

WILLIAM A. DONALDSON, Ph.D.

President & Acting CEO, Estrigenix Therapeutics, Inc.
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Education

Dartmouth College Hanover, NH
Ph.D. in Organometallic Chemistry September 1981
Thesis advisor: Prof. Russell P. Hughes

Wesleyan University Middletown, CT
B.A. in Chemistry with honors May 1977
Thesis advisor: Prof. Albert J. Fry

EXPERIENCE

Estrigenix Therapeutics, Inc. Wauwatosa, WI
President & Acting CEO July 2018 – Present

Marquette University Milwaukee, WI
Professor Emeritus, Department of Chemistry May 2021
Associate Dean, Klingler College of Arts and Sciences August 2010 – June 2014
Professor, Department of Chemistry August 1996 – May 2021
Associate Professor, Department of Chemistry August 1990 – July 1996
Assistant Professor, Department of Chemistry August 1983 – July 1990

Wesleyan University
Visiting Assistant Professor, Department of Chemistry August 1982-June 1983

Honors and Awards

Lawrence G. Haggerty Award for Research Excellence, Marquette University 2021
Senior Award for Teaching Excellence and Developmental Guidance, Marquette University 2016
American Chemical Society Milwaukee Section Award 2010
Senior Award for Teaching Excellence and Developmental Guidance, Marquette University 2009
John P. Raynor, S.J. Faculty Award for Teaching Excellence, Marquette University 1995
Alexander von Humboldt Research Fellowship, Philips University, Marburg, Germany 1990 – 1991
Edward D. Simmons Award for Junior Faculty Excellence, Marquette University 1988

Research Grants

Ongoing Research Support

1. *Granting agency:* NIH-GMS(R15). *Role:* Collaborator (D. Sem is PI). *Project Title:* Development of ER-beta Agonists to Treat Post-menopausal Memory Decline, 09/01/18-08/31/22 (No cost extension)
2. *Granting agency:* NIH-GMS(R15). *Role:* Co-PI with M. St. Maurice. *Project Title:* Design, Synthesis and Evaluation of Inhibitors for Pyruvate Carboxylase, 08/01/19-07/31/22

Completed Research Support

1. *Granting agency:* NIH-GMS(R15). *Role:* Collaborator (D. Sem was PI). *Project Title:* Development of ER-beta Agonists to Treat Post-menopausal Memory Decline, 09/01/15-08/31/18
2. *Granting agency:* NSF. *Role:* PI. *Project Title:* Natural Product Synthesis via Organoiron Methodology, 09/01/09-08/31/13

Book Chapters

- 4) W.A. Donaldson, "Organometallic complexes of dienes and polyenes", *invited chapter* in The Chemistry of Dienes and Polyenes, Vol. 2, ed. Z. Rappoport, John Wiley & Sons, Ltd., London, **2003**, pp 885-989. (7 citations)
- 3) W.A. Donaldson, "Metal Olefin, Diene and Dienyl Complexes in Organic Synthesis: Complexation of Dienes for Protection", *invited chapter* in Comprehensive Organometallic Chemistry II, eds. E.W. Abel, F.G.A. Stone, and G. Wilkenson, Pergamon/Elsevier Press, **1995**, Vol. 12, pp 623-35. (11 citations)
- 2) J.R. Green and W.A. Donaldson, "Iron: Organometallic Chemistry", *invited chapter* in Encyclopedia of Inorganic Chemistry, ed. R.B. King, John Wiley & Sons, Ltd., London, **1995**, Vol. 4, pp 1735-1784. (0 citations)
- 1) W.A. Donaldson, "Palladium Mediated Methylene-cyclopropane Ring Opening: Applications to Organic Synthesis", *invited chapter* in "Advances in Metal-Organic Chemistry", ed. L. Leibeskind, JAI Press, Inc., Groton, CT, **1991**, pp 269-293. (14 citations)

Publications

- 127) M. F. El-Mansy and W. A. Donaldson, "Recent advances in the synthesis of toxoids: 2015-2020", *ARKIVOC* **2021**, (v), 110-137.
- 126) A. W. Fleischer, J. C. Schalk, E. A. Wetzel, A. M. Hanson, D. S. Sem, W. A. Donaldson and K. M. Frick, "Chronic oral administration of a novel estrogen receptor beta agonist enhances memory and alleviates drug-induced vasodilation in young ovariectomized mice", *Horm. Behav.* **2021**, *120*, 104948.
- 125) W. A. Donaldson, "Synthesis of Spliceostatins and Thailanstatins: A Review", *Beilstein J. Org. Chem.* **2020**, *16*, 1991-2006.
- 124) E. A. Wetzel, A. M. Hanson, C. L. Troutfetter, D. J. Burkett, D. S. Sem and W. A. Donaldson, "Synthesis and evaluation of 17 α -triazolyl and 9 α -cyano derivatives of estradiol", *Bioorg. Med. Chem.* **2020**, *28*, 115670.
- 123) D. J. Burkett, B. N. Wyatt, M. Mews, A. Bautista, R. Engel, C. Dockendorff, W. A. Donaldson and M. St. Maurice, "Evaluation of α -hydroxycinnamic acids as pyruvate carboxylase inhibitors", *Bioorg. Med. Chem.* **2019**, *27*, 4041-4047.

