

ROCK J. MANCINI

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EDUCATION

2012-2015

Postdoctoral Researcher

University of California, Irvine
Department of Chemistry
Advisor: Dr. Aaron P. Esser-Kahn

2012

Ph.D., Organic Chemistry

University of California, Los Angeles
Department of Chemistry and Biochemistry
Advisor: Dr. Heather D. Maynard

2007

B.S., Chemistry, with Honors

University of Pittsburgh
Department of Chemistry
Advisor: Dr. Toby M. Chapman

ACADEMIC POSITION

2015-Present

Assistant Professor, Organic Chemistry

Washington State University
Department of Chemistry
Research Areas: Synthetic Immunology and Polymer Chemistry

OTHER RESEARCH EXPERIENCES

2009

NSF: IGERT Intern, E. I. du Pont de Nemours and Company

DuPont Chestnut Run Plaza
Fluoroproducts Division
Advisor: Dr. Kirsten Meyers

2006

Valspar Intern, Elastomers

Valspar Global Technical Center
Specialty Coatings Division
Advisor: Dr. Charles Skillman

2005

NSF-REU Fellow, Organic Chemistry

Washington State University
Department of Chemistry
Advisor: Dr. Alexander D.Q. Li

PEER REVIEWED PUBLICATIONS

Total Citations: 254 (Google Scholar) New Citations in 2018: 62 h-index: 7 i10-index: 7

Google Scholar Profile: <https://scholar.google.com/citations?hl=en&user=aEhEUVQAAAAJ>

^αWSU Faculty/Postdoc; ^βWSU Student; ^γnon-WSU Faculty/Postdoc; ^δnon-WSU Student

- [21] Zhang, C.Y.^α; Lin, W.^β; Gao, J.^β; Shi, X.^β; Davaritouchaee, M.^β; Nielsen, A.E.^α; Mancini, R.J.^α; Wang, Z.^α "Antibody-Decorated Responsive Nanoparticles Targeted to Mouse Lungs Prevent Acute Lung Inflammation and Injury" *ChemComm*, 2018 [Submitted - Under Review]
[Impact Factor: 6.290]
(Project Roles: Contributed expertise in the area of GPC / SEC analysis of nanoparticle bioconjugates and managed graduate students that performed these experiments)
- [20] Davaritouchaee, M.^β; Fernandex, J.M.^β; Fu, X.^β; Mancini, R.J.^α; Chen S.^α "Biomass Conversions via Different Oxidative Processes: The Effect of Reactive Oxygen Species on Lignin Degradation" *ACS Sustainable Chemistry & Engineering*, 2018 [Submitted – Under Review]
[Impact Factor: 6.140]
(Project Roles: Mentored graduate students to devise experiments that examine degradation pathways of lignin, contributed to manuscript writing / revisions)
- [19] Burt, A.J.^β; Hantho, J.D.^β; Nielsen, A.E.^α; Mancini, R.J.^α "An Enzyme-Directed Imidazoquinoline Activated by Drug Resistance" *Biochemistry*, 2018, 57, 15, 2184-2188
[Impact Factor: 2.938]
(Project Roles: Conceived of the Project idea, directed the work, helped prepare the manuscript, and shepherded the manuscript through the publication process)
- [18] Mancini, R.J.^α; Nielsen, A.E.^α; Hantho, J.D.^β; Burt, A.J.^β "Drugging Drug Resistance with Bystander Assisted Immunotherapy" *Journal of Immunology*, 2018, 200 (1 Supplement), 58.14
[Impact Factor: 5.185]
(Project Roles: Conceived of the project idea, wrote and revised the abstract)
- [17] Nielsen, A.E.^α; Hantho, J.D.^β; Mancini, R.J.^α "Synthetic Agonists of NOD-Like, RIG-I-Like, and C-Type Lectin Receptors for Probing the Inflammatory Immune Response" *Future Medicinal Chemistry*, 2017, 9, 12, 1345-1360. –Invited Submission
*Highlighted by Macchiarulo, A. "Immunotherapy... a Pursuit Race to Tomorrow's Medicines" *Future Medicinal Chemistry*, 2017, 9, 12, 1297-1299.
[Impact Factor: 3.556]
(Project Roles: Conceived of the review parameters, managed the writing process, helped prepare the manuscript, and shepherded the manuscript through the publication process)
- [16] Ryu, K.A.^γ; McGonnigal, B.^δ; Moore, T.^γ; Mancini, R.J.^α; Esser-Kahn, A.P.^γ "Light Guided In-vivo Activation of Innate Immune Cells with Photocaged TLR 2/6 Agonist" *Nature Scientific Reports*, 2017, 7, 8074.
[Impact Factor: 4.259]
(Project Roles: Conceived of the project idea, synthesized the target molecule and evaluated in-vitro performance of light-guided prodrug, contributed to manuscript revisions)

