

University of Pittsburgh
School of Pharmacy

ANNUAL REPORT
2010–2011



Dear Friends,

Throughout its 133-year history, our School of Pharmacy has graduated pharmacists and scientists who have excelled at the very highest levels of the profession and of science. We have only to look at the accomplishments of our alums to find the evidence.

- The School is the daily home to an exceptionally talented and cohesive cadre of faculty, students, and staff. Our faculty care passionately about making a difference and for their efforts, they have been recognized. This year, faculty members were recipients of three national awards: the American Pharmacists' Association Tyler Prize for the Stimulation of Research; Fellow of the American Association for the Advancement of Science; and Fellow of the American Society of Health-System Pharmacists.
- The PharmD program is the largest of the School's degree-granting programs, with approximately 108 students per class. Enviably, graduates consistently pass licensing examinations on their first attempt. All graduates are prepared to provide direct patient care as the result of an innovative and demanding curriculum. In FY11, 26 percent of the graduating class pursued advanced practice residency training or additional degree programs.
- In a remarkable demonstration of appreciation for the richness of their Pitt Pharmacy experiences and generosity, the PharmD Class of 2011 pledged \$50,000 toward the construction of the Commons, an area of new construction that will benefit those who will come after them.
- The advanced practice post-graduate residency program has become one of the premier programs in the country both in quality and in the number of trainees, which has grown three-fold in eight years—from 11 residents in 2003 to 33 in 2011. The program became a national model for residency research training and now also offers an education certificate to prepare residents for faculty and preceptor positions.
- PhD education of the School extends back to the 1950s. In the early 1980s, the School became an innovator in clinical scientist training, which sustains excellence today as one of the top three Clinical Pharmaceutical Scientist PhD programs in the country. The PhD program in Pharmaceutical Sciences includes pharmacology, drug delivery, and medicinal chemistry. The School has aggressively pursued the University's goal of increasing the number of PhD graduates, more than doubling the number of full-time PhD students in the last decade with 42 PhD students enrolled during FY11.
- To support the goal of becoming a "research school of distinction," the School of Pharmacy has fostered a culture of research and scholarship. In FY11, 24 faculty researchers were responsible for 69 active research projects and \$51,724,534 in active research awards; \$12.55 million in expenses was specifically allocated to FY11. The School of Pharmacy ranks #11 among schools of pharmacy in all NIH grant funding received. Research funding is 8.5-fold higher than in FY99 and is 2.7-fold higher than

FY00. In FY11, NIH provided 75 percent of the total research funding. As impressive as the dollar amount of funding is, it is overshadowed by the incredible contribution of the research to the understanding of human health and disease.

- In the patient care arena, faculty members are recognized nationally for innovative models that optimize care for patients. With the School's UPMC partner, faculty members provide care for patients and evaluate models of care in institutions and during transitions of care. Faculty members are also renowned for developing models of pharmacist-provided medication-based care to patients in the community, including the homeless and working poor.
- As evidence of cohesiveness and commitment, the members of the School of Pharmacy's extended family are also generous, making gifts to the School totaling \$2.65 million in FY11. The School has raised \$22.2 million toward the Capital Campaign, a 4-fold increase in total Capital Campaign dollars raised since 2001. A remarkable 36.1 percent of the School's 4,887 living alumni were engaged in FY11. The pride and cohesiveness of the School's extended family is evident from the top three ranking of Pitt Pharmacy among all schools of the University in alumni engagement for all five years of the alumni rankings.

FY11 was a great year that also built on previous successes; together, the accomplishments form an accumulated record of excellence. I hope that you enjoy the details of our achievements in the descriptions in this Annual Report 2010–2011.

Sincerely,



Patricia D. Kroboth, Dean

The School of Pharmacy is committed to improving health through
excellence, innovation, and leadership
in education of pharmacists and pharmaceutical scientists,
in research and scholarship,
in care of patients, and
in service to our communities.

UNIVERSITY OF PITTSBURGH SCHOOL OF PHARMACY

Mission

The School of Pharmacy is committed to
improving health through
excellence, innovation, and leadership
in education of pharmacists and pharmaceutical scientists,
in research and scholarship,
in care of patients, and
in service to our communities.

*Adopted July 2006
Revised July 2009*

Vision

To be an outstanding school of pharmacy
renowned for excellence in discovery and
advancement of science-based use of
medicines and other interventions
to enhance the vitality and quality of life.

Adopted July 2006

Values

Integrity guides our daily work.
We foster:
Passion, commitment, and diligence;
Creativity and personal growth;
Collaboration and teamwork;
A culture of respect for the individual.

