

RICHARD M. VAN RIJN, PH.D.

PURDUE UNIVERSITY,
DEPARTMENT OF MEDICINAL CHEMISTRY AND MOLECULAR PHARMACOLOGY
COLLEGE OF PHARMACY
575 STADIUM MALL DRIVE
WEST LAFAYETTE, IN 47907

PHONE: 765-494-6461 • E-MAIL: RVANRIJN@PURDUE.EDU

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 Pharmacochimistry</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

09/2014-present	Adjunct Assistant Professor <i>Department of Pharmacology and Toxicology</i> Indiana University School of Medicine, Indianapolis, IN	
09/2013-present	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	

Awards and Honors

2017	Travel award to attend the 2017 International Narcotics Research Conference
2017	PRF 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

- National Institute on Drug Abuse (R03DA045897) (PI) 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
- National Institute on Alcohol Abuse and Alcoholism (R01AA025368) (PI) 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
- MCMP research enhancement grant (Co-I, Watts PI) 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)
- Purdue Institute for Drug Discovery (PI) 02/01/2018 – 06/30/2018
 β -arrestin1 biased delta opioid receptor agonists for treatment of stroke and seizures
 The primary objective of this grant is to screen drug libraries to identify β -arrestin1 biased delta opioid agonists.
 Total cost: \$15,000
- Purdue Institute for Inflammation, Immunology and Infectious Diseases (PI) 09/01/2016 – 08/31/2017
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 till 06/2018)
- 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
- ## Completed research support
-
- Purdue Research Foundation Summer Faculty Grant (PI) 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
- Ralph W. and Grace M. Showalter Research Trust (PI) 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
- National Institute on Alcohol Abuse and Alcoholism (K99/R00AA020539) (PI) 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 most ideal DOR-subtype selective drug to develop it as a preclinical lead.
 Total cost: \$930,000

Alcoholic Beverage Medical Research Foundation (ABMRF) (PI) 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

Pending research support

R21 (NIAAA) (Co-PI, Wendt PI) 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: \$292,914

Outcome: Impact score 28 (A0) – Resubmitted 03/15/2018

R21 (NIAAA) (PI) 07/01/2018-06/30/2020

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.

Direct Cost: \$441,060

Outcome: Impact score 24 (A0) – Pending Council review 5/2018

MCMP research enhancement grant (PI) 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: \$40,000 (\$28,000 to RvR)

Peer-reviewed publications

1. 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, **Front. Psychiatry** (Special topics in opioid research), accepted for publication.
2. 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
3. Márquez-Gómez R, Robins MT, Gutiérrez-Rodelo C, Arias, JM, Olivares-Reyes JA, Van Rijn RM, Arias-Montaña JA, Functional histamine H₃ and adenosine A_{2A} receptor heteromers in recombinant cells and rat striatum, 2018, **Pharmacol. Res.**, 129: 515-525, PMID: 29217157
4. 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, 2017, **Science Signal**, 10 (467): eaah5381, PMID:28223412.
<http://www.sciencemag.org/news/2017/02/new-class-painkillers-horizon>
5. Zeng L, Alongkronrusmee D, Van Rijn RM, An integrative perspective on diabetic, alcoholic and drug-induced neuropathic pain, 2017, **J Pain Res**, 10: 219-228 PMID:28176937, PMC5268333. **Noteworthy designation, highly accessed designation, https://www.dovepress.com/press_releases.php?content_id=3499**
6. Alongkronrusmee D, Chiang T, Van Rijn RM, Involvement of delta opioid receptors in alcohol withdrawal-induced mechanical allodynia in male C57BL/6 mice. 2016, **Drug Alcohol Depend**, 167:190-198 PMID: 27567436
7. 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, 2016, **Cell Rep**, 16 (6), 1518-1526 PMID: 27452469, PMC5074334
8. 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, 2016, **PLoS One**, 11(7):e0158189 PMID: 27380261, PMC4933367, **Top 1% of most downloaded articles of the year (out of 22,000)**
9. 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, 2016, **Alcohol**, 54, 1-9, PMID:27565749

