, Howard D. Beall, Philip Reigan, N.R. Natale, ACS Montana Local Section, 26th Annual Fall Social, October 19, 2013, Fairmont Hot Springs Resort, Anaconda, MT.
- §220. "Anthracenyl isoxazole amides (AIMs) as mitochondrial modulators of apoptosis", A. Kearns, M.J. Weaver, N.R. Natale, Howard Beall, Society of Toxicology's (SOT) 53rd Annual Meeting, March 23-27, 2014, Phoenix, AZ.
- §221. "Structure-Activity-Relationship of antitumor agents that target Quadruplex DNA Stabilization", Nathan S. Duncan, Howard D. Beall, N.R. Natale, Annual Meeting of the Montana Academy of Science, Montana Tech, Butte, MT, April 11, 2014.
- §222. "Structure-Activity-Relationship of antitumor agents that target Quadruplex DNA Stabilization", Nathan S. Duncan, Alison K. Kearns Howard D. Beall, N.R. Natale, ACS Montant Local Section Meeting-in-miniature, April 12, 2014, Carroll College, Helena MT.

- §223. "Investigation of quadruplex DNA interactions with anthracenyl isoxazole amides by circular dichroism", Sascha Stump, Nathan S Duncan, Matthew J. Weaver, N. R. Natale, Howard D Beall, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM63
- §224. "How to pdb: a class exercise for Medicinal Chemistry class", H.D.Beall, N.R. Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM90.
- §225. "Naphthyl-3-isoxazole analogs of 2,6-dibromo tyrosine (NIM-DBT) synthesis and System Xc-activity", Richard J. Bridges, Michelle Ogava Igual, Leonardo Capeletti Da Silva, Sarjubhai A Patel, Michael Braden, Nathan Duncan, Matthew Weaver, N. R. Natale, Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM153.
- §226. "Structure-Activity-Relationship of antitumor agents that target Quadruplex DNA Stabilization", N.S. Duncan, H.D. Beall, N.R. Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM154.
- §227. "Dimeric Isoxazolyl-1,4-Dihydropyridines have enhanced binding at the Multidrug Resistance Transporter", S.A. Steiger, N.R. Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM155.
- §228. "Catalytic Asymmetric Synthesis of Heterocyclic Chiral Isoxazolyl 1,4-Dihydropyridines and Quinolones", S.A. Steiger, Chun Li, N.R. Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM156.
- §229. "Design and synthesis of quadruplex binding anti-tumor agents", Matthew J Weaver, Sascha Stump, Nathan Duncan, Alison K Kearns, Howard D Beall, Nicholas R Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM157.
- §230. "Isoxazolo[3,4-d]pyridazinones are positive modulators of metabotropic glutamate receptors, and are subtype selective" Christina Gates, Joseph Mirzaei and Chris Koerner, N.R. Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM177.
- §231. "Diastereoselectivity in the bromination of 3-(9'-anthryl)-isoxazole esters", Michael J. Campbell, Matthew J. Weaver¹, Chun Li, Janet L Hunting, Howard D. Beall, Alison K. Kearns, Phillip Reigan, N.R. Natale, 69th Northwest Regional Meeting of the American Chemical Society, Missoula MT, June 22-25, 2014, abstract NORM178.
- §232. "Diastereoselectivity in the bromination of 3-(9'-anthryl)-isoxazole esters", Michael J. Campbell, Matthew J. Weaver, Chun Li, Janet L Hunting, Howard D. Beall, Alison K. Kearns, Phillip Reigan, N.R. Natale, 6th Annual OREOS Undergraduate Research Symposium, July 31, 2014. Poster #5.
- §233. "Characteriation of Novel Isoxazole Analogues at the L-Cysteine/L-Glutamate Exchange System X_C-", M.R. McGady, D.S. Schweitzer, Nathan S. Duncan, N. R. Natale, J.N. Newell, S.A. Patel, R.J. Bridges, 6th Annual OREOS Undergraduate Research Symposium, July 31, 2014. Poster #11.
- §234. "Diastereoselectivity in the bromination of 3-(9'-anthryl)-isoxazole esters", Michael J. Campbell,

Natale, N.R.

Matthew J. Weaver, Chun Li, Janet L Hunting, Howard D. Beall, Alison K. Kearns, Phillip Reigan, N.R. Natale, Sascha Stump, American Association of Pharmaceutical Science, Rocky Mountain Discussion Group, Missoula MT, August 13, 2014. Poster #3.

§235. "Structure-Activity-Relationship of antitumor agents that target Quadruplex DNA Stabilization", N.S. Duncan, H.D. Beall, N.R. Natale, American Association of Pharmaceutical Science, Rocky Mountain Discussion Group, Missoula MT, August 13, 2014. Poster #6.

§236. "Investigation of quadruplex DNA interactions with anthracenyl isoxazole amides by circular dichroism", Sascha Stump, Nathan S Duncan, Matthew J. Weaver, N. R. Natale, Howard D Beall, American Association of Pharmaceutical Science, Rocky Mountain Discussion Group, Missoula MT, August 13, 2014. Poster #16.

§237. "Design and synthesis of quadruplex binding anti-tumor agents", Matthew J Weaver, Sascha Stump, Nathan Duncan, Alison K Kearns, Howard D Beall, Nicholas R Natale, American Association of Pharmaceutical Science, Rocky Mountain Discussion Group, Missoula MT, August 13, 2014. Poster #17.

§238. "Diastereoselectivity in the bromination of 3-(9'-anthryl)-isoxazole esters", Michael J. Campbell, Matthew J. Weaver, Chun Li, Janet L Hunting, Howard D. Beall, Alison K. Kearns, Phillip Reigan, N.R. Natale, Sascha Stump, Skaggs Biomedical Research Symposium, Missoula MT, August 14-15, 2014. Abstract p. 17-18.

§239. "Structure-Activity-Relationship of antitumor agents that target Quadruplex DNA Stabilization", N.S. Duncan, H.D. Beall, N.R. Natale, Skaggs Biomedical Research Symposium, Missoula MT, August 14-15, 2014. Abstract p. 19.

§240. "Isoxazolo[3,4-d]pyridazinones are positive modulators of metabotropic glutamate receptors, and are subtype selective", Christina Gates, Joseph Mirzaei and Chris Koerner, N.R. Natale, Skaggs Biomedical Research Symposium, Missoula MT, August 14-15, 2014. Abstract p. 21.

§241. "Dimeric Isoxazolyl-1,4-Dihydropyridines have enhanced binding at the Multidrug Resistance Transporter", S.A. Steiger, N.R. Natale, Skaggs Biomedical Research Symposium, Missoula MT, August 14-15, 2014. Abstract p. 27.

§242. "Investigation of quadruplex DNA interactions with anthracenyl isoxazole amides by circular dichroism", Sascha Stump, Nathan S Duncan, Matthew J. Weaver, N. R. Natale, Howard D Beall, Skaggs Biomedical Research Symposium, Missoula MT, August 14-15, 2014. Abstract p. 27.

§243. "Design and synthesis of quadruplex binding anti-tumor agents", Matthew J Weaver, Sascha Stump, Nathan Duncan, Alison K Kearns, Howard D Beall, Nicholas R Natale, Skaggs Biomedical Research Symposium, Missoula MT, August 14-15, 2014. Abstract p. 28.

§244. "Diastereoselectivity in the bromination of 3-(9'-anthryl)-isoxazole esters", Michael J. Campbell, Matthew J. Weaver, Chun Li, Janet L Hunting, Howard D. Beall, Alison K. Kearns, Phillip Reigan, N.R. Natale, Sascha Stump, American Chemical Society MT local Section Fall Social, Fairmont MT, October 25, 2014.

§245. "Structural comparisons of isoxazole-based non-competitive and competitive inhibitors of the system xc- antiporter", S. A. Patel, J. L. Newell, M. Weaver, N. Ducan, M. Braden, P. J. Diaz, N. R. Natale, R. J. Bridges, Society for Neuroscience Annual Meeting, Washington, DC. November 15-19, 2014. Abstract

127.08.

