College of Pharmacy
Annual Report 2007-2008
Division of Pharmacuetics
Arming against Ebola

Dr. Maria Croyle, associate professor of pharmaceutics, has received $2.6 million to develop a vaccine against Ebola virus infection. With grants from the National Institutes of Health and the Canadian Research and Technology Initiative, Croyle will lead an international research team to study the immune responses after administering a novel vaccine either by nasal spray or tablet in pre-clinical models of Ebola infection.

Ebola is one of the most lethal pathogens known to man and, although outbreaks are in limited regions, the lethality of the virus is increasing with a reported 90 percent mortality rate in some regions. The proposed vaccine consists of a recombinant adenovirus. The genes that allow the adenovirus to cause disease are removed and replaced by gene sequences for the proteins that coat the outer surface of the Ebola virus.

Reducing the carbon footprint

The eco-friendly green solvent ethyl lactate can be stabilized and used as a binding agent in the production and processing of pharmaceuticals, lowering the carbon footprint of the industry, Dr. Jason McConville, assistant professor of pharmaceutics, has found.

Ingredients produced from renewable crops, such as corn and sugar cane, have much less of an environmental impact than those derived from non-renewable sources such as oil, he added. A significant proportion of drug products marketed today include processing steps that use petroleum-derived products.

Ethyl lactate is an organic solvent formed by the chemical reaction of lactic acid and ethanol, both of which may be naturally produced from the fermentation of corn. The compound has been used before in the cosmetic and food industries.
Presentations

**Croyle, Maria A.**


“Impact of Recombinant Viruses on Hepatic Drug Metabolism.” Conference on Recent Advances and Prospects in the Development of Combined Biotechnology Drugs, Chosun University, Gwangju, South Korea, Sept. ‘07.


**McConville, Jason T.**


“Modification of the USP Type II Dissolution Testing Apparatus for Powder Formulations.” Novartis, Basel, Switzerland, July ‘08.

“The Use of Renewable Ingredients for Pharmaceutical Formulations.” Tate & Lyle, Decatur, IL, Sept. ‘08.

“Improved Therapy by Direct Lung Targeting for the Treatment of Pulmonary Aspergillosis.” Purdue University, Lafayette, IN, Sept. ‘08.

**McGinity, James W.**


“Factors Influencing the Selection of Components and Processing Equipment for Pharmaceutical Applications of Hot Melt Extrusion.” APV Experts’ Workshop on Hot Melt Extrusion and Its Use in the Manufacturing of Pharmaceutical Dosage Forms, Ludwigshafen, Germany, March ‘08.


**Stavchansky, Salomon**

“Analytical Considerations to Establish Pharmaceutical Equivalence of Biologics.” Military Medical Academy of Beijing, Beijing, China, Sept. ‘07.

“Statistical Considerations and Evaluation of Bioequivalence Studies of Highly Variable Drug Products.” Peking University, Beijing, China, Sept. ‘07.

“Selection of Botanical Bioavailability Markers Based on In Silico Descriptors and Their Correlation to In Vivo Permeability.” Symposium on Quality Control of Natural Products, 67th FIP World Congress of Pharmacy and Pharmaceutical Sciences, Beijing, China, Sept.-Oct. ‘07.

“Statistical Considerations in Establishing Bioequivalence of Multisource Drug Products” and “Bioanalytical Validation to Establish Bioequivalence of Protein Pharmaceuticals and Small Molecular Weight Drugs.” International Regulatory Symposium, sponsored by AAPS/FIP and the College of Pharmacy of Ho Chi Minh City, Ho Chi Minh City, Vietnam, Oct.-Nov. ‘07.


“Pharmaceutical Equivalence of Follow-On Protein Pharmaceuticals.” X Regional Congress of the Autonomous University of Nuevo Leon in Mexico, UANL University, Monterrey, Nuevo Leon, Mexico, April ‘08.


Williams III, Robert O.


Publications

Croyle, Maria A.


McConville, Jason T.


(Wiederhold) “Antifungal Prophylaxis to the Lung Using Itraconazole.” Inhalation, Nov. ‘07.


(Carvajal, Cipolla, Copley) “Highlights from RDD 2008: Inhalation Reports on Some of the Most Interesting Research Presented at the Most Recent Respiratory Drug Delivery Meeting, Inhalation, June ‘08.

McGinity, James W.


Stavchansky, Salomon

(Wang, Zhao, Bynum, Kerwin, Bowman) “Cytoprotection of Human Endothelial Cells From Menadione Cytotoxicity-


Williams III, Robert O.