PEER REVIEWED PUBLICATIONS CONTINUED

- [15] Mancini, R.J.^α; Nielsen, A.E.^α; Hantho, J.D.^β "Toll-Like Receptor Agonists Targeted to Cancer Cell Metabolism" *Journal of Immunology*, 2016, 196, (1 Supplement), 144.3.
[Impact Factor: 4.92]
(Project Roles: Conceived of the project idea, wrote and revised the abstract)
- [14] Hantho, J.D.^β; Strayer, T.A.^β; Nielsen, A.E.^α; Mancini, R.J.^α "An Enzyme-Directed Imidazoquinoline for Cancer Immunotherapy" *ChemMedChem*, 2016, 11, 22, 2496-2500.
*Featured on cover of the journal
[Impact Factor: 3.225]
(Project Roles: Conceived of the project idea, directed the work, performed the work in Figure 4c of the manuscript, helped prepare the manuscript, and shepherded the manuscript through the publication process)
- [13] Mancini, R.J.^α; Paluck, S.J.^δ; Bat, E.^γ; Maynard, H.D.^γ "Encapsulated Hydrogels by E-beam Lithography and Their Use in Enzyme Cascade Reactions" *Langmuir*, 2016, 32, 4043-4051.
[Impact Factor: 3.833]
(Project Roles: Conceived of the project idea, performed the majority of the research in the manuscript, wrote and revised the manuscript.)

PATENTS

- [12] Maynard, H.D.^γ; Mancini, R.J.^α; Lee, J.Y.^γ "Stabilization of Glucagon by Trehalose Glycopolymer Nanogels" United States Provisional Patent Application, 62/597,033, filed December 11, 2017
- [11] Mancini, R.J.^α; Nielsen A.E.^α; Hantho, J.D.^β "Enzyme-Directed Pro-Immunostimulant and Uses Thereof" United States Patent, 15/722,018, October 2, 2017.

PUBLICATIONS AND PATENTS PRIOR TO INDEPENDENT CAREER

- [10] Mancini, R.J.; Stutts, L.; Moore, T.; Esser-Kahn, A.P. "Controlling the Origins of Inflammation with a Photo-Active Lipopeptide Immunopotentiator" *Angewandte Chemie International Edition English*, 2015, 54, 20, 5962-5965.
*Selected as Wiley-VCH Hot Paper
*Highlighted by *Chemical & Engineering News*, "Chemists Manipulate the Immune System"
- [9] Ryu, K.A.; Stutts, L.; Tom, J.K.; Mancini, R.J.; Esser-Kahn, A.P. "Stimulation of Innate Immune Cells by Light-Activated TLR7/8 Agonists" *Journal of the American Chemical Society*, 2014, 136, 31, 10823-10825.
- [8] Mancini, R.J.; Stutts, L.; Ryu, K.A.; Tom, J.K.; Esser-Kahn, A.P. "Directing the Immune System with Chemical Compounds" *ACS Chemical Biology*, 2014, 9, 1075-1085.
*Highlighted by Powell, R. *ACS Chemical Biology*, 2014, 9, 5, 1063-1065.
- [7] Mancini, R.J.; Tom, J.K.; Esser-Kahn, A.P. "Covalently Coupled Immunostimulant Heterodimers" *Angewandte Chemie International Edition English*, 2014, 53, 1, 189-192.