- §246. "How to pdb: a class exercise for professional Pharmacy Med Chem", N.R. Natale, H.D.Beall, 249th ACS National Meeting, March 22-26, 2015, Denver, CO. CHED 174.
- §247. "Diastereoselectivity in an exhaustive bromination of anthracenyl-isoxazoles", Michael J. Campbell, N.R. Natale, 249th ACS National Meeting, March 22-26, 2015, Denver, CO. CHED 1011.
- §248. "Anthracenyl isoxazole amides (AIMs) stabilize quadruplex DNA structures in telomeric and c-MYC promoter sequences", Stump, Sascha; Weaver, Matthew J.; Duncan, Nathan S.; Kearns, Alison K.; Reigan, Phillip; Natale, Nicholas R.; Beall, Howard D. 249th ACS National Meeting, March 22-26, 2015, Denver, CO. MEDI 304.
- §249. "10-oxy-Anthracenyl Isoxazole Amides (AIMs) as potential G-quadruplex stabilizing anti-tumor agents", Nathan S. Duncan, Nicholas R. Natale, Howard D. Beall, 249th ACS National Meeting, March 22-26, 2015, Denver, CO. MEDI 316.
- §250. "Improved efficacy for a novel class of G-quadruplex binding anti-tumor agents", Matthew J. Weaver, Sascha Stump, Nathan Duncan, Alison K Kearns, Howard D Beall, Nicholas R Natale, 249th ACS National Meeting, March 22-26, 2015, Denver, CO. MEDI 318.
- §251. "Diastereoselectivity in an exhaustive bromination of an anthracenyl-isoxazole", M.J. Campbell, M.J. Weaver, Chun Li, J.L. Hunting, Alison K. Kearns, Sascha Stump. Howard D. Beall, Philip Reigan, N.R. Natale, 14th Annual UM Conference on Undergraduate Research (UMCUR) will be held in the University Center on Friday, April 17, 2015, Poster #132.
- §252. "Improved efficacy for a novel class of G-quadruplex binding anti-tumor agents", Matthew J. Weaver, Sascha Stump, Nathan Duncan, Alison K. Kearns, Howard D. Beall, N.R. Natale, 14th Annual Graduate Student Research Conference, University of Montana, April 18, 2015, Paper 19.
- §253. "Anthracenyl isoxazole amides (AIMs) stabilize quadruplex DNA in telomeric and c-myc promoter sequences", Sascha Stump, M.J. Weaver, Nathan S. Duncan, Alison K. Kearns, Philip Reigan, N.R. Natale, Howard D Beall, 14th Annual Graduate Student Research Conference, University of Montana, April 18, 2015, Paper 22.
- §254. "Diastereoselectivity in an exhaustive bromination of an anthracenyl-isoxazole", M.J. Campbell, N.R. Natale, M.J. Weaver, 70th Northwest Regional Meeting, June 21 - 24, 2015, Idaho State University, Pocatello, Idaho. Abstract 39.
- §255. "Of mice and men: MDR-1 ligands docked at a human ABC transporter", Scott A. Steiger, Chun Li, Donald S. Backos, Philip R. Reigan, and N.R. Natale, 70th Northwest Regional Meeting, June 21 - 24, 2015, Idaho State University, Pocatello, Idaho. Abstract 44.
- §256. "Isoxazolo [3,4-d] pyridazinones modeled at the allosteric metabotropic Glutamate receptor site", Christina Gates, Donald S. Backos, Philip R. Reigan, Chris Koerner, Joseph Mirzaei, and N.R. Natale, 70th Northwest Regional Meeting, June 21 - 24, 2015, Idaho State University, Pocatello, Idaho. Abstract 45.

Natale, N.R.

§257. "Improved efficacy for a novel class of G-quadruplex binding anti-tumor agents", Matthew J. Weaver, N.R. Natale, 70th Northwest Regional Meeting, June 21 - 24, 2015, Idaho State University, Pocatello, Idaho. Abstract 107.

§258. "SLC1A4 and SLC1A5 mediate transport of D-serine in brain" J.C. Farnsworth, G.E. Lind, B.R. Lyda, N.R. Natale, M.P. Kavanaugh, Society for Neuroscience Annual Meeting, Chicago, IL. October 17-21, 2015. Abstract 571.03/B25.

Pending and/or planned:

INVITED LECTURES (Total number 94, as of 8/18/15, 2-3 standing invitations):

1. "Synthetic Approaches to Spirovetivanes and other stories", Colorado State University, February 3, 1981.
2. "Asymmetric Synthesis of Dihydropyridines", Monsanto, St. Louis, Missouri, April 14, 1981.
3. "Asymmetric Synthesis of Dihydropyridines", Pfizer Central Research, Groton Connecticut, April 16, 1981.
4. "Asymmetric Synthesis of Dihydropyridines", G.D. Searle, Chicago, Illinois, May 27, 1981.
5. "Asymmetric Synthesis of Dihydropyridines", Marshall University, Huntington, West Virginia, June 29, 1981.
6. "Asymmetric Synthesis of Dihydropyridines", McNeil Pharmaceutical, Spring House, PA, July 20, 1981.
7. "Asymmetric Synthesis of Dihydropyridines", University of Idaho, Moscow, ID, August 10, 1981.
8. "Chiral Dihydropyridines as NADH Mimics", Washington State University, Pullman, WA, November 4, 1981.
9. "Adventures in Heterocyclic Chemistry", University of Connecticut, Storrs, CT, September 8, 1982.
10. "The Use of Lanthanides in Organic Synthesis", ITT Rayonier, Shelton, WA, November 11, 1982.
11. "Isoxazoles and the Good Samaritan", Utah State University, Logan, UT, November 16, 1983.
12. "New Dihydropyridine Calcium Entry Antagonists", G.D. Searle, Chicago, IL, August 17, 1984.
13. "R-(+)-Cannabispirenone-A and Related Stories", Drexel University, August 22, 1984.
14. "Isoxazoles in Synthesis", Lehigh University, Bethlehem, PA, August 24, 1984.
15. "Recent Advances in the Chemistry of Isoxazoles", ITT Rayonier, March 23, 1985.
16. "Recent Advances in the Chemistry of Isoxazoles", University of Washington, May 24, 1985.
17. "Recent Advances in the Chemistry of Isoxazoles", University of Colorado, Boulder, CO, October 30, 1985.

18. "Recent Advances in the Chemistry of Isoxazoles", Colorado State University, November 1, 1985.
19. "Cannabinoids, Calcium Channel Blockers, and Fredericamycin-A", BIOMOL Laboratories, Chester, PA, March 26, 1986.
20. "Application of X-Ray Crystallography and CP-MAS to Problems in Isoxazole Chemistry", Rutgers University, Department of Chemistry, Newark, NJ, March 27, 1986.
21. "Recent Advances in the Chemistry of Isoxazoles", Sandoz Chemicals, Charlotte, NC, June 12, 1986.
22. "Recent Advances in the Chemistry of Isoxazoles", Parke-Davis, Hope, MI, October 14, 1986.
23. "Prodrugs and Congeners", Washington State University, October 29, 1986.
24. "Recent Advances in the Chemistry of Isoxazoles", University of Mississippi, Department of Pharmacognosy, Oxford, MS, November 17, 1986.
25. "Time Release Agricultural Chemicals", U.S. Department of Agriculture, Beltsville, MD, April 20, 1987.
26. "The Use of Isoxazoles as Prodrugs and Congeners", Rutgers University, Department of Pharmacy, Piscataway, NJ, May 15, 1987.
27. "Design and Synthesis of New Materials: I. Lariat Ethers; II. Polyphosphazene derivatives", Battelle Pacific Northwest Laboratories, Richland, WA, August 23, 1989.
28. "Adventures in Heterocyclic Chemistry", Rutgers University, Camden, NJ, December 4, 1989.
29. "Adventures in Heterocyclic Chemistry", Drexel University, March 1, 1990.
30. "Isoxazolyl-Dihydropyridine Calcium Antagonists", Rutgers University, Department of Pharmaceutical Chemistry, Piscataway, NJ, October 5, 1990.
31. "Synthesis and Structure of Isoxazolyl-Dihydropyridines", State University of New York at Buffalo, Department of Medicinal Chemistry, October 8, 1990.
32. "Structure Activity Relationship of 4-Isoxazolyl-1,4-dihydropyridine Calcium Antagonists", Boise State University, October 17, 1991.
33. "Structure Activity Relationships of Calcium Channel Antagonists", College of Southern Idaho, Twin Falls, Idaho, October 18, 1991.
34. "Host-guest Chemistry", invited lecture, College of Southern Idaho, October, 18, 1991.
35. "Structure Activity Relationships of Calcium Channel Antagonists", Whitman College, Walla Walla, WA, November 7, 1991.

Natale, N.R.

