

## Christopher N. Boddy

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### Affiliations

Department of Biology  
Centre for Catalysis Research and Innovation  
Centre for Chemical and Synthetic Biology

### Education

The Scripps Research Institute  
Ph.D. in organic synthesis (with K. C. Nicolaou), 2001

University of Alberta  
B.Sc. Honours Chemistry, 1995

### Professional Experience

Full Professor, Department of Chemistry and Biomolecular Sciences, University of Ottawa (2016-present)

Visiting Professor, Department of Chemistry and Biochemistry, University of California San Diego (2014)

Visiting Professor, Department of Chemistry, Universidad Nacional de Costa Rica (2013)

Associate Professor, Department of Chemistry, University of Ottawa (2008 - 2016)

Assistant Professor, Department of Chemistry, Syracuse University (2004 - 2008)

NIH Postdoctoral Fellow, Department of Chemistry and Biochemistry, Stanford University, (2001-2004): Research with Prof. Chaitan Khosla studying the enzymes involved in secondary metabolite biosynthesis

Postdoctoral Fellow, Department of Cell Biology, The Scripps Research Institute (2001): Research with Prof. Phil Dawson studying developing new chemistry to couple unprotected denatured peptides and proteins.

Graduate Research Associate, Department of Chemistry, The Scripps Research Institute (1995-2001): Research with Prof. K. C. Nicolaou studying the total synthesis of the antibiotic vancomycin and the anticancer agent epothilone.

### Awards

Professor of the Year, Science Student Association, 2015

Early Researcher Award, Ministry of Research and Innovation, 2010-2015

Pfizer Fellow, Natural Product Gordon Research Conference 2002

National Research Service Award, National Cancer Institute 2001-2004

Natural Sciences and Engineering Research Council of Canada Postgraduate Fellowship (declined) 1995

Canada Scholarship 1991-1995

Alberta Heritage Medical Research Summer Studentship 1993-1994

### Funding

NSERC RTI (2018) MS detector to replace previous LCMS detector damaged in a catastrophic electrical fire. \$150,000.00

CRS-CIHR (2017-2019) Characterization of a new pharmaco-viral approach for the treatment of brain cancer. \$120,000.00

NSERC CRD (2017-2020) Viral sensitizer technology for increasing yield of vaccines produced in cell culture. \$405,000

NSERC Accelerator supplement (2014-2017) Synthesis and Biosynthesis of Polyketide Natural Products. \$120,000.00

NSERC Discovery Grant (2014-2019) Synthesis and Biosynthesis of Polyketide Natural Products. \$492,500.00  
 OTTN POP(2013) 2<sup>nd</sup> Generation Viral Sensitizer 1 with improved properties. \$10,000.00  
 CFI-LEF (2013) Sustainable Chemical Synthesis from Renewable Feedstocks, \$11,465,704  
 CHRP (2012-2015) Development of small molecule viral sensitizers to boost vaccine manufacturing, \$789,160.00  
 NSERC EG (2012) Development of a process for the manufacture of pseudaminic acid. \$25,000  
 NSERC EG (2010) Development of an assay for residual protease detection and quantification. \$21,500.00  
 NSERC RTI (2010) MALDI-TOF mass spectrometry for biomolecule characterization. \$128,489.00  
 NSERC Discovery Grant (2009-2014) Synthesis and Biosynthesis of Polyketide Natural Products. \$200,000.00  
 OTTN (2009) Demonstration of a novel Platform for natural products drug discovery. \$10,000.00  
 ORI-RI (2009) Laboratory for Natural Product Biotechnology. \$130,347.00  
 CFI-LOF (2008-2009) Laboratory for Natural Product Biotechnology. \$130,380.00  
 The Clinton Foundation HIV/AIDS Initiative (2007-2008) Improvements for the Tenofovir and Ritonavir manufacturing processes. \$49,150.00  
 Shimadzu Scientific Inc. (2004) Application of LCMS Technology to Study Synthesis and Biosynthesis of Complex Polyketides. \$57,000.00.

