

Waggoner Center

for Alcohol & Addiction Research

The University of Texas at Austin

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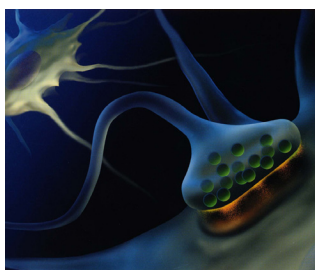
Fax: 512-232-2525

Waggoner Center for Alcohol & Addiction Research

THE UNIVERSITY OF TEXAS AT AUSTIN

Our Mission

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



Above:
Dr. Rueben Gonzales

WAGGONER CENTER MEMBER RECEIVES MERIT AWARD

Dr. Rueben A. Gonzales, the Jacques P. Servier Regents Professor in Pharmacy and member of the Waggoner Center for Alcohol and Addition Research, recently received a \$2.8 million Method to Extend Research in Time (MERIT) Award from the National Institute of Alcohol Abuse and Alcoholism (NIAAA).

The MERIT Award provides up to ten years of research support to a limited number of investigators with a history of outstanding contributions to their research field. The award is intended to foster continued creativity and lessen the administrative burdens associated with the preparation and submission of research grant applications. The award is tied to his grant titled "Neurochemical Mechanisms of Ethanol Self-Administration."

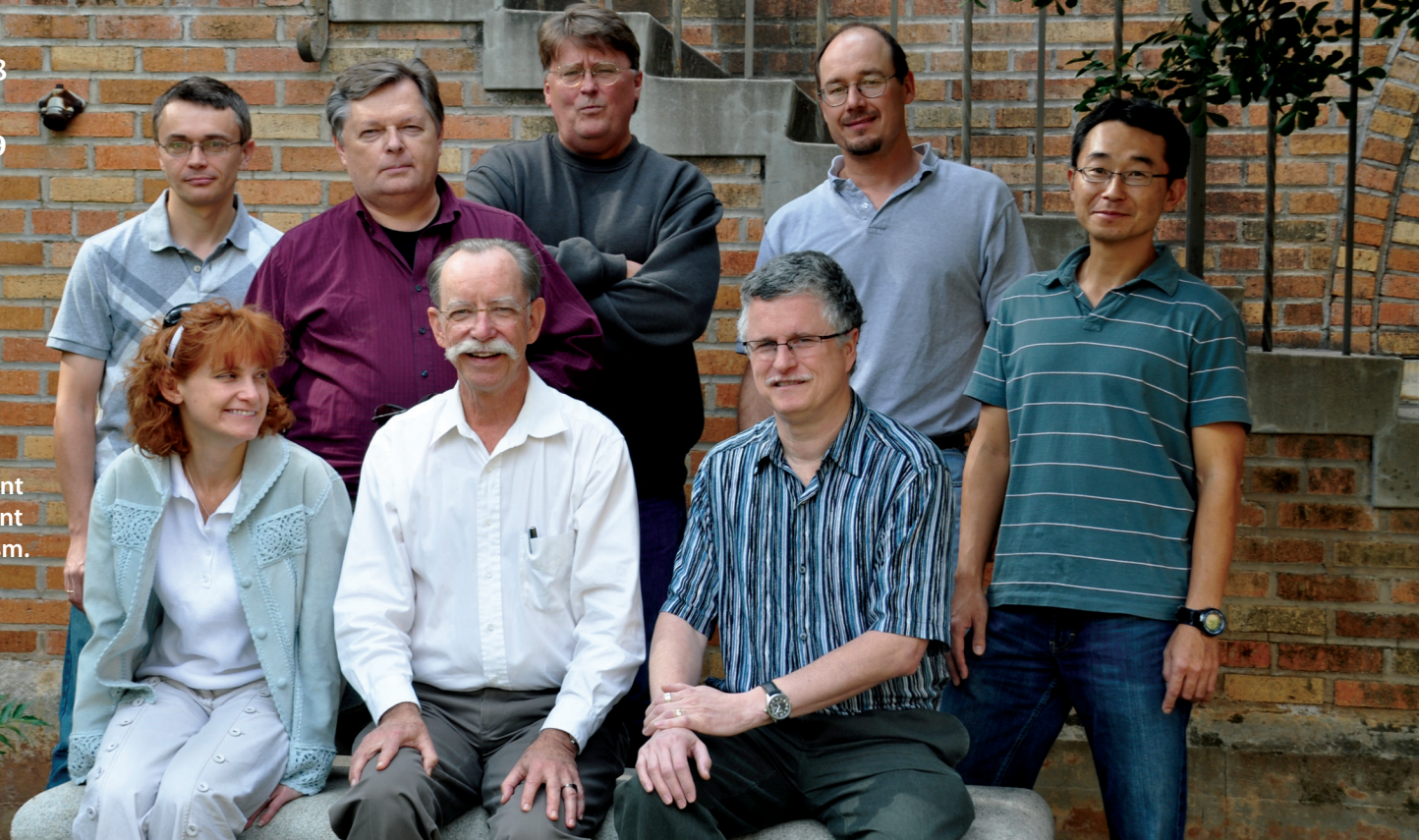
Dr. Gonzales and his team investigate the chemical changes in the brain that underlie alcohol drinking. Of particular interest is the role of dopamine, a chemical produced and found in the brain that relays, amplifies, or modulates signals between a neuron and another cell. Dopamine, Gonzales explains, is known to be associated with behaviors that bring pleasure such as those triggered by drinking. His lab is working to determine exactly when and where in the brain the dopamine response occurs. This

