Don M. Coltart

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Academic and Professional Experience

2004–present	Assistant Professor, Duke University, Department of Chemistry
2000–2004	Cancer Research Institute/Natural Science and Engineering Research Council of Canada/Alberta Heritage Foundation for Medical Research Postdoctoral Fellow, Memorial Sloan-Kettering Cancer Center. (Advisor – Dr. S. J. Danishefsky)
1995–2000	Ph.D. (Chemistry), University of Alberta. (Advisor – Dr. D. L. J. Clive)
1993–1995	M.Sc. (Chemistry), University of Manitoba. (Advisor – Dr. J. L. Charlton)
1989–1993	B.Sc. Honors (Biochemistry), University of Manitoba

Fellowships and Awards

Thieme Chemistry Journal Award (2010)
Natural Science and Engineering Research Council of Canada Travel Award (2003)
Cancer Research Institute Cancer Immunology Postdoctoral Fellowship (2002)
Alberta Heritage Foundation for Medical Research Postdoctoral Fellowship (2000)
Natural Science and Engineering Research Council of Canada Postdoctoral Fellowship (2000)
Izaak Walton Killam Memorial Scholarship (1999)
Alberta Heritage Foundation for Medical Research Incentive Award (1999)
Mary Louise Imire Graduate Student Award (1999)
Andrew Stewart Memorial Graduate Prize (1999)
Boehringer Ingelheim Award for Organic and Bioorganic Chemistry (1998)
University of Alberta, Faculty of Science Graduate Teaching Award (1998)
University of Alberta Graduate Students' Association Teaching Award (1998)
Alberta Heritage Foundation for Medical Research Graduate Scholarship (1997)
Province of Alberta Graduate Fellowship (1997)
Margaret Thompson Memorial Prize (1996)
University of Manitoba Graduate Fellowship (1994)
University of Manitoba, Faculty of Science Graduate Fellowship (1994)
Accounts of Chemical Research Graduate Prize (1994)
University of Manitoba Graduate Students' Association Scholarship (1993)
Reverend Joseph Hogg Scholarship (1992)

Publications

35) Catalytic Asymmetric Addition of Thiols to Nitrosoalkenes: An Umpolung Strategy for the Synthesis of Chiral Non-Racemic α-Sulfenyl Ketones. Hatcher, J. M.; Kohler, M. C.; Coltart, D. M. (submitted).
34) Regioselective Asymmetric α,α-Bislakylation of Ketones via Complex Induced *Syn*-Deprotonation. Wengryniuk, S. E.; Lim, D.; Coltart, D. M. *J. Am. Chem Soc*. **2011** (accepted).
33) Asymmetric Total Synthesis of (+)- and (–)-Clusianone and (+)- and (–)-Clusianone Methyl Enol Ether via ACC Alkylation and Evaluation of their Anti-HIV Activity. Garnsey, M. R.; Matous, J. A.; Kwiek, J. J.; Coltart, D. M. *Bioorg. Med. Chem. Lett.* **2011**, *21*, 2406–2409.
32) Direct Carbon–Carbon Bond Formation via Soft Enolization: Aldol Addition of α-Halogenated Thioesters. Yost, J. M.; Alfie, R.; Tarsis, E. T.; Coltart, D. M. *Chem. Commun.* **2011**, *47*, 571–572.
31) Bis(phenylthio)methane. Hatcher, J. M.; Coltart, D. M. in *Encyclopedia of Reagents for Organic Synthesis*; Fuchs, P. L. Ed.; John Wiley & Sons: 2011 (in press). (Encyclopedia Article)
30) The Origins of Stereoselectivity in the α-Alkylation of Chiral Hydrazones. Krenske, E. H.; Houk, K. N.; Lim, D.; Wengryniuk, S. E.; Coltart, D. M. *J. Org. Chem*. **2010**, *75*, 8578–8584.