36. "Structure Activity Relationship of 4-Isoxazolyl-1,4-dihydropyridine Calcium Antagonists", Oregon Graduate Institute of Science and Technology, Beaverton, OR, April 30, 1992.
37. "Structure Activity Relationship of 4-Isoxazolyl-1,4-dihydropyridine Calcium Antagonists", University of Washington, May 1, 1992.
38. "Organic Medicinal Chemistry at the University of Idaho", Lewis-Clark State College, Lewiston, ID, November 21, 1994.
39. "Intercalating Isoxazoles", invited lecture, Gonzaga University, Spokane, WA, February 2, 1996.
40. "Intercalating Isoxazole Lexitropsins", Invited Lecture, University of Montana, April 26, 1999.
41. "Malcolm MacKenzie Renfrew: Polymer Pioneer" N.R. Natale, ACS 218th National Meeting, New Orleans, LA August 22-26, 1999. Global Salute to Polymers Symposium, HIST 007. See also: *Chem. Eng. News*, July 26, 1999, p. 95.
This presentation was covered in an article entitled: "International Chemistry Celebration: Going...Going...Strong" by Linda Raber, Chem. Eng. News, September 13, 1999, p. 56.
42. "Adventures in Isoxazole Chemistry", Invited Lecture, Battelle Pacific Northwest Laboratories, Richland, WA, December 2, 1999.
43. "A Century of the Hantzsch Pyridine Synthesis: The Value of this Venerable Process Continues to Appreciate", James R. Jeitler, T. Todd Wixson, David A. Quincy, John I. McKenna, Barbara J. Lefler, Yousef R. Mirzaei, Robert B. Palmer, Scott B. Meikrantz, Katrina Nelson, Tanjore N. Balasubramaniam, Kim T. Henon, and Nicholas R. Natale, 219th National ACS Meeting, San Francisco, March 27, 2000. *Sci-Mix*. See also, *Chem. Eng. News*, February 28, 2000. Page 89.
Only 56 (5%) of 1,046 CHED papers were invited for presentation at Sci-Mix.
44. "Washington Idaho Border Section: IChC and NCW 1999", Nicholas R. Natale, 219th National ACS Meeting, San Francisco, March 28, 2000.
Only 6 of the 188 ACS Local Sections presented posters at this reception.
45. "Anti-Cancer Drug Discovery", N.R.Natale, Gonzaga University, February 23, 2001.
46. "Kids + Chemistry = Fun: University of Idaho Student Affiliate Activities", Jeff Leitch, Sharon LaMont, Jason Robinson, Kristy Henscheid, Robin Rogers, and N.R.Natale, 221st ACS National Meeting, San Diego, CA, April 1-5, 2001. *Sci-Mix*, Abstract CHED 907. See also, *Chem. Eng. News*, March 5, 2001. Page 95.
47. "A Mole of Art", presentation to the University of Idaho Student Affiliate, March 6, 2001.
48. "A Periodic Table of the Moles & other stories", Lewis-Clark State College, Dec. 6, 2001.
49. "The Isoxazole as a Scaffold in Medicinal Chemistry", Brigham Young University, Provo UT, March 14, 2002.

50. "A Periodic Table of the Moles & other stories", Washington State University, WSU-SAACS, April 3, 2002.
51. "A Periodic Table of the Moles", Feather Del Rae Broncheau, N.R. Natale, Sharon LaMont, B. Christine Morris, Jennifer Snyder, and Benjamin Weinstock, 223rd ACS National Meeting, Orlando FL, April 8, 2002. *Sci-Mix*, Abstract CHED 988. See also, Supplement to *Chem. Eng. News*, March 4, **2002**, p. 139.
52. "A Periodic Table of the Moles", Feather Del Rae Broncheau, N.R. Natale, Sharon LaMont, B. Christine Morris, Jennifer Snyder, and Benjamin Weinstock, 223rd ACS National Meeting Orlando, April 9, 2002. NCW Coordinator and Student Affiliate Reception.
Only 17 of the 189 LS were invited to present at this reception.
53. "A Periodic Table of the Moles", Feather Broncheau, T. Bart Plocher, Sarah Lorenz, Daniel Chase, B. Christine Morris, Daniel Stelck, Ralph Zehnder, Benjamin Weinstock & N.R. Natale, 224th ACS National Meeting, Boston MA, August 20, 2002, *ChemLuminary Award Ceremony*.
54. "A Periodic Table of the Moles", Tutxinmepu Pow-Wow, ASUI-Kibbie Dome, University of Idaho campus, October 19, 2002.
55. "A Periodic Table of the Moles", University of Idaho, Department of Chemistry, October 22, 2002.
Presented with a speciall recognition award by the Washington-Idaho Border Local Section of the ACS.
56. "A Periodic Table of the Moles", Chemistry & Art Class, University of Idaho, October 24, 2002.
57. "Kids + Chemistry = Fun, Part 3", Sharon LaMont, Daniel T. Chase, Sadie Sprague, Marie Cook, Debbie Thoreson, Lucas Knowles, Chris Hartman, Byron Wong, Brenda Eby, T. Bart Plocher, T.E. Bitterwolf, and N.R. Natale, Invited contribution to the Successful Student Affiliates Chapter Posters, *Sci-mix*, 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003, CHED 1115. *Chem. Eng. News*, March 3, **2003**, page TECH - 39.
58. "Academic Service-Learning and the Student Affiliates", presentation to the University of Idaho Service-Learning Faculty Fellows, May 8, 2003.
59. "Teaching Organic Chemistry: Where Are We Going?", N.R. Natale, Symposium on Instructional Developments in Organic Chemistry Education, 226th ACS National Meeting, New York City, September 7-11, 2003. CHED 226. See also *Chem. Eng. News*, August 18, **2003**, page TECH-17.
60. "Diamond Anniversary of the Washington Idaho Border Section", N.R. Natale, 226th ACS National Meeting, New York City, September 8, 2003. *Sci-Mix*. See also *Chem. Eng. News*, August 18, **2003**, page TECH-43.
61. "Diamond Anniversary of the Washington-Idaho Border Section", N.R. Natale, 226th ACS National Meeting, New York City, September 9, 2003. HIST 21. See also *Chem. Eng. News*, August 18, **2003**, page TECH-43.
62. "Isoxazoles in Medicinal Chemistry", invited lecture, University of Montana, October 15, 2004.
63. "A Periodic Table of the Moles: Building Bridges to Native American Students", University Interdisciplinary Colloquium, University of Idaho, October 19, 2004.

Natale, N.R.

64. "Chemical Analysis of the Constituents of Qaws-Qaws", Natale, N.R.; Villalobos, T.J.; Taylor, J.; Knerr, G.; Greene, S. Symposium on Natural Resources Chemistry, Proceedings of the 60th ACS Northwest Regional Meeting, Fairbanks, AK, June 16-18, 2005. Abstract 16, page 44.
65. "Isoxazoles in Medicinal Chemistry", N.R. Natale, Symposium on Heterocycles, 40th Midwest Regional ACS Meeting (MWRM), Joplin, Missouri, October 26-28, 2005. Abstract 83.
66. "Element-ary enthusiasm – University of Idaho Student Affiliates", Lucas Knowles, Hilary Robbeloth, Marie Freeman, Kirsten Canady, Jamie Freeman, Sadie Sprague, Seth Novak, T.E. Bitterwolf and N.R. Natale, *Sci-Mix, Successful Student Affiliate Section*, CHED 1160. Proceedings of the 231st American Chemical Society National Meeting, March 27, 2006, Atlanta, GA. Page 40.
67. "Academic service-learning, Part 3: building bridges to Native American Students and Teachers", N.R. Natale, Kirsten Canady, Alexander C. Natale, Jennifer Sorenson, Trinidad J. Villalobos, *Sci-Mix*, Division of Chemical Education, 231st American Chemical Society National Meeting, March 27, 2006, Atlanta, GA. CHED 86.
68. "Isoxazoles to Explore the Glutamate Receptors & Transporters", University of Montana, Department of Biomedical and Pharmaceutical Science, July 14, 2006.
69. "Washington Idaho Border Section: ACS Scholars and Chemists with Disabilities Programs", Trinidad J. Villalobos, John Armentrout, Richard V. Williams, and N.R. Natale, 232nd ACS National Meeting, San Francisco, CA, September 12, 2006, *ChemLuminary Award Ceremony*.
- §70. "Five Easy Isoxazoles", Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Seeley Lake, MT, June 9, 2007.
- §71. "Isoxazoles in Medicinal Chemistry", Department of Chemistry, University of Montana, October 1, 2007.
- §72. "Isoxazoles in Medicinal Chemistry", Montana Tech, Department of Chemistry, Butte, MT, Oct. 3, 2007.
- §73. "A Periodic Table of the Moles", invited lecture, Montana Local Section of the American Chemical Society, Fall Social, Chico Hot Springs, Pray, MT, October 20, 2007.
- §74. "SpectrUM of Interactive Activity for NCW", Holly Truitt, Joseph W. Harworth, Brent R. Lyda, Krispen Nelson, Trideep Rajale, Rebecca Schaffer, Shikha Sharma, and N.R. Natale, *Sci-Mix*. 235th ACS National Meeting, New Orleans, LA, April 7, 2008. CHED 85.
Only 68 of 1624 (4%) of submitted abstracts were selected for presentation from the CHED division at Sci-mix, the society wide mixer on Monday night at the ACS National meetings.
- §75. "Medicinal Chemistry Core", Natale, N.R., Montana Neuroscience Retreat, NIH-COBRE Center for Structural and Functional Neuroscience, Big Sky, MT, June 13, 2008.
- §76. "Isoxazoles in Medicinal Chemistry", Professor Robert O. Hutchins Honorary Symposium, Drexel University, Philadelphia, PA, August 16, 2008, invited lecture.