Adopted July 2006

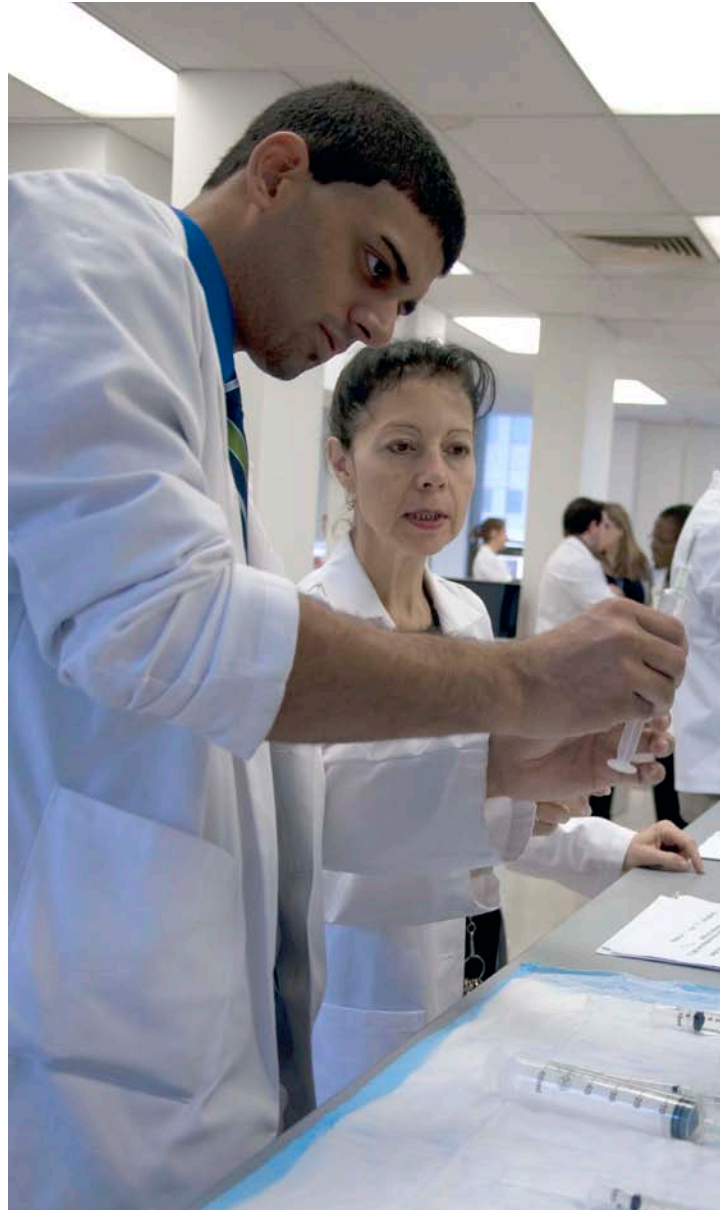
Table of Contents

	Page
<hr/>	
Educating the Next Generation of Practitioners and Scientists	
Education by the Numbers for FY11	1
PharmD Program	1
Residency Program	2
Graduate Program	3
Scholarship of Education	3
PharmD Program: Educating the Next Generation of Practitioners	3
Accreditation from the Accreditation Council for Pharmacy Education	4
Innovations in Student Learning	4
Students	6
Professional Development: Educating the Next Generation of Practitioners	15
Residency Program: Educating the Next Generation of Practitioners	16
Graduate Program: Educating the Next Generation of Scientists	21
Graduate Program in Pharmaceutical Sciences Details	21
Clinical Pharmaceutical Scientist Program	25
Combined PharmD–PhD Program	25
<hr/>	
Advancing Human Health Through Research	
Research by the Numbers for FY11	33
Research Funding	34
Research Details	35
Research Recognition of Faculty	40
Research Overview	58
Center for Pharmacogenetics	58
Drug Discovery Institute	61
Microbicide Product Pharmaceuticals Group and Microbicide	65
Clinical Trials Network Central Laboratory Core	
Center for Education and Drug Abuse Research (CEDAR)	67
Center for Clinical Pharmaceutical Sciences	68
Gibbs Laboratory	71
<hr/>	
Advancing the Health of the Public Through Partnerships	
Patient Care by the Numbers for FY11	73
Programs for Community-Dwelling Patients	74
Hospital-Based Programs	80
UPMC Pharmacy Transplant Group	80
UPMC Pharmacy Critical Care Group	82
UPMC Pharmacy General Inpatient (Internal Medicine and Medication	86
Education Program) Group	
UPMC Infectious Diseases and Antibiotic Management Program (AMP)	88
Drug Use and Disease State Management (DUDSM) Program	89
Geriatrics (Benedum and Shadyside Senior Care Institute) Program	91
UPMC–Western Psychiatric Institute and Clinic	93
Other Programs	94
Pittsburgh Poison and Drug Information Center (PPDIC)	94
The Grace Lamsam Program for the Underserved	96

	Page
Securing an Adequate Resource Base	
Resources by the Numbers for FY11	101
Financial Resources	102
Budget	102
Institutional Advancement	102
Physical Facilities	105
The Resource of People	106
Faculty	106
Alumni and Alumni Engagement	110
Board of Visitors	111
Enhancing Our Resource Base Through Efficiency and Effectiveness	112
Staff	112
Information Technology	112
Communications	113
Long-Range Plan 2006–2012	
Long-Range Plan 2006–2012	
<u>Progress At a Glance</u>	

**Educating the
Next Generation of
Practitioners and Scientists**





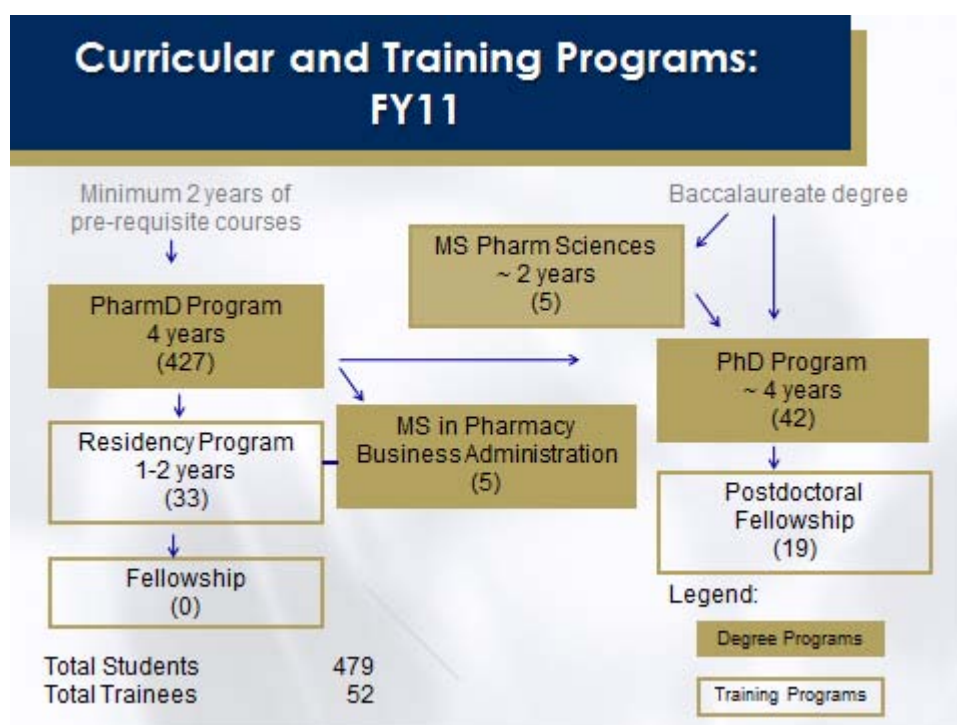
Educating the Next Generation of Practitioners and Scientists

The School builds on its rich tradition of excellence in education, continuing to fulfill its teaching mission to ultimately enhance the health and well-being of people's lives. The School prepares pharmacists of the future through the PharmD program and advanced practice residencies and prepares future scientists through its graduate programs.

By 2012, the School of Pharmacy will have:

- **Become a national leader in pharmacy education.**

This strategic outcome serves as the overall objective for the PharmD, residency, and graduate programs for the School of Pharmacy.



EDUCATION BY THE NUMBERS FOR FY11

PHARMD PROGRAM

In FY11:

- **108** students enrolled in the PharmD Class of 2015 with average GPA of 3.67, and PCAT of 80%.
- **11.7** –The number of applicants per seat through open admission.
- **191** scholarships totaling **\$350,000** were awarded to **175** PharmD students.

- Pitt pharmacy student organizations won **7** national or regional awards.
- PharmD students presented **3** papers at international or national meetings.
- **310** pharmacists in **23** states and **4** countries provided **728** APPE rotations for **104** fourth professional year students.
- In May 2011, **81** students received the BS in pharmaceutical sciences at the end of their second professional year.
- **104** students received PharmD degrees in the 2011 graduating class.
- **100%** graduated in four years.

RESIDENCY PROGRAM

In FY11:

- The School partnered with **7** institutions/entities that provided **11** types of residency programs.
- **22** PGY1 and **11** PGY2 residents participate in the residency training program.
- **33** residents participating in our affiliated residency programs came from **18** schools of pharmacy in **12** states.
- **29** of **33** residents presented their research results at national or regional meetings.
- **17** residents were awarded certificates for completion of the Teaching Mastery Program, which includes development of skills in both clinical precepting as well as teaching within the pharmacy curriculum.
- **17** of our **22** PGY1 pharmacy residents have been accepted into PGY2 specialty residency programs.
- **1** of **7** non-management PGY2 residents accepted clinical positions at academic medical centers.
- **2** of **4** graduating management residents accepted hospital pharmacy management positions and **1** management resident accepted a Congressional Healthcare Policy fellowship.
- **3** pharmacy residents continued their careers as clinical pharmacists with UPMC Health System.
- **2** residents accepted faculty positions at schools of pharmacy.
- **3** residents were recently board certified pharmacotherapy specialists.