29) Development of a Strategy for the Asymmetric Synthesis of Polycyclic Polyprenylated Acylphloroglucinols via *N*-Amino Cyclic Carbamate Hydrazones: Application to the Total Synthesis of (+)-Clusianone. Garnsey, M. R.; Lim, D.; Yost, J. M.; Coltart, D. M. *Org. Lett*. **2010**, *12*, 5234-5237.
28) Direct Carbon–Carbon Bond Formation via Reductive Soft Enolization: A Kinetically Controlled *Syn*-Aldol Addition of α-Halo Thioesters. Sauer, S. J.; Garnsey, M. R.; Coltart, D. M. *J. Am. Chem. Soc*. **2010**, *132*, 13997–13999.
27) Direct Carbon–Carbon Bond Formation via Soft Enolization: A Biomimetic Asymmetric Mannich Reaction of Phenylacetate Thioesters. Kohler, M. C; Yost, J. M.; Garnsey, M. R.; Coltart, D. M. *Org. Lett*. **2010**, *12*, 3376–3379.
26) Copper-(I) Catalyzed Addition of Grignard Reagents to *In Situ*-Derived *N*-Sulfonyl Azoalkenes: An Alkylation Procedure Applicable to the Formation of up to Three Contiguous Quaternary Centers. Hatcher, J. M.; Coltart, D. M. *J. Am. Chem. Soc*. **2010**, *132*, 4546–4547.
25) A Practical Synthesis of β-Keto Thioesters via Direct Crossed-Claisen Coupling of Thioesters and *N*-Acylbenzotriazoles. Zhou, G.; Lim, D.; Coltart, D. M. *Synthesis* **2009**, 3350–3352.
24) Tris(2-carboxyethyl)phosphine Hydrochloride. Yost, J. M.; Knight, J. D.; Coltart, D. M. in *Encyclopedia of Reagents for Organic Synthesis*; Crich, D. Ed.; John Wiley & Sons: 2009. (Encyclopedia Article)
23) Triphenylmethanethiol. Garnsey, M. R.; Wengryniuk, S. E.; Coltart, D. M. in *Encyclopedia of Reagents for Organic Synthesis*; Crich, D. Ed.; John Wiley & Sons: 2009. (Encyclopedia Article)
22) Direct Carbon–Carbon Bond Formation via Soft Enolization of Thioesters: An Operationally Simple Mannich Addition Reaction. Yost, J. M.; Garnsey, M. R.; Kohler, M. C.; Coltart, D. M. *Synthesis*, **2008**, 56–58.
21) Overcoming the Limitations of the Baylis-Hillman Reaction: A Rapid and General Synthesis of α-Alkenyl β-Hydroxy Thioesters. Tarsis, E. T.; Gromova, A.; Lim, D.; Zhou, G.; Coltart, D. M. *Org. Lett*. **2008**, *10*, 4819–4822.
20) Direct Carbon–Carbon Bond Formation via Chemoselective Soft Enolization of Thioesters: A Remarkably Simple and Versatile Crossed-Claisen Reaction Applied to the Synthesis of LY294002. Zhou, G.; Lim, D.; Coltart, D. M. *Org. Lett*. **2008**, *10*, 3809–3812.
19) Simple and Efficient Asymmetric α-Alkylation and α,α-Bisalkylation of Acyclic Ketones Using Chiral *N*-Amino Cyclic Carbamate Hydrazones. Lim, D.; Coltart, D. M. *Angew. Chem. Int. Ed*. **2008**, 47, 5207–5210.
18) $MgBr_2{\cdot}OEt_2$-Promoted Coupling of Ketones and Activated Acyl Donors via Soft Enolization: A Practical Synthesis of 1,3-Diketones. Lim, D.; Zhou, G.; Livanos, A. E.; Fang, F.; Coltart, D. M. *Synthesis,* **2008**, 2148–2152.
17) A Facile and Efficient *Anti*-Selective Four-Component Direct Aldol Addition via Chemoselective Thioester Enolate Formation. Zhou, G.; Yost, J. M.; Sauer, S.; Coltart, D. M. *Org. Lett.* **2007**, *9*, 4663–4665.
16) Direct Carbon–Carbon Bond Formation via Soft Enolization: A Facile and Efficient Synthesis of 1,3-Diketones. Lim, D.; Fang, F.; Zhou, G.; Coltart, D. M. *Org. Lett*. **2007**, *9*, 4139–4142.
15) A Direct Aldol Addition of Simple Thioesters Employing Soft Enolization. Zhou, G.; Yost, J. M.; Coltart, D. M. *Synthesis* **2007**, 478–482.
14) A Facile and Efficient Direct Aldol Addition of Simple Thioesters. Yost, J. M.; Zhou, G.; Coltart, D. M. *Org. Lett*. **2006**, *8*, 1503–1506.

