Annual Report
2008-2009
Division of Pharmacology and Toxicology
Dr. Gore was cited along with Dr. David Crews, professor of integrative biology, for producing the best research paper of 2008. Their work was titled “Transgenerational Epigenetic Imprints on Mate Preference.” In their research, the two examine how mating preferences by rats are affected by toxic exposure of their ancestors.

Dr. Gore was also nominated for the Hamilton award for her publication, “Endocrine-Disrupting Chemicals: From Basic Research to Clinical Practice.” In addition, Diane Ginsburg, assistant dean of student affairs and clinical professor of pharmacy practice, was nominated for her publication “ASHP’s PharmPrep: Interactive Case-Based Board Review, 3rd edition.”

The Robert W. Hamilton Awards were established in 1997 by the University Co-op to recognize leading authors and researchers at the university. The award honors Dr. Hamilton, past chairperson of the University Co-op Board of Directors and retired professor of law at UT Austin.

Gore names AAAS Fellow

Dr. Andrea Gore, professor of pharmacology/toxicology, is one of 486 scholars to be named a Fellow by the American Association for the Advancement of Science (AAAS). Fellow election is an honor bestowed upon AAAS members by their peers to honor scientifically or socially distinguished efforts to advance science or its applications. Gore was cited for “contributions to the field of reproductive neuroendocrinology, especially for work on reproductive aging and role of environmental endocrine disruptors on physiology.”

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Dr. Erickson was named the first runner up for the Hamilton Award, the grand prize in the textbook category, for his publication “The Science of Addiction: From Neurobiology to Treatment.” The book was published by W.W. Norton & Co. and has been translated into several languages. The author is recognized internationally as an expert in the field of addiction science. He is director of the Addiction Science Research and Education Center.

Lymphoma research published in Science

Using cancer cells that were originally isolated from an anaplastic large cell lymphoma patient, two researchers, including Dr. Casey Wright, assistant professor of pharmacology/toxicology, have identified a novel regulatory mechanism in inflammatory signaling of immune cells that may provide beneficial in treating cancer. The study was published in Science magazine. Wright said researchers want to better understand how the membrane protein, CD30, contributes to lymphoma. CD50 is a cell surface receptor that communicates signals from the extracellular environment into the cell, resulting in a cellular response. It has been recognized since the early 1980s that CD30 is present in very high amounts in certain lymphomas and leukemias, much more than in normal cells.

“This makes CD30 an attractive therapeutic target,” said Wright, who joined the pharmacology/toxicology faculty in Fall 2008. In the study, the researchers uncovered an unexpected partner protein that interacts with CD30. This protein, known as ARNT, is best characterized for its role in mediating the metabolism of environmental toxins and also for mounting the hypoxic response in cells exposed to low oxygen levels.

“Both research describes a novel role for ARNT, which has never been implicated in the signaling pathway of a membrane protein like CD30,” said Wright, who conducted the study as a research fellow at the University of Michigan Medical School. His adviser at Michigan, Dr. Colin Duckett, is co-author of the article in Science.

