

RICHARD M. VAN RIJN, PH.D.

PURDUE UNIVERSITY, COLLEGE OF PHARMACY

DEPARTMENT OF MEDICINAL CHEMISTRY AND MOLECULAR PHARMACOLOGY

575 STADIUM MALL DRIVE, WEST LAFAYETTE, IN 47907

PHONE: 765-494-6461 • E-MAIL: RVANRIJN@PURDUE.EDU • TWITTER: [@VAN_RIJN_LAB](https://twitter.com/VAN_RIJN_LAB)WEBSITE: [HTTP://WWW.VANRIJNLAB.COM](http://www.vanrijnlab.com) • ORCID: [HTTP://ORCID.ORG/0000-0002-9957-1633](http://orcid.org/0000-0002-9957-1633)**Education**

2007 Ph.D.	Vrije Universiteit, Amsterdam, The Netherlands, <i>Department of Pharmacochemistry</i> Molecular pharmacology of human histamine H4 receptor	Thesis Advisor: Rob Leurs PhD
2002 B.Sc/M.Sc	Leiden Universiteit, Leiden, The Netherlands <i>Bio-pharmaceutical sciences</i> Isolation of acetylcholinesterase inhibitors from <i>Nerine Bowdenii</i>	Advisor: Robert Verpoorte PhD

Professional positions

01/2020-06/2020	Visiting Professor (sabbatical) <i>Department of Pharmaceutical Chemistry (Shoichet Lab)</i> University of California San Francisco	
09/2019 - present	Adjunct Associate Professor <i>Department of Pharmacology and Toxicology</i> Indiana University School of Medicine, Indianapolis, IN	
08/2019 - present	Associate Professor (tenure) <i>Department of Medicinal Chemistry and Molecular Pharmacology</i> Purdue University, West Lafayette, IN	
09/2014 – 08/2019	Adjunct Assistant Professor <i>Department of Pharmacology and Toxicology</i> Indiana University School of Medicine, Indianapolis, IN	
09/2013 - 07/2019	Assistant Professor (tenure-track) <i>Department of Medicinal Chemistry and Molecular Pharmacology</i> Purdue University, West Lafayette, IN	
09/2011 - 09/2013	Associate Research Scientist <i>Ernest Gallo Clinic and Research Center, Department of Neurology</i> University of California, San Francisco, CA	
01/2011 - 08/2011	Assistant Research Scientist <i>Ernest Gallo Clinic and Research Center, Department of Neurology</i> University of California, San Francisco, CA	
01/2007 - 12/2010	Postdoctoral Fellow <i>Ernest Gallo Clinic and Research Center, Department of Neurology</i> University of California, San Francisco, CA	Mentor: Jennifer Whistler PhD
06/2006 - 12/2006	Research Associate <i>Biofocus DPI</i> A Gálapagos company, Leiden, The Netherlands	

Professional Development

2020	Pfizer 3D Drug Discovery and Development Workshop, Virtual, 11/10 th
2009	UCSF Scientific Leadership and Management, San Francisco, 6/29-30 th
2005	Leiden/Amsterdam Center of Drug Research Signal Transduction Course, Leiden, 1/10-11 th
2004	13 th School of Medicinal Chemistry, Noordwijkerhout, 10/26-29 th
2003	6 th ULLA consortium Summerschool, Paris, 7/8-17 th
2003	Leiden/Amsterdam Center of Drug Research Introductory Course on Drug Research, 9/30 th

Awards and Honors

2018	College of Pharmacy nominee for Purdue University Exceptional Early Career Teaching Award
2018	Purdue Seed for Success Award
2017	College of Pharmacy nominee for Purdue University Exceptional Early Career Teaching Award
2017	Travel award to attend the 2017 International Narcotics Research Conference
2017	Purdue Research Foundation Summer Faculty Award
2017	MCMP research enhancement Award
2016	Purdue Research Foundation international travel Award
2015	NARSAD Young Investigator Award
2011	K99/R00 pathway to independence Award
2011	Travel award to attend the 2011 International Narcotics Research Conference
2009	Travel award to attend the 2009 International Narcotics Research Conference
2006	Second Prize in the Arthur C. Hancock Young Investigators Award at the 35 th European Histamine Research Society (EHRS) Symposium, Delphi, Greece
2006	Travel award to participate in 35 th EHRS Symposium, Delphi, Greece
2005	Poster prize at Leiden/Amsterdam Center for Drug Research Spring Symposium
2005	Poster prize at KNCV/NWO-CW Symposium

Current Research Support

NIH (R25) 06/01/2021 – 05/31/2026

Purdue Postbaccalaureate Research Education Program (PREP) for Translational Biomedical Sciences

The goal of this proposal is to prepare recent college graduates for entry into competitive PhD, DVM-PhD, or MD-PhD programs.

Total Cost: \$1,400,000

Role: Faculty Research Mentor (as listed in funded proposal), Contact PIs Dr. HogenEsch and Mendrysa

NIH/NINDS (R01NS119917) 12/01/2020 – 11/30/2025

Pharmacological validation of adenylyl cyclase 1 as drug target for chronic pain.

The goal of this proposal is to develop novel AC1 inhibitors for treating chronic pain

Total cost: \$ 1,879,359 (submitted February 19th, 2020, **A0 funded**)

Role: Co-I (7%), Contact PI Dr. Flaherty

NIH/NIAAA (R01AA025368) 09/10/2017 – 08/31/2022

G-protein-, beta-arrestin- and ERK-signaling in alcohol use- and anxiety-disorders

The primary objective of this grant is to study the role of ERK signaling induced by G-protein or beta-arrestin pathways in modulation of alcohol and anxiety behaviors.

Total cost: \$1,692,665

Role: PI

NIH/NIAAA (R21AA026675) 09/01/2018 – 08/31/2020

The influence of alcohol on disseminated tumor cells dormancy

The goal of this proposal is to investigate how alcohol use can influence systemic tumor dormancy following breast cancer metastasis

Total Costs: \$402.821 (**A0 funded**) – no cost extension

Prepared 01/19/2021

Role: MPI (5%), Contact-PI Dr. Wendt

NIH/NIAAA (R21AA026949) 08/01/2018 – 07/31/2020

Opioidergic alkaloids from *Mitragynia Speciosa* (kratom) as novel treatment for alcohol use disorder

The goal of this proposal is to study the impact of kratom and kratom alkaloids on alcohol use and reward in mice.

Total Cost: \$421,475 (**A0 funded**) – no cost extension

Role: PI

NIH/NIDA (R03DA045897) 04/01/2018 – 03/31/2020

Development of G-protein biased delta opioid receptor agonist for inflammatory pain

The goal of this proposal is to synthesize novel G-protein biased delta opioid receptor agonist to treat inflammatory pain

Total cost: \$149,324 (**A0 funded**) – no cost extension

Role: PI

Pending applications

NIH/NIAAA (R01AA029413) 04/01/2021 – 03/31/2026

G-biased delta opioid receptor signaling and alcohol use disorder

The goal of this proposal is to develop high G-biased delta opioid agonists through computational and synthetic approaches that have clinically relevant PK properties for treatment of AUD.

Total cost: \$ 2,526,513 (submitted October 5th, 2020)

Role: PI

National Institute on Drug Abuse (R01DA53266) 04/01/2021 – 03/31/2026

Pathway-Biased Opioid Peptidomimetics for Pain

The goal of this proposal is to synthesize brain penetrable, metabolically stable Leu-enkephalin analogs to treat chronic pain.

Total cost: \$3,220,045 (submitted June 5th, 2020, **A0 impact score 56, percentile 25%, DDNS**)

Role: MPI (10%), Contact PI Dr. Altman

Completed research support

MCMP research enhancement grant 04/01/2018 – 03/31/2019

Discovery of novel δ opioid chemotypes with G-protein bias for treatment of alcohol use disorder

The primary objective of this proposal is to characterize and derivatize novel lead compounds in order to synthesize delta opioid receptor biased agonists for preclinical testing in animal models of alcohol use.

Total cost: \$10,000

Role: PI

Purdue Institute for Drug Discovery 09/06/2018 – 08/31/2019

 β -arrestin 1 - a novel target for seizure disorders

The goals of this proposal are to evaluate beta-arrestin 1 knockout mice as a novel model for epilepsy, to create a computational model of beta-arrestin1 biased conformation of the delta opioid receptor and to synthesize novel beta-arrestin1 biased delta opioid receptor agonists.

Total cost: \$75,000

Role: PI

Purdue Institute for Drug Discovery 02/01/2018 – 06/30/2018

 β -arrestin1 biased delta opioid receptor agonists for treatment of stroke and seizuresThe primary objective of this grant is to screen drug libraries to identify β -arrestin1 biased delta opioid agonists.

Total cost: \$15,000

Role: PI

Purdue Institute for Inflammation, Immunology and Infectious Diseases 09/01/2016 – 08/31/2017

Prepared 01/19/2021

AC1 inhibitors for treatment of (opioid resistant inflammatory pain

The primary objective of this grant is to test a small molecule selective inhibitor of adenylyl cyclase I for treatment of (opioid resistant) arthritic pain.

Total cost: \$9,800 (no cost extension until 06/2018)

Role: PI

NARSAD young investigator grant #23603

(PI)

07/15/2016 – 07/14/2018

Development of novel designer G-protein coupled receptors to study the role of β -arrestin2 biased signal transduction in anxiety disorders.

The primary objective is to develop β -arrestin 2 biased designer receptors (DREADDs) and locally express them in brain areas involved in anxiety-like behavior.

Total Cost: \$70,000

Role: PI

MCMP research enhancement grant

04/01/2017 – 03/31/2018

Development of highly selective inhibitors of AC1 for the evaluation in a mouse model of chronic pain

The primary objective of this proposal is to characterize novel AC1 selective inhibitors for in vitro and in vivo functionality.

Total cost: \$48,000 (\$12,000 to RvR, no cost extension till 06/2018)

Role: Co-I, Contact PI Dr. Watts

Purdue Research Foundation Summer Faculty Grant

07/01/2017 – 09/30/2017

Investigation of the role of beta-arrestin isoforms in drug-induced seizures.

The objective of this grant is to compare drug-induced seizures between wild-type, beta-arrestin1 and beta-arrestin2 knockout mice.

Total cost: \$8,000

Role: PI

Ralph W. and Grace M. Showalter Research Trust

09/05/2014 – 08/31/2015

New mechanism for modulating opioid receptor mediated analgesia

The primary objective of this grant is to investigate the delta-mu opioid receptor heteromer interface and ways to manipulate the formation of these heteromers to study its function in pain disorders.

Total Cost: \$75,000

Role: PI

NIH/NIAAA (K99/R00AA020539)

08/01/2011 – 07/31/2016

Development of a preclinical candidate for the treatment of alcoholism

The primary objective of this grant is to validate a DOR-subtype as a new target for intervention in alcohol abuse and determine the properties of the ideal DOR-subtype selective drug to develop it as a preclinical lead.

Total cost: \$930,000 (A0 funded)

Role: PI

Alcoholic Beverage Medical Research Foundation (ABMRF)

01/01/2011 – 12/31/2012

Identification of delta opioid receptor subtypes as novel targets to treat alcoholism

The major goal of this project is to determine whether targeting selective delta opioid receptor subtypes can simultaneously treat anxiety and prevent alcohol abuse.