PUBLICATIONS AND PATENTS PRIOR TO INDEPENDENT CAREER CONTINUED

- [6] Mancini, R.J.; Esser-Kahn, A.P.; Tom, J.K. "Novel Immunostimulants and Synthesis Thereof" United States Patent 14/458,988, August 16, 2013.
*Technology previously in non-exclusive licensing agreement with Invivogen.
- [5] Esser-Kahn, A.P.; Tom, J.K.; Mancini, R.J.; "Modification of Cell Surfaces Using Toll-Like Receptor (TLR) Agonists", United States Provisional Patent Application, July 12, 2013.
- [4] Tom, J.K.; Mancini, R.J.; Esser-Kahn, A.P. "Covalent Modification of Cell Surfaces Improves Immune Stimulation" *Chemical Communications*, 2013, 49, 9618-9620.
- [3] Maynard, H.D.; Mancini, R.J.; Lee, J.Y.; Lin, E.W. "Stabilization of Biomolecules Using Sugar Polymers", International Patent WO/US2013/112897, January 27, 2012.
*Technology is in licensing agreement with 2 pharmaceutical firms.
- [2] Mancini, R.J.; Lee, J.Y.; Maynard, H.D. "Trehalose Glycopolymers for Stabilization of Protein Conjugates to Environmental Stressors" *Journal of the American Chemical Society*, 2012, 134, 8474-8479.
*Highlighted by *Chemical & Engineering News*, "Polymer Protects Proteins"
*Highlighted by UCLA Newsroom, "UCLA Researchers Develop Way to Strengthen Proteins with Polymers"
- [1] Mancini, R.J.; Li, R.C.; Tolstyka, Z.P.; Maynard, H.D. "Synthesis of a Photo-caged Aminoxy Alkane Thiol", *Organic & Biomolecular Chemistry*, 2009, 7, 4954-4959.

INVITED LECTURES

- [7] "Bystander Assisted Immunotherapy" *Invited Lecture*, presented at *The California Nanosystems Institute*, Los Angeles, CA, July 14, 2018
- [6] "Molecular Checkmate: An Organic Chemistry Approach to Derive Immunogenicity from Drug Resistance" *Invited Lecture*, presented at the Northwest Regional Meeting of the American Chemical Society (NORM), Richland, WA, June 25, 2018.
- [5] "Drugging Drug Resistance with Enzyme-Directed Imidazoquinolines" *Invited Lecture*, presented at Gonzaga University, Spokane, WA, February 23, 2018
- [4] "Enzyme-Directed Immunostimulants" *Invited Lecture*, presented at Idaho State University, Moscow, ID, February 20, 2018.
- [3] "Tandem Conversion and Active Transport of Pro-Immunostimulants" *Invited Lecture*, presented at Pacific Lutheran University, Tacoma, WA, October 3, 2017.
- [2] "Chemical Approaches to an Innate Anti-Cancer Immune Response" *Invited Lecture*, presented at Washington State University School of Veterinary Medicine, Pullman, WA, February 9, 2017.
- [1] "An Organic Chemistry Approach to "Smart" Immunomodulators" *Invited Lecture*, presented at Eastern Washington University, Cheney, WA, October 23, 2016.

OTHER PRESENTATIONS

- [6] "Smart-Imidazoquinolines as Bystander-Assisted Immunomodulators" *Departmental Lecture*, Washington State University, Chemistry Department, Pullman, WA, February 13, 2018
- [5] "Drugging Drug Resistance with Enzyme-Directed Imidazoquinolines" *Departmental Lecture*, presented at Washington State University, Voiland College of Engineering and Architecture, Pullman, WA, February 5, 2018
- [4] "Bystander-Assisted Immunotherapy as a Modular Response to Emerging Biological Threats" *Invited Exhibition*, presented at the Department of Defense Innovation Summit, Tampa, FL, October 4, 2017.
*Funding provided by Life Science Washington
- [3] " α,ω -Heterotelechelic polymers by tandem atom transfer radical polymerization and asymmetric atom radical trapping" *Poster* presentation at the 252nd ACS meeting, Philadelphia, PA, August 21, 2016.
- [2] "Enzyme-Directed TLR Agonists in Cancer Immunotherapy" *Oral* presentation at the New Faculty National Institutes of Health Conference, Dallas, TX, May 27, 2016.
- [1] "Toll-Like Receptor Agonists Targeted to Cancer Cell Metabolism" *Poster* presentation at the American Association of Immunologists Conference, Seattle, WA, May 15, 2016.
*Funding provided by AAI New Faculty Travel Grant

PRESENTATIONS PRIOR TO INDEPENDENT CAREER

- [17] "De-Novo Transduction of an Inflammatory Response Initiated from Individual Immune Cells" *Poster* presentation at the UC, Irvine Immunology Conference, Irvine, CA, November, 18, 2014.
- [16] "Photo-Caged Immunostimulants" *Invited Lecture* at Loyola Marymount University, Los Angeles, CA, September 5, 2014.
- [15] "Covalently Coupled Immunostimulant Heterodimers" *Oral* presentation at the 248th ACS meeting, San Francisco, CA, August 12, 2014.
- [14] "Probing Immune Cell Stimulation with Photo-caged Immunostimulants and Heterodimers" *Poster* presentation at the 248th ACS meeting, San Francisco, CA, August 11, 2014.
- [13] "Photosensitized Immune Cells via Photo-Switchable Toll-Like Receptor 2/6 Peptides" *Oral* presentation at the 248th ACS meeting, San Francisco, CA, August 10, 2014.
- [12] "Light-Mediated Immune Cell Stimulation" *Poster* presentation at the American Association of Immunologists Conference, Pittsburgh, PA, May 3, 2014.
- [11] "Immunostimulant Heterodimers: Linking Materials and Chemical Immunology" *Oral* presentation at the Materials Research Society Conference, San Francisco, CA, April, 22, 2014.