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### Grants and Contracts

#### Funds directed through UT Austin Accounts

<table>
<thead>
<tr>
<th>Fund Source</th>
<th>Amount</th>
<th>Title</th>
<th>Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Institutes of Health</td>
<td>$301,291 (93,790)</td>
<td>Heat Shock-Induced Apoptosis</td>
<td>Bratton</td>
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<tr>
<td>American Cancer Society</td>
<td>180,000 (30,000)</td>
<td>Regulation of Caspase-9 During Drug-Induced Apoptosis</td>
<td>Bratton</td>
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<tr>
<td>Special Research Grants UT Office, VP Research</td>
<td>6,000</td>
<td>Mechanistic Insights into Apoptosome-Dependent Activation of Caspase-9</td>
<td>Bratton</td>
</tr>
<tr>
<td>National Institutes of Health NIAAA</td>
<td>35,878 (12,274)</td>
<td>Cocaine and Brain: Progressive Changes in Behavior/DA/Fos-Supplement</td>
<td>Duvachelle</td>
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<tr>
<td>National Institutes of Health NIAAA</td>
<td>351,024 (22,683)</td>
<td>Neurochemical and Behavioral Correlates of Ethanol Effects</td>
<td>Gonzales</td>
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<tr>
<td>National Institutes of Health NIAAA</td>
<td>30,792</td>
<td>Sensory Stimuli of Ethanol Elicits Dopamine Signals in the Accumbens Core</td>
<td>Gonzales</td>
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<td>National Institutes of Health NIAAA</td>
<td>34,186</td>
<td>Ethanol Evoked Dopamine Release in the Nucleus Accumbens Core and Shell</td>
<td>Gonzales</td>
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<tr>
<td>National Institutes of Health NIAAA</td>
<td>45,218</td>
<td>The Role of the Endogenous Endocannabinoid System in Ethanol Self-Administration</td>
<td>Gonzales</td>
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<td>National Institutes of Health NIAAA</td>
<td>62,751</td>
<td>Support for the Annual Meeting of the Research Society on Alcoholism</td>
<td>Gonzales</td>
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<td>National Institutes of Health (Mt. Sinai School of Medicine)</td>
<td>158,370 (72,837)</td>
<td>Estrogen and the Aging Brain</td>
<td>Gore</td>
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<tr>
<td>National Institutes of Health NIA</td>
<td>185,220 (89,939)</td>
<td>Hypothalamic Control of Reproductive Aging</td>
<td>Gore</td>
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<td>National Institutes of Health NIA</td>
<td>22,500 (7,500)</td>
<td>Uncoupling the Agony from Ecstasy</td>
<td>Mills</td>
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<tr>
<td>National Institutes of Health NIAAA</td>
<td>147,000 (47,500)</td>
<td>Mechanisms of MDMA-Induced Hyperthermia</td>
<td>Mills</td>
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<td>Texas Higher Education Coordinating Board</td>
<td>75,000</td>
<td>Reviving the Breath of Life in Malignant Cells as an Anticancer Strategy</td>
<td>Mills</td>
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<td>National Institutes of Health NIAAA</td>
<td>226,526 (73,525)</td>
<td>Accumbal Synaptic Regulation and Bistability in the WID Mouse Model</td>
<td>Morrisett/Gonzales</td>
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<td>National Institutes of Health NIAAA</td>
<td>75,650</td>
<td>Mu Receptors and Ethanol/Opiate Interactions</td>
<td>Morrisett/Gonzales</td>
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<td>National Institutes of Health NIAAA</td>
<td>34,120</td>
<td>Ethanol Modulation of Midbrain GABAergic Synaptic Transmission</td>
<td>Morrisett/Theile</td>
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<td>National Institutes of Health NIAAA</td>
<td>30,136</td>
<td>Central Amygdale CART Mediates Ethanol Withdrawal Induced Anxiety</td>
<td>Morrisett/Salinas</td>
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<td>National Institutes of Health NIEHS</td>
<td>183,750 (61,250)</td>
<td>Mechanism and Prevention of Environmental Disease</td>
<td>Person</td>
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**Subtotal - funds directed through UT Austin accounts**

Direct $3,338,116

(Indirect) ($623,324)

#### Funds directed through Other UT System Component Accounts

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<tr>
<th>Fund Source</th>
<th>Amount</th>
<th>Grant Title</th>
<th>Investigator</th>
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<tr>
<td>CRED Pilot Project Subaward UT Office of VP/Research</td>
<td>45,000 (15,000)</td>
<td>Development of Caspase-9 Knock-n Mutant Mice</td>
<td>Bratton</td>
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<tr>
<td>National Institutes of Health CRED Pilot Project Subaward</td>
<td>1,000</td>
<td>Undergraduate Research Fellowship: Aimee Lam</td>
<td>Duvachelle</td>
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<tr>
<td>UT Office of VP for research</td>
<td>1,000</td>
<td>Undergraduate Research Fellowship: Daniel Min</td>
<td>Duvachelle</td>
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<tr>
<td>UT Office of VP for research</td>
<td>1,000</td>
<td>Undergraduate Research Fellowship: Samantha Fernandes</td>
<td>Duvachelle</td>
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<tr>
<td>UT Office of VP for research</td>
<td>$750</td>
<td>Special Research Grant</td>
<td>Duvachelle</td>
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<tr>
<td>UT Office of VP for research</td>
<td>6,000</td>
<td>Endocannabinoid Involvement in Ethanol Self-Administration</td>
<td>Gonzales</td>
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<tr>
<td>UT Office of VP for research</td>
<td>1,000</td>
<td>Undergraduate Research Fellowship: Linda Do</td>
<td>Richburg</td>
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<tr>
<td>UT Office of VP for research</td>
<td>750</td>
<td>Special Research Grant</td>
<td>Richburg</td>
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**Subtotal - funds processed/awarded through other UT System component accounts**

Direct $56,500

(Indirect) ($15,000)
<table>
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<tr>
<th>Funding Source</th>
<th>Amount</th>
<th>Grant Title</th>
<th>Investigator</th>
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<tr>
<td>National Institutes of Health</td>
<td>$42,236 (11,912)</td>
<td>Identification and Significance of Protein Adducts</td>
<td>Bratton</td>
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<tr>
<td>National Institutes of Health</td>
<td>$4,160 (308)</td>
<td>Subcontract of R25 ES016147-SURP</td>
<td>Richburg</td>
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<tr>
<td>NIEHS</td>
<td>$11,192 (3,731)</td>
<td>Subcontract of P30 ES07784-Admin Core</td>
<td>Richburg</td>
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Division of Pharmacology & Toxicology funds directed through other agencies or institutions:

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<thead>
<tr>
<th>Type</th>
<th>Amount</th>
<th>Source</th>
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<tbody>
<tr>
<td>Direct</td>
<td>$57,588</td>
<td>Funds through UT Austin accounts</td>
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<tr>
<td>Direct</td>
<td>$57,731</td>
<td>Funds through other agencies or institutions</td>
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<tr>
<td>TOTAL</td>
<td>$1,919,087</td>
<td>($654,275)</td>
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</table>

**Publications**

**Bratton, Shawn B.**

(Choi, Butterworth, Malladi, Duckett, Cohen) “The E3 ubiquitin ligase cIAP1 binds and ubiquitinates caspases-3 and -7 via unique mechanisms at distinct steps in their processing.” Journal of Biological Chemistry 284, pp. 12772-12782, ’09.