Total cost: \$100,000

Role: PI

Peer-reviewed publications (¹ indicates shared co-author, # indicated shared corresponding author)

1. Ko MJ, Chiang T, Mukadam AM, Mulia, GE, Gutridge AM, Chester JA, Van Rijn RM, β -arrestin-dependent ERK signaling positively correlates with reduced anxiety-like and conditioned fear-related behavior in mice, **Science Signaling**, 2021, TBD, accepted, <https://doi.org/10.1101/790568>
2. Creed SM¹, Gutridge AM¹, Argade MD, Hennessy MR, Brent Friesen JJB, Pauli GF, van Rijn RM[#], Riley AP[#], Isolation and Pharmacological Characterization of six Opioidergic *Picralima nitida* Alkaloids, **J Natural products**, 2021, TBD, accepted, <https://doi.org/10.26434/chemrxiv.13007804.v1>
3. Bertels Z, Witkowski W, Asif S, Siegersma K, Van Rijn RM, Pradhan AA, A non-convulsant delta-opioid receptor agonist, KNT-127, reduces cortical spreading depression and nitroglycerin-induced allodynia, **Headache**, 2021 TBD, accepted
4. Ding Z, Knipp GT, Van Rijn RM, Chester JA, Watts VJ, The CUL3/neddylaton inhibitor MLN4924 reduces inflammatory pain allodynia and ethanol-induced locomotor sensitization in mice, **Behavioural Brain Research**, 2021, 399, 113051
5. ¹Gutridge AM, ¹Robins MT, ¹Cassell RJ, ¹Uprety R, Mores KL, Ko MJ, Pasternak G, Majumdar S, Van Rijn RM, G protein-biased kratom-alkaloids and synthetic carfentanil-amide opioids as potential treatments for alcohol use disorder. **Br J Pharmacol**, 2020, 177(7): 1497-1513, PMID: 31705528, PMC7060366 DOI:10.1111/bph.14913. **Editor's Choice**
6. ¹Cassell RJ, ¹Sharma KK, Su H, Cummins BR, Cui H, Mores KL, Blaine AT, Altman RA[#], Van Rijn RM[#], The Meta-Position of Phe⁴ in Leu-Enkephalin Regulates Potency, Selectivity, Functional Activity, and Bias at the Delta and Mu Opioid Receptors, **Molecules (Special issue Opioids and Their Receptors: Present and Emerging Concepts in Opioid Drug Discovery)**, 2019, 24 (4542): 1-15, PMID: 31842282, PMC6943441, <https://doi.org/10.3390/molecules24244542>
7. Cai B, Kim D, Akhand S, Sun Y, Cassell RJ, Alpsyoy A, Dykhuizen EC, Van Rijn RM, Wendt MK, Krusemark CJ, Selection of DNA-encoded Libraries to Protein Targets Within and On Living Cells. **J Am Chem Soc**, 2019, 141: 17057-17061, PMID: 31613623, PMC7057806 <https://doi.org/10.1021/jacs.9b08085>. **Highlighted "DELS in cells", Trends Pharmacol Sci, 2020, <https://doi.org/10.1016/j.tips.2020.01.007>**
8. Mores KL, Cassell RJ, van Rijn RM, arrestin recruitment and biased signaling by G protein-coupled receptor heteromers. **Neuropharmacology (Special issue on Brain Heteroreceptor complexes in Health and Disease)**, 2019, 152: 15-21, PMID: 30419245, PMC6509026 <https://doi.org/10.1016/j.neuropharm.2018.11.010>
9. ¹Mores KL, ¹Cummins B, Cassell RJ, Van Rijn RM, A review of the Therapeutic Potential of Recently Developed Biased Kappa Agonists. **Front Pharmacol**, 2019, 10 (407): 1-14, PMID: 31057409, PMC6478756, <https://doi.org/10.3389/fphar.2019.00407>
10. ¹Ko MJ, ¹Mulia GE, Van Rijn RM. Commonly used anesthesia/euthanasia methods for brain collection differentially impact MAPK activity in male and female C57BL/6 mice, **Front Cell Neurosci**, 2019, 13 (96):1-10, PMID:30983972, PMC6447702, doi.org/10.3389/fncel.2019.00096
11. ¹Cassell RJ, ¹Mores KL, Zerfas BL, AHA Abdallah, Lill MA, Trader DJ, Van Rijn RM, Rubsicolins are naturally occurring G-protein-biased delta opioid receptor peptide, **Eur Neuropsychopharmacol**, 2019, 29(3):450-456, PMID:30591345, PMC6421079, doi: 10.1016/j.euroneuro.2018.12.013.
12. Robins MT, Blaine AT, Ha JE, Brewster A, Van Rijn RM, Repeated Use of the Psychoactive Substance Ethylphenidate Impacts Neurochemistry and Reward Learning in Adolescent Male and Female Mice. **Front Neurosci**, 2019, 13 (124): 1-14 PMID: 30837836, PMC6389692, DOI:10.3389/fnins.2019.00124
13. ¹Ko MJ, ¹Ganzen L, Coskun E, Mukadam AA, Lueng YF, Van Rijn RM, Critical evaluation of TRPA1-mediated locomotive behavior in zebrafish as a screening tool for novel anti-nociceptive drug discovery. **Sci Rep**, 2019, 9 (2430): 1-11, PMID: 30787340, PMC6382835, DOI:10.1038/s41598-019-38852-9
14. Kaur J, Soto-Velasquez M, Ding Z, Van Rijn RM, Watts VJ, Flaherty DP, Optimization of a 1,3,4-oxadiazole series for inhibition of adenylyl cyclase 1 and 8 for the treatment of chronic pain, **Eur J Med Chem**, 2019, 162, 565-585, PMID: 30472604, PMC6310635, DOI:10.1016/j.ejmech.2018.11.036
15. Robins MT, Chiang T, Mores, KL, Alongkronrusmee D, Van Rijn RM, Critical role for G_i-protein activity in the dorsal striatum in the reduction of voluntary alcohol intake in C57Bl/6 mice, 2018, **Front. Psychiatry (Special topics in opioid research)**, 9 (112): 1-14, PMID:29686629, PMC5900748, DOI:10.3389/fpsyt.2018.00112

16. Robins MT, Chiang T, Berry JN, Ko MJ, Ha JE, Van Rijn RM, Behavioral characterization of β -arrestin 1 knockout mice in anxiety-like and alcohol behaviors, 2018, **Front Behav Neurosci**, 12 (54): 1-11 PMID:29615880, PMC5869203, DOI:10.3389/fnbeh.2018.00054
17. Márquez-Gómez R, Robins MT, Gutiérrez-Rodelo C, Arias, JM, Olivares-Reyes JA, Van Rijn RM, Arias-Montaño JA, Functional histamine H₃ and adenosine A_{2A} receptor heteromers in recombinant cells and rat striatum, **Pharmacol Res**. 2018, 129: 515-525, PMID: 29217157, PMC6429923, doi: 10.1016/j.phrs.2017.11.036
18. Brust TF, Alongkronrusmee D, Soto-Velasquez M, Baldwin TA, Ye Z, Dai, M, Dessauer CW, Van Rijn RM, Watts VJ, Identification of a selective small molecule inhibitor of type 1 adenylyl cyclase activity with analgesic properties, **Science Signal**, 2017, 10 (467): eaah5381, PMID:28223412, PMC5734633, doi: 10.1126/scisignal.aah5381 <http://www.sciencemag.org/news/2017/02/new-class-painkillers-horizon>
19. Zeng L, Alongkronrusmee D, Van Rijn RM, An integrative perspective on diabetic, alcoholic and drug-induced neuropathic pain, **J Pain Res**, 2017, 10: 219-228 PMID:28176937, PMC5268333, DOI:10.2147/JPR.S125987. **Noteworthy designation, highly accessed designation,** https://www.dovepress.com/press_releases.php?content_id=3499, **Altmetric score = 443**
20. Alongkronrusmee D, Chiang T, Van Rijn RM, Involvement of delta opioid receptors in alcohol withdrawal-induced mechanical allodynia in male C57BL/6 mice. **Drug Alcohol Depend**, 2016, 167:190-198 PMID: 27567436, PMC5325684, DOI:10.1016/j.drugalcdep.2016.08.017
21. Yang S, Ben-Shalom R, Ahn M, Liptak AT, van Rijn RM, Whistler JL, Bender KJ, Beta-Arrestin-dependent dopaminergic regulation of calcium channel activity in the axon initial segment, **Cell Rep**, 2016, 16 (6), 1518-1526 PMID: 27452469, PMC5074334, DOI:10.1016/j.celrep.2016.06.098
22. Robins MT, Lu J, Van Rijn RM, Unique behavioral and neurochemical effects induced by repeated adolescent consumption of caffeine-mixed alcohol in C57BL/6 mice, **PLoS One**, 2016, 11(7):e0158189 PMID: 27380261, PMC4933367, DOI:10.1371/journal.pone.0158189 **Top 1% of most downloaded articles of the year (out of 22,000), Altmetric score = 498**
23. Robins MT, DeFriel JN, Van Rijn RM, adolescent intake of caffeinated energy drinks does not affect adult alcohol consumption in C57BL/6 and BALB/c mice, **Alcohol**, 2016, 54, 1-9, PMID:27565749, DOI:10.1016/j.alcohol.2016.05.001
24. Chiang T, Sansuk K, Van Rijn RM, β -arrestin 2 dependence of delta opioid receptor agonists is correlated with alcohol intake., **Br. J Pharmacol**, 2016, 173, 332-343, PMID:26507558, PMC4940619, doi: 10.1111/bph.13374
25. Van Rijn RM[#], DeFriel JN, Whistler JL, Pharmacological traits of delta opioid receptors: pitfalls or opportunities, **Psychopharmacol**, 2013, 228(1), 1-18, **#corresponding author**, PMID:23649885, PMC3679311, doi: 10.1007/s00213-013-3129-2
26. Milan-Lobo L, Enquist JE, Van Rijn RM, Whistler JL, anti-analgesic effect of the mu/delta opioid receptor-heteromer revealed by ligand-biased antagonism, 2013, **PLoS One**, 8(3): e58362, PMID:23554887, PMC3598907, doi: 10.1371/journal.pone.0058362
27. Van Rijn RM[#], Harvey JH, Brissett DI, DeFriel JN, Whistler JL, Novel screening assay for the selective detection of G protein-coupled receptor heteromer signaling, 2013, **J Pharmacol Exp Ther**, 334(1):179-188, **#corresponding author**, PMID:23097213, PMC3533407, doi: 10.1124/jpet.112.198655, **Highlighted paper**
28. Van Rijn RM[#], Brissett DI, Whistler JL, Distinctive modulation of ethanol place preference by delta opioid receptor selective agonists, **Drug Alcohol Depend**, 2012, 122(1-2):156-159 **#corresponding author**, PMID:22018601, PMC3279630, doi: 10.1016/j.drugalcdep.2011.09.024
29. Brissett DI, Whistler JL, Van Rijn RM[#], Contribution of mu and delta opioid receptors to the pharmacological profile of kappa opioid receptor subtypes, **Eur. J Pain**, 2012, 16 (3): 327-337. **#corresponding author**, PMID:22337177, PMC4086711, doi: 10.1002/j.1532-2149.2011.00022.x
30. Van Rijn RM, Brissett DI, Whistler JL, Emergence of functional spinal delta opioid receptors after chronic ethanol exposure, **Biol Psychiatry**, 2012, 71:232-238, PMID:21889123, PMC4086708, doi: 10.1016/j.biopsych.2011.07.015
31. Van Rijn RM, Brissett DI, Whistler JL, Dual efficacy of delta opioid selective ligands for ethanol drinking and anxiety, **J Pharmacol Exp Ther**, 2010, 335 (1):133-139, PMID:20605909, PMC2957775, doi: 10.1124/jpet.110.170969