### Service

Chair, GRC Natural Products and Bioactive Compounds, 2018  
 External evaluator, Western Biochemistry undergraduate program, 2018  
 NIH study section SBCB, ad hoc member, Feb 2018  
 Vice-chair, GRC Natural Products and Bioactive Compounds 2017  
 External evaluator, SUNEY-ESF Biochemistry Undergraduate program, 2016  
 Session Chair, CSC National Meeting, 2016  
 NIH study section BCMB-W (02), April 2016  
 Faculty Executive, BCH program, 2015-present  
 Faculty Council, BCH program, 2015-present  
 Biochemistry Curriculum Committee, 2014-present  
 Director, Biochemistry Program, 2014-present  
 CRC T2 Chemical Biology Faculty Search Committee, 2015-2016  
 Chemical biology/Biochemistry Faculty Search Committees, 2014-2015  
 CRC T2 Chemical Biology Faculty Search Committee, 2014  
 CRC T2 Molecular Pharmacology Faculty Search Committee, 2014  
 BPS/BIM Faculty Search Committee, 2014  
 College of reviewers for NSERC IRDF, 2013-2014  
 BPS/BIM Faculty Search Committee, 2013  
 FQRNT Medicinal Chemistry study section 2013  
 Chemistry Space Committee 2012-2013  
 Working group on e-Learning, 2012-2013  
 Internal reviewer for uOttawa Neuroscience graduate program 2012-2013  
 Centre for Catalysis Research and Innovation EOC, Chair 2011-2014  
 Chemistry Departmental Personnel and Teaching Committee 2010 - 2013  
 Ontario Graduate Scholarship Chemistry Selection Committee Chair 2011  
 Ontario Graduate Scholarship Chemistry Selection Committee, 2010  
 Chemistry Department Graduate Recruiting Committee, 2009-2011  
 Faculty council, 2008-2010  
 Exploratory committee for Chemical Biology Development and Senior Hire, 2005-2007  
 Department of Biology, Faculty Search Committee, 2005-2006  
 Chemistry Department Instrument committee 2004-2007  
 Biology Department Cell Signaling Search committee, 2004-2005

### Lectures and Conferences (total of 79)

2018	Industrial Synthetic Biology Congress French American Chemical Society meeting CSC 101th Canadian Chemistry Conference Manitoba Chemistry Symposium PepTalk 2017
2017	Natural Product Gordon Research Conference Synthetic Biology for Natural Products
2016	CSC 99th Canadian Chemistry Conference

2015 Natural Product Gordon Research Conference  
Natural Products Gordon Research Conference  
National Meeting of the American Chemical Society, Denver CO  
University of British Columbia  
Carleton University  
University of Manitoba

2014 CSC 97<sup>th</sup> Canadian Chemistry Conference  
Natural Products Gordon Research Conference  
University of Toronto  
University of Notre Dame  
University of California San Diego

2013 University of Oregon  
University of Saskatchewan  
University of Regina  
State University of New York, Environmental Science and Forestry  
University of Alberta  
University National, Costa Rica  
Natural Products Gordon Research Conference  
CSC 96<sup>th</sup> Canadian Chemistry Conference

2012 Natural Products Gordon Research Conference  
CSC 95<sup>th</sup> Canadian Chemistry Conference

2011 Centre for Catalysis Research and Innovation, Annual Board Meeting  
Bioorganic Chemistry Gordon Research Conference  
CSC 94<sup>th</sup> Canadian Chemistry Conference

2010 McMaster University  
Rochester Institute of Technology  
CSC 93<sup>rd</sup> Canadian Chemistry Conference  
North Eastern Regional Meeting of the American Chemical Society  
Natural Products Gordon Research Conference

2009 CSC 92<sup>nd</sup> Canadian Chemistry Conference  
Zing Conference on Natural Products  
Natural Products Gordon Research Conference

2008 Eli Lily Summer Seminar Series  
Alfred University  
NSF Workshop in Synthetic and Natural Products Chemistry  
Colorado State University  
Notre Dame University  
Natural Products Gordon Research Conference

2007 University of Ottawa  
Brown University  
Oxford University Department of Chemistry  
Oxford Glycobiology Institute  
National Research Council of Canada  
Natural Products Gordon Research Conference  
Amherst College  
State University of New York, Oswego

2006 Transatlantic Frontiers in Chemistry  
Natural Products Gordon Research Conference  
Worcester State College  
Stonehill College  
Seton Hall University

2005 Upstate Medical School, Division of Infectious Disease  
Natural Products Gordon Research Conference  
NIH Mentoring Workshop in Chemical Biology  
Youngstown State University  
SUNY Environmental Science and Forestry  
Hamilton College

