



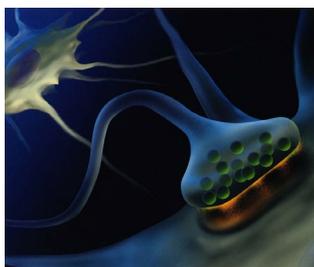
Proclivitas

Fall/Winter 2016

Waggoner Center for Alcohol & Addiction Research Newsletter

Our Mission

To develop solutions for the prevention and cure of alcoholism and related illnesses.



Above (left to right):

Anna Warden,
Roberto Confresí
and Adam Gordon

Photo credit:
Ati Wongsaroj

Volume 15, Issue 1

Graduate Students Develop Drug Education Outreach Program

Three Waggoner Center graduate students are going “back to school” with a drug education outreach program for local middle- and high-school students.

Roberto Cofresí (Gonzales Lab), Adam Gordon (Marinelli Lab) and Anna Warden (Harris Lab), with help from teachers Janaye Pierce, Ricki Harrell and Ati Wongsaroj at Webb Middle School, and Jon Smith and Jane Smythe from Travis High School, developed an interactive lesson that’s integrated into a science class unit.

The lesson “engages teens and pre-teens on the issue of addiction and other health risks associated with alcohol and drug use including unique risks in adolescence,” said Confresí. He and his colleagues hope that “education provided around the time drug use is often initiated will empower adolescents to make healthier alcohol and drug use-related choices including minimizing use or delaying use until adulthood.”

In contrast to previous failed drug outreach programs in public schools that employed scare tactics, this neuroscience program uses a harm reduction strategy, where students are

presented with scientific evidence of drug-induced effects that lead to addictive behaviors. Students also learn about the environmental and genetic factors that contribute to drug addiction, including early onset exposure and how this can affect the developing adolescent brain. Students are introduced to the concept of drug-induced neuroadaptations and gain an understanding of how repeated drug use can specifically target the function of brain cells.

The interactive presentation generates lots of questions from students. “Typically, students ask personal questions, such as ‘my mom smokes a lot and she doesn’t think it’s addictive, how do I tell her that it is?’” said Warden. “We do tend to get a lot of questions about drug legality (i.e. why is this drug legal but you say it’s dangerous). This is a point we like to focus on, just because it’s legal doesn’t mean it’s safe. We emphasize that thinking about the mechanism of action of the drug and the short/long term consequences is a better way to gauge if you should take a drug.”

Read more on this innovative program at:
<https://waggonercenter.utexas.edu/news>

HONORS & AWARDS

Dana Most (Harris/Mayfield Labs) received an Early Career Investigator Travel Award to attend the 22nd Society of Neuroimmune Pharmacology Scientific Conference, April 6-9, 2016, in Krakow, Poland. She presented a talk entitled “Manipulation of Synaptic MicroRNAs in-vivo Reduces Alcohol Consumption.”

The College of Pharmacy awarded “Best Poster, Graduate Student” to **Shannon Zandy** (Gonzales Lab) at the 12th Annual Louis C. Littlefield Celebrating Pharmacy Research Excellence Day on April 26, 2016. Her work was titled “Operant Ethanol Self-administration in Adolescence does not Influence Efficacy of Naltrexone to Reduce Ethanol Intake, Motivation or Relapse.”

Laura Ferguson (Harris Lab) won the Best Poster Award at the 4th Annual Big Data in Biology Symposium held May 11, 2016, in Austin. Ferguson’s poster, “Using LINCS to Find New Drugs for Alcohol Dependence Treatment,” won in the graduate student category.

Jon Pierce was one of six invited plenary session speakers at the 2016 Neuronal Development, Synaptic Function and Behavior *C. elegans* Topic Meeting in Nagoya, Japan, July 27-30. His keynote talk for the behavioral session was entitled “What Else Can Worms Do?”