32. Van Rijn RM, Rhee IK, Verpoorte R, Isolation of acetylcholinesterase inhibitory alkaloids from *Nerine Bowdenii*, **Nat. Prod. Res**, 2010, 24 (3):222-225, PMID:20140801, doi: 10.1080/14786410802263758
33. Van Rijn RM, Whistler JL, Waldhoer M, Opioid receptor heteromer-specific trafficking and pharmacology, **Curr Opin Pharmacol**, 2010, 10:73-79, PMID:19846340, PMC2900797, doi: 10.1016/j.coph.2009.09.007
34. Van Rijn RM, Whistler JL. The delta-1 opioid receptor is a heterodimer that opposes the actions of the delta-2 receptor on alcohol intake, **Biol. Psychiatry**, 2009, 66:777-784, PMID:19576572, PMC2757485, doi: 10.1016/j.biopsych.2009.05.019
35. He L, Kim J, Ou C, McFadden W, van Rijn RM, Whistler JL, Methadone antinociception is dependent on peripheral opioid receptors, **J Pain**, 2009, 10 (4):369-379, PMID:19327642, PMC2952445, doi: 10.1016/j.jpain.2008.09.011
36. Van Rijn RM, Whistler JL, The only way is up: preventing opioid tolerance by promoting cell surface expression of MOR-DOR heterodimers? **Mol. Interv**, 2008, 8 (6): 277-280, PMID:19144899, doi: 10.1124/mi.8.6.4
37. Van Rijn RM, van Marle A, Chazot PL, Langemijer E, Qin Y, Shenton FC, Lim HD, Zuiderveld OP, Sansuk K, Dy M, Smit MJ, Tensen CP, Bakker RA, Leurs R, Cloning and characterization of dominant negative splice variants of the human histamine H₄ receptor, **Biochem J**, 2008, 414 (1):121-131, PMID:18452403, doi: 10.1042/BJ20071583
38. Van Rijn RM, Chazot PL, Shenton FC, Sansuk K, Bakker RA, Leurs R, Oligomerization of recombinant and endogenously expressed human histamine H₄ receptors, **Mol. Pharmacol**. 2006, 70(2):604-15, PMID: 16645125, DOI:10.1124/mol.105.020818
39. Bakker RA, Lozada AF, van Marle A, Shenton FC, Drutel G, Karlstedt K, Hoffmann M, Lintunen M, Yamamoto Y, van Rijn RM, Chazot PL, Panula P, Leurs R, Discovery of naturally occurring splice variants of the rat histamine H₃ receptor that act as dominant negatives, **Mol. Pharmacol**, 2006, 69(4):1194-206, PMID:16415177, DOI:10.1124/mol.105.019299
40. ¹Lim, HD and ¹Van Rijn RM, Ling P, Bakker RA, Thurmond RL, Leurs R., Evaluation of histamine H₁-, H₂-, and H₃-receptor ligands at the human histamine H₄ receptor: identification of 4-methylhistamine as the first potent and selective H₄ receptor agonist. **J Pharmacol Exp Ther**. 2005, 4(3):1310-21. ¹shared first author, PMID:15947036, DOI:10.1124/jpet.105.087965, **>300 citations**
41. Terzioglu N, van Rijn RM, Bakker RA, De Esch IJ, Leurs R., Synthesis and structure-activity relationships of indole and benzimidazole piperazines as histamine H₄ receptor antagonists, **Bioorg Med Chem Lett**. 2004, 14(21):5251-6, PMID:15454206, DOI:10.1016/j.bmcl.2004.08.035, **>100 citations**
42. Rhee IK, van Rijn RM, Verpoorte R., Qualitative determination of false-positive effects in the acetylcholinesterase assay using thin layer chromatography, **Phytochem Anal**, 2003, 14(3):127-31, PMID: 12793457, DOI:10.1002/pca.675 **>100 citations**

Pre-prints and manuscripts under review/in revision

1. Sharma KK¹, Cassell RJ¹, Su H, Blaine AT, Cummins BR, Mores KL, Johnson D, Van Rijn RM[#], Altman RA[#], Modulating β -Arrestin-2 Recruitment at the δ and μ Opioid Receptors, <https://doi.org/10.26434/chemrxiv.12685928.v1>, revised manuscript under review (ACS Med Chem Lett)
2. Ganzen L, Ko MJ, Zhang M, Xie R, Chen Y, Zhang L, James R, Mumm J, Van Rijn RM, Zhong W, Pang CP, Zhang M, Tsujikawa M, Leung YF, Drug Screening with Zebrafish Visual Behavior Identifies Carvedilol as a Potential Treatment for Retinitis Pigmentosa, <https://doi.org/10.1101/2020.07.28.225789> in revision (Sci Rep)

Peer-reviewed books and chapters published

1. Alongkronrusmee D, Watts VJ, Van Rijn RM, Bimolecular fluorescence complementation methodology to study G protein-coupled receptor dimerization in living cells. **NeuroMethods: Receptor-Receptor Interactions in the CNS**, 140, Springer 2018, 205-221, https://doi.org/10.1007/978-1-4939-8576-0_13
2. Alongkronrusmee D, Chiang T, Van Rijn RM, Role of delta opioid receptor pharmacology in alcohol behaviors, **Handbook of Experimental Pharmacology on Delta Opioid Receptor Pharmacology**, Springer, 2016, PMID 27316912, PMC5164984, doi: 10.1007/164_2016_30
3. Harvey JH, Van Rijn RM, Whistler JL, A FLIPR assay for evaluating agonists and antagonists of GPCR heterodimers, Humana Press, Springer, **Methods Mol Biol**, 2013, 995, Chemical Neurobiology: 43-54., PMID:23494371, PMC6428067, doi: 10.1007/978-1-62703-345-9_4

Prepared 01/19/2021

4. Van Rijn RM, Molecular Pharmacology of the human histamine H₄ receptor, **Graduate thesis**, 2007, Printpartners Ipskamp, ISBN: 978-90-9022405-3

Peer-reviewed continuing pharmacy education (CPE)

1. Anastasia AD, Selzer CC, Elantably H, van Rijn RM, Krause JE, Heroin Use Disorder: The evolving role of the pharmacist, Indiana Pharmacist Alliance – Continuing Pharmacy Education (CPE), 2016

Complete list of published work:

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/44235481/?sort=date&direction=descending>

Patents awarded

1. Watts VJ, van Rijn RM, Flaherty DP, Kaur J, **Methods for treating chronic pain and opioid dependence using adenylyl cyclase inhibitors**, US patent 10457653, issued January 30th, 2020, application no. 16/564271
2. Watts VJ, van Rijn RM, Flaherty DP, Kaur J, **Novel scaffold of adenylyl cyclase inhibitors for chronic pain and opioid dependence**, US patent 10662176, issued May 26th, 2020, application no. 16/038236

Patents filed

1. Flaherty DP, Watts VJ, van Rijn RM, **Pyrazolyl pyrimidinone compounds and uses thereof**. 2019, U.S. Provisional. 62/911604
2. Van Rijn RM, Cushman MS, Lill M, Cassell RJ, Abdallah AHM, El-Sayed MSA, **G-protein biased delta opioid receptor agonist for treatment of alcohol use disorders and co-morbid disorders**, application no. 62/518,633, PCT filed June 13, 2018
3. Fields HL, Whistler JL, Mitchell JM, Margolis EB, Van Rijn RM, **Methods and compositions using selective delta opioid receptor-1 agonists, delta opioid receptor-2 antagonists, and/or mu opioid receptor antagonists for treatment of substance-related disorders**, application no. 12/990487, US patent and PCT filed May 1st, 2009

Invited departmental talks

1. **Olivet Nazarene University**, Department of Chemistry and Geoscience, February 16th, 2021
2. **University of Illinois Chicago**, Department of Medicinal Chemistry and Pharmacognosy, “Identification of natural and synthetic opioids to treat neurological disorders”, October 23rd, 2019
3. **Purdue University**, Department of Biochemistry, “Novel developments in opioid receptor pharmacology: Being biased isn’t necessarily bad”, September 3rd, 2019
4. **University of Illinois Chicago**, Department of Psychiatry, “Better living through biased signaling”, April 25th, 2019
5. **University of Toledo**, Department of Medicinal and Biological Chemistry, “Discovery of naturally occurring opioids with unique pharmacology”, March 14th, 2019
6. **University of California Davis**, Center for Neuroscience, “Identification of pathway-biased delta opioid receptor agonists for treatment of neurological disorders”, October 18th, 2018
7. **Oregon Health and Science University**, Department of Behavioral Neuroscience, “Cellular basis for opioid modulation of neuropsychiatric behavior”, September 17th, 2018
8. **University of Minnesota**, Department of Pharmacology, “Should the ‘2nd generation’ of opioids be completely G-protein biased for optimal efficacy?”, May 18th, 2018
9. **Indiana University School of Medicine**, Department of Pharmacology and Toxicology, “Self-administration of kratom to treat alcohol addiction – Why it may work”, March 6th, 2018
10. **National Health Research Institutes**, Center for Neuropsychiatric Research, Zhunan Township, Taiwan, “New ways to treat addiction – bias can be good”, December 14th, 2017
11. **Purdue University**, Brain and Spinal Cord Injury seminar series “Alcohol induced pain – role of aldehyde and TRPA1”, November 14th, 2017
12. **Leiden University**, Department of Medicinal Chemistry, “Study and development of signaling-biased delta opioid receptor agonists as potential treatment for neurological disorders”, September 1st, 2016