**Erickson, Carlton K.**


**Gonzales, Rueben**


(Theile, Morikawa, Morisetti) “Role of 5-HT2c receptors in Ca2+-dependent ethanol potentiation of GABA release onto ventral tegmental area dopamine neurons.” Journal of Pharmacology and Experimental Therapeutics 329, pp. 625-33, ’09.


**Gore, Andrea C.**


(Wu, Lin) “Age-related changes in hypothalamic androgen receptor and estrogen receptor a in male rats.” Journal of Comparative Neurology 512(5), pp. 688-701, ’09.


**Mills, Edward M.**


Morisetti, Richard

(Theile, Morikawa, Gonzales) “Role of 5-HT2c receptors...
in Ca2+-dependent ethanol potentiation of GABA release onto ventral tegmental area dopamine neurons." Journal of Pharmacology Experimental Therapeutics 329, pp. 625-633, '09.

Person, Maria D. (Dennis, Browning) "Phosphorylation of plant translation initiation factors by CK2 enhances the in vitro interaction of multifactor complex components." Journal of Biological Chemistry 284, pp. 20615-20628, PMID: 19590420, '09.


(Sinkevicius, Laine, Lotan, Woloszyn, Greene) "Estrogen-dependent and -independent estrogen receptor alpha signaling separately regulate male fertility." Endocrinology 150(6), pp. 2898-2905, '09.


"Stimulation of Mesocortical Corticotropin Releasing Hormone by Intravenous Ethanol Administration." Research Society on Alcoholism annual meeting, San Diego, CA, June '09.


"Transgenerational, Epigenetic Effects of Environmental Endocrine Disruptors on Reproduction." Southwestern University of Texas, Georgetown, TX, Oct. '08; University of California-San Francisco, Grand Rounds, San Francisco, CA, Nov. '08.

"Transgenerational Effects of Endocrine Disruptors on Neuroendocrine Systems." Society for Behavioral Neurosciences, Michigan State University, East Lansing, MI, June '09.

"Role of the Hypothalamus in Reproductive Aging." Georgetown University and NIA workshop on reproductiv aging, Georgetown University, Washington, D.C., June '09.

"Perinatal Exposure to Polychlorinated Biphenyls Disrupts Sexual Differentiation of the ReproductiveNeuroendocrine Axis" and "Long-term Effects of Perinatal Methoxychlor or Estradiol on Gene Expression in the Hypothalamus of the Aging Female Rat." Endocrine Society Meeting, Washington, D.C., '09. (Abstract)


Mills, Edward M. "Energizing the Warburg Effect and Prevention of Skin Carcinogenesis with Uncoupled Mitochondrial Respiratory Chain." Society for Toxicology Annual Meeting, UT Health Science Center, San Antonio, TX, Feb. '09 and CREDCenter Retreat; Round Top, TX, Oct.'08.


"Stable Isotope Labeling with Succinimidyl Anhydride." College of Natural Sciences Undergraduate Research Forum, Austin, TX, April '09.

"PC-2: Analytical Instrumentation – Biological Mass Spectrometry." ABRF annual meeting, Memphis, TN, Feb.'09 and CREDCenter Retreat; Round Top, TX, Oct. '08.

"Comparison of MALDI-TOF/TOF Protein Identification Techniques for Single Protein and Complex Protein Mixtures." CREDCenter Retreat, Round Top, Texas, Oct. '08.
Ponomarev, Igor

Richburg, John H.
“FasL and TRAIL Gene-Deficient Mice Show Altered Spermatogenesis and Differential Sensitivity to MEHP-Induced Germ Cell Apoptosis.” Society of Toxicology Annual Meeting, Baltimore, MD, March ‘09.

“Preserving the Fertility of Male Chemotherapy Patients: The Importance of p53, ITCH and c-FLIP Interaction During Cisplatin-Induced Apoptosis.” College of Natural Sciences Undergraduate Research Forum, April ‘09.

Wright, Casey W.
“ARNT Negatively Regulates NF-κB activity.” Institute for Cellulas and Molecular Biology, Sept. ’08. (Poster)
“Molecular Mechanisms of NF-κB Signaling in Lymphoma.” Breakfast Talk, Institute for Cellulas and Molecular Biology, Oct. ’08.
“Insights into NF-κB Regulation in Lymphoma.” University of Texas MD Anderson Cancer Center, Science Park-Research Division, March ’09.
“Novel Roles for a Xenobiotic Sensor Molecule in the Regulation of NF-κB in Lymphoma.” University of Texas at Austin College of Pharmacy Advisory Council, March ’09.