- §77. "Isoxazoles in Medicinal Chemistry", Idaho State University, Pocatello, ID, September 19, 2008.
- §78. "Isoxazoles in Medicinal Chemistry", Montclair State University, NJ, January 26, 2010.
- §79. "Lighting the Goal Lamp: a Big Sky Hat trick", February 24, 2010, NIH-COBRE Center for Structural and Functional Neuroscience, University of Montana, invited lecture.
- §80. "Isoxazoles in Medicinal Chemistry", Whitworth University, Spokane, WA, September 15, 2010.
- §81. "Isoxazoles in Medicinal Chemistry", Carroll College, Helena, MT, October 15, 2010.
- §82. "Progress, Setbacks and Prospects", NIH-COBRE Center for Structural and Functional Neuroscience, University of Montana, invited lecture, September 14, 2011.
- §83. "Isoxazoles in Medicinal Chemistry", University of Arizona, Tucson, AZ, March 9, 2012.
- §84. "Isoxazoles in Medicinal Chemistry", University of Northern Colorado, Greeley, CO, April 6, 2012.
- §85. "Isoxazoles bind the System Xc- Antiporter", N.R. Natale, *Symposium on Bioorganic Chemistry*, 67th Northwest Regional Meeting, Boise, ID, June 25, 2012, Abstract 126.
- §86. "Heteroaryl-Dihydropyridines inhibit the multidrug transporter", N.R. Natale, H.D. Beall, V. Hulubei, A. Kearns, S.B. Meikrantz, D.A. Quincy, S. Steiger, *Symposium on Heterocyclic Chemistry*, Rocky Mountain Regional Meeting, Oct.17-20, 2012, Westminster, CO, invited presentation. Abstract 176.
- §87. "Improved Synthesis of Anti-tumor Aryl Isoxazole Amides (AIMs): Molecular Targets and the Big Picture", Matthew Weaver, Yousef R. Mirzaei, Mariusz Gajewski, Kevin C. Rider, Nathan S. Duncan, Scott Steiger, Philip Reigan, Alison K. Kearns, Howard D. Beall, Richard V. Williams, Alexander Blumenfeld, N.R. Natale, Second Albert I. and Joan Meyers Symposium, Colorado State University, Oct. 27, 2012, invited presentation.
- §88. "Isoxazol[3,4-d]pyridazinones are selective ligands for mGluRs", Center for Structural & Functional Neuroscience, University of Montana, April 17, 2013.
- §89. "Aryl Isoxazole Amide (AIM) antitumor agents are selective for *c-myc* oncogene quadruplex DNA", Philip Reigan, Don Backos, Howard Beall, Alison K. Kearns, Nathan Duncan, Matthew J. Weaver, Michael J. Campbell, Sascha Stump, Chun Li and N.R. Natale, Skaggs Symposium, University of Montana, August 14-15, 2014.
- §90. "Aryl isoxazole amide (AIM) antitumor agents are selective for the *c-myc* oncogene quadruplex DNA", University of Colorado Anschutz Medical Campus, Skaggs School of Pharmacy and Pharmaceutical Sciences, January 15, 2015.
- §91. "How to pdb: a class exercise for professional Pharmacy Med Chem", N.R. Natale, H.D. Beall, 249th ACS National Meeting, March 23, 2015, Denver, CO. CHED 174. Sci-Mix.
Only a select percentage (~2.7%) of submitted CHED papers were invited for presentation at Sci-Mix, the society-wide mixer at the ACS National Meeting.
- §92. "Of mice and men: modelling the binding of isoxazoles to the ABCB10 transporter", University of Colorado Anschutz Medical Campus, Skaggs School of Pharmacy and Pharmaceutical Sciences, April

10, 2015.

§93. "Chiral Isoxazoles: the next generation", University of Colorado Anschutz Medical Campus, Skaggs School of Pharmacy and Pharmaceutical Sciences, May 8, 2015.

§94. "Northwest Regional Meeting", Janice Alexander, Earle Adams, Mary Cloninger, Tony Haag, Andrea Stierle, Bruce Bowler, N.R.Natale, 250th ACS National Meeting, Boston, August 16-20, 2015, *ChemLuminary Awards Ceremony*.

Pending and/or planned: Montana Academy of Science, invitation, TBA; Drexel University, Distinguished Chemistry Alumni Lecture, TBA; Eastern Oregon University, TBA.

CURRENT AND PENDING SUPPORT

Current:

"Design and Development of small molecules to regulate System Xc and Multidrug Resistance Transporter Function", Backos, D.; Reigan, P.; and Natale, N.R. Co-PIs, ALSAM Foundation, Skaggs Scholars Program, July 1, 2015 to June 30, 2017, \$150,000.

"Scope of Sabbatical Research", ADR Support of Visiting Scientists Program Grant, University of Colorado Anschutz Medical campus, Skaggs School of Pharmacy and Pharmaceutical Sciences, Jan. - Aug. 2015, \$10,000.

"Mitochondrial-dependent mechanism of toxicity of anthracenyl isoxazole amides", H.D. Beall, PI, NIH CEHS, pilot grant, April 2015 - May 31, 2016. Requested amount \$50,000. NRN role: Co-investigator.

"Molecular Pharmacology of the System xc- Glutamate/Cystine Antiporter", R.J. Bridges, PI, National Institutes of Health, R15 NS088899. July 1, 2014 - June 30, 2016. \$413,189. NRN role: Collaborator.

"MRI: Acquisition of a Small Molecule Single Crystal X-ray Diffractometer for Research and Education Across Montana ", Orion Berryman (PI), R. Szilagyi, T. Livinghouse, Ed Rosenberg, Charles Thompson, N.R. Natale, National Science Foundation, CHE-1337908, September 1, 2013 - August 31, 2016, \$265,000. NRN role: senior personnel.

Renewal of Material Transfer/ Biological Testing Agreement (MTBTA) with DuPont through University of Montana, effective November 11, 2014 through November 11, 2017.

Completed Projects:

Collaborative and Multi-investigator Projects (\$24,530,776 to Mar. 2014):

"Core Laboratory for Neuromolecular Production", Thompson, C.M., PI, Gerdes, J.; C.S. Esslinger, Co-PIs, P30 NS055022, May 1, 2008 to April 30, 2013, Total Award \$3,325,887. NRN role year 1: Collaborator/Key Personnel, 5% summer. *NatureJobs* contact for recruiting (reviewed over 160 applications), supervisory Medicinal Chemist, and member of the planning committee. NRN role year 2 forward: Co-PI/ Collaborator, June 2009 to Dec. 2013.

"Consolidation of Small Molecule Facilities at the University of Montana", Thompson, C.M. PI, Esslinger, Gerdes, Natale, co-PIs, ARRA Supplement to P30 NS055022, 06/01/2010 to 05/30/2011. Total request: \$1,016,034.

“New chemical entities (NCE’s) targeting the system x_c^- glutamate/cystine exchanger as *in vivo* imaging agents for glial tumors.” R. Bridges, C.S. Esslinger, J. Gerdes, and N. Natale, Co-PIs. COBRE ARRA Translational Research Supplement to P20 RR015583, Total sub-project request, 2010-2011. \$333,716.

“NIH/NCRR Center for Structural & Functional Neuroscience”, 5 P20 RR015583, Bridges (PI to 08), Kavanaugh, M, (PI 08 to present) 09/30/00 – 04/30/10, NCE. 3rd renewal pending. Total Award \$16,430,000. NRN Role: Faculty Recruit, NRN Start-up package \$472,467.

“Enhancement of Applied/Translational Research in Biomedicine”, Bridges, R.J.; Kavanaugh, M. Montana Board of Research and Commercialization Technology (MBRCT), 2009-2010, Total Request \$197,066.

“Creation of a facility for Macromolecular X-ray Diffraction at the University of Montana”, Sprang, S.R., PI, M.J. Murdock Charitable Trust, requested amount \$337,000, 2007-2008, NRN participant.

Montana Board of Research and Commercialization Technology (MBRCT) match grant for COBRE award 2P20 RR015583-07, Bridges (PI). The grant was for \$225K /year, 2008-9, Total \$450,000.

Contributor to “Green Chemistry on the Palouse: An REU site at the University of Idaho and Washington State University”, J.L. McHale and S.B. Clark, co-P.I.’s, National Science Foundation, May 2003 - 2005, \$192,003.

"Purchase of an Electron-Spin Resonance Spectrometer", P. Griffiths, P. Shapiro, T. Bitterwolf, I.F. Cheng, N.R. Natale, D. Strawn, A. Paszczyński, National Science Foundation, 2003-5, \$173,515.