Prepared 01/19/2021

13. **Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV)**, Department of Physiology, Biophysics and Neuroscience, Mexico City, "Modulation of delta opioid receptor signal transduction pathways for the treatment of alcohol use disorders.", June 23rd, 2016
14. **Indiana University School of Medicine**, Stark Neurosciences Research Institute, "Delta opioid receptors – better than mu for chronic pain conditions?", January 14th, 2016
15. **Hoshi University**, Department of Pharmacology, Tokyo, "Delta receptor agonists – Different routes for treatment of neurological disorders", July 27th, 2015
16. **Purdue University**, Department of Psychological Sciences, Behavioral Psychology Colloquia Series, "A preclinical evaluation of the risks of adolescent energy drink consumption" October 1st, 2014
17. **VU University Amsterdam**, AIMMS lecture, "G protein-coupled receptor mediated modulation of neurological behavior – It's all Relative", February 10th, 2014
18. **University of California Irvine**, Department of Anesthesiology and Perioperative Care, "Personalized pain medication by targeting opioid receptor subtypes", March 7th, 2013
19. **Purdue University**, Department of Medicinal Chemistry and Molecular Pharmacology, "Drug development of biased delta opioid receptors ligands for treatment of neurological disorders" February 26th, 2013
20. **University of California Berkeley**, Department of Psychology, "My brain is not your brain – How different experiences impact opioid receptor pharmacology", February 11th, 2013
21. **University of Colorado Boulder**, Institute of Behavioral Genetics, "Using transgenics to study opioid receptors in neurological disorders", February 6th, 2013.
22. **Indiana University Purdue University Indianapolis**, Department of Biology, "Gaining translational opportunities from new insights into GPCR pharmacology", January 10th, 2013
23. **Boston University School of Medicine**, Department of Pharmacology and Experimental Therapeutics, "Biasing delta opioid receptor agonists to the treatment of alcohol and anxiety disorders", April 12th, 2012
24. **University of South Carolina**, School of Medicine, Department of Pharmacology, Physiology and Neuroscience, "Biasing delta opioid receptor agonists to the treatment of alcohol and anxiety disorders", February 27th, 2012
25. **Temple University**, School of Pharmacy, Department of Pharmaceutical Sciences, "Delta opioid receptor subtypes as novel treatment for alcohol use disorder", December 2nd, 2011
26. **VU university Amsterdam**, Department of Chemistry and Pharmaceutical Sciences, "Delta opioid receptor subtypes as novel treatment for alcohol use disorder", January 17, 2011

Abstracts presented

1. "Synthesis of differentially-biased delta opioid peptides to probe the receptor's 'biased' binding pocket.", **International Narcotics Research Conference**, July 7-11, 2019, New York, USA
2. "The yellow brick road map to developing new alcohol use disorder treatments" **Greater Indiana Society for Neuroscience**, March 23rd, 2018 West Lafayette, USA, **Regional keynote speaker**
3. "The potential of delta opioid receptors as novel target for alcohol use disorders", **International Narcotics Research Conference**, July 9-14, 2017, Chicago, USA
4. "Strong beta-arrestin signaling may cause unwanted effects for drug treatments of alcohol use disorders", **Alcoholism and Stress: A Framework for Future Treatment Strategies**, May 9-12, 2017, Volterra, Italy, <https://doi.org/10.1016/j.alcohol.2017.02.195>
5. "Intricate involvement of delta opioid receptors in alcohol withdrawal induced hyperalgesia", **World Congress on Alcohol and Alcoholism**, 2016, Berlin, Germany, part of symposium "From Pleasure to Pain and Back Again: Alcohol and Nociception."
6. "Intricate involvement of delta opioid receptors in alcohol withdrawal induced hyperalgesia", **Research Society on Alcoholism meeting**, 2016, New Orleans, USA, part of symposium "alcohol dependence and nociception: new insights into a painful subject." <https://doi.org/10.1111/acer.13085>
7. "Emergence of Functional Spinal Delta Opioid Receptors after Chronic Ethanol Exposure" **Alcoholism and Stress: A Framework for Future Treatment Strategies**, 2011, Volterra, Italy
8. "Making a case for delta opioid receptor subtype selective drugs for the treatment of alcoholism", **Research Society on Alcoholism meeting**, 2010, San Antonio, USA
9. "Delta opioid receptors display opposing roles in ethanol intake", **Society for Neuroscience**, 2008, Washington DC, USA

Prepared 01/19/2021

10. "Characterization of morphine tolerance in transgenic R-MOR mice", **International Narcotics Research Conference**, 2007, Berlin, Germany
11. "Homo- and hetero-dimerization of the histamine H₄ receptor", **European Histamine Research Society**, 2006, Delphi, Greece
12. "Oligomerization of the human histamine H₄ receptor", **GPCR Day**, 2005, Weesp, The Netherlands

Poster Abstracts presented (first author or # is presenter)

1. French AR, Guttridge AM, Royer QH, Yuan J, van Rijn RM, Pharmacological Evaluation of How Beta-arrestin 2 signaling at the kappa opioid receptor impacts alcohol consumption in male and female mice, **Research Society on Alcoholism**, June 19-23, 2021
2. Guttridge AM, Charaborty S, Varga B, Rhoda ES, Royer QH, Cui H, Yuan J, Robins MT, Cassell RJ, Mores KL, Majumdar S, Van Rijn RM, Pharmacological investigation of Kratom Alkaloids Analogs in modulating alcohol consumption in mice, **Research Society on Alcoholism**, June 19-23, 2021
3. Hennessy MR, Guttridge AM, Creed SM, Argade MD, van Rijn RM, Riley AP, Probing the Structure-Activity Relationship of Opioidergic Indole Alkaloids Isolated from *Akuamma* Seeds, **ACS**, 2021, April 5-16, 2021
4. Blaine AT, Palant S, Yuan J, Van Rijn RM, Role of beta-arrestin Isoforms in Delta Opioid Receptor Agonist-Induced Seizures, **Experimental Biology**, April 27-30, 2021
5. Meqbil Y, Su H, Cassell RJ, Guttridge AM, Cummins BR, Chen L, Van Rijn RM, Identification of a Novel δ OR Selective Agonist Chemotype, Notably Devoid of a Basic Nitrogen- **Experimental Biology**, April 27-30, 2021
6. Guttridge AM, Charaborty S, Varga B, Rhoda ES, Royer QH, Cui H, Yuan J, Robins MT, Cassell RJ, Mores KL, Majumdar S, Van Rijn RM, Pharmacological Characterization of Synthetic Kratom Alkaloids for Improved Alcohol Use Disorder Therapeutics, **Experimental Biology**, April 27-30, 2021
7. French AR, Guttridge AM, Royer QH, Yuan J, van Rijn RM, Relating alcohol consumption behavior to ligand bias at the kappa opioid receptor, **Society for Neuroscience**, January 11-13, 2021
8. Blaine AT, Palant S, Van Rijn RM, beta-arrestin recruitment is correlated with Delta Opioid Receptor Agonist-Induced Seizure Severity, **Society for Neuroscience**, January 11-13, 2021
9. French AR, Royer QH, Guttridge AM, Van Rijn RM, Effects of biased agonism at the kappa opioid receptor on alcohol consumption in mice, **International Narcotics Research Conference**, July 22-24, 2020 (Zoom talk)
10. Blaine AT, Liu R, Van Rijn RM, Investigating the Cellular and Behavioral Effects of δ -Opioid Receptor Mediated β -arrestin 1 Signaling, **International Narcotics Research Conference**, July 22-24, 2020 (Zoom talk)
11. Guttridge AM, Hennessy MR, Argade MD, Rhoda ES, Royer QH, Riley AP, Van Rijn RM, Pharmacological Characterization of Natural and Synthetic *Akuamma* Alkaloids for Pain Therapeutics, **International Narcotics Research Conference**, July 22-24, 2020 (Zoom talk)
12. Ko MJ, Chiang T, Mukadam A, Mulia G, Chester J, Van Rijn RM, β -arrestin-dependent opioid signaling positively contributes to reduced conditioned fear and anxiety-like behavior **Society for Neuroscience**, October 19-23, 2019
13. Ko MJ, Chiang T, Mukadam A, Mulia G, Chester J, Van Rijn RM. Molecular mechanisms of G protein-coupled receptor signaling in the modulation of anxiety and conditioned fear **International Brain Research Organization**, September 21-25, 2019, <https://doi.org/10.1016/j.ibror.2019.07.1517>
14. Bertels Z, Siegersma K, Tipton A, Baca S, Van Rijn RM, Pradhan AA, Differential effects of mu and delta opioid receptor agonists in models of chronic migraine-associated pain and aura, **International Headache Congress**, September 5-8, 2019, <https://doi.org/10.1177/0333102419859835>
15. Bertels Z, Siegersma K, Tipton A, Baca S, Van Rijn RM, Pradhan AA, Differential effects of mu and delta opioid receptor agonists in models of migraine, **International Narcotics Research Conference**, July 7-11, 2019
16. Cassell RJ, Zerfas BL, Cummins BR, Cui H, Mores, KL, Trader DJ, Van Rijn RM#, Structural analysis of the G protein-biased delta opioid peptide rubiscolin to probe the receptor's 'biased' binding pocket, **International Narcotics Research Conference**, July 7-11, 2019
17. Cassell RJ, Zerfas BL, Cummins BR, Trader DJ, Van Rijn RM, Identification of a critical amino acid position in delta opioid receptor peptides that confers G protein bias, **Experimental Biology**, April 6-9, 2019, https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1_supplement.lb79
18. Guttridge AM, Robins MT, Cassell RJ, Uprety R, Mores KL, Ko MJ, Pasternak G, Majumdar S, Van Rijn RM, Therapeutic potential of G-protein biased kratom-derived and synthetic carfentanil-amide opioids for alcohol use