PRESENTATIONS PRIOR TO INDEPENDENT CAREER CONTINUED

- [10] "Covalently Coupled Immunostimulant Heterodimers" *Poster* presentation at the UC, Irvine Immunology Fair, Irvine, CA, November, 21, 2013.
- [9] "Heterodimers of Pathogen-Associated Molecular Patterns as Immunostimulants" *Poster* presentation at the Materials Research Society Conference, San Francisco, CA, April 3, 2013.
- [8] "Trehalose Glycopolymers for Stabilization of Protein Conjugates to Environmental Stressors" *Poster* presentation at the BASF Research Forum, Raleigh, May 3, 2012.
- [7] "Multi-Component 3-D Protein Arrays by Electron Beam Lithography" *Oral* presentation at the 243rd ACS meeting, San Diego, March 26, 2012.
- [6] "Multi-Component 3-D Protein Arrays by Electron Beam Lithography" *Poster* presentation at the Seaborg Symposium, UCLA, November 5, 2011.
- [5] "Multi-Component 3-D Protein Arrays by Electron Beam Lithography" *Poster* presentation at the Materials Creation Training Program IGERT Conference, UC, Santa Barbara, October 21, 2011.
- [4] "Multi-Component 3-D Hydrogel Architectures Created by Electron Beam Lithography" *Oral* presentation at the Zing Polymer Conference, Cancun, Mexico, November 19, 2010.
- [3] "Sustainable Fluoroproduct Formulations" *Oral* presentation at the Materials Creation Training Program IGERT Conference, UCLA, November 6, 2009.
- [2] "Synthesis of a photo-caged aminoxy alkane thiol" *Oral* presentation at the Materials Creation Training Program IGERT Conference, UC, Santa Barbara, October 23, 2009.
- [1] "Patterns of Aminoxy Groups for Protein Conjugation" *Oral* presentation at the Materials Creation Training Program IGERT Conference, UCLA, November 14, 2008.

STUDENT PRESENTATIONS

- [7] "Directing Anticancer Immunomodulation to Hepatocarcinoma using Aldehyde Oxidase" *Poster* presentation by *Joseph Hantho* at the WSU Graduate Student Research Showcase, Pullman, WA, March 29, 2018.
- [6] "Enzyme-Directed Imidazoquinolines for Cancer Immunotherapy" *Oral* presentation by *Joseph Hantho* at the 253rd ACS National Meeting, San Francisco, CA, April 3, 2017.
- [5] "Lignocellulosic Biomass Pretreatment Using Radical Species" *Oral* presentation by *Maryam Davaritouchaee* and the AiChE Annual Meeting, Minneapolis, MN, October 31, 2017
- [4] "Pyrimido[5,4-b]indole Immunostimulant Homodimers Through Solid Phase Peptide Synthesis" *Poster* presentation by *Nicholas Webb* a WSU – SURCA, Pullman, WA, March 27, 2017

TEACHING PRIOR TO INDEPENDENT CAREER

- 2013-2015** **Guest Lecturer, Organic and Polymer Chemistry**
University of California, Irvine
- 2007-2012** **Graduate Teaching Assistant, Organic and General Chemistry**
University of California, Los Angeles
- 2005-2007** **Undergraduate Teaching Assistant, Organic Chemistry**
University of Pittsburgh

SERVICE TO PROFESSIONAL ORGANIZATIONS

Publons Profile: <https://publons.com/a/1339609>

- 2015-Present** **Peer Reviewer**
AAAS (1 Grant Review Panel)
Czech Science Foundation (1 Grant Review Panel)
Molecules (6 Paper Reviews)
ACS Polymer Chemistry (2 Paper Reviews)
Journal of the American Chemical Society (1 Paper Review)
Biomacromolecules (1 Paper Review)
Energies (1 Paper Review)
Journal of Electroanalytical Chemistry (1 Paper Review)
Phytotherapy Research (1 Paper Review)
Society for Biomaterials (12 Abstract Reviews)
- 2017-Present** **AACR: Emperor Science Program Mentor**
Mentor to high-school science students from under-represented groups in STEM.