- 122) K. L. I. S. Perera, A. M. Hanson, S. Lindeman, A. Imhoff, X. Lu, D. S. Sem and W. A. Donaldson, "Synthesis and Evaluation of 4-Cycloheptylphenols as Selective Estrogen Receptor- β Agonists (SERBAs)", *Eur. J. Med. Chem.* **2018**, *157*, 791-804.
- 121) Y. Ma, S. Lindeman and W. A. Donaldson, "Dicaronyl{[(*E,E*)-(2,3,4,5- η)-6-methoxy-6-oxo-2,4-hexadienyl]triphenylphosphonium}(triphenylphosphine- κP)iron(1+) hexafluoridophosphate", *IUCrData* **2018**, *3*, x180902.
- 120) A. M. Hanson, K. L. I. S. Perera, J. Kim, R. K. Pandey, N. Sweeney, X. Lu, A. Imhoff, A. C. Mackinnon, A. J. Wargolet, R. M. Van Hart, K. M. Frick, W. A. Donaldson and D. S. Sem, "A-C Estrogens as Potent and Selective Estrogen Receptor-Beta Agonists (SERBAs) to Enhance Memory Consolidation under Low-Estrogen Conditions", *J. Med. Chem.* **2018**, *61*, 4720-4738.
- 119) W. A. Donaldson, "Recent Progress in the Synthesis of Six-membered Aminocyclitols (2008-2017)", *ARKIVOC* **2018**, (*iv*), 231-256.
- 118) P. B. Greer and W. A. Donaldson, "Synthesis of a Liner Fragment Containing the C23-C26 Stereocenters of Phorboxazole: A Flexible Molecule with Defined Conformation", *Lett. Org. Chem.* **2018**, *15*, 472-478.
- 117) Y. Ma, Y. K. Yun, J. Wondergem, A. Sar, J. R. Gone, S. Linderman and W. A. Donaldson, "Reactivity of (1-methoxycarbonylpentadienyl)iron(1+) cations with hydride, methyl, and nitrogen nucleophiles", *Tetrahedron* **2017**, *73*, 4493-4500.
- 116) S. Chaudhury, S. Li and W. A. Donaldson, "Reactivity of (3-Methylpentadienyl)iron(1+) Cation: Late-stage Introduction of a (3-Methyl-2Z,4-pentadien-1-yl) Side Chain", *Mediterranean J. Chem.* **2016**, *5*, 540-547.
- 115) D. W. Lee, C. F. Manful, J. R. Gone, Y. Ma and W. A. Donaldson, "Reactivity of acyclic (pentadienyl)iron(1+) cations with phosphonate stabilized nucleophiles: application to the synthesis of oxygenated metabolites of carvone", *Tetrahedron* **2016**, *72*, 753-759.
- 114) S. Lindeman, N. J. Wallock and W. A. Donaldson, "Crystal structure of *cis*-2-(2-carboxycyclopropyl)glycine (CCG-III) monohydrate", *Acta Cryst. E* **2015**, *71*, 844-846.
- 113) L. Liu, J. L. Wondergem and W. A. Donaldson, "Synthetic Studies of Ambruticin: Preparation of the C1-C8 Tetrahydropyran and the C17-C24 Dihydropyran Segments", *Mediterranean J. Chem.* **2015**, *4*, 17-184.
- 112) M. F. El-Mansy, M. Flister, S. Lindeman, K. Kalous, D. S. Sem and W. A. Donaldson, "Generation of Molecular Complexity from Cyclooctatetraene: Preparation of Aminobicyclo[5.1.0]octitols", *Chem. Eur. J.* **2015**, *21*, 10886-10895.
- 111) C. F. Manful and W. A. Donaldson, "Preparation of cyclohexenones from acyclic (pentadienyl)-iron(1+) cations: Synthetic studies directed toward the A-ring of dihydrotachysterols", *Eur. J. Org. Chem.* **2014**, 6787-6795.
- 110) C. McCullough, T. S. Neumann, J. R. Gone, Z. He, C. Herrild, J. Wondergem, R. K. Pandey, W. A. Donaldson and D. S. Sem, "Probing the human estrogen receptor-a binding requirements for

phenolic mono- and di-hydroxyl compounds: a combined synthesis, binding and docking study”, *Bioorg. Med. Chem.* **2014**, *22*, 303-310.

- 109) M. F. El-Mansy, A. Sar, S. Lindeman and W. A. Donaldson, “Generation of molecular complexity from cyclooctatetraene. Preparation of optically active protected aminocycloheptitols and bicyclo[4.4.1]undecatriene”, *Chem. Eur. J.* **2013**, *19*, 2330-2336.
- 108) M. F. El-Mansy, A. Sar, S. Chaudhury, N. J. Wallock and W. A. Donaldson, “Generation of molecular complexity from cyclooctatetraene using dienylirion and olefin metathesis methodology”, *Org. Biomol. Chem.* **2012**, *10*, 4844-4846.
- 107) K. Glaeske and W. A. Donaldson, “Recent Applications of the Simple Hydrocarbon Cyclooctatetraene as a Starting Material for Complex Molecule Synthesis”, *Mini-Reviews in Organic Chemistry*, **2012**, *9*, 31-43.
- 106) D. W. Lee, R. K. Pandey, S. Lindeman and W. A. Donaldson, “Reactivity of acyclic (pentadienyl)iron(1+) cations: Synthetic studies directed toward the frondosins”, *Org. Biomol. Chem.* **2011**, *9*, 7742-7747.
- 105) A. Sar, S. Lindeman and W. A. Donaldson, “Synthesis of Hydroxy- and Polyhydroxy-Substituted 1,3-Diaminocyclohexanes”, *Synthesis* **2011**, 924-928.
- 104) R. K. Pandey, S. Lindeman and W. A. Donaldson, “A shortened synthesis of optically pure tricarbonyl(methyl 6-oxo-2,4-hexadienoate)iron leading to improved yield”, *ARKIVOC*, **2010**, (iv), 25-31.
- 103) A. Sar, S. Lindeman and W. A. Donaldson, “Denovo synthesis of polyhydroxy aminocyclohexanes”, *Org. Biomol. Chem.* **2010**, 3908-3917.
- 102) W. A. Donaldson and S. Chaudhury, “Recent Applications of Acyclic (Diene)iron Complexes and (Dienyl)iron Cations in Organic Synthesis”, *Eur. J. Org. Chem.* **2009**, 3831-3843.
- 101) J. R. Gone, N. J. Wallock, S. Lindeman and W. A. Donaldson, “Synthetic studies directed toward guianolides: An organoiron route to the 5,7,5 tricyclic ring system”, *Tetrahedron Lett.* **2009**, *50*, 1023-1025.
- 100) P. Kommana, S. W. Chung and W. A. Donaldson, “Synthetic studies directed toward amphidinol 2: Elucidation of the relative configuration of the C1-C10 fragment”, *Tetrahedron Lett.* **2008**, *49*, 6209-6211.
- 99) R. K. Pandey, L. Wang, N. J. Wallock, S. Lindeman and W. A. Donaldson, “Reactivity of (2-Alkenyl-3-pentene-1,5-diyl)iron Complexes: Preparation of Functionalized Vinylcyclopropanes and Cycloheptadienes”, *J. Org. Chem.* **2008**, *73*, 7236-7245.
- 98) T. A. Siddiquee, J. M. Lukesh, S. Lindeman and W. A. Donaldson, “Synthesis of Cyclopropanes via Organoiron Methodology: Preparation of *rac*-Dysibetaine CPa”, *J. Org. Chem.*, **2007**, *72*, 9802-9803.

