Curriculum Vita

Yu Yuan, Ph.D.
Associate Professor
Department of Chemistry
College of Sciences
University of Central Florida
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EDUCATION AND PROFESSIONAL TRAINING

- Ph.D. in Organic Chemistry, **Princeton University**, Princeton, NJ, March 2007
  Thesis Advisor: Professor Chulbom Lee
  Thesis Title: Part I. Enantioselective Total Synthesis of (–)-Kendomycin; Part II. Double Cyclization via Rhodium Alkynyl and Vinylidene Catalysis
- M.A. in Chemistry, **Princeton University**, Princeton, NJ, October 2002
  Research Advisor: Professor Chulbom Lee
- B.S. in Polymer Science, **University of Science and Technology of China**, Hefei, China, July 2001
  Thesis Advisor: Professor Yanmei Wang
  Thesis Title: The Synthesis and Properties of PNPMA-PSt-PNPMA

PROFESSIONAL APPOINTMENTS

- **University of Central Florida, Orlando, FL (2012-present)**
  Associate Professor(2018-present)
  Assistant Professor (2012-2018), Department of Chemistry
  - Organocatalysis, multi-component and cascade catalysis
  - Total synthesis of anti-cancer natural products and lead optimization
  - Antimalarial and anti cancer drug discovery
- **Merck Research Laboratories, West Point, PA (2009-2012)**
  RNAi Medicinal Chemistry, Senior Research Chemist
  - Designed novel siRNA conjugates for targeted gene knockdown
  - Improved RNA deliveries efficacy by oligonucleotide internal modifications
  - Accomplished *De novo* design of high affinity ligands for tissue and tumor specific siRNA delivery
- **Sloan-Kettering Institute for Cancer Research, New York, NY (2007-2009)**
  Advisor: Professor Samuel J. Danishefsky
  - Studied the chemical synthesis of homogeneous erythropoietin
  - Investigated two-component coupling reactions between isonitriles and carboxylic acids
  - Developed new methods for glycopeptide ligations

HONORS AND AWARDS

- Outstanding Educator at a Research Institution, ACS Orlando Section (2022)

- Research Incentive Award, UCF (2019)
- Excellence in Research Award, College of Sciences (COS), UCF (2018)
- Dean's Rising Star Award, College of Sciences (COS), UCF (2017)
- NIH Academic Research Enhancement Award, AREA (2016)
- Merck Award for Special Achievement (2011)
- Merck Award for Excellence (2010)
- FMC Graduate Fellowship, Princeton University (2005)
- First Year Graduate Fellowship, Princeton University (2001)
- Guanghua Scholarship, USTC (2000)

TEACHING

Teaching Activity

Main Teaching Duties, Face-to-Face Lecture

- CHM2210-0001, Organic Chemistry I, Fall 2012, Enrollment 269.
- CHS6251-0001, Applied Organic Synthesis, Spring 2013, Enrollment 15.
- CHM2210-0003, Organic Chemistry I, Fall 2013, Enrollment 248.
- CHS6251-0001, Applied Organic Synthesis, Spring 2014, Enrollment 13
- CHM2210-0003, Organic Chemistry I, Fall 2014, Enrollment 97.
- CHS6251-0001, Applied Organic Synthesis, Spring 2015, Enrollment 11
- CHS6251-0001, Applied Organic Synthesis, Spring 2016, Enrollment 18
- CHM2210-0004, Organic Chemistry I, Fall 2016, Enrollment 189
- CHS6251-0001, Applied Organic Synthesis, Spring 2017, Enrollment 21
- CHM2210-0003, Organic Chemistry I, Spring 2018, Enrollment 248
- CHS6251-0001, Applied Organic Synthesis, Spring 2018, Enrollment 15
- CHM2210-0003, Organic Chemistry I, Spring 2019, Enrollment 246
- CHS6251-0001, Applied Organic Synthesis, Spring 2019, Enrollment 14
- CHM2210-0001, Organic Chemistry I, Fall 2019, Enrollment 248
- CHM2210H-0201, Honor Organic Chemistry I, Fall 2019, Enrollment 27
- CHM2210H-0201, Honor Organic Chemistry I, Fall 2020, Enrollment 30
- CHS6251-0001, Applied Organic Synthesis, Spring 2021, Enrollment 8
- CHM2210-0002, Organic Chemistry I, Fall 2021, Enrollment 250
- CHS6251-0001, Applied Organic Synthesis, Spring 2022, Enrollment 14
- CHM2210-0002, Organic Chemistry I, Fall 2022, Enrollment 250
- CHM2211-0003, Organic Chemistry II, Fall 2022, Enrollment 246
- CHS6251-0001, Applied Organic Synthesis, Spring 2023, Enrollment 13