GRADUATE PROGRAM

In FY11:

- **42** students were enrolled in the pharmaceutical sciences PhD program; **3** students were enrolled in the Master of Science program.
- **12** new students were admitted to the PhD program; **1** new student was admitted to the Master of Science program.
- **4** students graduated with their PhD degree after successful defense of their dissertations; **2** students graduated with the MS degree.
- **45% (19/42)** of the PhD students are U.S. citizens or permanent residents.
- **50% (21/42)** of the PhD students have pharmacy degrees.
- **5** PhD students received competitive fellowships.
- Gordon Conference invitation issued to a graduate student: **1!**
- Graduate students published **18** peer-reviewed manuscripts.
- Graduate students gave **25** presentations at national and international scientific meetings.

SCHOLARSHIP OF EDUCATION

In FY11, faculty and students demonstrated scholarship in education through:

- **14** publications.
- **23** presentations about teaching and teaching innovations.
- **6** total grants, **1** of which is new.

PHARMD PROGRAM: EDUCATING THE NEXT GENERATION OF PRACTITIONERS

As a recognized national leader in pharmacy education, the School of Pharmacy is building the rich tradition of excellence in education to provide world-class learning opportunities for our students. We contribute to the national dialogue about the scholarship of teaching, learning, and assessment through publications and presentations. We are empowering students to become practitioners with the necessary skills and knowledge to be leaders in patient-centered care and key contributors on the health care team. We provide student pharmacists and graduate pharmacists with support and resources through a life-time of professional development.

Accreditation from the Accreditation Council for Pharmacy Education for the PharmD Program

- The School's doctor of pharmacy program is fully accredited by the Accreditation Council for Pharmacy Education (ACPE). The accreditation term granted extends until June 30, 2016, which represents the maximum of six years between comprehensive evaluations.

Innovations in Student Learning

We are investing in and committed to continually improving our teaching strategies, learning environments, and student experiences.

Simulated Patient Care Experiences

Standardized Patients and Colleagues – Students gain skills in patient interviewing, clinical reasoning, and therapeutic decision making through a variety of simulated patient care experiences that are woven throughout the curriculum. Actors trained as standardized patients provide students opportunities to practice patient care in a safe environment. Additionally, actors trained as standardized physicians provide student opportunities to practice interprofessional communication skills to effectively navigate through difficult conversations.

Virtual Patient Simulation – Drs. Neal Benedict and Kristine Schonder are developing and using computer-based, virtual patients to integrate case-based teaching of complex therapeutic concepts and clinical decision-making processes into the curriculum. Their specific work with a branched-outcome decision-making model has enhanced the therapeutics component of the curriculum.

Human Patient Simulators – The Peter M. Winter Institute for Simulation, Education and Research (WISER) center remains a valuable resource for use in our courses. Equipped with 16 full-sized simulators in a bank of simulated environments, control centers, and debriefing rooms, the WISER center is staffed with full-time technicians and serves students across the health sciences as well as practitioners across the UPMC system. In addition, the School has invested in two simulation mannequins, four arms, and a wound care foot that are housed in Salk Hall for students' use to improve their clinical skills.

Selected Publications

- **Benedict NJ, Schonder KS.** Patient simulation software to augment an advanced pharmaceutics course. *American Journal of Pharmaceutical Education*. 2011; 75(2), Article 21.
- **Benedict NJ.** Virtual Patient and Problem-Based Learning in Advanced Therapeutics. *American Journal of Pharmaceutical Education*. 2010; 74, Article 143.
- **Seybert AL, Kane-Gill SL.** Elective course in acute care using online learning and patient simulation. *American Journal of Pharmaceutical Education*. 2011; 1175(3):54.

Selected Presentations

- American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. Student Satisfaction and Learning with PharmaCAL: a Branched-Outcome Decision Making, Virtual Patient Simulator. July 2010. **Benedict NJ.**

BS in Pharmaceutical Sciences

In FY11, the Office of the Provost approved the School's proposal to award the Bachelor of Science in Pharmaceutical Sciences (BSPS) degree to students enrolled in the PharmD degree program after the completion of a minimum of 120 credit hours. Typically, students will have completed the pre-professional component and the first four academic terms (semesters) of the nine-term (semester) PharmD program. The BSPS is awarded only to those students who have not previously earned a baccalaureate degree and who elect to receive the degree. Students cannot enroll in the BSPS program without admission to the PharmD program. With official graduate status, students are eligible to earn credit through selected electives toward University-approved certificates. Additionally, the award of the BSPS degree provides eligibility for training programs including the NIH National Service Award (NRSA) Institutional Training Grants (T32). The latter awards are intended to enhance research training opportunities for individuals who are training for careers in specified areas of biomedical, behavioral, and clinical research.

In May 2011, **81** students received the BS in pharmaceutical sciences at the end of their second professional year.

Areas of Concentration

In FY11:

- The area of concentration in research (ARCO-RES) was approved by the University; three students have committed to the program of study.
- 5 new students were accepted into the ARCO-Pharmacy Business Administration, bringing the total to 9 students (5-P3 and 4-P4 students).
- The first PharmD student graduated with an Area of Concentration designation in Pharmacy Business Administration.

Strides in Curricular Improvement and Oversight

Through the efforts of the Curriculum Committee, the faculty evaluates all courses over a cycle of four years. Thus, each year one fourth of the courses are subjected to an in-depth course evaluation process. We have expanded our use of curricular mapping for curricular design, scheduling of courses, tracking of content and curricular assessment. The curricular mapping infrastructure and database are expanding and evolving into valuable tools for the tracking and organization of curricular content across the four years of the professional program. Faculty and staff are in the process of adapting our curricular map so that it can be used to generate course syllabi.

The School's Curriculum Assessment Committee is responsible for monitoring the effectiveness of the PharmD curriculum and the achievement of student learning outcomes. As a result of the School's successful self study and reaccreditation in 2019-10, the School has become nationally recognized for its assessment approaches and commitment to a culture of assessment.

Implementation of e-Portfolio – The School has a long tradition of students using portfolios to demonstrate achievement. Over time, faculty members have tested several e-portfolio platforms. In FY10, the School invested in the development of a customized e-portfolio platform in which students build an assessment portfolio to show integration of learning across courses and progressive development across the curriculum. In FY11, an adaptation of the platform was developed to support the creation of professional portfolios by students nearing the end of the curriculum and preparing for interviews.

Selected Invited Presentations

- AACP Annual Meeting. Seattle, WA. Speaking the Same Tongue: Coming to Consensus on the Language of Assessment and Evaluation. July 2010. **Meyer SM**.
- AACP Annual Meeting. Seattle, WA. Charting the Course: Planning Efficient and Effective Approaches to Assessment and Evaluation. July 2010. **Meyer SM**.
- AACP Interim Meeting. Savannah, GA. Strategic Planning and Programmatic Assessment. February 2011. **Kroboth PD**.

Selected Presentations

- AACP Annual Meeting. Seattle, WA. Creating an Open Source Pharmacy Student Portfolio for Use as Assessment and Professional Portfolios. July 2010. **Seybert AL, Hill CL, Smith RB**.

Interprofessional Education

The School is a partner with the other health sciences schools across campus in developing interprofessional education and training experiences for health professions students. Dr. Susan Meyer is engaged in a number of national initiatives focused on advancing interprofessional education and preparation of future health care providers for team-based collaborative practice.

Selected Publications

- Maeshiro R, Evans CH, Stanley JM, **Meyer SM**, Spolsky VW, Shannon SC, Bigley MB, Allan JD, Lang WG, Johnson KL. Using the Clinical Prevention and Population Health Curriculum Framework to Encourage Curricular Change. *American Journal of Preventive Medicine*. 2011; 2.
- Interprofessional Education Collaborative Expert Panel 1 (2011). Core competencies for interprofessional collaborative practice: Report of an expert panel. Washington, DC: Interprofessional Education Collaborative. (**Susan M. Meyer** was a member of the expert panel.)