- 97) S. Chaudhury, S. Lindeman and W. A. Donaldson, "Generation of Molecular Complexity from Cyclooctatetraene: Synthesis of a Protected 2-(3'-Carboxy-2'-benzoylcyclopentyl)glycine", *Tetrahedron Lett.*, **2007**, *48*, 7849-7852.
- 96) S. Chaudhury, S. Li, D. W. Bennett, T. A. Siddiquee, D. T. Haworth and W. A. Donaldson, "Preparation, Characterization and Reactivity of (3-Methylpentadienyl)iron(1+) Cations", *Organometallics*, **2007**, *26*, 5295-5303.
- 95) R. K. Pandey, S. Lindeman and W. A. Donaldson, "Synthesis of Cyclopropanes via Organoiron Methodology: Stereoselective Preparation of Bi(cyclopropyl)s", *Eur. J. Org. Chem.* **2007**, 3829-3831.
- 94) F. Ahmed and W. A. Donaldson, "Chemistry and Biology of Streptogramin A Antibiotics", *Mini-Reviews in Organic Chemistry* **2007**, *4*, 159-181.
- 93) S. S. Templin, N. J. Wallock, D. W. Bennett, T. A. Siddiquee, D. T. Haworth and W. A. Donaldson, "Cycloaddition Reactions of Phthalimide Substituted Cyclic Polyenes with Heteroatom Dienophiles", *J. Heterocyclic Chem.* **2007**, *44*, 719-724.
- 92) N. J. Wallock, D. W. Bennett, T. A. Siddiquee, D. T. Haworth and W. A. Donaldson, "Synthesis of Cyclopropanes via Organoiron Methodology: Preparation and Rearrangement of Divinylcyclopropanes; Studies Directed Toward the Synthesis of Hydroazulenes", *Synthesis*, **2006**, 3639-3646.
- 91) S. Chaudhury, S. Li and W. A. Donaldson, "Synthetic studies directed toward the proposed structure for heteroscyphic acid A", *Chem. Comm.* **2006**, 2069-2070.
- 90) S. Chaudhury and W. A. Donaldson, "Nucleophilic Addition to (3-Methylpentadienyl)iron(1+) Cations: Counterion Control of Regioselectivity; Application to the Enantioselective Synthesis of 4,5-Disubstituted Cyclohexenones", *J. Am. Chem. Soc.* **2006**, *128*, 5984-5985.
- 89) D. W. Bennett, T. A. Siddiquee, D. T. Haworth, S. Chaudhury and W. A. Donaldson, "Crystal and molecular structure of bis(8-phenylmenthyl) 2-(2-methyl-5-oxo-3-cyclohexen-1-yl)propandioate, C₄₂H₅₄O₅·CH₃CN", *J. Chem. Cryst.* **2006**, *36*, 777-780.
- 88) J. M. Lukesh and W. A. Donaldson, "A Short Synthesis of the Common Dihydropyran Segment of the Antifungal Agents Ambruticin and Jerangolid A", *Tetrahedron Lett.* **2005**, *46*, 5529-5531.
- 87) N. J. Wallock and W. A. Donaldson, "Synthesis of Cyclopropanes via Organoiron Methodology: Preparation and Rearrangement of Divinylcyclopropanes", *Org. Lett.* **2005**, *7*, 2047-2049.
- 86) F. Ahmed, Y. Cao and W. A. Donaldson, "Development of Organoiron Methodology for the C8-C16 Dienylamine Segment of the Streptogramin Antibiotics", *Lett. Org. Chem.* **2005**, *2*, 222-225.
- 85) J. M. Lukesh and W. A. Donaldson, "Synthesis of Cyclopropanes via Organoiron Methodology: Preparation of the C9-C16 Alkenylcyclopropane Segment of Ambruticin", *Chem. Comm.* **2005**, 110-112.

- 84) Z. He, C. S. Yi, and W. A. Donaldson, "Ruthenium Catalyzed Hydrovinylation of Dienoates: Model Studies Directed Toward the C10-C18 Segment of Ambruticin ", *Synlett* **2004**, 1312-1314.
- 83) N. J. Wallock and W. A. Donaldson, "Reactivity of (Bicyclo[5.1.0]octadienyl)iron(1+) Cations: Application to the Synthesis of *cis*-2-(2'-carboxycyclopropyl)glycines", *J. Org. Chem.* **2004**, *69*, 2997-3007.
- 82) S. Chaudhury, W. A. Donaldson, D. W. Bennett, D. T. Haworth, T. A. Siddiquee, and J. M. Kloss, "Synthesis and Reactivity of tricarbonyl(1-methoxycarbonyl-5-phenylpentadienyl)iron (1+) cation", *J. Organomet. Chem.* **2004**, *689*, 1437-1443.
- 81) S. Li and W. A. Donaldson, "Enantioselective Synthesis of the C7-C24 Segment of Macrolactin A", *Synthesis*, **2003**, 2064-2068.
- 80) F. Ahmed and W. A. Donaldson, "Synthesis and Reactivity of Ethyl 2-Vinyl-1,3-oxazole-4-carboxylate", *Syn. Commun.* **2003**, *33*, 2685-2693.
- 79) D. W. Bennett, T. A. Siddiquee, K. L. Murphy, D. T. Haworth, Z. He, and W. A. Donaldson, "Crystal and molecular structure of a steroidal spirocyclic lactone, C₂₉H₃₂O₄", *J. Chem. Cryst.* **2003**, *33*, 897-902.
- 78) D. W. Bennett, T. A. Siddiquee, D. T. Haworth, N. J. Wallock, and W. A. Donaldson, "Crystal and molecular structure of *N*-(bicyclo[5.1.0]octa-3,5-dien-2-yl)phthalimide", *J. Chem. Cryst.* **2003**, *33*, 209-211.
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- 76) J. M. Lukesh and W. A. Donaldson, "Synthesis of (+)-Decarestrictine L", *Tetrahedron: Asymmetry* **2003**, *14*, 757-762.
- 75) Y. K. Yun, K. Godula, Y. Cao, and W. A. Donaldson, "Iron mediated Preparation of Vinylcyclopropanes. Scope, Mechanism, and Applications", *J. Org. Chem.* **2003**, *68*, 901-910.
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- 71) W. A. Donaldson, "Synthesis of cyclopropane containing natural products", *Tetrahedron*, **2001**, *57*, 8589-8627.