information, he says, will help to determine the role of dopamine in the development of addictive behaviors. Eventually, basic knowledge of how brain chemicals change in response to alcohol may help to develop new treatments for those who have drinking problems. "We know that dopamine does play a role in the urge to drink," he said. "What we're trying to determine in our lab is exactly when the dopamine response occurs. That will help answer the basic question of how the dopamine response may guide the individual to select drinking over other behaviors."

Investigators cannot apply for MERIT Awards. Instead, researchers apply to NIAAA for new or renewal grants, known as R01 grants. From those applications, NIAAA staff and members of the National Advisory Council on Alcohol Abuse and Alcoholism review R01 applications that meet the criteria for a MERIT Award. The MERIT Award has become a symbol of scientific achievement in the research community.

Dr. Gonzales gratefully acknowledges the contributions of his lab team, graduate students from pharmacology and neuroscience, as well as undergraduate science majors, who carry out the daily operations of the lab.

Members
of the new
Center for
Medication
Development
for Treatment
of Alcoholism.
See details
below.



Above (seated):

Dr. Maria Croyle
Dr. Adron Harris
Dr. Nigel Atkinson

(standing):

Dr. Igor Ponomarev
Dr. Yuri Blednov
Dr. Dayne Mayfield
Dr. John Mihic
Dr. Hitoshi Morikawa

ARRA FUNDS AWARDED TO WAGGONER CENTER RESEARCHERS

The American Recovery and Reinvestment Act (ARRA) of 2009, enacted in February, provided funding to several members of the Waggoner Center. Recovery Act funding to The University of Texas at Austin totaled 50 awards at over \$10 million in funding per year for two years. **Almost a third of those funds, amounting to nearly \$6 million over a two-year period, went to Waggoner Center faculty members:**

R. Adron Harris, Principal Investigator

MEDICATION DEVELOPMENT FOR TREATMENT OF ALCOHOLISM. Establishes the Center for Medication Development for Treatment of Alcoholism. This P20 Center combines the talents of experienced alcohol researchers and experts in chemistry, proteomics, gene delivery, and *Drosophila* genetics who are new to the alcohol field to develop novel treatments for alcoholism.