2004 University of Cincinnati  
Ithaca College

Syracuse University  
University of Toledo  
McGill University  
University of British Columbia  
Washington University St. Louis  
Cornell University  
Vanderbilt University  
The Ohio State University  
2003 Duke University  
University of Hawaii, Manoa  
University at Buffalo  
2002 Natural Products Gordon research Conference

### **Publications**

(3224 citations; h-index = 26; i10-index = 44; Google Scholar April 2018)

65. **Resorcylic acid lactone thioesterases: versatile biocatalysts for macrocycle formation.** Graham W. Heberlig, Jesse Brown, Ryan Simard, Monica Wirz, Wei Zhang, Meng Wang, Leah Susser, Mark E. Horsman, Christopher N. Boddy *submitted*.
64. **Inhibition of Bacterial Gene Transcription with an RpoN-based Stapled Peptide.** Sterling R. Payne, Daniel I. Pau, Ye Joon Kim, Amanda L. Whiting, Blaze M. Pharoah, Christina A. Moi, Christopher N. Boddy, Federico Bernal *Submitted*.
63. Optimization of Fermentation Conditions for Enhanced Production of Legionaminic Acid in Recombinant *Escherichia coli*. Ranjun Wang<sup>1</sup>, Zhiliang Yang, Mohamed I. Hassan, Zisheng Zhang, Christopher N. Boddy *Submitted*.
62. **Inducible T7 polymerase-mediated multigene expression system, pMGX.** Mohamed I. Hassan, Fern R. McSorley, Kinya Hotta, Christopher N. Boddy *J. Vis. Exp.* **2017**, doi: 10.3791/55187.
61. **Sampling Terrestrial Environments for Bacterial Polyketides.** Patrick Hill, Graham W. Heberlig, Christopher N. Boddy *Molecules* **2017**, *22*, E707.
60. **Natural products: Mapping an amazing thicket.** Mark E. Horsman, Christopher N. Boddy *Nat. Chem. Biol.* **2017**, *13*, 6-7.
59. **Portable, On-demand Biomolecular Manufacturing.** Keith Pardee, Shimyn Slomovic, Peter Q. Nguyen, Jeong Wook Lee, Nina Donghia, Devin Burrill, Tom Ferrante, Fern McSorley, Yoshikazu Furuta, Michael Lewandowski, Christopher N. Boddy, Neel S. Joshi, James J. Collins *Cell* **2016**, *167*, 248-259.
58. **Total Biosynthesis of Legionaminic Acid, a Bacterial Sialic Acid Analog.** Mohamed I. Hassan, Benjamin R. Lundgren, Michael Chaumon, Dennis M. Whitfield, Brady Clark, Ian C. Schoenhofen, Christopher N. Boddy *Angew. Chem. Int Ed.* **2016**, *55*, 12018-21.
57. **First-in-class small molecule potentiators of cancer virotherapy.** Dornan, Mark H.; Krishnan, Ramya; Macklin, Andrew M.; Selman, Mohammed; El Sayes, Nader; Davis, Colin; Chen, Andrew; Keillor, Kerkeslin; Le, Penny; Moi, Christina; Ou, Paula; Pardin, Christophe; Le Boeuf, Fabrice; Bell, John C.; Smith, Jeffrey C.; Diallo, Jean-Simon; Boddy, Christopher N. *Scientific Reports.* **2016**, *6*, 26786.
56. **Sialic acid production in Escherichia coli lacking of N-acetylglucosamine catabolism.** Horsman, Mark E.; Lundgren, Benjamin R.; Boddy, Christopher N. *Chem. Eng. Commun.* **2016**, *203*, 1326-1335.
55. **Diastereoselective Transannular Oxa-Conjugate Addition Generates the 2,6-cis Disubstituted Tetrahydropyran of Neopeltolide.** Hari, Taylor P. A.; Wilke, Burkardt I.; Davey, James A.; Boddy, Christopher N. *J. Org. Chem.* **2016**, *81*, 415-423.
54. **Towards a characterization of the structural determinants of specificity for the macrocyclizing thioesterase from deoxyerythronolide B biosynthesis.** Argyropoulos, Panos; Bergeret, Fabien; Pardin, Christophe; Reimer,

Janice M.; Pinto, Atahualpa; Boddy, Christopher N.; Schmeing, T. Martin *Biochimica Biophysica acta general subjects* **2016**, *1860*, 486-497.