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- 69) Y. Yun, H. Bärmann, and W. A. Donaldson, "Synthesis and Reactivity of Tricarbonyl(1-ethoxy-carbonyl-2-methylpentadienyl)iron(1+) Cation", *Organometallics* **2001**, *20*, 2409-12.
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- 62) H. Bärmann, V. Prahlad, C. Tao, Y. K. Yun, Z. Wang and W. A. Donaldson, "Development of Organoiron Methodology for Preparation of the Polyene Natural Product Macrolactin A", *Tetrahedron*, Symposium-in-Print on Organotransition Metal Complexes in Organic Synthesis, **2000**, *56*, 2289-95.
- 61) A. S. El-Ahl, Y. K. Yun and W. A. Donaldson, "Synthesis and Reactivity of Acyclic (Pentadienyl)iron(1+) Cations: Model Studies for the Preparation of the 8E,10Z,16E,18E-Tetraene Segment of Macrolactin A", *Inorg. Chim. Acta*, (Topical Volume on Metals in Organic Chemistry), **1999**, *296*, 261-6.
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- 41) W. A. Donaldson, P. T. Bell, Z. Wang, and D. W. Bennett, "Model Studies toward the Synthesis of Macrolactin A: Organoiron Methodology for Introduction of the C1-C11 and C16-C24 Segments", *Tetrahedron Lett.* **1994**, *35*, 5829-32.
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- 38) W. A. Donaldson and M. J. Jin, "Synthesis and Reactivity of Tricarbonyl(4-methoxy-1-methyl-pentadienyl)iron(+1) Cation", *Bull. Soc. Chim. Belg.* **1993**, *102*, 297-8.
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- 34) W. A. Donaldson, P. T. Bell and M. J. Jin, "Synthesis and Reactivity of (Tricarbonyl)(η^5 -4-triethylsilyl-1-methylpentadienyl)iron(+1) Cation", *J. Organometal. Chem.* **1992**, *441*, 449-56.
- 33) W. A. Donaldson and M. A. Hossain, "Nucleophilic Addition to Coordinated Polyenes: A Novel Method for the Liberation of the Trimethylenemethane Ligand Involving C-C Bond Formation", *Tetrahedron Lett.* **1992**, *33*, 4107-10.
- 32) W. A. Donaldson, R. Craig and S. Spanton, "Diastereoselective Alkylation of Tricarbonyl(methyl 3,5-hexadienoate)iron", *Tetrahedron Lett.* **1992**, *33*, 3967-8.
- 31) W. A. Donaldson and D. J. Stepuszek, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: A Palladium-Mediated Ring Homologation-Functionalization Approach to 4-Aryltropones Related to Colchicine", *J. Org. Chem.* **1992**, *57*, 1309-13.
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- 28) W. A. Donaldson and C. Tao, "Reactivity of Tricarbonyl(pentadienyl)iron(+1) Cations: Application to the Synthesis of 5-HETE Methyl Ester", *Synlett* **1991**, 895-7.
- 27) W. A. Donaldson and D. J. Stepuszek, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: Palladium Catalysed Tropone Formation", *Tetrahedron Lett.* **1991**, 32, 4089-90.
- 26) W. A. Donaldson, C. Tao, D. W. Bennett, and D. S. Grubisha, "Model Studies toward the Synthesis of Leukotrienes: Hetero-Diels-Alder Reactivity of Tricarbonyl(diene)iron Complexes", *J. Org. Chem.* **1991**, 56, 4563-66.
- 25) W. A. Donaldson, "Synthesis and Reactivity of (Tricarbonyl)(2-methylpentadienyl)iron(+1) Cation", *J. Organometal. Chem.* **1990**, 395, 187-93.
- 24) W. A. Donaldson and J. Wang, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: Coupling with Phenyl Nucleophiles", *J. Organometal. Chem.* **1990**, 395, 113-20.
- 23) W. A. Donaldson, D. J. Stepuszek and J. A. Gruetzmacher, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: A Palladium Mediated Ring Homologation Functionalization Approach to the Ar-7-7 Skeleton of Colchicine", *Tetrahedron* **1990**, 46, 2273-80.
- 22) W. A. Donaldson, J. T. North, J. A. Gruetzmacher, M. Finley and D. J. Stepuszek, "Chloropalladation of 1-Aryl- ω -methylenebicyclo[n.1.0]alkanes", *Tetrahedron* **1990**, 46, 2263-72.
- 21) W. A. Donaldson, J. Wang, V. G. Cepa and J. D. Suson, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: Addition of Stabilized Carbon Nucleophiles and Application to Cyclopentannulation and Cyclohexannulation", *J. Org. Chem.* **1989**, 54, 6056-63.
- 20) W. A. Donaldson and M. Ramaswamy, "Concerning the Reaction of (η^5 -1-Methoxycarbonylpentadienyl)(tricarbonyl)iron(+1) with Malonate Anion: A Structural Correction", *Tetrahedron Lett.* **1989**, 30, 1343-4.
- 19) W. A. Donaldson and M. Ramaswamy, "(η^5 -1-Substituted-pentadienyl)(tricarbonyl)iron(+1) Cations: Reactivity with Alkynyl Nucleophiles", *Tetrahedron Lett.* **1989**, 30, 1339-42.
- 18) W. A. Donaldson and J. W. Strohbach, "A Short Synthesis of *cis*-1,7,7-Trimethylbicyclo[4.4.0]-dec-3-ene", *Org. Prep. Proc. Int.* **1989**, 21, 219-21.
- 17) W. A. Donaldson, "Fluxional Behavior in Mononuclear Transition-Metal Allyl Complexes", ed. M. Gielen, Freund Publishing House Ltd., London, **1988**, pp 200-226.
- 16) W. A. Donaldson, "Conformational Analysis of Colchicine and Isocolchicine by Molecular Mechanics", *Tetrahedron Symposium-in-Print* **1988**, 44, 7409-12.
- 15) W. A. Donaldson and M. Ramaswamy, "(η^5 -1-Substituted-pentadienyl)(tricarbonyl)iron(+1) Cations: Reactivity with Malonate Nucleophiles", *Tetrahedron Lett.* **1988**, 29, 1343-6.
- 14) W. A. Donaldson and C. A. Brodt, "Catalytic Carbopalladation of ω -Methylenebicyclo[n.1.0]-alkanes", *J. Organometal. Chem.* **1987**, 330, C33-6.