INTRAMURAL COMMITTEE SERVICE

- 2018-Present** **Chemistry Strategic Vision Committee**
Investigated long-term directions for the Department of Chemistry
Promoted a collegial environment within the department
- 2015-Present** **Chemistry Graduate Admissions Committee**
Recruited new Organic Chemistry graduate students
Reviewed applications and recommended admissions
Contributed to graduate student visitation weekends

OTHER INTRAMURAL SERVICE

- 2017** **Murdock College Science Research Conference**
Recruited perspective graduate students.
- 2016** **NSF: High School Outreach Program**

OTHER INTRAMURAL SERVICE CONTINUED

2015-Present	Judge for SURCA Poster Competition
2015-Present	Judge for Graduate Research Showcase Poster Competition
2015-Present	Judge for NIH Biotechnology Program Poster Competition

AWARDS

2016	AAI: Early Career Faculty Travel Grant Provided funding to attend and present at the AAI national meeting.
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SERVICE AND AWARDS PRIOR TO INDEPENDENT CAREER

2012	BASF: Invited Research Conference
2008-2012	California Nanosystems Institute: High School Outreach Program
2008-2010	NSF: IGERT Materials Creation Training Program Fellowship
2006	University of Pittsburgh: Valspar Research Award
2005	NSF: Research Experience for Undergraduates Fellowship
2004-2007	University of Pittsburgh: Saturday Science Outreach Program

STUDENT AWARDS

2018 (Austin Ryan)	Stacey Gardener Graduate Student Research Scholarship
2018 (Anthony Burt)	Stacey Gardener Graduate Student Research Scholarship
2018 (Joseph Hantho)	Graduate Student Research Showcase (WSU)
2017 (Maryam Davaritouchae)	Alaska Airlines Travel Award
2017 (Joseph Hantho)	Stacey Gardener Graduate Student Research Scholarship
2017 (Joseph Hantho)	Selected for ACS PROF panel
2017 (Nicholas Webb)	SURCA Presentation (WSU)
2016 (Madison Soth)	SURCA Presentation (WSU)
2016 (Alison Haymaker)	Research funded by Gene and Priscilla Alberts Endowment
2016 (Anyway Kapingidza)	Graduate Student Research Showcase (WSU)
2016 (Timothy Strayer)	Graduate Student Research Showcase (WSU)

GRADUATE STUDENTS DIRECTLY SUPERVISED

2018-Present	Soheila Shahbazi (Rotation Student)
2018-Present	Aaron Hendricksen (Ph.D. Student)
2017-2018	Tynan Schreibman (Non-Thesis M.S.)
2017-Present	Austin Ryan (Ph.D. Student)
2017-2018	Madison Soth (Non-Thesis M.S.)
2017-Present	Maryam Davaritouchae (Ph.D. Candidate)
2016-Present	Anthony Burt (Ph.D. Candidate)
2015-2017	Joseph Hantho (M.S. School of Education)
2015-2016	Anyway "Brenda" Kapingidza (Ph.D. Candidate, South Carolina State)
2015-2016	Timothy Strayer (M.S. Ball State)

SERVICE ON GRADUATE STUDENT COMMITTEES

2017-Present	Feyisola "Paul" Olatunji (Ph.D. Candidate)
2017-Present	Daniel Collins (Ph.D. Candidate)
2016-Present	Nicholas Holloran (Ph.D. Candidate)
2016-Present	Bojana Opacic (Ph.D. Candidate)
2016-Present	Shi "Steve" Xu (Ph.D. Candidate)
2016-Present	Jacob Day (Ph.D. Candidate)
2016-2018	Ashley Moon (M.S. 2018)
2016-2017	Isaac "Abbey" Monreal (Ph.D. 2017 – Postdoc at Cornell)

UNDERGRADUATE STUDENTS DIRECTLY SUPERVISED

2018-Present	Mona Janbozorgi (Postbaccalaureate Student)
2017-2018	Amanda Fairbanks (University of Washington, Pharmacy School)
2017-2018	Ronald Lam
2017-2018	Amy Johnson
2016-Present	Alison Haymaker
2016-Present	Nicholas Simpson
2016-2017	Nicholas Webb
2016-2017	Gerard Watson
2015-2017	Madison Soth
2015-2017	Christopher Miller

PROFESSIONAL AFFILIATIONS

American Chemical Society (ACS)
American Association of Immunologists (AAI)
American Association of Cancer Research (AACR)
American Association for the Advancement of Science (AAAS)
NIH Protein Biotechnology Program (WSU)