53. **The use of ClusterMine360 for the analysis of polyketide and non-ribosomal peptide biosynthetic pathways.** Tremblay, Nicolas; Hill, Patrick; Conway, Kyle R.; Boddy, Christopher N. *Method Mol. Biol.* **2016**, *1401*, 233-52.
52. **Draft Genome Sequence of Streptomyces sp. Strain PBH53, isolated from urban environment.** Gosse, Jessica T.; Hill, Patrick; Dowd, Scot E.; Boddy, Christopher N. *Genome Announc.* **2015**, *3*, e00859-15.
51. **Plasmon-Mediated ssDNA Dynamic Release from Gold Nano-particles Examined with Advanced Fluorescence Microscopy.** Simoncelli, Sabrina; de Alwis Weerasekera, Hasitha; Fasciani, Chiara; Boddy, Christopher N.; Aramendía, Pedro; Alarcon, Emilio; Scaiano, Juan, *J. Phys. Chem. Lett.* **2015**, *6*, 1499-1503.
50. **Polyketide Synthase and Non-ribosomal Peptide Synthetase Thioesterases: logic gate or a victim of fate?** Horsman, Mark; Hari, Taylor P. A.; Boddy, Christopher N. *Nat. Prod. Rep.* **2016**, *33*, 183-202.
49. **Modulation of Antifreeze Activity and the Effect upon Post-Thaw HepG2 Cell Viability after Cryopreservation.** Capicciotti, Chantelle; Poisson, Jessica S; Boddy, Christopher N. Ben, Robert; *Cryobiology* **2015**, *70*, 79-89.
48. **Resorcyclic acid lactone biosynthesis relies on a stereo-tolerant macrocyclizing thioesterase.** Heberlig, Graham; Wirz, Monica; Wang, Meng; Boddy, Christopher N. *Org. Lett.* **2014**, *16*, 5858-5861.
47. **An evolutionary model encompassing substrate specificity and reactivity of type I polyketide synthase thioesterases.** Hari, Taylor P. A.; Labana, Puneet; Boileau, Meaghan; Boddy, Christopher N. *ChemBioChem* **2014**, *15*, 2656-61. (Selected for the inside back cover art)
46. **Salvadenosine, a 5'-Deoxy-5'-(methylthio) Nucleoside from the Bahamian Tunicate Didemnum sp.** Jamison, Mathew T.; Boddy, Christopher N.; Molinski Thadeus F. *J. Org. Chem.* **2014**, *79*, 9992-9997.
45. **Genetic analysis of the assimilation of C5-dicarboxylic acids in Pseudomonas aeruginosa PAO1.** Benjamin Lundgren, Luis Villegas-Peñaranda, Joshua Harris, Alexandar Mottern, Diana Dunn, Christopher Boddy, and Christopher Nomura. *J. Bacteriol.* **2014**, *196*, 2543-2551.
44. **Hexanes/acetone nitrile: a binary solvent system for the efficient monosilylation of symmetric primary and secondary diols.** Burkhardt I. Wilke, Mark H. Dornan, Jon Yeung, Christopher N. Boddy, Atahualpa Pinto. *Tetrahedron Lett.* **2014**, *55*, 2600-2602.
43. **Elucidation of Gephyronic Acid Biosynthetic Pathway Revealed Unexpected SAM Dependent Methylations.** Young, Jeanette; Stevens, David; Carmichael, Rory; Tan, John; Rachid, Shwan; Boddy, Christopher N.; Müller, Rolf; Taylor, Richard E. *J Nat Prod.* **2013**, *76*, 2269-2276.
42. **Bioinformatics tools for genome mining of polyketide and non-ribosomal peptides.** Boddy, Christopher N. *J. Ind. Microbiol. Biotechnol.* **2014**, *41*, 443-450. doi: 10.1007/s10295-013-1368-1.
41. **Habitat specific type I PKS synthases in soils and street sediments.** Hill, Patrick; Piel, Jörn; Aris-Brosoul, Stéphane; Křišťáček, Václav; Boddy, Christopher N. Dijkhuizen Lubbert. *J Ind Microbiol Biotechnol.* **2014**, *41*, 75-85.
40. **The role of transcription in heterologous expression of polyketides in bacterial hosts.** Stevens, David C.; Hari, Taylor P.; Boddy Christopher N. *Nat. Prod. Rep.* **2013**, *30*, 1391-1411. doi: 10.1039/C3NP70060G.
39. **Biosynthesis of Ebelactone A: Isotopic tracer, advanced precursor and genetic studies reveal a thioesterase-independent cyclisation to give a polyketide  $\beta$ -lactone.** Harrison, Paul; Wyatt, Morgan; Ahilan, Yasodha; Argyropoulos, Panos; Boddy, Christopher N. Magarvey, Nathan *J. Antibiot.* **2013**, *66*, 421-430. doi: 10.1038/ja.2013.48.