Collaborative Proposal with J.K. Fellman, "Apple Scald Chemistry", Washington State Tree Fruit Research Commission, 1999, \$29,735.

Contributor to "Acquisition of High Performance NMR and Mass Spectrometers", M.J. Murdock Charitable Trust, March 13, 1997, \$436,500.

Contributor to "Purchase of 500 MHz NMR Spectrometer", National Science Foundation, September 3, 1997, \$220,000.

Contributor to “Powder and Single Crystal X-ray Diffractometers”, J.M. Shreeve (PI), M.J. Murdock Charitable Trust, 1991-2, \$206,000.

“High Field Fourier Transform Nuclear Magnetic Resonance Spectrometer”, P.R. Griffiths (PI), T. Bitterwolf, L. Czuchajowski, N. Natale, R. Williams, No. 91-002, \$292,000.

“Research Experience for Undergraduates Site Proposal”, T.E. Bitterwolf (PI), W. Edwards, P. Griffiths, J. McHale, N. Natale, National Science Foundation, 1990-3, \$94,920.

“High Field Fourier Transform Nuclear Magnetic Resonance Spectrometer”, J.M. Shreeve (PI), B. Diel, W. Harris, D. Marshall, N. Natale, G.M. Rubottom, National Science Foundation, 1985, \$150,000

“High Field Fourier Transform Nuclear Magnetic Resonance Spectrometer”, *Idem*, Camille and Henry Dreyfus Foundation, 1985, \$20,000.

“High Field Fourier Transform Nuclear Magnetic Resonance Spectrometer”, *Idem*, M.J. Murdock Charitable Trust, 1986, \$153,000.

Contributor to “Purchase of Automated Single Crystal X-ray Diffraction Facility”, J. Ivan Legg, (PI), in collaboration with Washington State University, National Science Foundation, 1985, \$125,000.

“Fourier Transform Infrared Spectrometer”, J.M. Shreeve (PI), B. Diel, W. Harris, D. Marshall, S.O. Farwell, J. McHale, T. Brown, N. Natale, Department of Defense, 1983-4, \$108,000.

“Fourier Transform Infrared Spectrometer”, *Idem*, M.J. Murdock Charitable Trust, 1984, \$40,000.

“Purchase of a Mass Spectrometer”, J. Augustin, D. Brown, D.Crawford, S.O. Farwell, N. Natale, G.M. Rubottom, J.M. Shreeve (PI), National Science Foundation, 1982-3, \$100,400.

“Purchase of a Mass Spectrometer”, *Idem*, M.J. Murdock Charitable Trust, 1982, \$100,000.

Internal Support (\$477,194 to Mar. 2014):

"Drug Discovery for Pain Management", Natale N.R., PI. University Grants Program, May 1, 2012- August 31, 2013. \$2,631.

“Application of molecular probes in visualization of xCT transporter. Potential anticancer drug delivery systems”, Mariusz Gajewski and N.R. Natale, Pilot Project Proposal, 2008-2009, COBRE CSFN, requested amount \$15,000.

“Travel to the Northwest Regional Meeting, Fairbanks AK, June 15-18, 2005”, University Research Office, Small Travel Grant, requested amount \$1,200. Amount of Award \$900.

Celebration of National Chemistry Week, “Native Plants used as medicines”, Presidential Campuswide Diversity Programming Group, \$200. See also *University of Idaho Register*, February 11, 2005. p. 6.

“Travel to the 225th National Meeting of the American Chemical Society, New Orleans LA March 20-26, 2003” Small Travel Grant Program, EPSCoR-University of Idaho Research Office, \$900.

“A Combinatorial Approach for the Discovery of Drugs that Target Human Genomic DNA”, Seed Grant Program, FY 2002, Requested Amount \$9,000.

“A Mole of Art”, Department of Chemistry, University of Idaho, 2001-2005, \$2,500.

“The Mechanism of Action of NSC D 694332”, University of Idaho Seed Grant Program, FY 2001, funded for \$4,500.

“Travel to the 221st American Chemical Society National Meeting”, University of Idaho Research Council, December 19, 2000, \$1,200.

"The Chemistry of Winning Teams", Teaching/ Learning Grants Proposal, University of Idaho, 1998-9, \$2,500.

"Targeting the HIV *tat* gene with Intercalating Lexitropsins", N.R. Natale, U.I. Research Council Seed Grant Program, Includes Supplemental funds for Re-synthesis of NSC D-694332, \$8,000 , 1997 -9.

"Travel to the 16th International Congress of Heterocyclic Chemistry", Small Travel Grant Program, Section III, FY 1997. \$900.

"Catalysis Design for the Environment", N.R. Natale, NSF-Idaho EPSCoR, \$3,000, 1996-7.

"Visualizing Organic Chemistry", with Michael Mosher and Richard Williams, Teaching/Learning Mini-grant, 1994-5, \$1,000.

"Synthetic Approaches to Heterocyclic-Polymers which can function as Time-Release Drug Delivery Agents", University of Idaho Research Council 1993-4, \$6,000.

"Chirality and Conformational Effects in the Structure Activity Relationship (SAR) of Drugs to Treat Alzheimer's Disease", Idaho State Board of Education, 1991-2, \$30,800.

"The Effect of Pressure on Lariat Ether Conformation and Metal ion Chelation" with C.M Wai and T.E. Carleson, Idaho State Board of Education matching to NSF-EPSCoR, 1989-1992, \$300,877.

"Selective Chelation of Lanthanides and Actinides", Idaho State Board of Education, 1989, \$35,000.

"Rare Earth Elements – Their Extraction and Applications. Lanthanides in Organic Synthesis", Idaho State Board of Education, Economic Development Research Grant, 1987-8, \$17,686.

"Coordination of a National Drug Discovery Group in the Palouse", University of Idaho Research Council, 1987-8, \$5,000.

"Cobalt Based Agents for Site-Specific Cleavage of DNA", with W. Harris, Institute for Molecular and Agricultural Genetic Engineering (IMAGE), 1987-8, \$3,000.

Instructional Mini-grant, Dec. 9, 1985, \$100.

"A Novel Approach for the Design of Double Strand DNA Cleaving Molecules with Defined Target Sequences and Binding Site Sizes", with W. Harris (PI), University of Idaho Research Council, 1985, \$3,500.

"Rational Design of a New Drug to Treat Heart Disease", University of Idaho Research Council, 1984-5, \$3,000.

Start-up, University of Idaho, August 1981, \$20,000.

External Support (\$3,801,203 to June. 2015):

MTBTA with DuPont through Natale Consulting, executed July 25, 2007, total through 2013, \$9,077.90.

"Anthracenyl isoxazole amides (AIMs) as novel G-quadruplex DNA-binding anti-tumor agents", Reigan, P.; Beall, H.; and Natale, N.R. Co-PIs, ALSAM Foundation, Skaggs Scholars Program, July 1 2013 to June 30, 2015, \$100,000.

Natale, N.R.

"The development of sub-type selective modulators of metabotropic glutamate receptors (mGluRs)", N.R. Natale, P.I. Center for Structural & Functional Neuroscience, P20 RR015583, Pilot Grant, March 11, 2013, \$6,000.

"Cytotoxicity of novel anthracenyl isoxazole amide (AIM) anticancer agents", Beall, Howard D., Center for Environmental Health Sciences, Pilot Project, June 2011- May 2013, amount \$15,000. NRN role: co-PD/PI.

"Fluorescent-based probes for the glutamate/Cystine Exchange system Xc-“, Bridges, R.J.; Natale, N.R., co-PIs, 5R21 NS067466-02, NIH, 10/1/2009 - 9/30/2012 NCE, total request \$424,500.

"Ligands to study the glutamate receptor and transporters" NIH, renewal of 7R15 NS 038444-04, 12/05-09/10, \$212,088. This proposal received a priority score of 123 and 0.4 %ile from the Neurotransporters, Receptors and Calcium Signaling (NTRC) Study Section. Project Period 5/1/1999 - 9/30/2010, Total for NINDS NS 38444 \$520,972.

"Characterization and use of a fluorescent Endocannabinoid Transporter Substrate", Kavanaugh, M., PI; NRN role: Key personnel. R21 DA024861, June 2008 to May 2010, Total Award \$378,750.

Washington Idaho Border Section, Local Section Allotment, *as Secretary Treasurer I was responsible for the LS annual financial report which must be filed with National ACS before the following year's allotment is awarded*, 2001-2006, \$24,736.

"Alzheimer's Research", Fraternal Order of Eagles, Alzheimer's Research/Golden Eagle Fund, 2001-2006, \$7,700.

Material Transfer / Biological Testing Agreement with E.I. du Pont de Nemours and Company, UI Agreement No.: MTA-1053. Concluded July 2005. The Fixed fee contract executed July 12, 2005 – 7, \$6,210.

Research Supplement for Underrepresented Minorities, for Trina Villalobos, NIH, NS 038444, October 2004 - Dec. 2006, requested Amount \$30,903.