10. 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
11. Van Rijn RM¹, DeFriel JN, Whistler JL, Pharmacological traits of delta opioid receptors: pitfalls or opportunities, *Psychopharmacol*, 2013, 228(1), 1-18, ¹**corresponding author**, PMID:23649885, PMC3679311
12. 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
13. Van Rijn RM¹, 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, ¹**corresponding author**, PMID:23097213, PMC3533407, **Highlighted paper**
14. Van Rijn RM¹, 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 ¹**corresponding author**, PMID:22018601, PMC3279630
15. Brissett DI, Whistler JL, Van Rijn RM¹, Contribution of mu and delta opioid receptors to the pharmacological profile of kappa opioid receptor subtypes, *Eur. J Pain*, 2012, 16 (3): 327-337. ¹**corresponding author**, PMID:22337177, PMC4086711
16. Van Rijn RM, Brissett DI, Whistler JL, Emergence of functional spinal delta-mu opioid receptors heteromers after chronic ethanol exposure, *Biol Psychiatry*, 2012, 71:232-238, PMID:21889123, PMC4086708
17. 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
18. 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
19. Van Rijn RM, Whistler JL, Waldhoer M, Opioid receptor heteromer-specific trafficking and pharmacology, *Curr Opin Pharmacol*, 2010, 10:73-79, PMID:19846340, PMC2900797
20. 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
21. 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
22. 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
23. 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
24. 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
25. 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
26. Lim, HD¹ and Van Rijn RM¹, 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. ¹**shared first author**, PMID:15947036
27. 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
28. 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

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**, accepted for publication

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
3. Harvey JH, Van Rijn RM, Whistler JL, A FLIPR assay for evaluating agonists and antagonists of GPCR heterodimers, 2013, Humana Press, Springer, **Methods Mol Biol**, 995, Chemical Neurobiology: 43-54., PMID:23494371
4. Van Rijn RM, Molecular Pharmacology of the human histamine H₄ receptor, 2007, **graduate thesis**, 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>

Invited departmental talks

1. **University of Minnesota**, Department of Pharmacology, “Should the ‘2nd generation’ of opioids be completely G-protein biased for optimal efficacy?”, May 18th, 2018
2. **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
3. **National Health Research Institutes**, Center for Neuropsychiatric Research, Zhunan Township, Taiwan, “New ways to treat addiction – bias can be good”, December 14th, 2017
4. **Purdue University**, Brain and Spinal Cord Injury seminar series “Alcohol induced pain – role of aldehyde and TRPA1”, November 14th, 2017
5. **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
6. **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
7. **Indiana University School of Medicine**, Stark Neurosciences Research Institute, “Delta opioid receptors – better than mu for chronic pain conditions?”, January 14th, 2016
8. **Hoshi University**, Department of Pharmacology, Tokyo, “Delta receptor agonists – Different routes for treatment of neurological disorders”, July 27th, 2015
9. **Purdue University**, Department of Psychological Sciences, Behavioral Psychology Colloquia Series, “A preclinical evaluation of the risks of adolescent energy drink consumption” October 1st, 2014
10. **VU University Amsterdam**, AIMMS lecture, “G protein-coupled receptor mediated modulation of neurological behavior – It’s all Relative”, February 10th, 2014
11. **University of California Irvine**, Department of Anesthesiology and Perioperative Care, “Personalized pain medication by targeting opioid receptor subtypes”, March 7th, 2013
12. **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
13. **University of California Berkeley**, Department of Psychology, “My brain is not your brain – How different experiences impact opioid receptor pharmacology”, February 11th, 2013
14. **University of Colorado Boulder**, Institute of Behavioral Genetics, “Using transgenics to study opioid receptors in neurological disorders“, February 6th, 2013.
15. **Indiana University Purdue University Indianapolis**, Department of Biology, "Gaining translational opportunities from new insights into GPCR pharmacology", January 10th, 2013
16. **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
17. **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
18. **Temple University**, School of Pharmacy, Department of Pharmaceutical Sciences, “Delta opioid receptor subtypes as novel treatment for alcohol use disorder”, December 2nd 2011