- 38 **Alternative sigma factor over-expression enables heterologous expression of a type II polyketide biosynthetic pathway in *Escherichia coli*.** Stevens, David C.; Conway, Kyle; Pearce, Nelson; Villegas-Peñaranda, Luis Roberto; Garza, Anthony; Boddy, Christopher N. *PLoS ONE*, **2013**, *8*, e64858.
- 37 **The Putative Transcriptional Regulator PA2449 is Essential for Glycine Metabolism and Pyocyanin Biosynthesis in *Pseudomonas aeruginosa* PAO1.** Lundgren, Benjamin R.; Thornton, William; Dornan, Mark H.; Villegas-Peñaranda, Luis Roberto; Boddy, Christopher N.; Nomura Christopher T. *J. Bacteriol.* **2013**, *195*, 2087-2100.
- 36 **ClusterMine360: a database of Microbial PKS/NRPS Biosynthesis.** Conway, Kyle; Boddy, Christopher N. *Nucleic Acid Res.* **2013**, D402-407.
- 35 **Non-canonical regioisomerizations and a 'Diels-Alderase' are likely essential in the biosynthesis of Spiculoic acid.** Pinto, Atalualpa; Boddy, Christopher N. *Bioorg Med Chem Lett.* **2012**, *22*, 5253-5256.
- 34 **6-deoxyerythronolide B synthase thioesterase-catalyzed macrocyclization is highly stereoselective.** Pinto, Atalualpa; Wang, Meng; Horsman, Mark; Boddy, Christopher N. *Org. Lett.* **2012**, *14*, 2278-2281.
- 33 **Coenzyme Q10 Production in the Filamentous *Basidiomycete Sporidiobolus johnsonii*.** Dixon, D.; Boddy, Christopher N.; Doyle, Robert P. *Chem. BioDiv.* **2011**, *8*, 1033-1051.
- 32 **Land use intensity controls Actinobacterial community structure.** Hill, Patrick; Křišťálek, Václav; Dijkhuizen, Lubbert; Boddy, Christopher N.; Kroetsch, David; van Elsas, Jan Dirk *Microb. Ecol.* **2011**, *61*, 286-302.
- 31 **Process Improvements for the Manufacture of Tenofovir Disoproxil Fumarate (TDF) at Commercial Scale.** Ripin, David H. Brown; Teager, David; Fortunak, Joseph; Basha, K.; Bivins, Nylea; Boddy, Christopher N.; Byrn, Stephen; Catlin, Kelly; Houghton, Stephen R.; Jagadeesh, S. Tirumala; Kumar, K. Anesh; Melton, Jack; Muneer, K.; Rao, L. Nagaprasada; Rao, R. Venkateswara; Reddy, N. Gopal; Reddy, R. Mallikarjuna; Shekar, K. Chandra; Silverton, Tricia; Smith, Daniel T.; Stringham, Rodger; Talley, Frajovon; Williams, Adrian. *Org. Process Res. Dev.* **2010**, *14*, 1194-1201.
30. **Rapid, mild method for phosphonate diester hydrolysis: Development of a one-pot synthesis of tenofovir disoproxil fumarate from tenofovir diethyl ester.** Houghton, Stephen R.; Melton, Jack; Fortunak, Joseph; Ripin, David H. Brown; Boddy, Christopher N. *Tetrahedron* **2010**, *66*, 8137-8144.
29. **Heterologous expression of the oxytetracycline biosynthetic pathway in *Myxococcus xanthus*.** Stevens, David C.; Henry, Michael R.; Murphy, Kimberly; Boddy, Christopher N. *Applied Environ. Microbiol.* **2010**, *76*, 2681-2683.
28. **A thioesterase from an iterative fungal polyketide synthase shows macrocyclization and cross-coupling activity, and may play a role in controlling iterative cycling through product off loading.** Wang, Meng; Zhou, Hui; Wirz, Monica; Tang, Yi; Boddy, Christopher N. *Biochemistry* **2009**, *48*, 6288-6290.
27. **Polyketide synthase thioesterases catalyze rapid hydrolysis of peptidyl thioesters.** Wang, Meng; Opare, Peter; Boddy, Christopher N. *Bioorg. Med. Chem. Lett.* **2009**, *19*, 1413-1415.
26. **Biomimetic transannular oxa-conjugate addition approach to the 2,6-disubstituted dihydropyran of laulimalide yields an unprecedented transannular oxetane.** Houghton, Stephen R.; Furst, Laura; Boddy, Christopher N.; *J. Org. Chem.* **2009**, *74*, 1454-1463 (Featured Article).
25. **Examining the role of hydrogen bonding interactions in the substrate specificity for the loading step of polyketide synthase thioesterase domains.** Wang, Meng; Boddy, Christopher N. *Biochemistry* **2008**, *47*, 11793-11803.
24. **Orthogonal ligation: a three piece assembly of a PNA-peptide-PNA conjugate.** Burlina, Fabienne; Dixon, David D.; Doyle, Robert P.; Chassaing, Gérard; Boddy, Christopher N.; Dawson, Philip; Offer, John *Chem. Commun.* **2008**, 2785-2787.