- disorder, **Experimental Biology**, April 6-9, 2019, https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1_supplement.498.3
19. Cassell RJ, Mores KL, Robins MT, Gutridge AM, Uprety R, Zerfas BL, Trader DJ, Majumdar S, Van Rijn RM, Plant-derived biased opioids show utility in the reduction of drinking behaviour in C57BL/6 mice, **British Pharmacology Society meeting**, December 18-20, 2018, <https://doi.org/10.1111/bph.14681>
 20. Krause JE, Van Rijn RM, Hazbun TR, Connecting Pharmaceutical Sciences and Pharmacy Practice: Collaborations at Purdue University, **American Association of Colleges of Pharmacy meeting**, July 21-25, 2018
 21. Cassell RJ, Uprety R, Gutridge AM, Robins MT, Mores KL, Majumdar S, Van Rijn RM, Preclinical characterization of Mitragyna Speciosa alkaloids for treatment of alcohol use disorder, **Research Society for Alcoholism**, June 16-20, 2018, <https://doi.org/10.1111/acer.13747>
 22. Gutridge AM, Robins MT, Uprety R, Cassell RJ, Majumdar S, Van Rijn RM, Preclinical characterization of Mitragyna Speciosa alkaloids for treatment of alcohol use disorder, **International Narcotics Research Conference**, June 12-16, 2018
 23. Ko MJ, Chiang T, Mukadam AA, Mulia GE, Weera MM, Chester JA, Van Rijn RM, β -arrestin-biased δ -opioid receptor (δ OR) signaling as a novel therapeutic target for anxiety disorders, **International Narcotics Research Conference**, June 12-16, 2018
 24. Ko MJ, Chiang T, Weera MM, Chester JA, Van Rijn RM, β -arrestin-biased δ -opioid receptor (δ OR) signaling as a novel therapeutic target for anxiety disorders, **Brains & Behavior: Order & Disorder in the Nervous system – Cold Spring Harbor Laboratory Symposium**, May 30-June 4, 2018
 25. Robins MT, Ko MJ[#], Chiang T, Berry JN, Ha JE, Van Rijn RM, Behavioral characterization of β -arrestin-1 knockout mice in anxiety-like, seizure, and alcohol-drinking behavior, **Genes Brain and Behavior meeting**, May 17-21, 2018
 26. Ko MJ, Ganzen LC, Lueng YF, Van Rijn RM, A pharmacological model of TRPA1-mediated nociception in zebrafish larvae for therapeutic discovery, **Experimental Biology**, April 21-25, 2018, https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1_supplement.684.3
 27. Mulia GE, Ko MJ, Mukadam AM, Chiang T, Van Rijn RM, In Vitro and Ex Vivo characterization of β -arrestin biased δ opioid receptor signaling, **Greater Indiana Society for Neuroscience**, March 23rd, 2018
 28. Robins MT, Ha JE, Brewster A, Van Rijn RM, Behavioral and neurochemical analysis of novel psychoactive substance ethylphenidate exposure in adolescent male and female mice, **Society for Neuroscience**, 2017
 29. Ko MJ, Chiang T, Weera MM, Chester JA, Van Rijn RM, β -arrestin-biased signaling at δ -opioid receptor (δ OR) as a novel therapeutic target for anxiety disorders, **Society for Neuroscience** 2017
 30. Alongkronrusmee D, Ghomi HT, Tang S, Lill MA, Van Rijn RM, Identification of a novel interaction site of the mu-delta opioid receptor heterodimers, **International Narcotics Research Conference**, 2017
 31. Robins MT, Chiang T, Alongkronrusmee D, Ko MJ, Van Rijn RM, Critical role of Gi-protein signaling in the dorsal striatum in the reduction of voluntary alcohol intake in C57BL/6 mice, **International Narcotics Research Conference**, 2017
 32. Cassell RJ, Robins MT, Mores KL, Uprety R, Majumdar S, Van Rijn RM, Characterization of opioid receptor subtypes and biased signaling as factors for modulation of alcohol use in mice, **International Narcotics Research Conference**, 2017
 33. Robins MT, Alongkronrusmee D, Van Rijn RM, Critical role of Gi-protein signaling in the dorsal striatum in the reduction of voluntary alcohol intake in C57BL/6 mice, **Research Society on Alcoholism**, June 24-28, 2017, <https://doi.org/10.1111/acer.13391>
 34. Soto-Velasquez M, Rana N, Alongkronrusmee D, Ejendal KFK, Kyei-Baffour K, van Rijn RM, Dai, M, Lill MA, Watts VJ, Structure Activity Relationship Studies for Selective Inhibitors of Type 1 and Type 8 Adenylyl Cyclase Isoforms, **Experimental Biology**, April 22-26, 2017, https://www.fasebj.org/doi/10.1096/fasebj.31.1_supplement.666.9
 35. Cassel RJ, Mores KL, Van Rijn RM, Interspecies variations in signaling bias at the delta opioid receptor, **17th Annual Great Lakes GPCR Retreat**, 2016
 36. Alongkronrusmee D, Ghomi HT, Tang S, Lill MA, van Rijn RM, investigate the mu-delta opioid receptor heteromer interface using a multipronged approach, **17th Annual Great Lakes GPCR Retreat**, 2016
 37. Ko MJ, Van Rijn RM, Crosstalk between the delta-opioid receptors (DOR) and TRP channel subfamily A1 (TRPA1): A potential therapeutic target for chronic pain, **17th Annual Great Lakes GPCR Retreat**, 2016
 38. Robins M, Brewster AL, van Rijn RM, Behavioral and neurochemical analysis of ethylphenidate exposure in adolescent male and female mice, **Federation of European Neuroscience Societies conference**, 2016

39. Marquez-Gomez R, Gutierrez-Rodelo C, Escamilla-Sanchez J, Olivares-Reyes RA, Robins MT, van Rijn RM, Arias-Montano JA, On the existence of a histamine H₃ adenosine A_{2A} receptor heteromer, **European Histamine Research Society**, 2016
40. Alongkronrusmee D, Ghomi HT, Tang S, Lill MA, van Rijn RM, Multipronged approach to investigate the mu-delta opioid receptor heteromer interface, **Experimental Biology**, April 2-6, 2016, https://www.fasebj.org/doi/10.1096/fasebj.30.1_supplement.931.6
41. Robins MT, Chiang T, Alongkronrusmee D, Van Rijn RM, Activation of Gi signaling in the dorsal striatum is sufficient to reduce alcohol intake in mice, **Indianapolis Chapter of the Society for Neuroscience**, 2016
42. Alongkronrusmee D, Van Rijn RM, Involvement of Delta opioid receptors in alcohol withdrawal-induced mechanical pain, **Indianapolis Chapter of the Society for Neuroscience**, 2016
43. Chiang T, Sansuk K, Van Rijn RM, Efficacy of delta opioid receptor agonist induced β -Arrestin 2 recruitment positively correlates with alcohol intake in mice. **Society for Neuroscience**, 2015
44. Alongkronrusmee D, Van Rijn RM, Protective role of delta opioid receptors in alcohol withdrawal-induced hyperalgesia, **Society for Neuroscience**, 2015
45. Robins MT, Van Rijn RM, Chronic adolescent consumption of caffeine mixed alcohol significantly increases Δ FosB expression in the nucleus accumbens, **Society for Neuroscience**, 2015
46. Robins MT, Van Rijn RM, Effect of adolescent caffeine and alcohol consumption on adult behavior and neuropharmacology in mice, **Research Society on Alcoholism**, 2015
47. Alongkronrusmee D, Van Rijn RM, Signal biased agonists of delta opioid receptors for alcohol withdrawal-induced hyperalgesia, **International Narcotics Research Conference**, 2015
48. Robins MT, Fritz B, Boehm II SL, Van Rijn RM, Effects of co-consumption of caffeine and alcohol on adolescent behavior and adult consumption. **Indianapolis chapter of the Society for Neuroscience**, 2014
49. Van Rijn RM, DeFriel JN, Lu J, Whistler JL, Relativity of biased agonism in models of depression, anxiety and ethanol consumption, **Society for Neuroscience**, 2013
50. Yang, S, van Rijn R.M, Whistler J.L., Bender K.J. Cellular mechanisms for dopaminergic modulation of axon initial segment calcium channels, **Society for Neuroscience**, 2013
51. Van Rijn RM, DeFriel JN, Whistler JL, Biased agonism of delta opioid receptors selective ligands in vivo, **Society for Neuroscience**, 2012
52. Van Rijn RM, Harvey J, Brissett DI, DeFriel JN, Whistler JL, Novel high throughput *in vitro* assay for screening heteromer selective ligands, **GPCR keystone**, 2012
53. Van Rijn RM, DeFriel JN, Whistler JL, Biased agonists of delta opioid receptor for the treatment of alcoholism and anxiety disorders, **Research Society on Alcoholism**, June 23-27, 2012, <https://doi.org/10.1111/j.1530-0277.2012.01803.x>
54. DeFriel JN, Whistler JL, Van Rijn RM, The effect of adolescent binge consumption of caffeinated energy drinks on adult alcohol consumption, **Research Society on Alcoholism**, June 23-27, 2012, <https://doi.org/10.1111/j.1530-0277.2012.01803.x>
55. Van Rijn RM, Brissett DI, Whistler JL, Pharmacological profile of delta and kappa opioid receptor subtypes in spinal cord, **International Narcotics Research Conference**, 2011
56. Van Rijn RM, He L, Brissett DI, Gupta A, Devi LA, Whistler JL, Emergence of functional spinal delta-mu opioid receptor heteromers after chronic ethanol exposure, **Research Society on Alcoholism**, June 25-29, 2011, <https://doi.org/10.1111/j.1530-0277.2011.01497.x>
57. Van Rijn RM, He L, Brissett DI, Whistler JL, Emergence of functional spinal delta opioid receptors after chronic ethanol exposure, **Conference on Alcoholism and stress – A framework for future treatment strategies**, 2011
58. Van Rijn RM, Brissett DI, Whistler JL, Making a case for delta opioid receptor subtype selective drugs for the treatment of alcoholism, **Research Society on Alcoholism**, June 26-30, 2010, <https://doi.org/10.1111/j.1530-0277.2010.01210.x>
59. Van Rijn RM, Whistler JL, The delta-1 opioid receptor is a heterodimer that opposes the actions of the delta-2 receptor on alcohol consumption, **International Narcotics Research Conference**, 2009
60. Van Rijn RM, Bartlett SE, Whistler JL, Delta opioid receptor subtypes display opposing effects on alcohol intake, **Society for Neuroscience**, 2008
61. Chazot PL, Shenton FC, Van Rijn RM, Bakker RA, Leurs R, Generation of the first anti-hH₄ receptor antibody: identification of the hH₄R in human lymphocytes and brain, **European Histamine Research Society**, 2006

62. Chazot PL, Shenton FC, Van Rijn RM, Bakker RA, Leurs R, Biochemical and pharmacological evidence for homo- and hetero-oligomeric human H₃ receptor isoforms: Further evidence of dominant negative role for splice isoforms, **European Histamine Research Society**, 2006
63. Van Rijn RM, Chazot PL, Shenton FC, Van Marle A, Bakker RA, Leurs R, Oligomerization of the human histamine H₄ receptor, **European Histamine Research Society**, 2006
64. Van Rijn RM, Bakker RA, Leurs R, homo-oligomerization of the human histamine H₄ receptor, **European Histamine Research Society**, 2004
65. Van Rijn RM, Zuiderveld O, Kitbunnadaj R, Bakker RA, Leurs R, [125I]iodophenpropit as an iodinated histamine H₄-receptor radioligand, **European Histamine Research Society**, 2003

Professional service

Grant review

1. *Ad hoc* member, Indiana CTSI core pilot funding program, December 11th, 2020
2. External reviewer, Czech Science Foundation, August 2020
3. External reviewer, University of Minnesota's Medical Discovery Team on Addiction Pilot Grant Program, July 1st, 2020
4. *Ad hoc* member, Molecular Neuropharmacology and Signaling (MNPS) study section, June 4-5, 2020
5. External reviewer, Health Research Council of New Zealand, 2020 annual funding round, February 18th, 2020
6. External reviewer, UK Research and Innovation Biotechnology and Biological Sciences Research Council, February 5th, 2020
7. *Ad hoc member*, NIDA, R61/R33 Innovation Phase Application review, January 21st, 2020
8. *Ad hoc* member, Indiana CTSI Collaboration in Translational Research funding program, September 20th, 2019
9. *Ad hoc* review of a proposal for the Army Broad Agency Announcement of the Congressionally Directed Medical Research Program, April 15th, 2019
10. *Ad hoc* review of Therapeutic Development Branch at NCATS program on opioid abuse and addiction and pain proposal (part of NIH HEAL), April 3rd, 2019
11. External reviewer, Pilot study proposals for Institute for Clinical and Translational Science at the University of California Irvine, March 1st, 2019
12. *Ad hoc* member, Molecular, Cellular, and Developmental Neuroscience, integrated review group for the Center for Scientific Review Anonymization Study, August 2018
13. *Ad hoc* member, Molecular Neuropharmacology and Signaling (MNPS) study section, June 14-15, 2018
14. *Ad hoc* member, Indiana CTSI core pilot funding program, June 20th, 2017
15. *Ad hoc* member, Lilly-Stark research pre- and post-doctoral fellowships review, November 22nd, 2016
16. External reviewer, Czech Science Foundation, September 15th, 2016
17. External reviewer, French National Research Agency Biomedical innovation program, May 9th, 2016
18. *Ad Hoc member*, Purdue Institute for Inflammation, Immunology and Infectious Diseases (PI4D) Research Incentive Program, May 9th, 2016
19. *Ad hoc* member, Indiana Spinal Cord and Brain Injury Research Fund review panel, January 22nd, 2016
20. *Ad hoc* member, AACP new investigator award review, October 23rd, 2015
21. Early career reviewer, Molecular Neuropharmacology and Signaling (MNPS) study section, June 23-24, 2015
22. *Ad hoc* member, Indiana Spinal Cord and Brain Injury Research Fund review panel, March 13th, 2015