- 13) W. A. Donaldson, "Cleavage of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: Formation of Olefins and α -Methoxyolefins", *Tetrahedron* **1987**, *43*, 2901-8.
- 12) W. A. Donaldson and M. Ramaswamy, "Synthesis and Characterization of (Pentadienyl)-(tricarbonyl)iron(+1) Cations", *Syn. React. Inorg. Met.-Org. Chem.* **1987**, *49*, 49-56.
- 11) W. A. Donaldson and V. J. Grief, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: Nucleophilic Attack by One or Two Equivalents of Malonate Anion", *Tetrahedron Lett.* **1986**, *27*, 2345-8.
- 10) W. A. Donaldson, "(3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers: Preparation, Conformation, and Fluxional Behavior", *Organometallics* **1986**, *5*, 223-30.
- 9) W. A. Donaldson and B. S. Taylor, "Reactivity of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers. Pd-Allyl Cleavage: Synthesis of (\pm)-13-Methyltridecanolide", *Tetrahedron Lett.* **1985**, *26*, 4163-6.
- 8) W. A. Donaldson, "Chloropalladation of 7-Methylene-1-phenylbicyclo[4.1.0]heptane: An Intermediate Containing Carbonium Ion Character", *J. Organometal. Chem.* **1984**, *269*, C25-8.
- 7) W. A. Donaldson, R. P. Hughes, R. E. Davis and S. M. Gadol, "Synthesis of Cationic and Zwitterionic Cyclobutadiene Compounds of Cobalt(I); Crystal and Molecular Structure of Tricarbonyl(η -1-methyl-2-phenylcyclobutadiene)cobalt(+1) Hexafluorophosphate", *Organometallics* **1982**, *1*, 812-9.
- 6) W. A. Donaldson and R. P. Hughes, "The Mechanism of Formation of η^3 -Oxocyclobutenyl Cobalt Compounds from $[\text{Co}(\text{CO})_4]^-$ and Cyclopropenium Cations", *J. Am. Chem. Soc.* **1982**, *104*, 4846-59.
- 5) W. A. Donaldson and R. P. Hughes, "A Convenient Synthesis of 2-Alkyl-3-deutero-2-cyclopropene-1-carboxylic Acids", *Syn. Comm.* **1981**, *11*, 999-1004.
- 4) W. A. Donaldson and R. P. Hughes, "Direct Measurement of $J_{13\text{C}-13\text{C}}$ in a Coordinated Cyclobutadiene Ligand", *J. Magn. Resn.* **1981**, *43*, 170-1.
- 3) A. J. Fry, W. A. Donaldson and G. S. Ginsberg, "Reductive Acetoxylation of α,α' -Dibromocycloalkanones by Ultrasonically Dispersed Mercury", *J. Org. Chem.* **1979**, *44*, 349-52.
- 2) C. E. Chidsey, W. A. Donaldson and R. P. Hughes, "Cationic Cobalt(I) Carbonyl compounds Containing Complexed Cyclobutadienes", *J. Organometal. Chem.* **1979**, *169*, C12-4.
- 1) C. E. Chidsey, W. A. Donaldson, R. P. Hughes and P. R. Sherwin, "Interactions of Small Organic Rings with Transition Metals. Formation of η^3 -Cyclobutenonyl Complexes by the Ring Expansion of 2-Cyclopropene-1-carbonyl Metal Species", *J. Am. Chem. Soc.* **1979**, *101*, 233-5.

Encyclopedia Entries

- 2) W. A. Donaldson, "Tricarbonyl(pentadienyl)iron tetrafluoroborate", *invited contributions in Encyclopedia of Reagents for Organic Synthesis*, ed. L.A. Paquette, John Wiley & Sons, Ltd., London, **1995**, Vol. 7, pp 5048-5050.
- 1) W. A. Donaldson, "Tricarbonyl(cyclobutadiene)iron", *invited contributions in Encyclopedia of Reagents for Organic Synthesis*, ed. L.A. Paquette, John Wiley & Sons, Ltd., London, **1995**, Vol. 7, pp 5041-2.