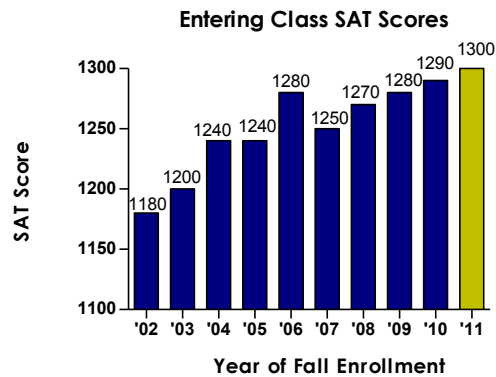
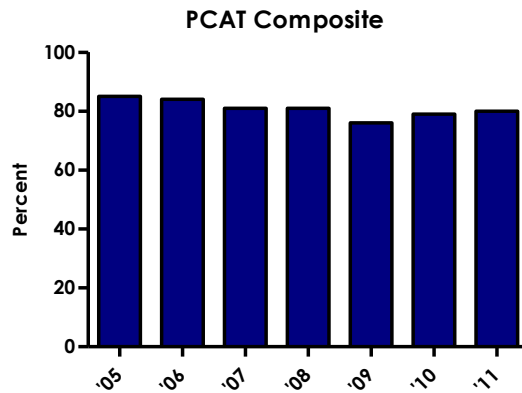
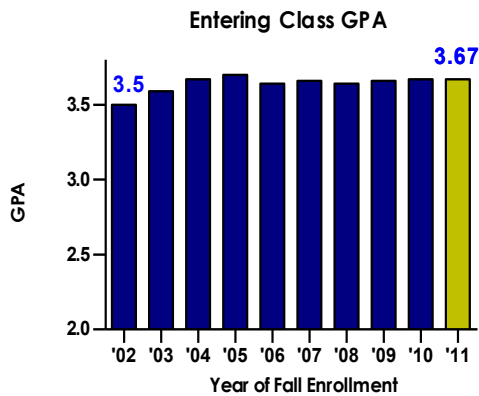
Selected Invited Presentations

- 2010 American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. July 13, 2010. Implementing Interprofessional Education in the Classroom. **Meyer SM**.

Students

Great programs start with great students, and we continue to find the best and brightest to be the future leaders of pharmacy. Our faculty and staff are committed to ensuring a fair review and selecting students that fit with our strategic goal of graduating student pharmacists who will become leaders in pharmacy. Thirteen faculty and staff members participate on the PharmD admissions committee.

Two-thirds of our full-time faculty participated in interviewing applicants. Their work resulted in the selection of an excellent group of 108 students for the Class of 2015.

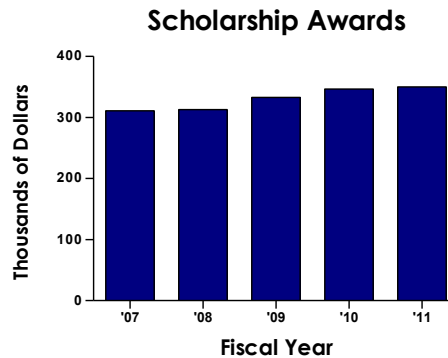
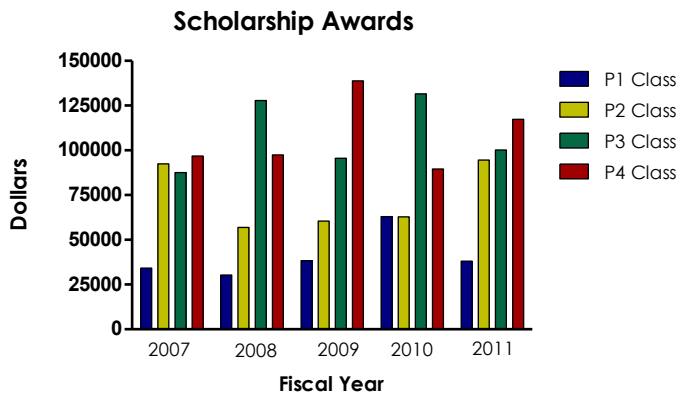
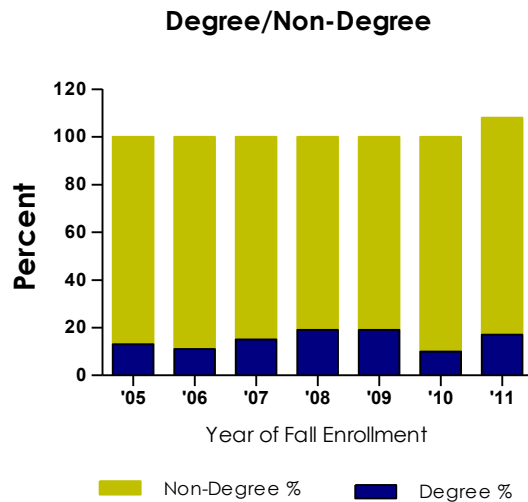
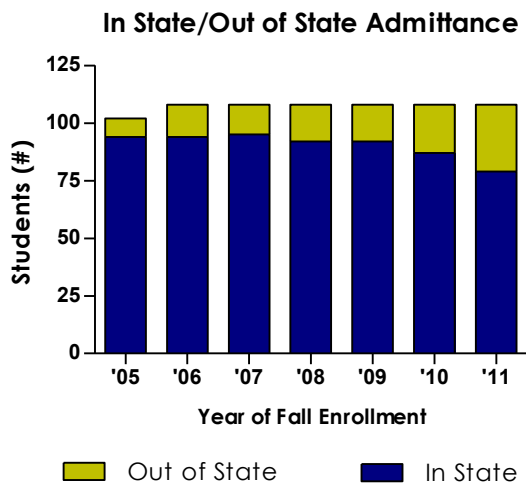


- Conditional admission Class of 2015
 - 56 students applied for PharmD program after sophomore year
 - 56 were interviewed
 - 49 were qualified and admitted to the program
- Open Enrollment Class of 2015
 - 692 applied to the PharmD program
 - 117 were interviewed
 - 74 were offered admission
 - 59 accepted the offers
- The entering Class of 2015
 - 34% are men
 - 27% are out-of-state students
 - 16% have a college degree prior to entering the PharmD program
 - 7% were an underrepresented minority

First-Year Class Enrollments 2002-2011

Fall Term	Residency Status		Application Pathway*					Students with 4-Year Degree (% of class)
			Conditional Acceptance	Educational Institution or Type for Students Accepted through Open Admission				
	PA (%)	Non-PA (%)		Pitt	Community College	AAU-member Institution	Other	
2002	92	8	37	37	5	5	12	16
2003	86	14	36	38	3	7	18	13
2004	85	15	52	28	0	4	13	15
2005	92	8	60	28	0	8	6	13
2006	87	13	50	44	1	3	10	11
2007	88	12	42	53	0	4	9	15
2008	86	14	47	42	0	2	17	19
2009	85	15	51	39	0	4	11	19
2010	81	19	47	51	0	2	9	11
2011	73	27	49	44	0	5	9	16

*Total across Applications Pathway sums to the total students enrolled;