FUNDING NEWS

Principal Investigator: Adela Ben-Yakar

Co-investigators: **Robert O. Messing**, **R. Dayne Mayfield**, Scott Hunicke-Smith

Project Title: “Single Cell Capture for Transcriptome Analysis of Behavior”

Award Total: \$100,000 (one year), Sponsor: UT System Neuroscience and Neurotechnology Research Institute - UT BRAIN Seed Grant

Principal Investigators: **Vishwanath Iyer** and **Jon Pierce**

Project Title: “Transgenerational Influence of Alcohol”

Award Total: \$50,000 (one year), Sponsor: College of Natural Sciences – Catalyst Grant

Principal Investigator: **Igor Ponomarev**, Co-investigator: **Regina Mangieri** (Morrisett Lab)

Project Title: “Accumbal Plasticity in Excessive Alcohol Consumption”

Award Total: \$155,626 (two years), Sponsor: National Institute on Alcohol Abuse and Alcoholism – R03

Ben Lovely (Eberhart Lab)

Project Title: “Analysis of an Ethanol-Sensitive Pathway Regulating Anterior Craniofacial Development”

Award Total: \$192,236 (two years), Sponsor: National Institute on Alcohol Abuse and Alcoholism – K99

National Research Service Awards

Sponsor: National Institute on Alcohol Abuse and Alcoholism – F31:

Laura Ferguson (Harris Lab)

Project Title: “Molecular Mechanisms Underlying Reduction of Alcohol Consumption by PPAR Agonists”, Award Total: \$66,240 (two years)

Gizelle Robinson (Harris Lab)

Project Title: “The Role of Microglia and Neuroimmune Signaling in Chronic Ethanol Consumption”, Award Total: \$100,728 (three years)

Natasha Pflanz (Mihic Lab)

Project Title: “Molecular Characterization of Benzodiazepine Selectivity: Implications for Drug Discovery and Addiction”, Award Total: \$120,481 (three years)

DOCTORAL DEGREES AWARDED

Neil McCarthy, Jul. 20, 2015

(Eberhart Lab)

“Gene-Ethanol Interactions Underlie Craniofacial Variability in a Zebrafish Model of FASD”

Rafael Renteria, Jul. 30, 2015

(Gonzales Lab)

“Synaptic Encoding of in vivo Ethanol Experience”

Jay Truitt, Aug. 12, 2015

(Harris/Mayfield Labs)

“Role of the IKK β /NF- κ B Pathway in Alcoholism”

Claire Stelly, Nov. 18, 2015

(Morikawa Lab)

“Repeated Social Stress Induces Metaplasticity in Ventral Tegmental Area Dopamine Neurons”

John Valenta, Nov. 19, 2015

(Gonzales Lab)

“The Role of Monocyte Chemoattractant Protein-1 on Operant Ethanol Self-Administration in Long-Evans Rats”

Ben Troutwine, Mar. 29, 2016

(Atkinson Lab)

“The Innate Immune System and Alcohol Responses in *Drosophila*”

Ryan Will, Apr. 13, 2016

(Dominguez Lab)

“The Role of the Preoptic Area in Response to Cocaine”

Dia N. Bagchi, Apr. 28, 2016

(Iyer Lab)

“The Interplay Between Transcription, Histone Variants, and Chromatin Structure in Eukaryotes”

Dana Most, Jun. 22, 2016

(Harris/Mayfield Labs)

“The Role of Synaptic microRNA in Chronic Alcohol Consumption and its Effects on Synaptic Composition”

James Reno, Jul. 18, 2016

(Duvauchelle Lab)

“Negative Affect as the Primary Emotional Component in Animal Models of Alcohol Abuse and Avoidance”