Patents

- 3) W. A. Donaldson, D. S. Sem, K. Frick, "Preparation of substituted (4-hydroxyphenyl)cycloalkane and cycloalkene compounds useful as selective agonists of the estrogen receptor beta isoform for enhanced memory consolidation" WO 2018183800
- 2) W. A. Donaldson, D. S. Sem, T. S. Neumann, "Preparation of substituted (4-hydroxyphenyl)cycloalkane compounds and uses thereof as selective agonists of the estrogen receptor beta isoform" US 20160340279
- 1) W. A. Donaldson, D. S. Sem, T. S. Neumann, "Preparation of substituted (4-hydroxyphenyl)cycloalkane compounds and uses thereof as selective agonists of the estrogen receptor beta isoform" WO 2015077611

Scientific Meeting Presentations (International)

- 15) "Potent and Selective Estrogen Receptor-Beta Agonists which Enhance Memory Consolidation in an Ovariectomized Mouse Model", 2nd Molecules Medicinal Chemistry Symposium, Barcelona, Spain, May 15-17, 2019.
- 14) "Generation of Molecular Complexity from Simple Hydrocarbons: Preparation of Aminocyclitols from Cyclooctatetraene", 14th Tetrahedron Symposium, Vienna, Austria, July 25-28, 2013.
- 13) "Reactivity of Acyclic (Pentadienyl)iron(1+) Cations: Synthesis of Dienes, Cyclohexenones, Cyclopropanes and Cycloheptadienes", 14th IUPAC International Symposium on Organometallic Chemistry Directed Toward Organic Synthesis, Nara, Japan, August 2-6, 2007.
- 12) "Ruthenium Catalyzed Hydrovinylation of 1,3-Dienes", 13th International Conference on Homogeneous Catalysis, Tarragona, Spain, September 3-7, 2002.
- 11) "Methodology for Asymmetric Synthesis of Cyclopropane and Polyene Containing Natural Products via Organoiron Complexes", The 8th International Kyoto Conference on New Aspects of Organic Chemistry, Kyoto, Japan, July 11-15, 2000.
- 10) "Synthetic Studies Directed Toward the Phorboxazoles", The 8th International Kyoto Conference on New Aspects of Organic Chemistry, Kyoto, Japan, July 11-15, 2000.
- 9) "Reactivity of Acyclic (Pentadienyl)iron(1+) Cations: Applications to the Synthesis of Polyene and Cyclopropane Natural Products", 10th IUPAC International Symposium on Organometallic Chemistry Directed Toward Organic Synthesis, Versailles, France, July 18-22, 1999.
- 8) "Reactivity of (Pentadienyl)iron Cations: Model Studies Toward the Synthesis of the Immunosuppressant Discodermolide", 3rd Lausanne Conference on Bioorganic Chemistry, Lausanne, Switzerland, March 4-5, 1999.
- 7) "Enantioselective Synthesis of the C11-C24 Segment of Macrolactin A via Organoiron Methodology", 1st Euroconference on Marine Natural Products, Athens, Greece, November 2-6, 1997.

- 6) "Reactivity of (Pentadienyl)iron Cations: Model Studies Toward the Synthesis of the Immunosuppressant Discodermolide", IICT Golden Jubilee Symposium on Recent Developments in Asymmetric Synthesis, Hyderabad, India, December 12-20, 1994.
- 5) "Application of Organoiron Methodology to the Synthesis of Polyene Macrolides", IUPAC International Conference on Organic Synthesis, Bangalore, India, December 11-16, 1994.
- 4) "Application of Organoiron Methodology to the Synthesis of Polyene Macrolides", 5th Belgium Organic Synthesis Symposium, Namur, Belgium, July 11-15, 1994.
- 3) "Reactivity of (Pentadienyl)(tricarbonyl)iron(1+): Potential Application to Linear Polyene Synthesis", 5th IUPAC Symposium on Organometallic Chemistry Directed Towards Organic Synthesis, Florence, Italy, October 1-6, 1989.
- 2) "Reactivity of (Pentadienyl)(tricarbonyl)iron(1+) Cations with Allyl and Alkynyl Silanes. Potential Application to the Synthesis of Isobonkreic Acid", Progress and Prospects in Organic Synthesis Symposium, Champéry, France, September 28-October 1, 1989.
- 1) "A Palladium Mediated Ring Homologation-Cyclopentannulation Methodology for the Construction of 5,7-fused Rings", 4th IUPAC Symposium on Organometallic Chemistry Directed Towards Organic Synthesis, Vancouver, BC, Canada, July 26-30, 1987.

Scientific Meeting Presentations (Domestic)

- 34) 43rd Great Lakes Regional Meeting, American Chemical Society, "Synthesis and Evaluation of 4-Cycloheptylphenols as Selective Estrogen Receptor- β Agonists (SERBAs)", Lisle, IL, May 1-3, 2019
- 33) "Preparation of Cunctionalized Cycloheptadienes via organoiron Methodology", 237th American Chemical Society National Meeting, Salt Lake City, UT, March 22-26, 2009
- 32) "Synthesis of 1,4-Cycloheptadienes via Organoiron Methodology", 36th Great Lakes Regional Meeting, American Chemical Society, Peoria, IL, October 17-20, 2004
- 31) "Synthesis of C-Glycoside Containing Natural Products via Oxocarbenium Ions", 19th International Congress of Heterocyclic Chemistry, Fort Collins, CO, August 10-15, 2003
- 30) "Synthesis of 2-(2'-Carboxycyclopropyl)glycines via Organoiron Methodology", 34th Great Lakes Regional Meeting, American Chemical Society, Minneapolis, MN, June 2-4, 2002.
- 29) "Synthetic Studies Directed Toward the Streptogramin Antibiotic Madumycin II", 34th Great Lakes Regional Meeting, American Chemical Society, Minneapolis, MN, June 2-4, 2002.
- 28) "Ruthenium Catalyzed Hydrovinylation of 1,3-Dienes", 34th Great Lakes Regional Meeting, American Chemical Society, Minneapolis, MN, June 2-4, 2002.
- 27) "Synthetic Studies Toward Macrolactin A: Organoiron Methodology for Preparation of the C7-C24 Segment", 34th Great Lakes Regional Meeting, American Chemical Society, Minneapolis, MN, June 2-4, 2002.
- 26) "Nucleophilic Addition to (1-Alkoxy carbonylpentadienyl)iron(1+) Cations and Oxidatively Induced Reductive Elimination of (Pentenediyl)iron Complexes: Methodology for the Preparation of 1,2,3-Trisubstituted Cyclopropanes", 37th National Organic Chemistry Symposium, Bozeman, MT, June 10-14, 2001.
- 25) "Methodology for Asymmetric Synthesis of Cyclopropane and Polyene Containing Natural Products via Organoiron Complexes", 32nd Great Lakes Regional Meeting, American Chemical Society, Fargo, ND, June 4-6, 2000.
- 24) "Synthetic Studies on the C1-C26 Macrolide Core of Phorboxazole", Gordon Research Conference on Natural Products, Henniker, NH, July 25-29, 1999.
- 23) "Synthetic Studies Directed Toward the Phorboxazoles", Gordon Research Conference on Natural Products, Henniker, NH, July 5-10, 1998
- 22) "Synthesis and Reactivity of (1-Alkoxy carbonylpentadienyl)iron Cations", 31st Great Lakes Regional Meeting, American Chemical Society, Milwaukee, WI, June 1-3, 1998.