19. **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. “The yellow brick road map to developing new alcohol use disorder treatments” **Greater Indiana Society for Neuroscience**, March 23rd, West Lafayette, USA, **Regional keynote speaker**
2. “The potential of delta opioid receptors as novel target for alcohol use disorders”, **International Narcotics Research Conference**, July 9-14, 2017, Chicago, USA
3. “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
4. “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.*”
5. “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.*”
6. “Emergence of Functional Spinal Delta Opioid Receptors after Chronic Ethanol Exposure” **Alcoholism and Stress: A Framework for Future Treatment Strategies**, 2011, Volterra, Italy
7. “Making a case for delta opioid receptor subtype selective drugs for the treatment of alcoholism”, **Research Society on Alcoholism meeting**, 2010, San Antonio, USA
8. “Delta opioid receptors display opposing roles in ethanol intake”, **Society for Neuroscience**, 2008, Washington DC, USA
9. “Characterization of morphine tolerance in transgenic R-MOR mice”, **International Narcotics Research Conference**, 2007, Berlin, Germany
10. “Homo- and hetero-dimerization of the histamine H₄ receptor”, **European Histamine Research Society**, 2006, Delphi, Greece
11. “Oligomerization of the human histamine H₄ receptor”, **GPCR Day**, 2005, Weesp, The Netherlands

Poster Abstracts presented (first author or # is presenter)

1. Cassell RJ, Robins MT, Gutridge AM, Uprety R, Majumdar S, Van Rijn RM, Preclinical characterization of *Mitragyna Speciosa* alkaloids for treatment of alcohol use disorder, **Research Society for Alcoholism**, 2018
2. 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**, 2018
3. Ko MJ, Ganzen LC, Lueng YF, Van Rijn RM, A pharmacological model of TRPA1-mediated nociception in zebrafish larvae for therapeutic discovery, **Experimental Biology** 2018
4. 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
5. 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
6. 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
7. 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
8. 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
9. 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
10. 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**, 2017
11. 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**, 2017

12. Cassel RJ, Mores KL, Van Rijn RM, Interspecies variations in signaling bias at the delta opioid receptor, **17th Annual Great Lakes GPCR Retreat**, 2016
13. 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
14. 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
15. 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
16. 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
17. Alongkronrusmee D, Ghomi HT, Tang S, Lill MA, van Rijn RM, Multipronged approach to investigate the mu-delta opioid receptor heteromer interface, **Experimental Biology**, 2016
18. 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
19. Alongkronrusmee D, Van Rijn RM, Involvement of Delta opioid receptors in alcohol withdrawal-induced mechanical pain, **Indianapolis Chapter of the Society for Neuroscience**, 2016
20. 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
21. Alongkronrusmee D, Van Rijn RM, Protective role of delta opioid receptors in alcohol withdrawal-induced hyperalgesia, **Society for Neuroscience**, 2015
22. 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
23. Robins MT, Van Rijn RM, Effect of adolescent caffeine and alcohol consumption on adult behavior and neuropharmacology in mice, **Research Society on Alcoholism**, 2015
24. Alongkronrusmee D, Van Rijn RM, Signal biased agonists of delta opioid receptors for alcohol withdrawal-induced hyperalgesia, **International Narcotics Research Conference**, 2015
25. 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
26. 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
27. 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
28. Van Rijn RM, DeFriel JN, Whistler JL, Biased agonism of delta opioid receptors selective ligands in vivo, **Society for Neuroscience**, 2012
29. 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
30. 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**, 2012
31. 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**, 2012
32. Van Rijn RM, Brissett DI, Whistler JL, Pharmacological profile of delta and kappa opioid receptor subtypes in spinal cord, **International Narcotics Research Conference**, 2011
33. 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**, 2011
34. 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
35. 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**, 2010
36. 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
37. Van Rijn RM, Bartlett SE, Whistler JL, Delta opioid receptor subtypes display opposing effects on alcohol intake, **Society for Neuroscience**, 2008
38. 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