"NIRT: Enzyme-Nanoparticle Conjugates for Environmental Applications", Andrzej Paszczynski, P.I., E. Aston, R. Crawford, Nicholas Natale, You Qiang, EPSCoR Seed Grant to revise and resubmit National Science Foundation, NIRT, June 21, 2005, \$7,400.

"Isoxazoles to Explore the Glutamate Receptors", NINDS NS 038444, April 2002 to Dec. 2005, \$148,500. This proposal received a priority score of 128 from the Medicinal Chemistry Study Section. This was the first *NIH renewal funded in the Department of Chemistry, University of Idaho, in twenty years*.

"Chemistry, Health and the Native American Population", ACS Local Section Innovative Projects Grant Program, Nov. 2004-Oct. 2005, requested amount, \$3,000.

Up-grade of HPLC facility & Research Supplement for Underrepresented Minorities for Trina Villalobos, Idea Network for Biomedical Research Excellence (INBRE), \$11,000.

INBRE Bridge funding for Jared K. Nelson, \$7,045, May - August 2005.

Travel to the 228th National Meeting of the American Chemical Society, Philadelphia, Aug. 2004, for Jared K. Nelson, INBRE, \$500.

NSF-Idaho EPSCOR, REU Award for Trinidad Villalobos, Summer 2004, \$2,000.

“The Isoxazole as a scaffold in Medicinal Chemistry”, Idaho BRIN incentive Seed Grant, July 2003 -June 2004, \$31,972.

BRIN Undergraduate Summer Fellowship for Steven Kennedy, Summer 2003, \$6,000.

“Chiral Analogues of Aminomethylisoxazolepropionic Acid (AMPA)”, National Institute of Neurological Disorders and Stroke, Academic Research Enhancement Award, May 1999 - 2002, \$104,936. This proposal received a priority score of 155 from the Medicinal Chemistry Study Section.

"Student Affiliate Chapter National Meeting Travel Grant", submitted on behalf of the University of Idaho SAACS, Spring Meeting 2002, \$150.

NSF-Idaho EPSCoR, REU Award for Andrew McKenzie, Summer 2002, \$1,250.

“A Mole of Art”, SAACS Innovative Activities Grant, 2001-2, \$250.

“A Mole of Art”, Proposal to Fisher Scientific, 2001-2005, \$2,500.

“A Mole of Art”, ACS Matching Gift Fund for contributions from Fisher Scientific, η^2 Consulting Ltd., Department of Chemistry, University of Idaho, 2001-2005, \$7,500.

"Resynthesis of NSC D 694332", National Cancer Institute, 1998-9, \$5,000.

“Catalyst Design For the Environment”, NSF-Idaho EPSCOR, 1996-7, \$3,000.

“The Synthesis and Characterization of Isotopically Labeled ion Exchange Resins”, Cambridge Isotope Laboratories, 1995-6, \$3,210.

“Overcoming Bacterial Resistance to the Sulfamethoxazole Class of Antibiotics”, NSF-Idaho EPSCoR, 1994-5, \$3,000.

“Stereo-electronic Effects and SAR of Calcium Antagonists”, National Institute of General Medical Science, Academic Research Enhancement Award, 1989-1993, \$103,696. This proposal received a priority score of 166 from the Bioorganic and Natural Products Study Section.

“Therapeutic Neurological Applications of Novel Compounds”, Cortex Pharmaceuticals, 1989, \$5,000.

Experimental Program to Stimulate Competitive Research (EPSCoR) Component II, Molecular Science: Chemistry, Project IIC: “The Effect of Pressure on Lariat Ether Conformation and Metal ion Chelation”, with C. Wai and T. Carleson, NSF, 1989-1992, \$217,460. Total Project Award \$1,800,000.

NSF-EPSCoR, Research Opportunity Award for Visiting Professor Rexford Widener, Summer 1992, \$6,000.

NSF-EPSCoR, Research Experience for Undergraduates Award for Kimberlee Walker, Summer 1992, \$4,000.

Natale, N.R.

NSF-EPSCoR, Research Opportunity Award for Visiting Professor Rexford Widener, Summer 1991, \$12,914.

NSF-EPSCoR, Research Experience for Undergraduates Award for Randal Noriyuki, Summer 1991, \$4,000.

“Substituted Polyphosphazene Membrane Materials, DOE, Office of Industrial Programs, INEL/EGG&G Idaho, Inc., 1988-90, \$29,055.

“Chelating Agent Research”, with C. Wai, INEL/EG&G Idaho Inc., 1988, \$8,945.

“Synthetic Approaches Towards Antiviral Compounds. Site Specific Inhibition of DNA Directed Replication of the Potato Spindle Tuber Viroid”, Herman Frasch Foundation Award, Administered by the American Chemical Society, 1987-1992, \$75,000.

“Steric and Chiral Factors in the Biological Activity of NSC-375974 and Analogs”, Research Corporation, 1986-7, \$2,620.

Organic Speaker Program, ITT Rayonier, 1984-5, \$1,350.

“Towards the Mechanism of Action of Calcium Antagonists”, NIH BRSG, 1984-5, \$3,270.

“Calcium Channel Blockers”, M.J., Murdock Charitable Trust, Research Corporation, 1984-5, \$3,000.

ACS, Project SEED (Summer Employment for the Educationally Disadvantaged), 1983-7, \$6,250.

“Studies on Asymmetric Annulation”, American Chemical Society, Petroleum Research Fund, 1983-5, \$15,000.

ACS, PRF Summer Research Fellowship for Paul Byorth, Summer 1983, \$2,000.

“Total Synthesis of Aphidicolin”, NIH, Biomedical Research Support Grant (BRSG), 2-S07-RR07170-06, 1982-3, \$8,100.

“Asymmetric reductions with Chiral N-heterocyclic Amine-Borane Complexes”, M.J., Murdock Charitable Trust, Research Corporation, 1982-3, \$13,900.

Past fixed-fee contracts with Monsanto, Shell, DuPont, Astra-Zeneca, Chevron, Rhone-Poulenc, Rohm & Haas, Dow Agrosciences and Specs & Biospecs B.V. through University of Idaho. The total income from 1982 -2006 for Fixed-fee contracts \$33,575.

TOTAL for COMPLETED PROJECTS to 6/30/2015	\$28,809,173
---	--------------

Graduate Students

Dr. John I. McKenna, *University of Idaho*, M.S. 1985; University of Washington, M.D. Thesis: "Synthesis of Sterically Hindered Isoxazolyl-Dihydropyridines", July 1985, 101 pp. QD401.M34 1988

Dr. Chorng-Shyr Niou, *University of Idaho*, M.S. 1986. Thesis: "Synthesis, Metalation and Electrophilic Quenching of Isoxazolyl-oxazolines and tertiary carboxamides", April 1986, 68 pp. QD401.N56 1985

Dr. Ludwig Schlicksupp, *University of Idaho*, Ph.D. 1987. Dissertation: "Application of X-ray Crystallography to Problems in Isoxazole Chemistry", February 1987, 95 pp. QD945.S352 1987

Mark Borth, *University of Idaho*, M.S. 1987. Thesis: "The Synthesis, Characterization and Study of Functionally Complex Isoxazoles", March 1987, 93 pp. QD410.B67 1987

Brenda Mallett Simpson, *University of Idaho*, B.S., M.S. 1988. Thesis: "Diastereoselectivity in the Lateral Metalation and Electrophilic Quenching of Chiral Isoxazolyl-oxazolines", January 1988, 61 pp. QD481.M3 1988

Mark Munsey, *University of Idaho*, M.S. 1989. Thesis: "Studies in the Synthesis of Dioxybinaphthyl- and Isoxazolyl-4-alkoxy cyclotriphosphazenes", February 1989, 148 pp. QD406.M86 1989

Dr. Yousef Mirzaei, *University of Idaho*, Ph.D. 1990. Dissertation: "Synthesis, Chromatographic Separation and Spectroscopy of Biologically Active Isoxazoles", August 1990, 283 pp. QD79.C454M57 1990

Katrina Nelson, *University of Idaho*, M.S. 1992. Thesis: "Synthesis and Conformational Studies of Novel 4-Aryl-1,4-Dihydropyrimidines", 52 pp. QD401.N45 1993

Dr. Xiongbing (Mike) Xia, *University of Idaho*, Ph.D. 1992; Dissertation: "Design and Preparation of Lariat Ethers", May 1992, 222 pp. QD172.R2X56 1992

Dr. T.N. Balasubramaniam, *University of Idaho*, Ph.D. 1993; Dissertation: "Synthesis, Isolation and Characterization of Isoxazoles", May 1993, 195 pp. QD401.B35 1993

Dr. Miles P. Smith, *University of Idaho*, Ph.D. 1993. Dissertation: "Studies on Phosphazenes as High Technology Materials: The Synthesis and Characterization of Dioxybinaphthyl and Isoxazolyl Polyphosphazenes", 191 pp. QD401.S547 1993

Hong Wu, *University of Idaho*, non-thesis M.S., 1994

Dr. Jason R. Stenzel, *University of Idaho*, Ph.D. 1995; Visiting Professor. "The Use of Organometallic Reagents in the Derivatization of Laterally Metalated 4-Substituted Isoxazoles", 85 pp. QD400.S74 1995

Mark E. Rogers, *University of Idaho*, M.S. 1996. Thesis: "Lipophilic 4-Isoxazolyl-1,4-dihydropyridines: Synthesis and Structure Activity Relationship", 43 pp. RC684.C34R63 1996

Tina (nee Andro) Houle, *University of Idaho*, M.S. 1996. Thesis: "Synthesis and Conformational Studies of C3'-Aryl-4-Isoxazolyl-1,4-dihydropyridines", June 1996, 65 pp. RC684.C34R64 1996

Dr. Peiwen Zhou, *University of Idaho*, Ph.D. 1996. Dissertation: "Lateral Lithiation of ethy 4-Acetyl-5-

Natale, N.R.

methyl-3-isoxazolyl carboxylate”, 105 pp. February 1998. QD431.Z56 1998. Present position: President, AK Scientific.