PUBLICATIONS

- Ashenhurst JR, Harden KP, Corbin WR, **Fromme K** (2015) Trajectories of binge drinking and personality change across emerging adulthood. *Psychol Addict Behav* 29:978-991.
- Bagchi DN, **Iyer VR** (2016) The Determinants of Directionality in Transcriptional Initiation. *Trends Genet* 32:322-333.
- Barker JM, Corbit LH, Robinson DL, Gremel CM, **Gonzales RA**, Chandler LJ (2015) Corticostriatal circuitry and habitual ethanol seeking. *Alcohol* 49:817-824.
- Blasio A, **Messing RO** (2016) Binge Drinking with Protein Kinase C Epsilon: A Role for Mammalian Target of Rapamycin Complex 2? *Biol Psychiatry* 79:425-426.
- Blednov YA**, Black M, Benavidez JM, Stamatakis EE, **Harris RA** (2016) PPAR Agonists: I. Role of Receptor Subunits in Alcohol Consumption in Male and Female Mice. *Alcohol Clin Exp Res* 40:553-562.
- Blednov YA**, Black M, Benavidez JM, Stamatakis EE, **Harris RA** (2016) PPAR Agonists: II. Fenofibrate and Tesaglitazar Alter Behaviors Related to Voluntary Alcohol Consumption. *Alcohol Clin Exp Res* 40:563-571.
- Borghese CM, Ruiz CI, Lee US, Cullins MA, Bertaccini EJ, Trudell JR, **Harris RA** (2016) Identification of an Inhibitory Alcohol Binding Site in GABAA rho1 Receptors. *ACS Chem Neurosci* 7:100-108.
- Carlson MD, Harden KP, Kretsch N, Corbin WR, **Fromme K** (2015) Interactions between DRD4 and developmentally specific environments in alcohol-dependence symptoms. *J Abnorm Psychol* 124:1043-1049.
- Cornelison GL, Pflanz NC, Tipps ME, **Mihic SJ** (2016) Identification and characterization of heptapeptide modulators of the glycine receptor. *Eur J Pharmacol* 780:252-259.
- Doherty JM, **Gonzales RA** (2015) Lack of effect of nucleus accumbens dopamine D1 receptor blockade on consumption during the first two days of operant self-administration of sweetened ethanol in adult Long-Evans rats. *Alcohol* 49:543-551.
- Eberhart JK**, Parnell SE (2016) The Genetics of Fetal Alcohol Spectrum Disorders. *Alcohol Clin Exp Res* 40:1154-1165.
- Gates JR, Corbin WR, **Fromme K** (2016) Emerging adult identity development, alcohol use, and alcohol-related problems during the transition out of college. *Psychol Addict Behav* 30:345-355.
- Krishnan HR, Li X, Ghezzi A, **Atkinson NS** (2016) A DNA element in the slo gene modulates ethanol tolerance. *Alcohol* 51:37-42.
- Maiya R, Mangieri RA, **Morrisett RA**, Heberlein U, **Messing RO** (2015) A Selective Role for Lmo4 in Cue-Reward Learning. *J Neurosci* 35:9638-9647.
- Maiya R, McMahon T, Wang D, Kanter B, Gandhi D, Chapman HL, Miller J, **Messing RO** (2016) Selective chemical genetic inhibition of protein kinase C epsilon reduces ethanol consumption in mice. *Neuropharmacology* 107:40-48.
- Marballi K, Genabai NK, **Blednov YA**, **Harris RA**, **Ponomarev I** (2016) Alcohol consumption induces global gene expression changes in VTA dopaminergic neurons. *Genes Brain Behav* 15:318-326.
- Marino EN, **Fromme K** (2016) Early Onset Drinking Predicts Greater Level but Not Growth of Alcohol-Induced Blackouts Beyond the Effect of Binge Drinking During Emerging Adulthood. *Alcohol Clin Exp Res* 40:599-605.
- Mayfield J, Arends MA, **Harris RA**, **Blednov YA** (2016) Genes and Alcohol Consumption: Studies with Mutant Mice. *Int Rev Neurobiol* 126:293-355.
- McCracken ML, Gorini G, McCracken LM, **Mayfield RD**, **Harris RA** (2016) Inter- and intra-subunit butanol/isoflurane sites of action in the human glycine receptor *Front. Mol. Neurosci.* doi: 10.3389/fnmol.2016.00045
- Pomrenze MB, Millan EZ, Hopf FW, Keiflin R, Maiya R, Blasio A, Dadgar J, Kharazia V, De Guglielmo G,

Building a Partnership

Individual, foundation and corporate support is essential to the continued growth and success of this world-class research center. To support the Waggoner Center for Alcohol and Addiction Research, please visit:

utdirect.utexas.edu/apps/utgiving/online/nlogon/?menu1=NSWC

or call: 512-471-3299

or contact:

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Dean's Office

The University of Texas
at Austin

120 Inner Campus Drive
Stop G2500

Austin, TX 78712

Useful Websites

Addiction Science Research and Education Center, utexas.edu/research/asrec

National Institute on Alcohol Abuse and Alcoholism (NIAAA), niaaa.nih.gov

National Institute on Drug Abuse (NIDA), nida.nih.gov

Research Society on Alcoholism (RSA), rsoa.org

International Society for Biomedical Research on Alcoholism (ISBRA) isbra.com

(Publications continued next page.)