39. 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
40. 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
41. Van Rijn RM, Bakker RA, Leurs R, homo-oligomerization of the human histamine H₄ receptor, **European Histamine Research Society**, 2004
42. 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 Spinal Cord and Brain Injury Research Fund review panel, March 13th, 2015
2. Early career reviewer, Molecular Neuropharmacology and Signaling (MNPS) study section, June 23-24 2015
3. *Ad hoc* member, AACP new investigator award review, October 23rd 2015
4. *Ad hoc* member, Indiana Spinal Cord and Brain Injury Research Fund review panel, January 22nd, 2016
5. *Ad Hoc member*, Purdue Institute for Inflammation, Immunology and Infectious Diseases (PI4D) Research Incentive Program, May 9th, 2016
6. External reviewer, French National Research Agency Biomedical innovation program, May 9th, 2016
7. External reviewer, Czech Science Foundation, September 15th, 2016
8. *Ad hoc* member, Lilly-Stark research pre and post-doctoral fellowships review, November 22nd, 2016
9. *Ad hoc* member, Indiana CTSI core pilot funding program, June 20th, 2017

Ad hoc manuscript peer review

- Alcohol
- Alcoholism: Clinical and Experimental Research
- BBA biomembranes
- BMC clinical pharmacology
- Cellular and Molecular Neurobiology
- Current Pharmaceutical Design
- EMBO
- International Journal of Molecular Sciences
- J Basic and Clinical Physiology and Pharmacology
- Journal of Biological Chemistry
- Journal of Neuroscience
- Neuropharmacology
- Neuroscience
- Neuroscience & Biobehavioral Reviews
- Pharmacology, Biochemistry and Behavior
- Progress in Neuro-Psychopharmacology & Biological Psychiatry
- Psychopharmacology
- Social Neuroscience

Professional memberships

2018 – Present	<i>International Behavioral and Neural Genetics Society</i>
2016 – Present	<i>Member of Purdue Institute for Inflammation, Immunology and Infectious Diseases</i>
2016 – Present	<i>Member of Purdue Institute for Integrative Neuroscience Center</i>
2013 – Present	<i>Member of 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

2017 – Present	<i>Purdue University Life Sciences (PULSe) executive committee</i>
2017 – Present	<i>Head of the Integrative Neuroscience training group</i>
2017 – Present	<i>PULSe graduate student organization, faculty representative</i>
2017 July 9-14 th	<i>International Narcotics Research Conference, program committee, Chicago, IL</i>
2017	<i>MCMP faculty search committee (successfully hired 2 candidates)</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>Graduate Admission and Recruitment Committee</i>
2014 – Present	<i>Graduate Program Curriculum Committee</i>
2013	<i>Ernest Gallo Clinic and Research Center Annual retreat, organizing committee</i>

Student dissertation committee

2017 – Present	<i>Dissertation Committee for Seth Herr (Pulse, PhD)</i>
2017 – Present	<i>Dissertation Committee Chair for Anna Gutridge (MCMP, PhD)</i>
2017 – Present	<i>Dissertation Committee for Ka Ng (Psych, PhD)</i>
2015 – Present	<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 – Present	<i>Dissertation Committee for Qiuyu Rachel Wu (PULSe, PhD)</i>
2014 – Present	<i>Dissertation Committee for Matthew Arvin (MCMP, PhD)</i>
2013 – Present	<i>Dissertation Committee for Trevor Doyle (MCMP, PhD)</i>
2013 – 2017	<i>Dissertation Committee Chair for Doungkamol Alongkronrusmee (MCMP, PhD)</i>
2013 – Present	<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

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>

Teaching experience

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

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

<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: Yoga studio owner Bangkok, 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

Research technician/Lab manager**Terrance Chiang**

9/1/2013 – 9/1/2016

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

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

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)
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 session March 23rd, 2017 (\$100)
8. Bilisland Dissertation Fellowship, April 17th, 2017 (\$24,000)
9. Award of Excellence at Interdisciplinary Graduate Programs 2017 spring symposium
10. INRC travel grant 2017 (\$600)

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: Science, Culture and policy graduate student poster competition (\$100)
4. RSA 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. RSA 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)

Current position: Postdoctoral Scientist in the Ryabinin lab at Oregon Health and Sciences University

Robert J. Cassell (MCMP program) 1/1/2016 – present

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. Won 1st prize in Drug Discovery 3rd annual symposium poster competition, September 30th, 2016 (\$250).
3. INRC travel grant 2017 (\$600)