- 21) "Mild, Chemoselective, Metal Mediated Oxidation of (Dienol)iron Complexes with *N*-methylmorpholine *N*-oxide", 214th American Chemical Society National Meeting, Las Vegas, NV, September 7-11, 1997.
- 20) "Enantioselective Synthesis of the C11-C24 Segment of Macrolactin A via Organoiron Methodology", 213th American Chemical Society National Meeting, San Francisco, CA, April 13-17, 1997.
- 19) "Oxidatively Induced Reductive Elimination of (Pentadienyl)iron Complexes: Mechanism of an Unusual Stereochemical Outcome", 213th American Chemical Society National Meeting, San Francisco, CA, April 13-17, 1997.
- 18) "Applications of Organiron Methodology to the Synthesis of Polyene Macrolides" Gordon Research Conference on Organic Reactions and Processes, New Hampton, NH, July 17-22, 1994.
- 17) "Synthesis and Reactivity of Trimethylenemethane Iron Complexes", 18th NSF Workshop on Organometallic Chemistry, Corpus Christi, TX, May 19-22, 1994.
- 16) "Synthesis of the C1-C11 and the C16-C24 Segments of Macrolactin A via Organoiron Methodology", 207th American Chemical Society National Meeting, San Diego, CA, March 13-17, 1994.
- 15) "Synthetic Studies Directed Toward Protomycinolide IV", 206th National American Chemical Society Meeting, Chicago, IL, August 22-27, 1993.
- 14) "Synthesis and Reactivity of (Trimethylenemethane)iron Complexes", 33rd National Organic Chemistry Symposium, Bozeman, MT, June 13-17, 1993.
- 13) "Applications of Organoiron Methodology to Organic Synthesis: An Enantioselective Synthesis of (R)-5-HETE Methyl Ester", 205th American Chemical Society National Meeting, Denver, CO, March 28-April 2, 1993.
- 12) "Synthesis and Reactivity of (C₅H₇)⁺ and (C₄H₆)(Tricarbonyl)iron Complexes: Potential Applications to Polyene Synthesis", 25th Great Lakes Regional Meeting, American Chemical Society, Milwaukee, WI, June 1-3, 1992.
- 11) "Synthesis and Reactivity of Acyclic Dienyl Iron Cations: Regioselectivity of Nucleophilic Attack on the Mono and Disubstituted Pentadienyl Ligand", Joint 45th Northwest and 10th Rocky Mountain Regional Meeting, Salt Lake City, UT, June 13-15, 1990.
- 10) "Reactivity of Acyclic Dienyl and Diene Iron Complexes: Potential Applications to Linear Polyene Synthesis", 22nd Great Lakes Regional Meeting, American Chemical Society, Duluth, MN, May 31-June 2, 1989.
- 9) "Chloropalladation and Catalytic Carbopalladation of ω -Methylene-bicyclo[n.1.0]alkanes: Reactivity of the Products", 21th Great Lakes Regional Meeting, American Chemical Society, Chicago, IL, June 10-12, 1987.
- 8) "Chloropalladation and Catalytic Carbopalladation of ω -Methylene-bicyclo[n.1.0]alkanes: Formation and Reactivity of the Products", 11th NSF Workshop on Organometallic Chemistry, Pacific Grove, CA, June 7-10, 1987.
- 7) "Reactivity of (3-Substituted-2-methylenecycloalkyl)palladium complexes: Formation via Chloropalladation and Catalytic Carbopalladation of ω -methylenebicyclo[n.1.0]alkanes", 193rd American Chemical Society National Meeting, Denver, CO, April 5-10, 1987.
- 6) "Reactivity of (3-Chloro-2-methylenecycloheptyl)palladium Dimers: Mono- and Dianion Nucleophiles", 8th Rocky Mountain Regional Meeting, American Chemical Society, Milwaukee, WI, June 8-12, 1986.
- 5) "Reactivity of (3-Chloro-2-methylenecycloheptyl)palladium Dimers: Mono- and Dianion Nucleophiles", 20th Great Lakes Regional Meeting, American Chemical Society, Milwaukee, WI, June 2-4, 1986.
- 4) "Reactivity of (3-Chloro-2-methylenecycloheptyl)palladium Complex with Nucleophiles", 190th National American Chemical Society Meeting, Chicago, IL, Sept 8-13, 1985.

- 3) "A Palladium Mediated Route to the Ar-7-7 Colchicine Skeleton", 19th Great Lakes Regional Meeting, American Chemical Society, West Lafayette, IN, June 10-12, 1985.
- 2) "Reductive Cleavage of (3-Chloro-2-methylenecycloalkyl)palladium Chloride Dimers. Synthesis of (\pm)-13-Methyltridecanolide", The International Chemical Congress of Pacific Basin Societies, Honolulu December 16-21, 1984.
- 1) "Regioselectivity in the Chloropalladation of Substituted 7-Methylenenorbornanes", 17th Middle Atlantic Regional Meeting, American Chemical Society, Winter Haven, PA, April 6-8, 1982.