R. Dayne Mayfield, Principal Investigator

NEXT-GEN SEQUENCING: SEARCHING FOR MECHANISMS OF ALCOHOL AND NICOTINE DEPENDENCE. Utilizes state-of-the-art next-generation sequencing (ABI SOLiD technology) to profile transcriptional regulation in human brain regions that are known substrates of reward circuitry involved in the development of alcohol and nicotine dependence.

Kim Fromme, Principal Investigator

ALCOHOL AND BEHAVIORAL RISKS THROUGHOUT COLLEGE. Tracks the alcohol use and behavioral risks of 6,600 students during the transition from high school to and throughout the college years. Identification of factors that increase or decrease both alcohol use and behavioral risks during college will have significant implications for policy and prevention efforts on college campuses.

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:

www.cns.utexas.edu/development/outright.asp

or call: 512-471-3299

or contact:

UT Austin Development Office
College of Natural Sciences
Office of the Dean
1 University Station G2500
Austin, TX 78712-0548

www.utexas.edu/research/wcaar

Christine Duvauchelle, Principal Investigator

COCAINE & BRAIN: PROGRESSIVE CHANGES IN BEHAVIOR/DA/FOS (Summer Research Supplement). Studies cocaine experience-dependent changes in neural and behavioral functions for eventual development of effective treatments for cocaine abusers with different drug experiences.

Johann Eberhart, Principal Investigator

GENETIC HIERARCHIES AND CELLULAR BEHAVIORS DURING ZEBRAFISH PALATOGENESIS. Researches the signaling interactions and cellular behaviors underlying palatogenesis. Genetic analysis will provide direct insight into the cause of human disease such as fetal alcohol syndrome.

Rueben Gonzales, Principal Investigator

MU RECEPTORS AND ETHANOL/DOPAMINE INTERACTIONS (Summer Research Supplement). Examines the role of opiate peptides and their receptors in the modulation of mesolimbic dopamine activity by ethanol.

ADDITIONAL FUNDING NEWS

Dr. R. Dayne Mayfield and Dr. Kathryn Cunningham at The University of Texas Medical Branch at Galveston received funding from the National Institute on Drug Abuse for their project "Blood and Brain Gene Profiling in Stimulant Self-Administration." Their research investigates a biomarker or panel of biomarkers that would be available to assist in diagnosis of stages or progression of stimulant abuse and dependence in the general population.

The Alcoholic Beverages Medical Research Foundation awarded two-year grants totaling \$100,000 per investigator to **Dr. Jon Pierce-Shimomura** for his work "Molecular Basis for Alcohol Action on BK Potassium Channel in *C. elegans*" and **Dr. Johann Eberhart** for his work "Alcohol Gene Synergy Modulates Craniofacial Defects in Fetal Alcohol Syndrome."

HONORS & AWARDS

Scott Davis (Pierce-Shimomura Lab) was selected to receive the 2009 John P. McGovern Award funded by the Texas Research Society on Alcoholism. The award provides \$5,000 in research support.

NATIONAL RESEARCH SERVICE AWARDS
FOR PREDOCTORAL FELLOWS

Roseanna Ramazani (Atkinson Lab)
"A Screen to Identify Mutations that Disrupt Alcohol Tolerance in *Drosophila*"

Armando Salinas (Morrisett Lab)
"Central Amygdala CART Modulates Ethanol Withdrawal Induced Anxiety"

PUBLICATIONS

Blednov YA, Ozburn AR, Walker D, Ahmed S, Belknap JK, **Harris RA** (2009) Hybrid Mice as Genetic Models of High Alcohol Consumption. *Behav Genet*.

Howard EC, Schier CJ, Wetzel JS, **Gonzales RA** (2009) The dopamine response in the nucleus accumbens core-shell border differs from that in the core and shell during operant ethanol self-administration. *Alcohol Clin Exp Res* 33:1355-1365.

Jones TA, Donlan NA, O'Donnell S (2009) Growth and pruning of mushroom body Kenyon cell dendrites during worker behavioral development in the paper wasp, *Polybia aequatorialis* (Hymenoptera: Vespidae). *Neurobiol Learn Mem* 92:485-495.