23. **A New Mechanism for Benzopyrone Formation in Aromatic Polyketide Biosynthesis** Zhang, Wenju; Wilke, Burkhardt I.; Zhan, Jixun; Watanabe, Kenji; Boddy,\* Christopher N.; Tang,\* Yi *J. Am. Chem. Soc.* **2007**, *129*, 9304-9305. (\* Corresponding authors)
22. **Sialic acid and N-acyl sialic acid analog production by fermentation of metabolically and genetically engineered *Escherichia coli*** Lundgren, Benjamin L.; Boddy, Christopher N. *Org. Biomol. Chem.* **2007**, *5*, 1903-1909. (Evaluated by Faculty of 1000.)
21. **The thioesterase domain from the pimaricin and erythromycin biosynthetic pathways can catalyze hydrolysis of simple thioester substrates.** Sharma, Krishna K.; Boddy, Christopher N. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 3034-3037.
20. **Total biosynthesis of antitumor nonribosomal peptides in *Escherichia coli*.** Watanabe, Kenji; Hotta, Kinya; Praseuth, Alex P.; Kotetsu, Kento; Migita, Akira; Boddy, Christopher N.; Wang, Clay C. C.; Oguri, Hiroki; Oikawa, Hideaki *Nature Chemical Biology* **2006**, *2*, 423-428.
19. **Sweetening Cyclic Peptide Libraries.** Boddy, Christopher N. *Chem. Biol.* **2004**, *11*, 1599-1600.