Invited Lectures at Colleges/Universities (International)

- | | |
|--|---------------|
| 30) University of Strathclyde, Glasgow, UK | June 2015 |
| 29) University of Glasgow, Glasgow, UK | March 2010 |
| 28) Universitaet Koln, Koln, Germany | February 2005 |
| 27) Universite Catholique de Louvain, Louvain-la-Neuve, Belgium | February 2005 |
| 26) University of Regensburg, Regensburg, Germany | February 2005 |
| 25) University of Bayreuth, Bayreuth, German | February 2005 |
| 24) University College-Dublin, Belfield, Ireland | January 2005 |
| 23) Osaka Prefecture University, Osaka, Japan | July 2000 |
| 22) University of Tokyo, Tokyo, Japan | July 2000 |
| 21) Kanagawa University, Yokohama, Japan | July 2000 |
| 20) Kyoto University, Kyoto, Japan | July 2000 |
| 19) Universitaet Dortmund, Dortmund, Germany | November 1997 |
| 18) Technische Universitaet Berlin, Berlin, Germany | November 1997 |
| 17) Technische Universitaet Erlangen, Erlangen, Germany | November 1997 |
| 16) Comenius University, Bratislava, Slovakia | November 1997 |
| 15) Technische Universitaet, Braunschwig, Germany | November 1997 |
| 14) University of Windsor, Windsor, Canada | October 1997 |
| 13) Rhineische-Westphaelische Technische Hochschule, Aachen, Germany | February 1996 |
| 12) University Notre Dame de la Paix, Namur, Belgium | February 1996 |
| 11) University of Winnipeg, Winnipeg, Canada | January 1995 |
| 10) Instituto Politecnico Nacional, Mexico City, Mexico | January 1994 |
| 9) University Karlsruhe, Karlsruhe, German | March 1992 |
| 8) University Catholique de Louvain, Belgium | March 1992 |
| 7) University Hannover, Hannover, Germany | June 1991 |
| 6) Jagellonian University, Krakow, Poland | June 1991 |
| 5) University Louis Pasteur, Strasbourg, France | May 1991 |
| 4) University of Leipzig, Leibzig, Germany | May 1991 |
| 3) Phillips University, Marburg, Germany | February 1991 |
| 2) Ecole Nationale Superieure de Rennes, Rennes, France | October 1989 |
| 1) University of East Anglia, Norwich, United Kingdom | June 1988 |

Invited Lectures at Colleges/Universities (Domestic)

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| 62) Concordia University Wisconsin | April 2021 |
| 61) Indiana University-Purdue University-Ft. Wayne | March 2017 |
| 60) Olivette Nazarene University (Bourbonnais, IL) | March 2017 |
| 59) Northern Illinois University | November 2015 |
| 58) University of Iowa | November 2014 |
| 57) University of Wisconsin-Stevens Point | April 2010 |
| 56) Gustavus Adolphus College (St. Peter, MN) | March 2010 |

55) College of St. Thomas (St. Paul, MN)	March 2009
54) University of New England (Biddeford, ME)	January 2009
53) University of Cincinnati	April 2001
52) Miami University of Ohio	April 2001
51) Iowa State University	February 2001
50) Wartburg College (Waverly, IA)	February 2001
49) Loyola University-Chicago	March 2000
48) University of Missouri-St. Louis	February 2000
47) University of San Francisco	October 1999
46) University of Minnesota-Duluth	January 1999
45) College of St. Scholastica (Duluth, MN)	January 1999
44) College of Wooster (Wooster, OH)	February 1998
43) Wesleyan University (Middletown, CT)	October 1997
42) Ripon College	October 1996
41) Utah State University	May 1996
40) St. Mary's College of Maryland	March 1996
39) University of Illinois-Chicago	September 1995
38) Lawrence University	October 1994
37) University of Wisconsin-River Falls	October 1994
36) Ohio University	April 1993
35) Illinois State University	February 1993
34) Michigan Technological University	February 1992
33) Carthage College	February 1990
32) Western Michigan University	November 1989
31) University of Wisconsin-Oshkosh	November 1989
30) Ripon College	February 1989
29) University of North Dakota	December 1988
28) North Dakota State University	December 1988
27) Purdue University	November 1988
26) University of Wisconsin-Eau Claire	November 1988
25) University of Minnesota-Duluth	February 1988
24) Loyola University-Chicago	January 1988
23) Carleton College (MN)	October 1987
22) St. Olaf College (MN)	October 1987
21) College of St. Catherine's (St. Paul, MN)	October 1987
20) St. John's University (St. Joseph, MN)	October 1987
19) Western Michigan University	January 1987
18) University of Wisconsin-Milwaukee	December 1986
17) Western Illinois University	October 1986
16) Bradley University	October 1986
15) University of Wisconsin-River Falls	April 1986
14) Carthage College	March 1986
13) Illinois Benedictine College	February 1986
12) Hope College (Holland, MI)	January 1986
11) Indiana University-Purdue University, Ft. Wayne	November 1985
10) College of St. Catherine's (St. Paul, MN)	November 1985
9) Hamline University	November 1985
8) Northern Illinois University	January 1985
7) University of Northern Iowa	January 1985
6) Grinnell College	January 1985

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|-------------------------------------|----------------|
| 5) Loras College (Dubuque, IA) | January 1985 |
| 4) St. Norbert College | February 1984 |
| 3) University of Minnesota-Duluth | December 1983 |
| 2) University of Wisconsin-Superior | December 1983 |
| 1) University of Wisconsin-Oshkosh | September 1983 |

Invited Lectures at Industry

- 8) Cambridge Major Laboratories, Germantown, WI, March 2011
- 7) Microcide Pharmaceuticals, Mountain View, CA, October 1999
- 6) Argonaut Technologies, San Carlos, CA, October 1999
- 5) The R.W. Johnson Pharmaceutical Research Institute, Rahway, NJ, February 1993
- 4) Pfizer Pharmaceuticals, Groton, CT, February 1993
- 3) Upjohn Pharmaceuticals, Kalamazoo, MI, November 1992
- 2) Eli Lilly Co., Indianapolis, IN, May 1990
- 1) Allied-Signal Research Center, Chicago, IL, July 1986