Student National and Regional Awards and Recognition

- Amanda Johnson (P3) was one of ten awardees selected to receive the highly competitive UCB Family Epilepsy Scholarship. The award is given to a student with epilepsy or a family member/caregiver of a person with epilepsy who demonstrates academic achievement, possesses a strong record of participation in activities outside of school and serves as a positive role model.
- Indrani Kar (P2), Andrew Clark (P3), Corrine Martenak (P2), Eric Gardner (P4) received Jonas Salk Fellowships through an education program of the Jewish Healthcare Foundation, co-sponsored by the University of Pittsburgh Center for Bioethics and Health Law. Students are provided with a venue to explore issues of revolutionary change in medicine and public health.
- The student team of Nicholas Wytiaz (P3), Melissa Ruminski (P3), and Sara Dombrowski (P3) tied for second place in Pennsylvania Pharmacists Association Appropriate Medication Use Project Competition.
- Nicholas Wytiaz (P3) received honorable mention at the AMCP Summer Intern Best Project Competition at the 2010 Educational Conference in St. Louis, Mo., for his poster “Impact of a Value-Based Formulary Initiative on Utilization and Adherence of Asthma Medications, Disease Control, and Prescribing Trends.”
- Natalie Capozzolo (P2) and Ravi Patel (P1) each received a grant from the Center for Global Health to conduct a research project abroad. Their studies occurred independently. Natalie’s project was titled “Tailoring the delivery of a diabetes education program for pharmacists and student pharmacists in Salvador, Bahia, Brazil,” and Ravi’s, “Baseline Survey of Pharmaceutical Care in Rural Hyderabad, India.”
- Indrani Kar (P3) was selected for the APhA-ASP Awards Standing Committee.
- José Nery (P1) won the Anita Angus Scholarship from the Pitt Alumni Association.
- Anna Bondar (P1) presented her research as Nicaragua Panel Member in University’s 2011 Latin American Social and Public Policy Conference and at the Middle Atlantic Council of Latin American Studies Annual Conference, Globalization and Well-Being in Latin America, held at the University of Pittsburgh.
- Michele Doan (P3) and Cristina Elgin (P1) were chosen as Pittsburgh Schweitzer Fellows.
- Elyse Weitzman (P2) presented a poster on HIV medication utilization at the Academy of Managed Care Pharmacy (AMCP) annual meeting in Minneapolis, Minn.
- Dan Yarabinec (P3) won a national Kappa Psi Pharmaceutical Foundation Scholarship.
- The School’s Kappa Psi chapter was recognized as the third best collegiate chapter nationally.
- Eric Gardner (P4) co-authored the article “Clinical Pharmacogenetics Implementation Consortium Guidelines for Thiopurine Methyltransferase Genotype and Thiopurine Dosing,” published in *Clinical Pharmacology and Therapeutics*.
- Kate Steward (P3) brought a resolution to APhA-ASP House of Delegates opposing drastic cuts to Poison Control Center Funding across the nation.

Experiential Learning Rotations

International Rotations

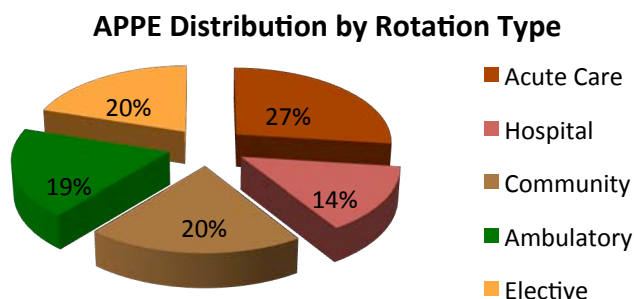
Students may complete APPE rotations at international sites as long as they are fulfilling an elective experience. This year

- 2 students participated in experiential rotations at the UPMC facility in Palermo, Italy.
- 2 students participated in experiential rotations at the UPMC Beacon Hospital in Dublin, Ireland.
- 2 students completed experiential rotations in Honduras.
- 2 students completed experiential rotations in Australia.
- 2 students received Global Health Scholarships to conduct research; one student assessed medication use in India and the other identified needs for diabetes education in Brazil.
- One student conducted research on self medication in Nicaragua.

Introductory Pharmacy Practice Experience (IPPE) and Advanced Pharmacy Practice APPE Rotations Experience (APPE) Rotations

IPPE Rotations

- 46 preceptors supervised 109 P1 students
- 61 preceptors supervised 106 P2 student
- 110 preceptors supervised 108 P3 students
- 310 preceptors supervised P4 students during 728 five- or six-week rotations for 104 students.



Students in the P4 year have the opportunity to nominate a preceptor who is an exceptional role model and who has made outstanding teaching contributions during the year, for the University of Pittsburgh School of Pharmacy Preceptor of the Year Award. The Experiential Learning committee reviews nomination letters and makes the final selection. The 2010-11 awardees were:

- Pamela Smithburger, Assistant Professor, Department of Pharmacy and Therapeutics. Dr. Smithburger provides acute care rotations at UPMC Presbyterian Hospital in the Medical Intensive Care Unit for P3 and P4 students.
- Shrina Duggal, Clinical Pharmacy Specialist – UPMC Shadyside/Hillman Cancer Center. Dr. Duggal provides an acute care rotation for P4 students.

National Recognition and Awards: Student Organizations

Organization	Award
ASP	Won Outstanding International Pharmaceutical Students' Federation (IPSF) Activity Award
	Finished in top ten nationally in PharmFlix Best Video competition
Kappa Psi	Received Province II Chapter of the Year Award (9 th straight year)
SNPhA	Won Rite Aid/Chauncey I. Cooper Chapter Excellence Award for Best Small Chapter
PPA	Tied for second place in the Pennsylvania Pharmacists Association Appropriate Medication Use Project Competition
PLS	Raised \$6,500 for the Grace Lamsam Pharmacy Program for the Underserved through the annual student auction

Recognition and Awards: Individual Students

Student	Award	Description
Anna Bondar (P1)	Gave a presentation at the Middle Atlantic Council of Latin American Studies Annual Conference, Globalization and Well Being in Latin America, titled "Self-Medication in Nicaragua: Healthcare Choices in a Decentralized System."	Based on a six-week field research project conducted in Leon, Nicaragua, in summer 2010.
Natalie Capozzolo (P2) Ravi Patel (P1)	Awarded grants from the Center for Global Health	These grants are awarded to students who would like to conduct a research project abroad.
Michele Doan (P3) Cristina Elgin (P1)	Selected as Pittsburgh Schweitzer Fellows	One-year fellowship focusing on reducing disparities in health and health care and on developing leaders in service.
Eric Gardner (P4) Andrew Clark (P3) Corrine Martenak (P2) Indrani Kar (P2) Diana Pinchevsky (graduate student)	Received Jonas Salk Fellowships	An educational program of the Jewish Healthcare Foundation, co-sponsored by the University of Pittsburgh Center for Bioethics and Health Law, to give students in health-related disciplines a venue to explore issues of revolutionary change in medicine and public health.
Eric Gardner (P4)	Co-authored "Clinical Pharmacogenetics Implementation Consortium Guidelines for Thiopurine Methyltransferase Genotype and Thiopurine Dosing" published in <i>Clinical Pharmacology and Therapeutics</i> (March 2011)	The article was the first guideline put forth by the Clinical Pharmacogenetics Implementation Consortium of National Institutes of Health's Pharmacogenomics Research Network.
Svetlana Goldman (P3)	Elected PPA Corresponding Secretary 2010-2011	Student officer in the Pennsylvania Pharmacists Association.