The University of Texas at Austin
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Alcohol & Addiction Research**

<https://waggonercenter.utexas.edu>

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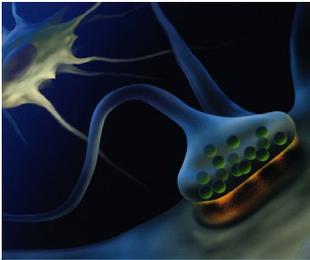
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Waggoner Center for Alcohol & Addiction Research Newsletter

The Waggoner Center for Alcohol and Addiction Research was established in 1999 at The University of Texas at Austin. The center was made possible by a donation from M. June and J. Virgil Waggoner and matching funds from the university. The mission of the center is to create a premier research center for alcohol and addiction research, thereby developing solutions for the prevention and cure of these diseases.

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R. Adron Harris, Ph.D.

Associate Director:

Robert O. Messing, M.D.

Editing/Design:

Marsha Berkman, Jody Mayfield

Many thanks to: Anna Warden, Robert Confresí, Adam Gordon

PUBLICATIONS (continued)

Crawford E, Janak PH, George O, Rice KC, **Messing RO** (2015) A Transgenic Rat for Investigating the Anatomy and Function of Corticotrophin Releasing Factor Circuits. *Front Neurosci* 9:487.

Renteria R, Jeanes ZM, Mangieri RA, Maier EY, Kircher DM, Buske TR, **Morrisett RA** (2016) Using In Vitro Electrophysiology to Screen Medications: Accumbal Plasticity as an Engram of Alcohol Dependence. *Int Rev Neurobiol* 126:441-465.

Seif T, Simms JA, Lei K, Wegner S, Bonci A, **Messing RO**, Hopf FW (2015) D-Serine and D-Cycloserine Reduce Compulsive Alcohol Intake in Rats. *Neuropsychopharmacology* 40:2357-2367.

Swapna I, Bondy B, **Morikawa H** (2016) Differential Dopamine Regulation of Ca(2+) Signaling and Its Timing Dependence in the Nucleus Accumbens. *Cell Rep* 15:563-573.

Thakore N, Reno JM, **Gonzales RA**, **Schallert T**, Bell RL, Maddox WT, **Duvauchelle CL** (2016) Alcohol enhances unprovoked 22-28kHz USVs and suppresses USV mean frequency in High Alcohol Drinking (HAD-1) male rats. *Behav Brain Res* 302:228-236.

Tobiansky DJ, Will RG, Lominac KD, Turner JM, Hattori T, Krishnan K, Martz JR, Nutsch VL, **Dominiguez JM** (2016) Estradiol in the Preoptic Area Regulates the Dopaminergic Response to Cocaine in the Nucleus Accumbens. *Neuropsychopharmacology* 41:1897-1906.

Troutwine BR, Ghezzi A, Pietrzykowski AZ, **Atkinson NS** (2016) Alcohol resistance in *Drosophila* is modulated by the Toll innate immune pathway. *Genes Brain Behav* 15:382-394.

Valenta JP, **Gonzales RA** (2016) Chronic Intracerebroventricular Infusion of Monocyte Chemoattractant Protein-1 Leads to a Persistent Increase in Sweetened Ethanol Consumption During Operant Self-Administration But Does Not Influence Sucrose Consumption in Long-Evans Rats. *Alcohol Clin Exp Res* 40:187-195.

Wong WC, **Marinelli M** (2016) Adolescent-onset of cocaine use is associated with heightened stress-induced reinstatement of cocaine seeking. *Addict Biol* 21:634-645.