Baoli Li, *University of Idaho*, non-thesis M.S., 2000

Casey S. Butterfield, *University of Idaho*, M.S. 2000. Thesis: “The Use of a Guaiazulenylmethine Imine-N-Oxide to Investigate the Physiology of Superficial Apple Scald”, May, 2000, 40 pp. TP441.A6B88 2000

Dr. Xiaochun Han, *University of Idaho*, Ph.D. 2002. Dissertation: “Design, Synthesis and Biological Evaluation of a Novel Type of Anti-tumor Agent – Anthracenyl Isoxazole Lexitropsin Conjugates”, May 2002, 204 pp. QP606.D46.H36 2002

Dr. Burkhart David, *University of Idaho*, B.S., Ph.D. 2002. Dissertation: “The Asymmetric Synthesis of ACPA Analogues as Potential Therapeutic Agents for Neurological Disorders and Stroke”, May 2002, 165 pp. QP517.L54.B87 2002

Victoria Hulubei, *University of Idaho*, M.S. 2002. Thesis: “Chiral and Lipophilic 4-Isoxazoly-1,4-Dihydropyridine Calcium Antagonists: Synthesis and Molecular Modeling”, 55 pp. RC684.C34H85 2002

Marzouq N. Al Saiedi, *University of Idaho*, non-thesis M.S., 2003

Dima Hami, *University of Idaho*, non-thesis M.S. 2005

Dr. Jared K. Nelson, *University of Idaho*, Ph.D. 2005. Dissertation: “Rational Design, Synthesis and Study of Novel alpha-Hetero Analogues of ACPA: Towards Sub-type Selective Ligands for Glutamate Binding Proteins”, August 2005, 157 pp.

Dr. Kevin C. Rider, *University of Idaho*, B.S., Ph.D. 2005. Dissertation: “Design and Synthesis of Axial Chiral Anthracenes: in search of Novel Anti-tumor Chemotherapeutics”, November 2005, 141 pp.

Dr. Chun Li, *University of Idaho*, Ph.D. 2005. Co-advisor with Ron Crawford. Dissertation: "Rational Design and Biological Evaluation of G-Quadruplex Stabilizers as Potential Anticancer Agents", 200 pp. Present position: Ithaca college, NY.

Monika Szabon-Watola, *University of Idaho*, M.S. 2006. Thesis: "Neurotransporters, Receptors and Calcium Signaling", August 16, 2006, 101 pp. Present position: Barr Pharma, Poland.

Rakesh Kumar, *University of Montana*, M.I.S. 2009. Co-advisor with Ed Rosenberg and Sandy Ross. Professional Paper: "Synthesis of Water Soluble Transition metal complexes for Applications in Molecular Biology, and Key Intermediates in a strategy for Isoxazole Glutamate analogues", August 2009, 61 pp.

Trideep Rajale, *University of Montana*, M.S. 2010. Thesis: "Bioisosteres of AMPA: Conformational Analysis and Structure Activity Relationship", 127 pp. Present Position: Texas Tech Ph.D. program.

Shikha Sharma, *University of Montana*, M.S. 2010. Thesis: "Design, Synthesis and Characterization of Isoxazole Containing Glutamate Analogs", 115 pp. Present Position: Texas Tech Ph.D. program.

Dr. Brent R. Lyda, *University of Montana*, Ph.D. 2011. Dissertation: "Synthesis of N_β-aryl-aspartamides, α-arylamide-aspartates, and hydroxy-L-proline derivatives as inhibitors of amino acid transport for evaluating

the Glutamine / Glutamate cycle", February 11, 2011, 244 pp. Research Associate / Postdoc at The Scripps Research Institute, Jupiter, Florida. Present position: University of San Diego.

Afnan A. (Lilly) Matti, *University of Montana*, M.I.S. 2011. Professional Paper: "Microwave-Accelerated Synthesis of Isoxazole Inhibitors of the System X_c⁻ Transporter", May 2011, 72 pp.

Dr. Nathan S. Duncan, *University of Montana*, M.S. Medicinal Chemistry, 2013. "Novel G-Quadruplex Binders with potential for a dual DNA cross-linking mechanism of action", June 2013, 63 pp. Ph.D. Medicinal Chemistry, August 2015, "Molecular Modelling Assisted Design and Synthesis of Unsymmetrical Anthracene Isoxazole Small Molecule Anti-tumor agents". 198 pp.

Dr. Scott A. Steiger, *University of Montana*, M.S. Medicinal Chemistry, 2013. "4-Isoxazolyl-1,4-dihydropyridines bind the multidrug-resistance transporter", 41 pp. Ph.D. Medicinal Chemistry, December 2014, "Synthesis and study of heterocyclic, dimeric and chiral ligands for the multidrug-resistance transporter", 193 pp.

Matthew J. Weaver, *University of Montana*, M.S. Medicinal Chemistry, 2013. "Improved Synthesis of 3-aryl-isoxazoles as intermediates for novel G-quadruplex binding anti-tumor agents", 59 pp.

Thesis M.S. 18, Non-thesis M.S. 4; Ph.D. 15; Total Graduate Degrees: 37.

UNDERGRADUATE RESEARCH PARTICIPANTS

A.C.S. Project SEED High School Participants

Kay Dean Bowles
DeeDee Johnson
Teri Knapik

Tony Steinhoff
Lori Delorme
Erin Cochran

NIH Minority High School Research Apprenticeship Participants

Tony Higheagle
Sybil Samuels

J.J. Pinkham

HOIST

Feather Del Rae Broncheau 2001-3
Jennifer Snyder, 2001

Carmella Cody, 2002

Undergraduate Research Participants

University of Idaho

Frank Sutman, 1982
Craig Dodson, 1982
Paul Speck, 1982
David Quincy, 1982-5
Joe D. Hendrix, 1983
Brian Thompson, 1984
Sandy Munroe, 1985

Julia Fudge, 1982
Mark Lane, 1982
Dave Reavill, 1982
Brian Marron, 1982-3
Janet Johnson, 1983
Brenda Mallet, 1985
Nicholas Hartshorne, 1985

Amy Gribb, 1986
 Erik Verner, 1987
 Dan Hamlin, 1988
 Barbara Lefler, 1987-8
 Randal Noriyuki, 1990-1
 Scott Meikrantz, 1990-2
 Chris Burns, 1992-4
 Chris O'Connor, 1994
 Greg Crawford, 1995
 David Burkhart, 1996-7
 Ray Kimball, 1996
 Casey Butterfield, 1997
 Todd Wixson, 1997
 Matthew Grieser, 1999
 Jason Parrish, 2000-1
 Andrew McKenzie 2001-2
 Benjamin Werner, 2003
 Trinidad Juana Villalobos 2007

Mike Mosher, 1986
 Bradford Oliver, 1987
 Nick Vietri, 1988
 Robert B. Palmer, 1989-90
 Tyrone Arnold, 1990-1
 Suzanne Edwards, 1992
 Carrie Nielson, 1993
 Troy Morris, 1994
 Jason Blubaum, 1995-7
 Jay Meikrantz, 1996
 Wendy Taylor, 1996
 Devin Bolz, 1997-8
 Kevin Hobdey, 1998
 Christina Carney, 2000
 Stephanie Hrbacek, 2001
 Katherine I. Myers, 2003
 Rebecca Memmott, 2003

University of Montana

Chad Sand, 2007
 Matt Weaver, 2009
 Christina Gates, 2012
 Michelle Ogava Igual, 2014

Scott Steiger, 2009
 Chris Koerner, 2011
 Michael J. Campbell, 2012
 Leonardo Cappeletti DaSilva, 2014

A.C.S. Summer Undergraduate Research Fellow

Paul Byorth, 1983

NSF Research Experience for Undergraduate Participants

Ed Culligan, 1991
 Kimberlee Walker, 1991
 Tabitha Good, 2003
 Elizabeth Scott, 2005
 John Rudolph, 2006

Mark Miller, 1991
 Deanne Dahlke, 1993
 Sarah Stranahan, 2005
 Christina Velten, 2005
 Stephen Smith, 2006

BRIN

Steven Kennedy, 2003

Mike Hansen, 2005

UM REU

Christina Hayes, 2008

Total Undergraduate and High School Research Participants 81.