Graduate and Postdoctoral

13) Derivatized Amino Acids Relevant to Protein Synthesis by Native Chemical Ligation. Clive, D. L. J.; Hisaindee, S.; Coltart, D. M. *J. Org. Chem*. **2003**, *68*, 9247–9254.
12) A Novel Synthetic Approach to the 8,10-Dimethyl *Anti-Syn-Anti* Perhydrophenanthrene Skeleton. Coltart, D. M.; Danishefsky, S. J. *Org. Lett*. **2003**, *5*, 1289–1292.
11) Hydroxynorleucine as a Glycosyl Acceptor is an Efficient Means for Introducing Amino Acid Functionality into Complex Carbohydrates. Keding, S. J.; Endo, A.; Biswas, K.; Zatorski, A.; Coltart, D. M.; Danishefsky, S. J. *Tetrahedron Lett*. **2003**, *44*, 3413–3416.
10) On the Power of Chemical Synthesis: Immunological Evaluation of Models for Multiantigenic Carbohydrate-Based Cancer Vaccines. Ragupathi, G.; Coltart, D. M.; Williams, L. J.; Koide, F.; Kagan, E.; Allen, J.; Harris, C.; Glunz, P. W.; Livingston, P. O.; Danishefsky, S. J. *Proc. Natl. Acad. Sci. (U.S.A.)* **2002**, *99*, 13699–13704.
9) Construction of Carbohydrate-Based Antitumor Vaccines: Synthesis of Glycosyl Amino Acids by Olefin Cross-Metathesis. Biswas, K.; Coltart, D. M.; Danishefsky, S. J. *Tetrahedron Lett*. **2002**, *43*, 6107–6110.
8) Principles of Mucin Architecture: Structural Studies on Synthetic Glycopeptides Bearing Clustered Mono-, Di-, Tri- and Hexasaccharide Glycodomains. Coltart, D. M.; A. K. Royyuru; Williams, W. J.; Glunz, P. W.;

Sames, D.; Kuduk, S. D.; Schwarz, J. B.; Chen, X.-T.; Danishefsky, S. J.; Live, D. H. *J. Am. Chem. Soc.* **2002**, *124*, 9833–9844.

7) Constructing an Adenocarcinoma Vaccine: Immunization of Mice with Synthetic KH-1 Nonasaccharide Stimulates Anti-KH-1 and Anti-Le^y Antibodies. Ragupathi, G.; Deshpande, P. P.; Coltart, D. M.; Kim, H. J.; Williams, L. J.; Danishefsky, S. J.; Livingston, P. O. *Intl. J. Cancer* **2002**, *99*, 207–212.
6) Synthesis of the Naturally Occurring ACE Inhibitors (–)-A58365A and (–)-A58365B, and of an Unnatural but Biologically Active Analog. Clive, D. L. J.; Coltart, D. M.; Zhou, Y.; de Lima, D. P.; Yang, H.; Lewanczuk, R. Z. In *Actualité de Chimie Thérapeutique*, French Society of Medicinal Chemistry, **2002**, 28th series, 21–50.
5) Peptide Segment Coupling by Prior Ligation and Proximity-Induced Intramolecular Acyl Transfer. Coltart, D. M. *Tetrahedron* **2000**, *56*, 3449–3491. (Review)
4) Studies on the Preparation of 3,4-Disubstituted 2-Methoxypyridines. Pelisson, M. M.; da Silva, G. V. J.; Clive, D. L. J.; Coltart, D. M.; Hof, F. A. *J. of Heterocycl. Chem.* **1999**, *36*, 653–658.
3) Synthesis of the Angiotensin-Converting Enzyme Inhibitors (–)-A58365A and (–)-A58365B from a Common Intermediate. Clive, D. L. J.; Coltart, D. M.; Zhou, Y. *J. Org. Chem.* **1999**, *64*, 1447–1454.
2) Synthesis of the Angiotensin-Converting Enzyme Inhibitor (±)-A58365A. Clive, D. L. J.; Coltart, D. M. *Tetrahedron Lett.* **1998**, *39*, 2519–2522.
1) The Asymmetric Synthesis of Aryltetralin Lignans: (–)-Isolariciresinol Dimethyl Ether and (–)-Deoxysikkimotoxin. Coltart, D. M.; Charlton, J. L. *Can. J. Chem.* **1996**, *74*, 88–94.