Student	Award	Description
Indrani Kar (P2)	Appointed to the American American Pharmacists Association Academy of Student Pharmacists (APhA-ASP) Awards Standing Committee	Standing committee for the Committee member of the APhA-ASP national pharmacy organization.
Jose Nery (P1)	Won Anita Angus Scholarship from University of Pittsburgh Alumni Association; member of the University crew team.	Award given to one student each year who participates in football, basketball, or crew. Every year, this award is alternated among these three sports. The award is given for exemplary academics and for outstanding performance as an athlete.
Alexa Ray (P4) Sarah Krahe (P3) Amanda Nguyen (P3) Nick Wytiaz (P3)	Received grant from Pennsylvania Pharmacy Association (PPA) Special Interest Group for Independent Pharmacy (four of six awardees statewide)	The grant covers the related expenses to attend the National Community Pharmacists Association Annual Convention.
Kate Steward (P3)	Kate brought resolution to APhA-ASP House of Delegates opposing drastic cuts to Poison Control Center Funding across nation (see file for more details)	The APhA-ASP House of Delegates passed a resolution by the University of Pittsburgh that APhA-ASP advocates upholding and maintaining regional poison control centers throughout the country.
Christopher Turton (P3)	Elected Kappa Psi Treasurer: Province II	Kappa Psi is a professional co-ed pharmacy fraternity whose members engage in volunteer community service activities. Province II includes Delaware, New Jersey, Pennsylvania, and West Virginia.
Elyse Weitzman (P2)	Won a \$500 scholarship from the Allegheny County Pharmacists Association.	One scholarship is awarded annually to a student from each school of pharmacy in Allegheny County.
Nicholas Wytiaz (P3)	Honorable Mention: Academy of Managed Care Pharmacy's Summer Intern Best Project Competition for his poster, "Impact of a Value-Based Formulary Initiative on Utilization and Adherence of Asthma Medications, Disease Control, and Prescribing Trends."	Posters are evaluated on the basis of scientific merit, innovation, and practicality, as well as the presenter's knowledge of the subject matter.

Student Awards at Graduation

Award Title	Student Awardee
APhA Academy of Student Pharmacists Recognition Certificate	Steven Zona
Facts and Comparisons Award of Excellence in Clinical Communication	Jeremy Post
John Herman Wurdack Award	Elizabeth van Olden
Lilly Achievement Award	Gerard Mascara
Merck Award	Samantha Chetosky William Conklyn Zachary Snyder
Mylan Pharmaceutical Excellence in Pharmacy Award	Tracy Sparkes
Natural Medicines Comprehensive Database Recognition Award	Megan Reilly Rhea Santangelo
Pennsylvania Pharmacists Association Outstanding Student Award	Jennifer Bacci
Robert W. Taylor Award for Outstanding Performance in Patient Care Rotation	Sheena Teckchandani
TEVA Pharmaceuticals Outstanding Student Award	Eric Gardner
U.S. Public Health Service Award for Excellence in Public Health Pharmacy Practice	Alexa Ray
University of Pittsburgh School of Pharmacy Patient Care Award	Morgan Adams
University of Pittsburgh School of Pharmacy – Pharmacy Communications Award	Ashley Tylavsky

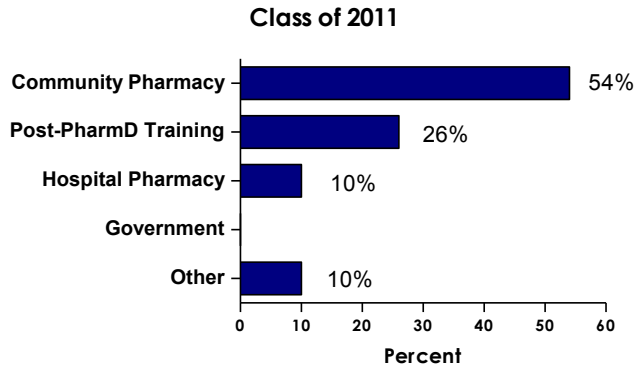
Graduating Class of 2011

104 students received their PharmD diplomas at the May 2011 Commencement Ceremony.

In calendar year 2010, 97.2% of students passed the North American Pharmacist Licensure Exam on their first attempt and 96% passed the Multistate Pharmacy Jurisprudence Examination on their first attempt. School graduates have consistently exceeded state and national averages for scores and pass rates on these two examinations.

100% of students completed their degrees on time.

26% of the class of 2011 continued training in a post-PharmD residency, fellowship, PhD program, or MBA program. Others obtained employment in varied pharmacy practice settings.



Comparison of NAPLEX Pass Rates: First-Time Candidates

Year	Pitt Candidates Pass/Total	Pitt Pass Rate (%)	State Pass Rate (%)	National Pass Rate (%)
2011	101/103	98.0	97.8	96.6
2010	104/107	97.2	87.6	91.5
2009	102/102	100	98.0	97.5
2008 ⁺	26/27	96.3	93.5	92.2
2007	97/98	98.9	90.9	95.3
2006	90/95	94.7	87.3	93.6
2005	79/80	98.8	85.3	91.3
2004	81/86	94.2	95.6	95.0
2003	20/22	90.9	89.2	88.2
2002	81/84	96.4	96.5	95.5

⁺ Jan–April 2008 scores

Comparison Multistate Pharmacy Jurisprudence Examination® (MPJE®) Results: First-Time Candidates Any State

Year	Pitt Candidates Pass/Total	Pitt Pass Rate (%)	State Pass Rate** (%)	National Pass Rate** (%)
2011 ⁺⁺	94/94	100%	97.3	92.2
2010	207/214	96.7	93.5	93.1
2009	180/187	96.3	91.3	90.5
2008 ⁺	104/108*	96.3	91.7	91.8
2007	102/106*	96.2	90.0	91.5
2006	96/104	92.3	84.5	89.4
2005	166/183	90.7	87.5	88.6
2004	157/165	95.0	86.0	87.5
2003	143/147	97.3	93.2	92.1
2002	110/113	97.3	93.2	92.1

⁺ Jan–June 2008 scores

⁺⁺ Jan–August 2011 scores

* Includes all University of Pittsburgh School of Pharmacy graduates taking the MPJE in any state as a first-time candidate for that state.

** For all first-time candidates.

PROFESSIONAL DEVELOPMENT: EDUCATING THE NEXT GENERATION OF PRACTITIONERS

Pennsylvania Project

The Pennsylvania Project (supported in 2010-11 by grants from the Highmark Foundation and the DSF Charitable Foundation) is an educational initiative led by Pitt in partnership with the Pennsylvania Coalition of Colleges and Schools of Pharmacy. With support from grants to Pitt, faculty from all seven schools of pharmacy in Pennsylvania partnered to develop a continuing education program that includes Web-based instruction (Part 1) and a one-day live course (Part 2) to assist pharmacists to develop and enhance pharmacist-led patient care practices in Pennsylvania. Hundreds of pharmacists have completed the online educational program; nine live training programs have been conducted throughout Pennsylvania.

Three important accomplishments were made this year:

- completion of four live training programs
- finalization of the curriculum template to be used by Pennsylvania schools of pharmacy
- a foundation for collaboration among the schools and the Pennsylvania Pharmacists Association

Major Accomplishments

- The Pennsylvania Project–Part 1 had **330** participants with **279** participants completing the online program.
- **15** faculty members drawn from across the seven schools of pharmacy in Pennsylvania have been trained to deliver the live training session.
- **9** live training sessions have been conducted.
- The Pennsylvania Project–Part 2 had **194** attendees complete the live program.