Mee Jung Ko Msc (PULSe program) 6/1/2016 – present

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)
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)

Anna M. Gutridge (MCMP program) 1/1/2018 – present

Thesis: *Characterization of ERK signaling in alcohol use and anxiety disorders.*

1. Ross Purdue Graduate fellowship 2017 (\$24,000)

Undergraduate students

Shiqi Tang (Pharmaceutical Sciences, Purdue University) 7/1/2014 – 5/1/2016

Current 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

Jiehee Suh (Pre-Pharmacy program) 1/1/2015 – 12/31/2015

Current position: unknown

Katherine Simons (Pharmaceutical Sciences and Biological Engineering, Purdue University) 6/1/2015 – 12/31/2015

Current position: Chemist at Mylan Pharmaceuticals

Kendall Mores (Pharmaceutical Science and Pharmacy, Purdue University) 8/31/2015 – present

1. Dean's Undergraduate Research Fellowship 2016 (\$4000)

2. Dean's Undergraduate Research Fellowship 2017 (\$4000)
3. OUR (Office of Undergraduate Research) scholar award 2018 (\$500)
4. Abstract selected for oral presentation at the OUR conference
5. Co-author on 1 paper

Dahlia Alkharrat (Pre-Pharmacy program, Purdue University) Current position: Undergraduate student - Purdue University	2/1/2016 – 5/30/2016
Jiwon Ellen Ha (Pre-Pharmacy program, Purdue University) 1. Dean's Undergraduate Research Fellowship 2017 (\$4000) 2. Co-author on 1 paper	9/1/2016 – 12/31/2017
Arbaaz Mukadam (Pharmaceutical Sciences, Purdue University)	1/1/2017 – present
Grace Mulia (Pharmaceutical Sciences, Purdue University)	9/1/2017 – present
Maria Shelley (Pharmacy, Purdue University) 1. Dean's Undergraduate Research Fellowship 2018 (\$4000)	6/1/2018
Daniela Brissett (Molecular Cell Biology, UC Berkeley) Current position: Medical student UCSF 1. Berkeley Biology Fellowship (\$1500) 2. Berkeley honors symposium poster prize (\$500) 3. Co-author on 4 papers, first author on 1 paper	6/1/2009 – 05/31/2011
Julia DeFriel (Molecular Cell Biology, UC Berkeley) Current position: Amazon and MS degree in Human Centered Design and Engineering at the University of Washington 1. RSA student Merit Award 2012 2. Co-author on 2 papers	5/1/2011 – 05/31/2012
Julie Lu: (Molecular Cell Biology, UC Berkeley) Current position: Research Scientist at Roche 1. Co-author on 1 paper	6/1/2012 – 05/31/2013
<u>Visiting scientists</u>	
Ricardo Marquez-Gomez (Graduate student, CINVESTAV, Mexico City) Project: <i>Heteromerization of histamine H3 and Adenosine A2a receptors</i> 1. Work published in Pharmacological Research	9/1/2015 – 2/28/2016
Eric Eisenmann (PharmD student, Ohio Northern University) Project: <i>Molecular pharmacology of TRPA1 channels</i>	5/1/2016 – 7/31/2016
Lily Zeng MD (Medical Resident, Vanderbilt University School of Medicine) Project: <i>Literature review of neuropathic pain etiology</i> 1. Work published in J Pain Research	7/1/2016 – 7/31/2016

Academic outreach

- “Etiology, medical treatment and self-medication of chronic pain” – Pharmacy women for Purdue Spring symposium continued 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 - continued education for dentists, April 28th, 2016
- “Recent developments in drug abuse” – Pharmacy women for Purdue Spring symposium continued 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 Otterbein Middle school to teach students about drug addiction, 2015-present

Media appearances

- Interviewed for BBC5 live, KRLD newsradio 1080 (CBS radio), Dallas, Bayern 2 - Bayerischer Rundfunk (German Public radio), WPGG Atlantic City (With Dr. Robert Zlotnick PhD, CPS) and Talk AM640-toronto regarding our 2016 Plos One paper on caffeine-mixed alcohol.