Kaehr B, **Shear JB** (2009) High-throughput design of microfluidics based on directed bacterial motility. *Lab Chip* 9:2632-2637.

Li W, Halling DB, Hall AW, **Aldrich RW** (2009) EF hands at the N-lobe of calmodulin are required for both SK channel gating and stable SK-calmodulin interaction. *J Gen Physiol* 134:281-293.

DOCTORAL DEGREES AWARDED

Dr. Jonathan Theile
(Morrisett Lab), October 13, 2009
Mechanisms in Ethanol Modulation of GABA Release onto Dopaminergic Neurons of the Ventral Tegmental Area

Dr. Nicole Riherd Methner
(Harris/Mayfield Labs), August 10th, 2009
Ethanol-Induced Regulation of the Human Dopamine Transporter

Dr. Beth Erlichman Goldstein
(Mihic Lab), July 10, 2009
Single Channel Analysis of Thiol Binding to a Putative Site of Alcohol Action on the Glycine Receptor

Useful Websites

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

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

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

Research Society on Alcoholism (RSA)
www.rsoa.org

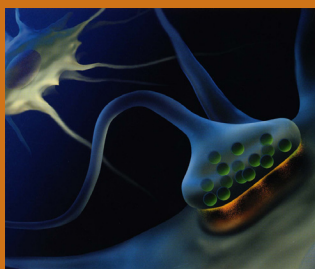
International Society for Biomedical Research on Alcoholism (ISBRA)
www.isbra.com

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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 UT Austin. 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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berkman@mail.utexas.edu

PUBLICATIONS (continued)

McCracken LM, Trudell JR, Goldstein BE, **Harris RA**, **Mihic SJ** (2009) Zinc enhances ethanol modulation of the alpha-1 glycine receptor. *Neuropharmacology*. (In press.)

Narayanaswamy R, Moradi EK, Niu W, Hart GT, Davis M, McGary KL, **Ellington AD**, Marcotte EM (2009) Systematic definition of protein constituents along the major polarization axis reveals an adaptive reuse of the polarization machinery in pheromone-treated budding yeast. *J Proteome Res* 8:6-19.

Reveron ME, Maier EY, **Duvauchelle CL** (2009) Behavioral; Thermal and Neurochemical Effects Of Acute And Chronic 3,4-Methylenedioxymethamphetamine ("Ecstasy") Self-Administration. *Behav Brain Res*.

Ritschdorff ET, Plenert ML, **Shear JB** (2009) Microsecond analysis of transient molecules using bi-directional capillary electrophoresis. *Anal Chem* 81:8790-8796.

Rojas JC, Simola N, Kermath BA, Kane JR, **Schallert T**, Gonzalez-Lima F (2009) Striatal neuroprotection with methylene blue. *Neuroscience* 163:877-889.

Rosenkranz JA, Frick A, **Johnston D** (2009) Kinase-dependent modification of dendritic excitability after long-term potentiation. *J Physiol* 587:115-125.

Routh BN, **Johnston D**, Harris K, Chitwood RA (2009) Anatomical and electrophysiological comparison of CA1 pyramidal neurons of the rat and mouse. *J Neurophysiol* 102:2288-2302.

Stappenbeck CA, **Fromme K** (2009) Alcohol Use and Perceived Social and Emotional Consequences Among Perpetrators of General and Sexual Aggression. *J Interpers Violence*.

Sunderhaus JD, **Martin SF** (2009) Applications of multicomponent reactions to the synthesis of diverse heterocyclic scaffolds. *Chemistry* 15:1300-1308.

Wetherill RR, **Fromme K** (2009) Subjective responses to alcohol prime event-specific alcohol consumption and predict blackouts and hangover. *J Stud Alcohol Drugs* 70:593-600.

Wetherill RR, Neal DJ, **Fromme K** (2009) Parents, Peers, and Sexual Values Influence Sexual Behavior During the Transition to College. *Arch Sex Behav*.