DM Educate®: Comprehensive Diabetes Management

The DM Educate® online course has been available to schools of pharmacy for curricular use since 2006 and for CE since 2007. More than 10,000 students and pharmacists have taken the course. For FY11, several modules were updated and new modules developed.

Major Accomplishments

- Collaborated with the Universidade Federal da Bahia (Salvador, Brazil) to conduct a student project entitled: “Tailoring the Delivery of a Diabetes Education Program for Pharmacists in the state of Bahia, Brazil.” This project has resulted in the implementation of DM Educate at the School of Pharmacy for student’s access and at multiple hospital sites for access by pharmacists.
- Developed an iPad App for the course providing the ability to offer the course on multiple mobile devices.
- Secured CE accreditation for newly developed module “Improving Patient Counseling Effectiveness Through the Use of Motivational Interviewing.”

- Applied for renewal of American Association Diabetes Educators CE accreditation for all modules for pharmacists, nurses and dieticians.

Grants

- **Smith RB, Hill CL.** “DM Educate Enhancements – Self-Directed On-Line Learning Platform for Mobile Devices,” Novo Nordisk. \$293,000. November 2010-December 2011.

Selected Publications

- **Hall DL, Corman SL, Drab SR, Smith RB, Meyer SM.** Application of a Technology-Based Instructional Resource in Diabetes Education at Multiple Schools of Pharmacy. *Currents in Pharmacy Teaching and Learning*. 2010; 2:108-113.

Continuing Education for Practitioners

The School of Pharmacy partnered with the UPMC Center for Continuing Education in the Health Sciences (CCEHS) to deliver live continuing education programs in FY11:

- Fall Continuing Education Seminar: “Targeted Pharmacist Services: Influenza Immunization and Medication Assistance Programs” featured presentations by William McKendree, JD, and Assistant Professor Kristine Schonder in 402 Salk Hall with 52 attendees. The intent of this continuing education program was to update attendees on influenza vaccination as well as to provide an in-depth understanding of Medicare Part D and other prescription medication assistance programs.
- Spring Continuing Education Seminar: “Topics in Diabetes Management” featured presentations by Assistant Professors Scott Drab and Karen Pater in 402 Salk Hall with 59 attendees. The intent of this continuing education program was to update attendees on recent advances in anticoagulation and immunizations for older adults, as well as to outline new opportunities for pharmacists to expand outpatient services through collaborative practice.
- In appreciation of our preceptors, the School of Pharmacy held a preceptor continuing education dinner program, “Interventions and Mandatory Reporting for Impaired Professionals,” at the University Club, attended by 39 preceptors. The featured speaker for this presentation was Kathie E. Simpson. The intent of this one-hour program was to promote the identification of, intervention for, and treatment of chemically dependent pharmacists and student pharmacists.

RESIDENCY PROGRAM: EDUCATING THE NEXT GENERATION OF PRACTITIONERS

The School of Pharmacy partners with health care provider organizations to support outstanding residency training programs in research and teaching. The School provides three programs to enhance the training provided at each residency site:

- Resident Seminars – Develop good presentation skills and present a seminar summarizing information on an important drug-related topic.
- Teaching Mastery – Develop and deliver effective educational programs including presentation of lectures in the PharmD program.
- Resident Research Series – Develop knowledge of the research process including the design, conduct and publication of results of a project.

RESIDENCY PROGRAM BY THE NUMBERS FOR FY11

- The School partnered with **7** institutions/entities that provided **11** types of residency programs.
- **33** residents participating in our affiliated residency programs came from **18** schools of pharmacy in **12** states.
- **22** PGY1 and **11** PGY2 residents participate in the residency training program.
- **29** of **33** residents presented their research results at national or regional meetings.
- **17** residents were awarded certificates for completion of the Teaching Mastery Program, which includes development of skills in both clinical precepting as well as teaching within the pharmacy curriculum.
- **17** of our **22** PGY1 pharmacy residents have been accepted into PGY2 specialty residency programs.
- **1** of **7** non-management PGY2 residents accepted a clinical position at academic medical center.
- **2** of **4** graduating management residents accepted hospital pharmacy management positions and **1** management resident accepted a Congressional Healthcare Policy fellowship.
- **3** pharmacy residents continued their careers as clinical pharmacists with UPMC Health System.
- **2** residents accepted faculty positions at schools of pharmacy.
- **3** residents were recently board certified pharmacotherapy specialists.

Residents 2010-2011

Last Name	First Name	Pitt Residency Program	Year	PharmD School	Plans for FY12
Anderson	Scott V	Pharmacy/ Pharmacy Management	PGY1	University of Illinois at Chicago	Residency at Virginia State University
Agnew	Amanda	Oncology	PGY2	Duquesne University	Unit Based Pharmacist Position at UPMC Shadyside
Armahizer	Michael	Critical Care	PGY2	Duquesne University	Unit Based Pharmacist Position at UPMC Presbyterian
Bezjak	Johanna D	Pharmacy Residency	PGY1	Duquesne University	Clinical Pharmacist with Chartwell
Casapao	Anthony M	Infectious Diseases	PGY2	Wingate Univ School of Pharmacy, NC	Infectious Diseases Pharmacotherapy Outcomes Research Fellow at Wayne State Univ.
Conforti	Brandon	Community Mgmt Res-CVS	PGY2	Wilkes University	Pharmacy Supervisor, CVS Caremark, covering Southeastern Massachusetts

Last Name	First Name	Pitt Residency Program	Year	PharmD School	Plans for FY12
D'Antonio	Nicole	Family Medicine Pharmacy	PGY1	Duquesne University	PGY2 Family Medicine Resident at UPMC St. Margaret
Devabjalthuni	Sandeep	Cardiology	PGY2	University of Pittsburgh	Faculty, Cardiology/Critical Care Pharmacy at Maryland State Univ.
DiCriscio	Anthony	Community Pharmacy Rite Aid	PGY1	University of Pittsburgh	
Edward	Hany S	Pharmacy/ Pharmacy Management	PGY1/ PGY2	Florida A&M	Year two of a two-year Health System Pharmacy Practice Administration Residency
Eggers	Garrett	Pharmacy/ Pharmacy Management	PGY2	University of Wisconsin	Inpatient Pharmacy Manager, Sterile Products at the Cleveland Clinic
Eisenhower	Christine	Pharmacy	PGY1	University of Rhode Island	PGY2 Ambulatory Care/Family Medicine Residency at New Hanover Regional Medical Center
Felbinger	Matthew	Pharmacy	PGY1	University of Pittsburgh	PGY2 Critical Care Residency at Duke University
Fisher	Christine	Pharmacy	PGY1	Temple University	
Garcia	Jorge J	Pharmacy/ Pharmacy Management	PGY1/ PGY2	Nova Southeastern University	Year two of a two-year Health System Pharmacy Practice Administration Residency
Ghebreselassie	Elizabeth H	Pharmacy	PGY1	LECOM School of Pharmacy	PGY2 Internal Medicine
Goldberg	Lauren	Managed Care Pharmacy	PGY1	Duquesne University	Managed Care Position
Greco	Angelo J	Pharmacy	PGY1	Duquesne University	PGY2 Ambulatory Care/Academics at University of North Carolina
Jenkins	Matthew	Pharmacy/ Pharmacy Management	PGY2	Auburn University	Shands HealthCare, Florida
Jernigan	Meredith G	Pharmacy	PGY1	University of North Carolina	PGY2 Infectious Diseases Residency at UPMC Presbyterian Shadyside
Johnson	David	Transplant	PGY2	University of Michigan	Transplant Specialist at Temple Univ.
Kauffman	Yardlee S	Community Pharmacy Falk Pharmacy	PGY1	University of Pittsburgh	PGY2 Advanced Practice Residency in Global Health at Univ. of Pittsburgh
Kim	Jenny J	Internal Medicine Pharmacy	PGY2	UNC Eshelman School of Pharmacy	Assistant Professor of Pharmacy Practice, Shenandoah Univ. Bernard J. Dunn School of Pharmacy
Kipp	Gretchen	Pharmacy	PGY1	University of Pittsburgh	PGY2 Solid Organ Transplantation Residency at UPMC Presbyterian Shadyside