### Grants and Contracts

#### Funds Directed through UT Austin Accounts

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Amount</th>
<th>Title</th>
<th>Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Institutes of Health</td>
<td>$380,426 (118,830)</td>
<td>Evaluation of Protective Immunity After Mucosal Immunization Against Ebola Virus</td>
<td>Croyle</td>
</tr>
<tr>
<td>Immunobiosciences</td>
<td>100,000 (44,382)</td>
<td>Phase I Proof of Concept Study: Effect of Adenovirus-Antibody Complexes on the Immune Response Against an Encoded Antigen</td>
<td>Croyle</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>193,858</td>
<td>RADI Congressional Special Interest: Microencapsulation and Drug Delivery Research</td>
<td>McConville</td>
</tr>
<tr>
<td>Cydex Inc.</td>
<td>60,000 (15,000)</td>
<td>Characterization of Aerosolized Drugs</td>
<td>McConville</td>
</tr>
<tr>
<td>Wolff Cellulosics</td>
<td>37,814 (17,646)</td>
<td>Properties of Hydroxypropyl Methylcellulose (Hypromellose) Materials</td>
<td>McConville</td>
</tr>
<tr>
<td>Cytotech, LLC</td>
<td>54,290</td>
<td>Pre-Formulation Development for Lung Cancer Treatment</td>
<td>McConville</td>
</tr>
<tr>
<td>Cyro</td>
<td>10,000</td>
<td>Graduate Student Fellowship in Industrial Pharmacy</td>
<td>McGinity</td>
</tr>
<tr>
<td>Dispersol</td>
<td>3,750</td>
<td>Graduate Student Fellowship in Industrial Pharmacy</td>
<td>McGinity</td>
</tr>
<tr>
<td>Abbott</td>
<td>4,879</td>
<td>Patent Royalties</td>
<td>McGinity</td>
</tr>
<tr>
<td>Evonik</td>
<td>30,000</td>
<td>Graduate Student Fellowship in Industrial Pharmacy</td>
<td>McGinity</td>
</tr>
<tr>
<td>Rohm Pharma</td>
<td>15,000</td>
<td>Graduate Student Fellowship in Industrial Pharmacy</td>
<td>McGinity</td>
</tr>
<tr>
<td>Hoffman LaRoch</td>
<td>50,000</td>
<td>Graduate Student Fellowship in Industrial Pharmacy</td>
<td>McGinity</td>
</tr>
<tr>
<td>Hoffman LaRoch California</td>
<td>4,606</td>
<td>Graduate Student Fellowship in Industrial Pharmacy</td>
<td>McGinity</td>
</tr>
<tr>
<td>Brooke Army Medical Center</td>
<td>31,920</td>
<td>Nonpersonal Services for a Predoctoral Fellow from UT Austin</td>
<td>Stavchansky</td>
</tr>
<tr>
<td>Brooke Army Medical Center</td>
<td>69,680</td>
<td>Nonpersonal Services for a Predoctoral Fellow from UT Austin</td>
<td>Stavchansky</td>
</tr>
<tr>
<td>Brooke Army Medical Center</td>
<td>101,600</td>
<td>Nonpersonal Services for a Predoctoral Fellow from UT Austin</td>
<td>Stavchansky</td>
</tr>
<tr>
<td>Brooke Army Medical Center</td>
<td>32,480</td>
<td>Amelioration of the Adverse Responses of Mice and Humans to Traumatic Injury by Gene Expression</td>
<td>Stavchansky</td>
</tr>
<tr>
<td>Brooke Army Medical Center</td>
<td>5,000</td>
<td>Amelioration of the Adverse Responses of Mice and Humans to Traumatic Injury by Gene Expression</td>
<td>Stavchansky</td>
</tr>
<tr>
<td>CyDex, Inc.</td>
<td>45,500</td>
<td>Characterization of Aerosolized Drug Agent for Invasive Aspergillosis</td>
<td>Williams</td>
</tr>
<tr>
<td>University of Texas</td>
<td>37,065</td>
<td>Science Technology Center for Environmentally Responsible Solvents and Processes</td>
<td>Williams</td>
</tr>
<tr>
<td>Affinium Pharmaceuticals</td>
<td>9,468</td>
<td>Concepts for Formulating Drugs for Intravenous Injection</td>
<td>Williams</td>
</tr>
</tbody>
</table>

Subtotal Division of Pharmaceutics

Direct $1,277,336

(Indirect) ($195,858)
<table>
<thead>
<tr>
<th>FUNDING SOURCE</th>
<th>AMOUNT</th>
<th>GRANT TITLE</th>
<th>INVESTIGATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>HiTech Pharmacal Co</td>
<td>$350</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>William</td>
</tr>
<tr>
<td>Jones Day</td>
<td>10,750</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>Williams</td>
</tr>
<tr>
<td>Elan Pharmaceuticals</td>
<td>89,079</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>Williams</td>
</tr>
<tr>
<td>Galderma Labs</td>
<td>20,825</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>Williams</td>
</tr>
<tr>
<td>Taylor &amp; Francis</td>
<td>6,000</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>Williams</td>
</tr>
<tr>
<td>Munck Buttress</td>
<td>9,187</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>Williams</td>
</tr>
<tr>
<td>Daichi Sankyo</td>
<td>18,000</td>
<td>Graduate Student Fellowships/Industrial Pharmacy</td>
<td>Williams</td>
</tr>
</tbody>
</table>

Subtotal Division of Pharmaceutics

<table>
<thead>
<tr>
<th>Source</th>
<th>Direct</th>
<th>(Indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$154,191</td>
<td>($0)</td>
</tr>
</tbody>
</table>

Grand total Division of Pharmaceutics

<table>
<thead>
<tr>
<th>Source</th>
<th>Direct</th>
<th>(Indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1,431,527</td>
<td>($195,858)</td>
</tr>
</tbody>
</table>