Publications

Publications After 2012

(* Corresponding Author**,** *Graduate Student*, Undergraduate Student, first author and/or corresponding author indicate greatest importance of contribution.)

- **Refereed journal articles**

(42) Diego Alem, Xinrui Yang, Francisca Beato, Bhaswati Sarcar, Alexandra F. Tassielli, Ruifan Dai, Tara L. Hogenson, Margaret A. Park, Kun Jiang, Jianfeng Cai, Yu Yuan,

Martin E. Fernandez-Zapico, Aik Choon Tan, Jason B. Fleming, Hao Xie* Translational relevance of SOS1 targeting for KRAS-mutant colorectal cancer. *Mol. Carcinogen*. **2023**, Early view

(41) Bobek, K. B.; Ezzat, N. S.; Jones, B. S.; Bian, Y.; Shaw, T. E.; Jurca, T.; Li, H.*; Yuan, Y.*, Total Synthesis of Polysubstituted γ-Butyrolactone Lignans (−)-Hinokinin, (−)-Bicubebin B, and (−)-Isodeoxypodophyllotoxin via Oxime Carbonate Formation. *Org. Lett.* **2023**, 25, 31.

(40) Peterson, J. W.; Burt, S. R.; Yuan, Y.; Harper, J. K., Rapid, Quantitative Nuclear Magnetic Resonance Test for Oxygen-17 Enrichment in Water. *Anal. Chem*. **2022**, 94, 5741.

(39) Bian, Y.; Alem, D.; Beato, F.; Hogenson, T. L.; Yang, X.; Jiang, K.; Cai, J.; Ma, W. W.; Fernandez-Zapico, M.; Tan, A. C.; Lawrence, N. J.; Fleming, J. B.; Yuan, Y.*; Xie, H.*, Development of SOS1 Inhibitor-Based Degraders to Target KRAS-Mutant Colorectal Cancer. *J. Med. Chem*. **2022**, 65, 16432.

(38) N Ezzat, K Bobek, Y Yuan* Total Synthesis of (±)-Phaeocaulisin D *Synlett* **2021**, 32 (07), 689-692

(37) Huang, G., Solano, C.M., Melendez, J., Yu-Alfonzo, S., Boonhok, R., Min, H., Miao, J., Chakrabarti, D.*, Yuan, Y.* Discovery of Fast-Acting Dual-Stage Antimalarial Agents by Profiling Pyridylvinylquinoline Chemical Space via Copper Catalyzed Azide-Alkyne Cycloadditions, *Eur. J. Med. Chem*., **2021**, 112889

(36) Huang, G., Solano, G.M., Melendez, J., Shaw, J., Collins, J., Banks, R., Arshadi, A.K., Boonhok, R., Min, H., Miao, J., Chakrabarti, D.*, Yuan, Y.* Synthesis, Structure−Activity Relationship, and Antimalarial Efficacy of 6-Chloro-2-arylvinylquinolines. *J. Med. Chem*., **2020**, 11756.

(35) X Sui, G Huang, N Ezzat, Y Yuan* A concise and scalable synthesis of a novel l-allo-enduracididine derivative. *Tetrahedron Lett* **2020**, 61 (30), 152148

(34) Huang, G.; Solano, C.M.; Su, Y.; Ezzat, N.; Matsui, S.; Huang, L.; Chakrabari, D.*; Yuan, Y.* Microwave-assisted, rapid synthesis of 2-vinylquinolines and evaluation of their antimalarial activity. *Tetrahedron Lett.*, **2019**, 60, 1736-1740.

(33) Roberts, B.F., Zheng, Y., Cleaveland, J., Lee, S., Lee, E. Ayong, L., Yuan, Y.*, Chakrabarti, D.* 4-Nitro styrylquinoline is an antimalarial inhibiting multiple stages of Plasmodium falciparum asexual life cycle. *Int. J. Parasitol.: Drugs Drug Resist.*, **2017**, 120-129.