Publications as a post-doctoral fellow and graduate student

18. **Precursor-Directed Biosynthesis of Epothilone in *Escherichia coli*.** Boddy, Christopher N.; Hotta, Kinya; Tse, Martha Lovato; Watts, R. Edward; Khosla, Chaitan. *J. Am. Chem. Soc.* **2004**, 7436-7437.
17. **Understanding Substrate Specificity of Polyketide Synthase Modules by Generating Hybrid Multimodular Synthases.** Watanabe, Kenji; Wang, Clay C. C.; Boddy, Christopher N.; Cane, David E.; Khosla, Chaitan *J. Biol. Chem.* **2003**, *278*, 42020-42026.
16. **Epothilone C Macrocyclization and Hydrolysis Are Catalyzed by the Isolated Thioesterase Domain of Epothilone Polyketide Synthase.** Boddy, Christopher N.; Schneider, Tanya; Hotta, Kinya; Walsh, Christopher T.; Khosla, Chaitan *J. Am. Chem. Soc.* **2003**, *125*, 3428-3429.
15. **Atropselective Macrocyclization of Diaryl Ether Systems: Application to the Synthesis of Vancomycin.** Nicolaou, K. C.; Boddy, Christopher N. *J. Am. Chem. Soc.* **2002**, *124*, 10451-10455.
14. **Extending Synthetic Access to Proteins with a removable acyl transfer auxiliary.** Offer, John; Boddy, Christopher N. C.; Dawson, Philip E. *J. Am. Chem. Soc.* **2002**, *124*, 4642-4646.
13. **Behind Enemy Lines.** Nicolaou, K. C.; Boddy, Christopher N. C. *Scientific American* **2001**, May, 54-61.
12. **Does CIP nomenclature adequately handle molecules with multiple stereoelements? A case study of vancomycin and cognates.** Nicolaou, K. C.; Boddy, Christopher N. C.; Siegel, Jay S. *Angew. Chem.* **2001**, *113*; 723-726; *Angew. Chem. Int. Ed.* **2001**, *40*, 701-704.
11. **Total Synthesis of Vancomycin: Part 2. Retrosynthetic Analysis, Synthesis of Amino Acid Building Blocks and Strategy Evaluations.** Nicolaou, K. C.; Boddy, Christopher N. C.; Li, Hui; Koumbis, A. E.; Hughes, Robert; Natarajan, Swaminathan; Jain, Nareshkumar F.; Ramanjulu, Joshi M.; Bräse, Stefan; Solomon, Michael E. *Chem. Eur. J.* **1999**, *5*, 2602-2621.
10. **Total Synthesis of Vancomycin: Part 1. Design and Development of Methodology.** Nicolaou, K. C.; Li, Hui; Boddy, Christopher N. C.; Ramanjulu, Joshi M.; Yue, Tai-Yuen; Natarajan, Swaminathan; Chu, Xin-Jie; Bräse, Stefan; Rübsam, Frank *Chem. Eur. J.* **1999**, *5*, 2584-2601.
9. **Chemistry, Biology, and Medicine of the Glycopeptide Antibiotics.** Nicolaou, K. C.; Boddy, Christopher N. C.; Bräse, Stefan; Winssinger, Nicolas *Angew. Chem.* **1999**, *111*, 2230-2287; *Angew. Chem. Int. Ed.* **1999**, *38*, 2097-2152.
8. **Total Synthesis of Vancomycin Aglycon - Part 1: Synthesis of Amino Acids 4-7 and Construction of the AB-COD Ring Skeleton.** Nicolaou, K. C.; Natarajan, Swaminathan; Li, Hui; Jain, Nareshkumar F.; Hughes, Robert;

- Solomon, Michael E.; Ramanjulu, Joshi M.; Boddy, Christopher N. C.; Takayanagi, Masaru *Angew. Chem.* **1998**, *110*, 2872–2878; *Angew. Chem. Int. Ed.* **1998**, *37*, 2708–2714.
7. **Probing the Ring Size of Epothilones: Total Synthesis of [14]-, [15]-, [17]-, [18]-Epothilones A.** Nicolaou, K. C.; Sarabia, Francisco; Ninkovic, Sacha; Finlay, M. Ray V.; Boddy, Christopher N. C. *Angew. Chem.* **1998**, *110*, 85–89; *Angew. Chem. Int. Ed.* **1998**, *37*, 81–84.
  6. **A Suzuki Coupling-macrolactamization Approach to the AB-COD Bi-cyclic System of Vancomycin.** Nicolaou, K. C.; Ramanjulu, Joshi M.; Natarajan, Swaminathan; Bräse, Stefan; Li, Hui; Boddy, Christopher N. C.; Rübsam, Frank *Chem. Commun.* **1997**, 1899–1900.
  5. **New Technology for the Synthesis of Vancomycin-type Biaryl Ring Systems.** Nicolaou, K. C.; Chu, Xin-Jie; Ramanjulu, Joshi M.; Natarajan, Swaminathan; Bräse, Stefan; Rübsam, Frank; Boddy, Christopher N. C. *Angew. Chem.* **1997**, *109*, 1551–1552; *Angew. Chem. Int. Ed.* **1997**, *36*, 1539–1540.
  4. **New Synthetic Technology for the Synthesis of Aryl Ethers: Construction of C-O-D and D-O-D Ring Model Systems of Vancomycin.** Nicolaou, K. C.; Boddy, Christopher N. C.; Natarajan, Swaminathan; Yue, Tai-Yuen; Li, Hui; Bräse, Stefan; Ramanjulu, Joshi M. *J. Am. Chem. Soc.* **1997**, *119*, 3421–3422.
  3. **Total Synthesis of Crystalline (±)-Fredericamycin A.** Clive, Derrick L. J.; Tao, Yong; Khodabocus, Ahmad; Wu, Yong Jin; Angoh, A. Gaetan; Bennett, Sharon M.; Boddy, Christopher N.; Bordeleau, Luc; Cantin, Michel; Kleiner, Galit; Middleton, Donald S.; Nichols, Christopher J.; Richardson, Scott R.; Vernon, Peter G. *Stud. Nat. Prod. Chem.* **1995**, *16*, 27–74.
  2. **Total Synthesis of Crystalline (±)-Fredericamycin A. Use of Radical Spirocyclization.** Clive, Derrick L. J.; Tao, Yong; Khodabocus, Ahmad; Wu, Yong Jin; Angoh, A. Gaetan; Bennett, Sharon M.; Boddy, Christopher N.; Bordeleau, Luc; Kellner, Dorit; Kleiner, Galit; Middleton, Donald S.; Nichols, Christopher J.; Richardson, Scott R.; Vernon, Peter G. *J. Am. Chem. Soc.* **1994**, *116*, 11275–11286.
  1. **Total Synthesis of (±)-Fredericamycin A. Use of Radical Spirocyclization.** Clive, Derrick L. J.; Tao, Yong; Khodabocus, Ahmad; Wu, Yong Jin; Angoh, A. Gaetan; Bennett, Sharon M.; Boddy, Christopher N.; Bordeleau, Luc; Kellner, Dorit; Kleiner, Galit; Middleton, Donald S.; Nichols, Christopher J.; Richardson, Scott R.; Vernon, Peter G. *J. Chem. Soc., Chem. Commun.* **1992**, 1489–1490.