NATALE RESEARCH GROUP, STUDENT AWARDS:

Student	Place, Division	Meeting/ Org.	Year
---------	-----------------	---------------	------

Craig Dodson	Cone Award	Department of Chemistry University of Idaho	1982
Brian Marron	Honorable Mention Undergrad.	Idaho Acad. Sci.	1983
David Quincy	1st, Undergrad	Idaho Acad. Sci.	1984
	1st, Undergrad.	39th A.C.S. NORM	1984
	Merck Award	Department of Chemistry University of Idaho	1985
	Elan Award For Excellence	Elan Pharma.	2005
Erik Verner	1st, Undergrad.	Idaho Acad. Sci.	1987
	Merck Award	Department of Chemistry University of Idaho	1987
Mike Mosher	Merck Award	Department of Chemistry University of Idaho	1988
Mark Munsey	2nd, Grad.	Idaho Acad. Sci.	1987
	1st, Grad. Phys. Science	Idaho Acad. Sci.	1988
Mark Borth	1st, Grad.	Sigma Xi, Paper Competition	1988
Barbara Lefler	2nd, Undergrad. Phys. Science	Idaho Acad. Sci.	1988
T.N. Balasubramaniam	1st., Grad. Chemistry	Idaho Acad. Sci.	1990
Robert Palmer	1st, Undergrad. Chemistry	Idaho Acad. Sci.	1990
	Merck Award	Department of Chemistry University of Idaho	1990
Katrina Nelson	T.A. of the Semester	University of Idaho	1989
	1st, Grad. Org. Chem.	Idaho Acad. Sci.	1991
Scott Meikrantz	1st, Undergrad.	Idaho Acad. Sci.	1991

	Org. Chem.		
Chris Burns	1st, Undergrad. Org. Chem.	Idaho Acad. Sci.	1993
	2nd, Undergrad. Chemistry	Idaho Acad. Sci.	1994
	IAS Scholarship	Idaho. Acad. Sci.	1994
	Cooley-Juve Award T.A. of the Semester	University of Idaho	1996
Suzanne Edwards	2nd Undergrad. Org. Chem.	Idaho Acad. Sci.	1993
Miles P. Smith	1st. Grad. Polymer Chem.	Idaho Acad. Sci.	1993
Mark Rogers	Cooley-Juve Award T.A. of the Semester	University of Idaho	1993
	Outstanding Teaching Excellence	Graduate Student Ass'n	1994
Tina Andro	Cooley-Juve Award T.A. of the Semester	University of Idaho	1994
Troy Morris	1st Undergrad. Chemistry	Idaho Acad. Sci.	1995
Dr. Jason Stenzel	T.A. of the Semester	University of Idaho	1990
	Excellence in Teaching Award	Gamma Sigma Delta University of Idaho	1997
David Burkhart	1st Grad. Chemistry	Idaho Acad. Sci.	1998
	Cooley-Juve Award T.A. of the Semester	University of Idaho	1998
	1 st Grad Basic Sciences	Grad. Student Ass'n Research Exhibition	2001
Xiaochun Han	1st Grad. Chemistry	Idaho Acad. Sci.	1999
	Cooley-Juve Award T.A. of the Semester	University of Idaho	2000

Matt Grieser	George C. Marshall Research Foundation	Army ROTC University of Idaho	2000
Andrew McKenzie	1st, Undergrad Life Science	Idaho Acad. Sci.	2002
	Raunio Undergraduate Research Award	Department of Chemistry University of Idaho	2002
	REU	Idaho NIH EPSCoR	2002
	IAS Scholarship	Idaho. Acad. Sci.	2003
Kevin Rider	IAS Scholarship	Idaho Acad. Sci.	1999
	Cooley-Juve Award T.A. of the Semester	University of Idaho	2002
	Outstanding Teaching Excellence	Graduate Student Association	2003
	1 st Grad.	Idaho Acad. Sci.	2003
	Outstanding Faculty Award	Student Disability Services University of Idaho	2005
Jared K. Nelson	3 rd Grad.	Graduate Student Ass'n Research Exhibition	2003
	1 st Grad Chemistry/Geochemistry	Idaho Acad. Sci.	2004
	Medicinal Chemistry Fellowship Am. Chem Soc. First Alternate		2013
Chun Li	Cooley-Juve Award T.A. of the semester	University of Idaho	2003
	Teaching Excellence Award	Graduate Student Ass'n. U. Idaho	2005
Steven M. Kennedy	Summer Fellow	NIH BRIN	2003
K.I. Myers	Raunio Undergraduate Research Award	Department of Chemistry University of Idaho	2004
	Merck Index Award	Department of Chemistry University of Idaho	2004

	3 rd Undergrad. Chemistry/Physics	Idaho Acad. Sci.	2004
Lori Delorme	Overcoming Obstacles	TRIO University of Idaho	2004
Trinidad Villalobos	ACS Scholar	American Chemical Society	2004
	McNair Scholar	University of Idaho	2004
	2 nd place	AISES	2004
	IAS Scholarship	Idaho Acad. Sci.	2005
	Raunio Undergraduate Research Award	Department of Chemistry University of Idaho	2005
	Research Supplement For Underrepresented Minorities	National Institutes of Health	2005
	3 rd place	AISES	2005
	ChemLuminary Award Outstanding ACS Scholars Program (Accepted with NRN)	ACS	2006
Megan Yates	Raunio Undergraduate Research Award	Department of Chemistry University of Idaho	2005
Jeffrey Arnzen	Raunio Undergraduate Research Award	Department of Chemistry University of Idaho	2006
	Donald C. and Velsie H. Snyder Scholarship	Department of Chemistry University of Idaho	2006
Monika Szabon-Watola	EXPO Distinction in Presentation	GPSA University of Idaho	2006
	w/ J. Nairn and P. Perrotin EXPO Departmental Excellence Award	GPSA	2006
Shikha Sharma	Donald C. and Velsie H. Snyder Scholarship	Department of Chemistry University of Idaho	2006
	Outstanding Poster	Grad. Stud. & Fac. Res. Conf. University of Montana	2008
Trideep Rajale	Cooley-Juve Award T.A. of the semester	University of Idaho	2006

	Poster award	Montana Acad. Sci.	2008
	Best Research Scientist	Montana Acad. Sci.	2009
Lilly Matti	Travel Award	Montana Acad. Sci.	2010
Scott Steiger	Undergraduate Research Internship in the Sciences	Montana NSF EPSCoR	2010
	Summer Undergraduate Research Fellowship	NIH-COBRE Center for Structural & Functional Neuroscience	2010
	Best Graduate Poster	Montana Acad. Sci.	2011
	Travel Award	Montana Acad. Sci.	2011
	Best Graduate Research Presentation (tie)	Montana ACS Local Section Meeting-in-Miniature	2012
	Travel Award	Montana Acad. Sci.	2012
	Medicinal Chemistry Fellowship Am. Chem Soc. Honorable mention		2013
Matt Weaver	Undergraduate Research Internship in the Sciences	Montana NSF EPSCoR	2010
	Best Undergraduate Poster	Montana Acad. Sci.	2010
	Undergraduate Best Research Scientist	Montana Acad. Sci.	2011
	Travel Award	Montana Acad. Sci.	2011
	Best Undergraduate Research Presentation	Montana ACS Local Section Meeting-in-Miniature	2011
	Travel Award	Montana Acad. Sci.	2012
Chris Koerner	Travel Award	Montana Acad. Sci.	2011
Nathan Duncan	Travel Award	Montana Acad. Sci.	2011
	Travel Award	Montana Acad. Sci.	2012
	Travel Award to Montana Acad. Sci.	University of Montana	2014

Natale, N.R.

	Travel Award to ACS Nat'l Denver	University of Montana	2014
	Travel Award to ACS Nat'l Denver	ACS Division of Med Chem	2014
Michael Campbell	Travel Award Northwest Regional Meeting	American Chemical Society	2013
	Summer Undergraduate Research Fellowship	Center for Structural & Functional Neuroscience	2015

41 Students in the Natale Research Group have won 96 awards for teaching and research presentations.

80's	90's	00's	10's
13	21	39	23