(32) Jin, K., Sam, I.H., Po, H.L., Lin, D., Ghazvini Zadeh, E.H., Chen, S*, Yuan, Y.*, Li, X.* Total Synthesis of Teixobactin. *Nat. Commun*., **2016**, 7:12394.

(31) Logan, M.W.; Yuen, A.L.; Zheng, Y.; Hall, E.A. Hettinger, M.A.; Marks, R.M.; Hosler, M.L.; Rossi, F.M.; Yuan, Y.*; Uribe-Romo, F.* Heterogeneous Photoredox Synthesis of N-hydroxy-oxazolidinones Catalyzed by Metal-Organic Frameworks. *Catal.*

Sci. Technol., **2016**, 5647-5655.

(30) Roberts, B.F.; Iyamu, I.D.; Lee, S.; Lee, E.; Ayong, L.; Kyle, D.E.; Yuan, Y.; Manetsch, R. Chakrabarti, D.* Spirocyclic chromanes exhibit antiplasmodial activities and inhibit all intraerythrocytic life cycle stages. *Int. J. Parasitol.: Drugs Drug Resist*. **2016**, 85-92.

(29) Zheng, Y.; Zadeh, E.H.G.; Yuan, Y.* One-Pot, Enantioselective Synthesis of 2,3-Dihydroazulen-6(1*H*)-one: A Concise Access to the Core Structure of Cephalotaxus Norditerpenes. *Eur. J. Org. Chem*. **2016**，2115-2119.

(28) Craig, W.; Chen, J.; Richardson, D.; Thorpe, R.; Yuan, Y.*****, A Highly Stereoselective and Scalable Synthesis of L-allo-Enduracididine. *Org. Lett.* **2015**, 17, 4620-4623.

(27) Zheng, Y.; Cleaveland, J.; Richardson, D.; Yuan, Y.*****, An Organocatalysis Based Carbocyclic Spiroindoline Synthesis Enables Facile Structure−Activity Relationship (SAR) Study at C2 Position. *Org. Lett*. **2015**, 17, 4240-4243.

(26) Zheng, Y.; *Liu, M.*, Yuan, Y.***** A Very Mild and Selective Method for *O*-Benzoylation of Hydroxamic Acids. *Tetrahedron Lett.*, **2014**, 55, 4404-4406.

(25) Zewge, D.; Gosselin, F.; Tellers, D.M.; Davies, I.W.; Jadhav, V.; Nerurkar, S.S.; **Yuan, Y**.; Li, J.; Flanagan, W.M., Kenski, D.M. High-Throughput Chemical Modification of Oligonucleotides for Systematic Structure-Activity Relationship Evaluation. *Bioconjugate Chem.*, **2014**, 25, 2222.

(24) Janout, V.; Cline, L.L.; Feuston, B.P.; Klein, L.; O'Brien, A.; Tucker, T.; **Yuan, Y**.; O'Neill-Davis, L.A.; Peiffer, R.L.; Nerurkar, S.S.; Jadhav, V.; Tellers, D.M., Regen, S.L. Molecular Umbrella Conjugate for the Ocular Delivery of siRNA. *Bioconjugate Chem.*, **2014**, 25, 197.

- **Book chapter**

(23) Yuan, Y**.*;** Wang, W. Post-Synthetic Chemical Modification of Oligonucleotides. Volume 9, *Comprehensive Organic Synthesis, Ed.* 2, 463-493, **2014**.

Publications Before 2012

(22) Wang, P.; Li, X.; Zhu, J.; Chen, J.; Yuan, Y.; Wu, X., Danishefsky, S.J. Encouraging Progress in the omega-Aspartylation of Complex Oligosaccharides as a General Route to beta-N-Linked Glycopolypeptides. *J. Am. Chem. Soc.*, **2011**, 133, 1597.

(21) Aaronson, J.G.; Klein, L.J.; Momose, A.A.; O'Brien, A.M.; Shaw, A.W.; Tucker, T.J.; Yuan, Y., Tellers, D.M. Rapid HATU-Mediated Solution Phase siRNA Conjugation. *Bioconjugate Chem.*, **2011**, 22, 1723.