## Patents

7. **Inhibitors of prokaryotic gene transcription and uses thereof.** Bernal, Federico; Pau, Daniel I.; Boddy, Christopher N. US provisional Patent Application No. 62/308,700, Filed March 15, 2016.
6. **Metabolically Engineered Escherichia coli for Enhanced Production of Sialic Acid.** Lundgren, Benjamin R.; Boddy, Christopher N. US Patent no **9,243,240**, issued Jan 26, 2016.
5. **Compositions and Methods for Viral Sensitization.** Jean-Simon Diallo, Christopher Noyce Boddy, Mark Dornan, Ramya Krishnan, Fabrice LeBoeuf, John C. Bell, Andrew Macklin, Jeffrey Smith. US provisional Patent Application No.62/107,908, Filed January 26, 2015.
4. **Compositions and Methods for Enhancing Oncolytic Virus Efficacy.** Jean-Simon Diallo, Christopher Noyce Boddy, Mark Dornan, Ramya Krishnan, Fabrice LeBoeuf, John C. Bell, Andrew Macklin, Jeffrey Smith. US provisional Patent Application No.62/107,923, Filed January 26, 2015.
3. **Cell-based production of nonulosonates.** Lundgren, Benjamin R.; Boddy, Christopher N.; Schoenhofen, Ian C.; Logan, Susan M.; Whitfield, Dennis M. US Patent no **8,841,099**, issued Sept 23, 2014.
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1. **System and Method for Heterologous Expression of Polyketide Synthase Gene Clusters.** Garza, Anthony; Boddy, Christopher N. US Patent no **8,709,781**, issued April 29, 2014.



## **Graduate Supervision**

### **Current Students**

#### ***PhD***

Patrick Hill  
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Graham Heberlig  
Mohamed Hassan  
Puneet Labana

#### ***MSc***

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### **Former students**

#### ***PhD***

Stephen Houghton (2008)  
Meng Wang (2009)  
Benjamin Lundgren (2010)  
David Dixson (2011)  
David Cole Stevens (2011)  
Ata Pinto (2011)  
Burkhardt Wilke (2012)  
Mark Dornan (2015)  
Taylor Hari (2017)  
Mark Horsman (2018)  
Luis Villegas (2018)

#### ***MSc***

Krishna Kant Sharma (2006)  
Monica Wirz (2011)  
Taylor Hari (2012)  
Kyle Conway (2012)  
Panos Argyropoulos (2014)  
Danny Pai (2015)

## **Postdoctoral Supervision**

Dr. Jack Melton (2006-2008)  
Dr. Christophe Pardin (2012-2013)  
Dr. Fern McSorley (2014-2016)

## **Visiting Professors**

Prof. Zhang Jie, Xi'an Modern Chemistry Research Institute (2018-2019)