Ad hoc manuscript peer review (<https://publons.com/researcher/1405087/richard-m-van-rijn/>)

- Alcohol
- Alcoholism: Clinical and Experimental Research
- Archives of Pharmacal Research
- BBA Biomembranes
- BMC Clinical Pharmacology
- Biochemistry
- Biological Psychiatry CNNI
- British Journal of Pharmacology
- Cellular and Molecular Neurobiology
- Cellular Physiology and Biochemistry
- CNS drugs
- Computational and Structural Biotechnology Journal
- Current Pharmaceutical Design
- Drug and Alcohol Dependence
- International Journal of Molecular Sciences
- International Journal of Neuropsychopharmacology

Prepared 01/19/2021

- J Basic and Clinical Physiology and Pharmacology
- Journal of Biological Chemistry
- Journal of Medicinal Chemistry
- Journal of Neuroscience
- Journal of Pain Research
- J Pharmacology & Experimental Therapeutics
- Journal of Physiology and Pharmacology
- Neuropharmacology
- Neuroscience
- Neuroscience & Biobehavioral Reviews
- Pharmacology, Biochemistry and Behavior
- Pharmacological Reports
- Plos One
- Progress in Neuro-Psychopharmacology & Biological Psychiatry
- Psychopharmacology
- Social Neuroscience

Professional memberships

2020 – Present	<i>American Chemical Society</i>
2019 – Present	<i>Member of the Purdue University Cancer Center</i>
2018 – 2019	<i>International Behavioral and Neural Genetics Society</i>
2016 – Present	<i>Member of the Purdue Institute for Inflammation, Immunology and Infectious Diseases</i>
2016 – Present	<i>Member of the Purdue Institute for Integrative Neuroscience Center</i>
2013 – Present	<i>Member of the Purdue Institute for Drug Discovery</i>
2013 – 2015	<i>American Association for Colleges of Pharmacy</i>
2011 – Present	<i>American Society Pharmacology and Experimental Therapeutics</i>
2010 – Present	<i>Society for Neuroscience</i>
2010 – Present	<i>Research Society on Alcoholism</i>
2008 – Present	<i>Dutch Neurofederation</i>
2007 – Present	<i>International Narcotics Research Conference</i>

Committees

2020 – 2021	<i>IU bicentennial “beyond Boundaries” conference program committee member</i>
2020 – 2021	<i>IU bicentennial “beyond Boundaries” poster sessions subcommittee member</i>
2020	<i>MCMP Courtesy Appointment Policy committee</i>
2019	<i>MCMP chemistry faculty search (successfully recruited Dr. Ryan Altman)</i>
2019 – Present	<i>College of Pharmacy Academic Standards and Readmissions committee</i>
2019 – Present	<i>Greater Indiana Society for Neuroscience program committee (President in 2020)</i>
2018 – 2019	<i>College of Pharmacy Professional Program Admissions Committee</i>
2017 – Present	<i>Purdue University Life Sciences (PULSe) executive committee</i>
2017 – Present	<i>Head of the Integrative Neuroscience PULSe training group</i>
2017 – 2018	<i>PULSe graduate student organization, faculty representative</i>
2017	<i>International Narcotics Research Conference, program committee, Chicago, IL</i>
2017	<i>MCMP neuroscience faculty search committee (successfully hired Drs. Trader and Yang)</i>
2017	<i>Purdue Institute for Integrative Neuroscience Liaison committee</i>
2017	<i>MCMP website committee</i>
2015 – Present	<i>Purdue Animal Care and Use Committee</i>
2015 – Present	<i>MCMP Graduate Admission and Recruitment Committee</i>
2014 – Present	<i>MCMP Graduate Program Curriculum Committee</i>
2013	<i>Ernest Gallo Clinic and Research Center Annual retreat, organizing committee</i>

Student dissertation committee

2020 – Present	<i>Dissertation Committee for Sabiha Chowdhury (MCMP, PhD)</i>
2019 – Present	<i>Dissertation Committee Chair for Yazan Meqbil (MCMP, PhD)</i>
2019 – Present	<i>Dissertation Committee for Maria Olivero-Acosta (MCMP, PhD)</i>
2018 – Present	<i>Dissertation Committee Chair for Arryn Blaine (PULSe, PhD)</i>
2018 – Present	<i>Dissertation Committee Chair for Anna Gutridge (MCMP, PhD)</i>
2017 – 2018	<i>Dissertation Committee for Brandon Crockett (MCMP, MS)</i>
2017 – Present	<i>Dissertation Committee for Seth Herr (Pulse, PhD)</i>

Prepared 01/19/2021

2017 – 2020	<i>Dissertation Committee for Ka Ng (Psych, PhD)</i>
2015 – 2020	<i>Dissertation Committee Chair for Mee Jung Ko (PULSe, PhD)</i>
2015 – 2016	<i>Dissertation Committee for Shari Konst (MCMP, MS)</i>
2015 – Present	<i>Dissertation Committee Chair for Robert Cassell (MCMP, PhD)</i>
2015 – 2016	<i>Dissertation Committee for Ka Ng (Psych, MS)</i>
2014 – 2018	<i>Dissertation Committee for Ricardo Gomez (Cinvestav, PhD)</i>
2014 – 2019	<i>Dissertation Committee for Qiuyu Rachel Wu (PULSe, PhD)</i>
2014 – 2019	<i>Dissertation Committee for Matthew Arvin (MCMP, PhD)</i>
2013 – 2018	<i>Dissertation Committee for Trevor Doyle (MCMP, PhD)</i>
2013 – 2017	<i>Dissertation Committee Chair for Doungkamol Alongkronrusmee (MCMP, PhD)</i>
2013 – 2018	<i>Dissertation Committee Chair for Meridith Robins (MCMP, PhD)</i>
2013 – 2017	<i>Dissertation Committee for Marcus Weera (PULSe, PhD)</i>

Student original proposal committee

2021	<i>Original proposal committee Chair for Queqi Tang (PULSe)</i>
2020	<i>Original proposal committee for Ruoxuan Sun (MCMP)</i>
2019	<i>Original proposal committee for Jason Scott (MCMP)</i>
2019	<i>Original proposal committee for Jennifer Hensel (PULSe)</i>
2018	<i>Original proposal committee for Abraham Escobedo (Psych)</i>
2018	<i>Original proposal committee for Chad Hewitt (MCMP)</i>
2018	<i>Original proposal committee for Shiqi Tang (MCMP)</i>
2018	<i>Original proposal committee Chair for Seth Herr (PULSe)</i>
2017	<i>Original proposal committee for Priya Prakash (PULSe)</i>
2017	<i>Original proposal committee for Ka Ng (Psych)</i>
2017	<i>Original proposal committee Chair for Saranya Radhakrishnan (PULSe)</i>
2016	<i>Original proposal committee Chair for Qiuyu Rachel Wu (PULSe)</i>
2016	<i>Original proposal committee Chair for Matthew Arvin (MCMP)</i>
2016	<i>Original proposal committee Chair for Trevor Doyle (MCMP)</i>
2015	<i>Original proposal committee for Marcus Weera (PULSe)</i>
2014	<i>Original proposal committee for Monica Soto Velasquez (MCMP)</i>

Additional service

2021	<i>Co-editor Molecules Special issue "Opioids and Their Receptors: Present and Emerging Concepts in Opioid Drug Discovery II"</i>
2020 – present	<i>Consultant for Carmot Therapeutics (62 hrs)</i>
2020/7/21	<i>Consultant for a Guidepoint client (1 hr)</i>
2020/6/19	<i>Consultant for the Tippecanoe County Public Defender's Office (0.5 hr)</i>
2019 – Present	<i>Advisory Committee member of NAPRALERT (https://www.napralert.org/)</i>
2019 – 2020	<i>Editorial board of Scientific Reports</i>
2019	<i>Office of Interdisciplinary Graduate Program spring reception poster competition judge</i>
2019	<i>Purdue Office of Undergraduate Research conference judge</i>
2019	<i>Greater Indiana SfN Meeting travel award committee</i>
2019	<i>Purdue Health and Science poster judge</i>
2018	<i>College of Pharmacy SURF program symposium Moderator</i>
2018	<i>Office of Interdisciplinary Graduate Program spring reception poster competition judge</i>
2018	<i>Greater Indiana SfN Meeting travel award committee</i>
2017	<i>College of Pharmacy SURF program symposium Moderator</i>
2017	<i>MCMP endowment award review committee</i>
2017	<i>Purdue Research Foundation student grant review committee</i>
2015	<i>Jenkins Knevel Award review committee</i>
2015	<i>Koo Paget Gibbs Travel award review committee</i>
2013 – Present	<i>Admissions interviews for PULSe graduate students</i>

Teaching experience

PHRM316: Co-course coordinator: 3yr average course rating (4.9/5), teacher rating (4.8/5)

PHRM845: Co-course coordinator: 3yr average course rating (4.4/5), teacher rating (4.4/5)

PU = Purdue University, IUSM = Indiana University School of Medicine, * = co-course coordinator

2020-2021

<i>PHRM845 - Integrated Pharmacotherapy III, PU, *</i>	9 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU, *</i>	3 lecture hrs, 17 contact hrs	Spring
<i>MCMP690 - Journal club seminar</i>	10 contact hrs	Fall
<i>Med-X 730 - Renal and Respiratory, IUSM</i>	3 lecture hrs	Fall

2019-2020

<i>PHRM845 - Integrated Pharmacotherapy III, PU, *</i>	10 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU, *</i>	3 lecture hrs, 17 contact hrs	Spring
<i>HSCI201 – Principles of public health, PU</i>	1.5 lecture hr (guest)	Spring
<i>BIOL695 - Neurol and Neuropsych Dis Seminar, PU</i>	1 lecture hr, 2 contact hrs	Fall
<i>PHRM844 - Integrated Pharmacotherapy II, PU</i>	4 lecture hrs	Fall
<i>Med-X 730 - Renal and Respiratory, IUSM</i>	2 lecture hrs	Fall

2018-2019

<i>HSCI201 – Principles of public health, PU</i>	1.5 lecture hr (guest)	Spring
<i>Med-X 660 - Neuroscience and behavior, IUSM</i>	4.5 lecture hrs, 2.5 contact hr	Spring
<i>PHRM845 - Integrated Pharmacotherapy III, PU, *</i>	10 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU, *</i>	3 lecture hrs, 17 contact hrs	Spring
<i>PSYCH696 – Seminar in Neuroscience, PU</i>	1 lecture hr, 1 contact hr (guest)	Spring
<i>MCMP690 - Journal club seminar</i>	10 contact hrs	Fall
<i>BIOL695 - Neurol and Neuropsych Dis Seminar, PU</i>	1 lecture hr, 2 contact hrs	Fall
<i>PHRM844 - Integrated Pharmacotherapy II, PU</i>	4 lecture hrs	Fall
<i>Med-X 730 - Renal and Respiratory, IUSM</i>	3 lecture hrs, 1 contact hr	Fall