Patents

2) Asymmetric α-Functionalization and α,α-Bisfunctionalization of Aldehydes and Ketones. Coltart, D. M.; Lim, D.
1) Novel Glycoconjugates, Glycoamino Acids, Intermediates Thereto, and Uses Thereof. Danishefsky, S. J.; Coltart, D. M.; Keding, S. J.; Biswas, K.; Livingston, P. O. Ragupathi, G.; Allen, J.; Williams, L. J.

Presentations

41) North Carolina A&T State University, Greensboro, NC, March 3, 2011.
40) Wake Forest University, Winston-Salem, NC, April 9, 2010
39) University of California, Santa Barbara, Santa Barbra, CA, April 2, 2010.
38) California Institute of Technology, Pasadena, CA, April 1, 2010.
37) University of California, Irvine, Irvine, CA, March 31, 20010.
36) University of Pittsburg, Pittsburgh, PA, March 19, 2010.
35) Yale University, New Haven, CT, February 26, 2010.
34) Columbia University, New York, NY, February 25, 2010.
33) New York University, New York, NY, February 24, 2010.
32) The Memorial Sloan-Kettering Cancer Center, New York, NY, February 23, 2010.
31) The University of Delaware, Newark, DE, February 17, 2010.
30) The University of Kansas, Lawrence, KS, January 21, 2010.
29) Florida State University, Tallahassee, FL, December 3, 2009.
28) The University of Florida, Gainesville, FL, December 1, 2009.
27) The University of Pennsylvania, Philadelphia, PA, November 16, 2009.
26) The Ohio State University, Columbus, OH, November 12, 2009.
25) GSK, Research Triangle Park, NC, November 4, 2009.
24) The University of Alberta, Edmonton, Alberta, October 19, 2009.
23) The University of Manitoba, Winnipeg, Manitoba, October 2, 2009.
22) The University of North Carolina, Chapel Hill, NC, September, 25, 2009.
21) Winthrop University, Rock Hill, NC, September 10, 2009.
20) Young Academic Investigators Symposium – American Chemical Society National Meeting, Washington, DC, August 16-20, 2009.
19) Eli Lilly, Indianapolis, IN, July 21, 2009.
18) Natural Products Gordon Research Conference, Andover, New Hampshire, July 26, 2009.
17) Natural Products Gordon Research Conference, Andover, New Hampshire, July 20, 2008.
16) French American Chemical Society, Santa Barbara, CA, June 8, 2008.
15) International Symposium on the Organic Chemistry of Sulfur (ISOCS-22), Saitama, Japan, August 20–26, 2006.

14) Bioorganic Chemistry Gordon Research Conference, Andover, New Hampshire, June 13–18, 2004.
13) California Institute of Technology, Pasadena, California, February 4, 2004.
12) Washington University, St. Louis, Missouri, January 22, 2004.
11) Vanderbilt University, Nashville, TN, January 14, 2004.
10) The Scripps Research Institute, La Jolla, CA, December 18, 2003.
9) Duke University, Durham, NC, December 2, 2003.
8) Banff Symposium on Organic Chemistry, Banff, Alberta, November 7–9, 2003.
7) Cornell Weil Graduate School of Medical Science, New York, NY, October 29, 2003.
6) Columbia University, New York, NY, September 4, 2003.
5) Canadian Society of Chemistry Conference and Exhibition, Ottawa, Ontario, August 10–15, 2003.
4) University of Alberta, Edmonton, Alberta, August 25, 2000.
3) American Chemical Society National Meeting, New Orleans, Louisiana, August 22–26, 1999.
2) Canadian Society of Chemistry Conference and Exhibition, Toronto, Ontario, May 30–June 2, 1999.
1) University of Alberta, Edmonton, Alberta, April 15, 1998.