(20) Yuan, Y.; Chen, J.; Wan, Q.; Wilson, R.M., Danishefsky, S.J. Toward Fully Synthetic, Homogeneous Glycoproteins: Advances in Chemical Ligation. *Biopolymers*,

2010, 94, 373.

(19) Joo, J.M.; David, R.A.; Yuan, Y., Lee, C. Concise Synthesis of the Erythrina Alkaloid 3-Demethoxyerythratidinone via Combined Rhodium Catalysis. *Org. Lett.*, **2010**, 12, 5704.

(18) Yuan, Y.; Zhu, J.; Li, X.; Wu, X., Danishefsky, S.J. Preparation and reactions of N-thioformyl peptides from amino thioacids and isonitriles. *Tetrahedron Lett.*, **2009**, 50, 2329.

(17) Yuan, Y.; Chen, J.; Wan, Q.; Tan, Z.; Chen, G.; Kan, C., Danishefsky, S.J. Toward Homogeneous Erythropoietin: Fine Tuning of the C-Terminal Acyl Donor in the Chemical Synthesis of the Cys(29)-Gly(77) Glycopeptide Domain. *J. Am. Chem. Soc.*, **2009**, 131, 5432.

(16) Wu, X.; Yuan, Y.; Li, X., Danishefsky, S.J. Thio-mediated synthesis of derivatized N-linked glycopeptides using isonitrile chemistry. *Tetrahedron Lett.*, **2009**, 50, 4666.

(15) Wang, P.; Zhu, J.; Yuan, Y., Danishefsky, S.J. Total Synthesis of the 2,6-Sialylated Immunoglobulin G Glycopeptide Fragment in Homogeneous Form. *J. Am. Chem. Soc.*, **2009**, 131, 16669.

(14) Tan, Z.; Shang, S.; Halkina, T.; Yuan, Y., Danishefsky, S.J. Toward Homogeneous Erythropoietin: Non-NCL-Based Chemical Synthesis of the Gln(78)-Arg(166) Glycopeptide Domain. *J. Am. Chem. Soc.*, **2009**, 131, 5424.

(13) Kan, C.; Trzupek, J.D.; Wu, B.; Chen, G.; Tan, Z.; Yuan, Y., Danishefsky, S.J. Toward Homogeneous Erythropoietin: Chemical Synthesis of the Ala(1)-Gly(28) Glycopeptide Domain by "Alanine" Ligation. *J. Am. Chem. Soc.*, **2009**, 131, 5438.

(12) Wan, Q.; Chen, J.; Yuan, Y., Danishefsky, S.J. Oxo-ester Mediated Native Chemical Ligation: Concept and Applications. *J. Am. Chem. Soc.*, **2008**, 130, 15814.

(11) Li, X.; Yuan, Y.; Kan, C., Danishefsky, S.J. Addressing Mechanistic Issues in the Coupling of Isonitriles and Carboxylic Acids: Potential Routes to Peptidic Constructs. *J. Am. Chem. Soc.*, **2008**, 130, 13225.

(10) Li, X.; Yuan, Y.; Berkowitz, W.F.; Todaro, L.J., Danishefsky, S.J. On the Two-Component Microwave-Mediated Reaction of Isonitriles with Carboxylic Acids: Regarding Alleged Formimidate Carboxylate Mixed Anhydrides. *J. Am. Chem. Soc.*, **2008**, 130, 13222.
(9) Chen, J.; Wan, Q.; Yuan, Y.; Zhu, J., Danishefsky, S.J. Native Chemical Ligation at Valine: A Contribution to Peptide and Glycopeptide Synthesis. *Angew. Chem., Int. Ed.*, **2008**, 47, 8521.

(8) Yuan, Y.; Lai, A.J.; Kraml, C.M., Lee, C. A highly Enantio- and Diastereoselective 1,3-Dimethylallylation of Aldehydes. *Tetrahedron*, **2006**, 62, 11391.

(7) Joo, J.M.; Yuan, Y., Lee, C. Tandem Cyclization of Alkynes via Rhodium Alkynyl and

Alkenylidene Catalysis. *J. Am. Chem. Soc.*, **2006**, 128, 14818.