2017-2018

<i>Med-X 660 - Neuroscience and behavior, IUSM</i>	4 lecture hrs, 2.5 contact hr	Spring
<i>MCMP544 - Drug Classes and Mechanisms, PU</i>	4 lecture hrs, 2 contact hrs	Spring
<i>PHRM825 - Integrated Pharmacotherapy I, PU</i>	2 lecture hrs	Spring
<i>PHRM845 - Integrated Pharmacotherapy III, PU, *</i>	10 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU, *</i>	3 lecture hrs, 17 contact hrs	Spring
<i>PHRM844 - Integrated Pharmacotherapy II, PU</i>	4 lecture hrs	Fall
<i>Med-X 730 - Renal and Respiratory, IUSM</i>	3 lecture hrs, 1 contact hr	Fall

2016-2017

<i>Med-X 660 - Neuroscience and behavior, IUSM</i>	2.5 lecture hrs	Spring
<i>MCMP544 - Drug Classes and Mechanisms, PU</i>	4 lecture hrs, 2 contact hrs	Spring
<i>PHRM845 - Integrated Pharmacotherapy III, PU, *</i>	10 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU, *</i>	3 lecture hrs, 17 contact hr	Spring
<i>Med-X 640 - Fundamentals of health and Disease, IUSM</i>	1.5 lecture hrs	Spring
<i>IUSM 611 - Basic Principles of Pharmacology & Toxicology II</i>	4 lecture hrs	Spring
<i>IUSM610 - Basic Principles of Pharmacology & Toxicology I</i>	3 lecture hrs,	Fall

2015-2016

Prepared 01/19/2021

<i>MCMP544 - Drug Classes and Mechanisms, PU</i>	4 lecture hrs, 2 contact hrs	Spring
<i>PHRM845 - Integrated Pharmacotherapy III, PU</i>	10 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU</i>	3 lecture hrs, 17 contact hr	Spring
<i>HK231 - Substance Abuse and Health, PU</i>	1 lecture hr (guest)	Fall
<i>IUSM610 - Basic Principles of Pharmacology & Toxicology I</i>	3 lecture hrs,	Fall

2014-2015

<i>MCMP544 - Drug Classes and Mechanisms, PU</i>	4 lecture hrs, 2 contact hrs	Spring
<i>PHRM845 - Integrated Pharmacotherapy III, PU</i>	10 lecture hrs, 1 contact hr	Spring
<i>PHRM316 - Drug abuse/addiction education, PU</i>	3 lecture hrs, 17 contact hr	Spring
<i>IUSM610 - Basic Principles of Pharmacology & Toxicology I</i>	6 lecture hrs,	Fall

2013-2014

<i>MCMP544 - Drug Classes and Mechanisms, PU</i>	2 lecture hrs	Spring
<i>PHRM845 - Integrated Pharmacotherapy III, PU</i>	7 lecture hrs, 1 contact hr	Spring

MCMP 696 (Seminar in Medicinal Chemistry and Molecular Pharmacology): Student seminar mentor

2018	<i>Aswathy Chandran (PULSe)</i>
2016	<i>Matthew Arvin (MCMP)</i>
2015	<i>Elizaveta O'Neill (MCMP)</i>

Mentoring.**Postdoctoral scientists**

Kamonchanok Sansuk PhD 10/1/2013 – 7/31/2014

Project: *Molecular and cellular characterization of delta opioid receptor pharmacology*

Current position: Licensed pharmacist and Yoga studio owner Ang Thong, Thailand

Jennifer N. Berry PhD 5/1/2016 – 8/1/2016

Project: *Characterization of β -arrestin1 knockout mice*

Current Position: Assistant professor, Department of Psychology, Butler University

Alexander French, PhD 6/27/2019 – present

Project: *Engineering optogenetic tools for studying neuropeptide activity*

1. BRAIN initiative Ruth L. Kirchstein National Research Service award F32 fellowship

a. 09/01/2017 - 08/31/2020 (Dr. Mathew Tantama was supervisor till June 2019)

Research technician/Lab manager

Terrance Chiang (Lab manager/research scientist) 9/1/2013 – 9/1/2016

Project: *Modulation of alcohol behavior by delta opioid drugs*

Current position: Research Scientist, Department of Neurosurgery, Stanford University

1. College of Pharmacy 'Bravo award' (\$500)

Arbaaz Mukadam (Research technician) 9/17/2018 – 05/31/2019

Project: *Dissecting role of β -arrestin isoforms on ERK signaling*

Current position: Graduate student, Department of Psychological Sciences, Purdue University

Jinling Yuan (Lab/animal colony manager) 9/9/2019 – present

Graduate students:

Doungkamol Alongkronrusmee MSc (MCMP program) 1/1/2014 – 11/20/2017

Thesis: *Identification of novel therapeutic targets of chronic pain*

1. INRC travel grant 2015 (\$650)

Prepared 01/19/2021

2. PGSG travel grant 2016 (\$250)
3. ASPET molecular pharmacology division best poster presentation competition finalist, Experimental Biology, 2016 (\$200)
4. 2016 Jenkins/Knevel Excellence in Research award (\$750)
5. Chaney Graduate Student Travel award (\$1500)
6. 1st place Sigma Xi poster competition, February 14th, 2017 (\$200)
7. 3rd place in the Health and Disease poster competition March 23rd, 2017 (\$100)
8. Bilsland Dissertation Fellowship, April 17th, 2017 (\$24,000)
9. Award of Excellence at Interdisciplinary Graduate Programs 2017 spring symposium
10. INRC travel grant 2017 (\$600)
11. Selected to participate in 2017 Purdue Applied Management Principles “mini-MBA” program

Subsequent position: non-clinical project manager at Siam Bioscience in Bangkok

Meridith T. Robins (MCMP program)

1/1/2014 –03/05/2018

Thesis: *Behavioral pharmacology of alcohol and legal stimulants*

1. 1-year Charles C. Chappelle Purdue Graduate Fellowship 2013 (\$24,000)
2. Award of excellence at Interdisciplinary Graduate Programs 2015 spring symposium
3. 3rd place in Health and Disease poster competition, March 2015 (\$100)
4. Research Society on Alcoholism student Merit Award 2015 (\$230)
5. Award of excellence at Interdisciplinary Graduate Programs 2016 spring symposium
6. Travel award from the Purdue Institute for Integrative Neuroscience, August 15th, 2016 (\$500)
7. MCMP Endowment Graduate Award, August 17th, 2016 (\$12,000)
8. College of Pharmacy Logan Travel award, October 13th, 2016 (\$1,000)
9. Research Society on Alcoholism student Merit Award 2017 (\$250)
10. Koo, Paget, Gibbs travel award, May, 2017 (\$1500)
11. Bilsland Dissertation Fellowship, April 17th, 2017 (\$24,000)
12. RSA Enoch Gordis Graduate Research Recognition award, June 28th, 2017 (\$1000)
13. INRC travel grant 2017 (\$600)
14. Kienly Award for Excellence in Teaching 2017 (\$750)
15. Teaching Academy Graduate Teaching Award (\$500)

Subsequent position: Postdoctoral Scientist in the Ryabiniin lab at Oregon Health and Sciences University

Robert J. Cassell (MCMP program)

1/1/2016 – 5/12/2020

Thesis: *Identification of novel signal-biased delta opioid receptor agonists for treatment of alcohol use disorders*

1. 2-year Frederick N Andrews Purdue Graduate fellowship 2015, (\$48,000)
2. 1st prize in Drug Discovery 3rd annual symposium poster competition, September 30th, 2016 (\$250).
3. INRC travel grant 2017 (\$600)
4. Research Society on Alcoholism student Merit Award 2018 (\$325)
5. Interviewed by WFLI about newly synthesized opioids for treating alcoholism and depression (9/20/18)
6. Selected for 2019 ASPET Washington Fellows program, includes travel award to 2019 EB meeting and visit to Washington DC (\$1500)
7. College of Pharmacy Travel award, February 27th, 2019 (\$1,000)
8. COVID-19 impact Scholarship 2020 (\$1000)

Mee Jung Ko Msc (PULSe program)

6/1/2016 – 09/15/2020

Thesis: *Characterization of the role of biased signaling in neurological disorders*

1. Lynn Purdue Graduate fellowship 2015 (\$24,000)
2. PULSe Spring symposium, special recognition poster award, 2016 (\$50)
3. PIIN collaborative research award, February 15th, 2017 (\$2000)
4. Women in Science Program travel grant, April 14th, 2017 (\$500)
5. PGSG travel grant 2016 (\$500)
6. A.H. Ismail Interdisciplinary Program Doctoral Research Travel Award 2017 (\$1000)

Prepared 01/19/2021

7. PIIN travel grant 2018 (\$500)
8. Chaney Travel grant 2018 (\$1500)
9. ASPET travel grant 2018 (\$800)
10. IBANGS Young Investigator Travel Award 2018 (\$300)
11. Financial support from the Cold Spring Harbor Laboratory for summer conference 2018 (\$400)
12. INRC travel grant 2018 (\$950)
13. College of Pharmacy Travel award, February 27th, 2019 (\$1,000)
14. 1st place in the Health and Disease poster competition February 28th, 2019 (\$400)
15. IBRO travel award 2019 (\$2000)
16. PULSe Outstanding Graduate Student in Teaching Award 2019 (\$300)
17. Financial support for Ion Channels in synaptic and Neural circuit physiology Cold Spring Harbor Laboratory course (\$1500)
18. Purdue Research Foundation research grant 2019 (\$20,320)
19. Purdue Graduate Student Government Profession Grant (\$400)
20. PULSe support to attend CHSL course (\$1500)
21. PIIN travel grant 2019 (\$750)
22. Linda and Jack Gill Graduate Student Award 2020 "Honorable Mention"

Subsequent position: Postdoctoral Scientist in Kaufer lab at University of California Berkeley

Anna M. Gutridge (MCMP program)

1/1/2018 – present

Thesis: *Pharmacology of biased opioids from natural products in modulation of alcohol use and pain.*

1. Ross Purdue Graduate fellowship 2017 (\$24,000)
2. INRC travel grant 2018 (\$950)
3. PIIN travel grant 2019 (\$500)
4. ASPET travel grant 2019 (\$800)
5. College of Pharmacy travel grant 2020 (\$1,000)
6. 1st prize, Purdue Health and Disease poster competition 2020 (\$400)
7. Selected to participate in 2020 Purdue Applied Management Principles "mini-MBA" program
8. College of Pharmacy training grant 2020 (\$250)
9. American Foundation for Pharmaceutical Education Pre-Doctoral Research Fellowship in Pharmaceutical Sciences 2020 (\$10,000)
10. Purdue Graduate Student Government Professional Training Grant (\$750)
11. 2020 Chaney Graduate Research Award (\$2000)

Arryn T. Blaine (PULSe program)

5/1/2018 – present

Thesis: *Characterization of beta-arrestin1 signaling in neuropsychiatric behavior*

1. College of Pharmacy travel grant 2020 (\$1000)
2. Alliance for Graduate Education and the Professoriate (AGEP) fellowship 2020 (\$1500)
3. PULSe graduate student poster award winner 2021

Yazan J. Meqbil (MCMP program)

1/1/2020 - present

Thesis: *Development of cellular assays and molecular models for the study of biased opioid signaling*

1. Accepted into the computational chemistry PLUMED masterclass (Spring 2021)

Undergraduate students

Laura Nicole Payne (Pharmaceutical Sciences, Purdue University)

1/4/2021 – present

Prepared 01/19/2021

Sophia Palant (Pre-Pharmacy, Purdue University)	9/1/2020 – present
Elizabeth S. Rhoda (Pre-Pharmacy, Purdue University)	9/1/2019 – present
Rebecca June Liu (Brain and Behavioral Sciences, Purdue University)	8/01/2019 – present
Quinten Hawk Royer (Public Health, Purdue University)	9/1/2019 – 12/15/2020
Bryce D. Colon (Beering Scholar, Purdue University)	9/1/2019 – 5/1/2020
1. Honors student, solely attended labmeetings	
Hongyu Su (Pharmaceutical Sciences, Purdue University)	5/20/2019 – 5/1/2020
Subsequent position: PhD student University of Michigan	
1. Dean's Undergraduate Research Fellowship 2019 (\$4000)	
2. BSPS Research recognition award 2020	
3. Co-author on 1 article	
Angel Lin (Health Sciences/Pre-med, Purdue University)	10/1/2018 – 5/1/2020
Subsequent position: Podiatry medical student Western University of Health Sciences	
1. OUR (Office of Undergraduate Research) scholar award 2019 (\$1000)	
2. Abstract selected for oral presentation at the 2019 OUR Fall conference	
3. 2 nd prize oral presentation 2020 virtual OUR spring conference (\$400)	
4. Co-author on 1 article	
Benjamin R. Cummins (Chemistry, Purdue University)	9/1/2018 – 5/3/2019
Subsequent position: Quality assurance lab technician – CraftMark, then PhD student LSUHSC.	
1. Co-first author on 1 article, co-author on 1 article	
Maria Shelley (Pharmacy, Purdue University)	6/1/2018 – 5/3/2019
Subsequent position: Third year PharmD student	
4. Dean's Undergraduate Research Fellowship 2018 (\$4000)	
Grace E. Mulia (Pharmaceutical Sciences, Purdue University)	9/1/2017 – 5/3/2019
Subsequent position: PhD Student - Purdue University	
1. Dean's Undergraduate Research Fellowship 2018 (\$4000)	
2. Co-first author on 1 article and co-author on 1 article	
Arbaaz A. Mukadam (Pharmaceutical Sciences, Purdue University)	1/1/2017 – 5/15/2018
Subsequent positions: Labtechnician and PhD Student - Purdue University	
1. BSPS research recognition award 2018	
2. Co-author on 2 articles	
Jiwon Ellen Ha (Pre-Pharmacy program, Purdue University)	9/1/2016 – 12/31/2017
Subsequent position: Brain science imaging internship at Sung Kyun Kwan University, Seoul	
1. Dean's Undergraduate Research Fellowship 2017 (\$4000)	
2. Co-author on 2 articles	
Dahlia Alkharat (Pre-Pharmacy program, Purdue University)	2/1/2016 – 5/30/2016
Subsequent position: BA in economics at Purdue University	
Kendall L. Mores (Pharmaceutical Science and Pharmacy, Purdue University)	8/31/2015 – 5/3/2019
Subsequent position: Northwestern Memorial Hospital Pharmacy residency	
5. Dean's Undergraduate Research Fellowship 2016 (\$4000)	
6. Dean's Undergraduate Research Fellowship 2017 (\$4000)	

Prepared 01/19/2021

7. OUR (Office of Undergraduate Research) scholar award 2018 (\$500)
8. Abstract selected for oral presentation at the 2018 OUR conference
9. 3rd prize best oral presentation at the 2018 OUR conference (\$250)
10. BSPS Research recognition award 2020
11. BSPS Academic Achievement Award 2020
12. PharmD Academic Achievement Award 2020
13. First-author on 3 articles, co-author on 3 articles

Katherine Simons (Pharmaceutical Sciences and Biological Engineering, Purdue University) 6/1/2015 – 12/31/2015
Subsequent position: Chemist at Mylan Pharmaceuticals

Jiehee Suh (Pre-Pharmacy program) 1/1/2015 – 12/31/2015
Subsequent position: unknown

Shiqi Tang (Pharmaceutical Sciences, Purdue University) 7/1/2014 – 5/1/2016
Subsequent position: PhD Student - Purdue University

1. Dean's Undergraduate Research Fellowship 2015 (\$4000)
2. Dr. Frank Brown Jr travel award (\$1000)
3. BSPS Research recognition award, 2016

Julie Lu (Molecular Cell Biology, UC Berkeley) 6/1/2012 – 05/31/2013
Subsequent position: Research Scientist at Roche

1. Co-author on 1 article

Julia N. DeFriel (Molecular Cell Biology, UC Berkeley) 5/1/2011 – 05/31/2012
Subsequent position: MS degree in Human Centered Design and Engineering at the University of Washington

1. Research Society on Alcoholism student Merit Award 2012 (\$350)
2. Co-author on 3 articles

Daniela I. Brissett (Molecular Cell Biology, UC Berkeley) 6/1/2009 – 05/31/2011
Subsequent position: Medical student UCSF

1. Berkeley Biology Fellowship (\$1500)
2. Berkeley honors symposium poster prize (\$500)
3. First author on 1 article, co-author on 4 articles,

Visiting scientists

Haoyue Cui (Shenyang Pharmaceutical University exchange student) 1/15/2019 – 5/8/2019
Project: Modulation and measurement of beta-arrestin signaling in vitro

1. Co-author on 1 article

Subsequent position: Graduate student at Shanghai Tech University

Ricardo Marquez-Gomez (Graduate student, CINVESTAV, Mexico City) 9/1/2015 – 2/28/2016
Project: *Heteromerization of histamine H3 and Adenosine A2a receptors*

1. First author on 1 article
2. Received a Newton International Fellowship in 2018 to work as a postdoctoral scientists at Oxford University (Provided feedback on proposal, and served as letter writer)

Eric Eisenmann (PharmD student, Ohio Northern University) 5/1/2016 – 7/31/2016
Project: *Molecular pharmacology of TRPA1 channels*
Subsequent position: Graduate student at the Ohio State University

Lily Zeng MD (Medical Resident, Vanderbilt University School of Medicine) 7/1/2016 – 7/31/2016
Project: *Literature review of neuropathic pain etiology*

1. 1 author in J Pain Research

Rotating graduate students**2020:** Stephanie Gonzalez, Tiffany Dwyer**2019:** Sabiha Chowdhury, Yazan Meqbil, Adam Buric**2018:****2017:** Anna Gutridge, Arryn Blaine, Walter Saide**2016:****2015:** MeeJung Ko, Robert Cassell, Saranya Radakrishnan, Priya Prakash**2014:** Jacob Owens, Shari Konst, Lama Al-Abdi, Quiyu Rachel Wu**2013:** Trevor Doyle, Doungkamol Alongkronrusmee, Meridith Robins, Katherine Scott**Academic outreach**

- “The changing landscape of opioid use and abuse” – Purdue Alumni meeting, Continuing education, Evansville IN, October 11th, 2018
- “Etiology, medical treatment and self-medication of chronic pain” – Pharmacy women for Purdue Spring symposium continuing education, Purdue University, April 7th, 2017
- “Behavioral studies of opioids and psychostimulants” – Science for Purdue husbandry staff, May 20th, 2016
- “Prescription drug abuse” – Endodontic specialist Fishers, Indiana - continuing education for dentists, April 28th, 2016
- “Recent developments in drug abuse” – Pharmacy women for Purdue Spring symposium continuing education, Purdue University, April 15th, 2016
- “Prescription drug abuse – different path, same endpoint” – Purdue University, Lunch & Learn session, February 24th, 2016
- “Are teenagers opening a can of red bull or a can of worms? *Risks associated with mixing alcohol and energy drinks*” – College of Pharmacy, Purdue University, Science for administrative staff presentation, June 12th, 2015
- Five visits per year to Otterbein Middle school to teach students about drug addiction, 2015-present
- March 2014 – present: Maintain an updated website (www.vanrijnlab.com) highlighting the lab’s accomplishments and significance of research by providing a database of news articles related to substance abuse.
- April 2018 – present: Maintaining an active presence on twitter (@van_rijn_lab) highlighting accomplishments, and discussing news related to science of drug use, pain and mood disorders and science in general.

Media appearances

- Purdue Press releases
 - October 25th, 2016 https://www.purdueexponent.org/campus/article_c64394b4-9aca-11e6-ae6c-8ffa420523ed.html
 - March 14th, 2017 <https://www.purdue.edu/newsroom/releases/2017/Q1/specialized-compound-could-lead-to-chronic-pain-relief-without-the-use-of-opioids.html>
 - September 20th, 2018 <https://purduefoundry.com/default/news-single/there-is-hope-technology-may-help-curb-alcoholism-depression>
 - October 4th, 2018 <https://www.purdue.edu/newsroom/releases/2018/Q3/nonaddictive-drug-compound-could-replace-opioids-for-chronic-pain-sufferers.html>
 - January 3rd, 2019 <https://www.purdue.edu/newsroom/releases/2019/Q1/new-medications-offer-improved-treatment-for-alcohol-use-disorders,-chronic-pain,-mood-disorders.html>
 - July 9th, 2019 <https://www.purdue.edu/newsroom/releases/2019/Q3/the-power-of-the-brain-to-fight-opioid-addiction,-treat-chronic-pain.html>

- November 13th, 2019, <https://www.purdue.edu/newsroom/releases/2019/Q4/opioid-based-plant-might-not-be-best-solution-for-those-seeking-to-curb-habitual-alcohol-use.html>
- Interviewed regarding our 2016 Plos One paper on caffeine-mixed alcohol.
 - BBC5 live, October 26th, 2016
 - KRLD newsradio 1080 (CBS radio), October 27th, 2016
 - Dallas, Bayern 2 - Bayerischer Rundfunk (German Public radio), October 31st, 2016
 - WPGG Atlantic City (With Dr. Robert Zlotnick PhD, CPS), November 8th, 2016
 - Talk AM640-toronto (Kelly Cutrara show), March 17th, 2017
 - W Radio Colombia (with Vicky Davila and Rafael Manzano), April 30th, 2018
- Interviewed on opioid drugs use in relation to pain and substance abuse.
 - WBAA (local NPR station, by Charlotte Tuggle), May 23rd, 2018
 - <http://wbaa.org/post/battle-two-fronts-indiana-docs-fight-chronic-pain-and-opioid-crisis#stream/0>
 - WLFI (local news station, by Micah Upshaw), September 20th, 2018
 - <http://www.wlfi.com/content/news/Purdue-creating-technology-to-treat-alcoholism-and-depression-493901071.html#.W6RGNNvzXHR.twitter>
 - Interview performed by 4th year graduate student Robert Cassell.
 - WBAA (local NPR station, by Stan Jastrzebski), November 13th, 2019
 - <https://www.wbaa.org/post/purdue-pharmacy-research-opioid-containing-plant-better-heroin-still-addictive#stream/0>