(6) Yuan, Y.; Men, H.B., Lee, C.B. Total Synthesis of Kendomycin: A Macro-C-Glycosidation Approach. *J. Am. Chem. Soc.*, **2004**, 126, 14720.

- **Patents**

(5) Aaronson, J.G.; Barnett, S.F.; Bartz, R.; Colletti, S.L.; Jadhav, V.R.; Momose, A.A.; Shaw, A.W.; Tellers, D.M.; Tucker, T.J.; Wang, W.; Yuan, Y. Novel Single Chemical Entities and Methods for Delivery of Oligonucleotides. WO 2011/126974

(4) Colletti, S.L.; Gosselin, F.; Jadhav, V.R.; Shaw, A.W.; Tellers, D.M.; Tucker, T.J.; Yuan, Y.; Zewge, D. Novel Single Chemical Entities and Methods for Delivery of Oligonucleotides. WO 2012/030683

(3) Tellers, D. M.; Colletti, S. L.; Dudkin, V.; Aaronson, J.; Momose, A.; Tucker, T. J.; Yuan, Y.; Calati, K. B.; Tian, L.; Parmar, R. G.; Shaw, A. W.; Wang, W.; Storr, R. A.; Busuek, M.; Kowtoniuk, R. A. Novel TetraGalNAc and Peptide Containing Conjugates and Methods for Delivery of Oligonucleotides. WO 2013166155

(2) Tellers, D. M.; Colletti, S. L.; Dudkin, V.; Ikemoto, N.; Liao, H.; Parish, C.; Pei, T.; Shaw, A. W.; Truong, Q.; Wang, L.; Yuan, Y.; Zhu, M. Novel TetraGalNAc Containing Conjugates and Methods for Delivery of Oligonucleotides. WO 2013166121

(1) Danishefsky, S. J.; David, J. D.; Chen, J.; Wu, B.; Chen, G.; Wan, Q.; Tan, Z.; Kan, C.; Yuan, Y.; Hua, Z.; Ranganathan, K.; Trzupek, J. D. Preparation of Homogeneous Erythropoietin and Other Peptides and Proteins. WO 2007/120614 A2 20071025

Grants

SERVICE

University Service

- **University**
  - Alternate member of Laboratory Safety Committee, UCF
  - University Parking, Transportation and Safety Committee

- **Department**
  - Organic Lecturer Search Committee-Chair, 2022, 2023
  - Chemistry department graduate/undergraduate curriculum committee
  - Chemistry department graduate admission committee
  - Forensic Science Faculty Search Committee, Department of Chemistry, UCF
  - Biochemistry Faculty Search Committee, Department of Chemistry, UCF
  - Organic Textbook Committee, Department of Chemistry, UCF
  - Organic Chemistry Faculty Search Committee, Department of Chemistry, UCF
  - Biochemistry, Environmental Chemistry, Organic Chemistry, Open Position Faculty Search Committee, Department of Chemistry, UCF
  - UCF STEM Day, Department of Chemistry, UCF
  - Student Seminar Evaluator, Department of Chemistry, UCF
  - Evaluator, Undergraduate Research Reports, Department of Chemistry, UCF
  - Lecture to Art Students, iCubed Program, UCF

- Basic maintenance and trouble-shooting for the department LC-MS system
- Coordination to invite outside speaker to the department seminar

C. Professional Service

- Proposal Reviewer, Space Research Initiative, Florida Space Institute, ACS PRF, Auckland Medical Research Foundation.
- Journal Peer Reviewers for *Journal of Medicinal Chemistry*, ChemMedChem, *ChemBioChem*, *Chemical Communications, Chemical Society Reviews, Journal of Organic & Biomolecular Chemistry, Advances in Chemical Science, Tetrahedron Letters, ChemMedChem, Organic Letters, Experimental Parasitology, ChemistrySelect, and Current Organic Synthesis*.
- Help Industry to identify talents from UCF.

D. Community Service

- Judge, Florida Central Regional Science Olympiad, 2017, 2018, 2019, 2020, 2022
- Judge, 13th Castle Conference, University of South Florida, 2015
- Judge, Discovery Middle School Science Fair, 2015
- Judge, Audubon Park Elementary School Science Fair, 2014
- Evaluator, Dr. Nelson Ying Science Competition, Orlando Science Center, 2013