Last Name	First Name	Pitt Residency Program	Year	PharmD School	Plans for FY12
Lohr	Brian R	Pharmacy Residency	PGY1	Duquesne University	PGY2 Critical Care Residency at UPMC Presbyterian Shadyside
Martinez	Leyner	Pharmacy/ Pharmacy Management	PGY1/ PGY2	LECOM School of Pharmacy	Year two of a two-year Health System Pharmacy Practice Administration Residency
Mebel	Elaine R	Pharmacy/ Pharmacy Management	PGY1/ PGY2	University of Georgia	Year two of a two-year Health System Pharmacy Practice Administration Residency
Owens	Nicholas	Family Medicine Pharmacy	PGY2	Duquesne University	Unit-Based Pharmacist Position at UPMC Shadyside
Pikoulas	Theodore E	Pharmacy Residency	PGY1	Duquesne University	PGY2 Psychiatry Resident at Cleveland VA
Russo	Giavanna	Pharmacy	PGY1	Duquesne University	PGY2 Family Medicine Residency at UPMC St. Margaret
Sales	Ibrahim	Pharmacy	PGY1	University of South Carolina	PGY2 Ambulatory Residency at UPMC Presbyterian Shadyside
Steinhardt	Sarah	Pharmacy/ Pharmacy Management	PGY2	Purdue University	Pharmacy Health Policy, Washington, DC
Turner	Ted	Community Pharmacy Forbes Pharm	PGY1	University of Southern Nevada	

Residents Recruited for 2011-2012

Total Residents: 40

Total Number of Types or Residency Programs: 14

(Management is PGY1 & PGY2 combined)

Locations for the 3 PGY1 programs: 8

Locations for the 11 PGY2 programs: 3

Program Type	Location	Resident	Education
PGY1 Community Pharmacy	University of Pittsburgh School of Pharmacy	Jennifer Bacci	University of Pittsburgh
		Michelle Macguire	The Ohio State University
PGY1 Managed Care Pharmacy	CVS-Caremark	Sara Burnheimer	Duquesne University
	UPMC Health Plan	Amy Patel	Rutgers University
		Anokhi Shah	Philadelphia College of Pharmacy
PGY1 Pharmacy Practice	UPMC Presbyterian-Shadyside, WPIC	Maho Hibino	Michigan State University
		Megan Kloet	University of Florida
		Ian McGrane	University of Montana
		Roshni Patel	University of Pittsburgh
		Stephanie Seaton	St Louis College of Pharmacy
		Michael Smith	University of Pittsburgh
		Nicholas Campbell	Duquesne University
	UPMC Mercy	Derek Evans	West Virginia University
		Taylor Miller	University of Pittsburgh
		Kelli Phipps	Duquesne University
		David Portman	Ohio Northern University
		Jamie Dalton	Virginia Commonwealth University
	UPMC Hamot	Amanda Reeve	University of Montana
		Justyna Wasielewski	LECOM School of Pharmacy

Program Type	Location	Resident	Education
	Children's Hospital of Pittsburgh of UPMC	Emily Polischuk	Duquesne University
	UPMC St. Margaret	Amber Baker	Creighton University
		Scott Bragg	West Virginia University
		Susan Kidd	Northeastern Ohio Universities Colleges of Medicine and Pharmacy
		Jeremy Post	University of Pittsburgh
		Sarah Winter	Duquesne University
Combined PGY1 Pharmacy Practice & PGY2 Health System Pharmacy Admin.	UPMC Presbyterian-Shadyside	Hany Edward	Florida A&M
		Jorge Garcia	Nova Southeastern University
		Elaine Mebel	University of Georgia
		Leyner Martinez	LECOM School of Pharmacy
PGY2 Ambulatory Care Pharmacy	UPMC Presbyterian-Shadyside	Ibrahim A Sales	University of South Carolina
PGY2 Cardiology Pharmacy	UPMC Presbyterian-Shadyside	Accredited, not recruited	
PGY2 Critical Care Pharmacy	UPMC Presbyterian-Shadyside	Brian Lohr	Duquesne University
PGY2 Drug Information	UPMC Presbyterian-Shadyside	Accredited, not recruited	
PGY2 Family Medicine	UPMC St. Margaret	Nicole D'Antonio	Duquesne University
		Gia Russo-Alvarez	Duquesne University
PGY2 Infectious Disease Pharmacy	UPMC Presbyterian-Shadyside	Louise Gillis	University of Pittsburgh
		Meredith Jernigan	University of North Carolina
PGY2 Internal Medicine Pharmacy	UPMC Presbyterian-Shadyside	Amanda Lin	The Arnold & Marie Schwartz College of Pharmacy
PGY2 Oncology Pharmacy	UPMC Presbyterian-Shadyside	Allison Stebbings	Northeastern University
PGY2 Solid Organ Transplant Pharmacy	UPMC Presbyterian-Shadyside	Gretchen Kipp	University of Pittsburgh
PGY2 Specialized Area of Pharmacy: Underserved Care	University of Pittsburgh School of Pharmacy	Ana Lupu	University of Pittsburgh
PGY2 Specialized Area of Pharmacy: Underserved/Global Health	University of Pittsburgh School of Pharmacy	Yardlee Kauffman	University of Pittsburgh

Residents in the School of Pharmacy Masters Program in Pharmacy Administration

Resident	Year	School Attended for PharmD
Scott Anderson	PGY1	University of IL at Chicago
Hany Edward	PGY1	Florida A&M
Jorge Garcia	PGY1	Nova Southeastern Univ.
Elaine Mabel	PGY1	University of Georgia
Leyner Martinez	PGY1	LECOM School of Pharmacy

GRADUATE PROGRAM: EDUCATING THE NEXT GENERATION OF SCIENTISTS

GRADUATE AND POSTDOCTORAL PROGRAM BY THE NUMBERS FOR FY11

In FY11:

- **45** students were enrolled: **42** PhD students and **3** Master of Science students.
- **13** new students matriculated: **2** PhD students and **1** Master of Science student.
- **6** students received degrees in pharmaceutical sciences; **4** PhD degrees were awarded after successful defense of their dissertations and **2** students graduated with Master of Science degrees.
- **45% (19/42)** of the PhD students are U.S. citizens or permanent residents.
- **50% (21/42)** of the PhD students have pharmacy degrees.
- **6** PhD students received competitive fellowships.
- Gordon Conference invitation to a graduate student: **1!**
- **3** students received regional or national awards for excellence in research.
- **18** peer-reviewed manuscripts were published by graduate students.
- Graduate students gave **25** presentations at national and international scientific meetings.
- **19** postdoctoral fellows were engaged in research in School of Pharmacy laboratories.

Graduate Program in Pharmaceutical Sciences Details

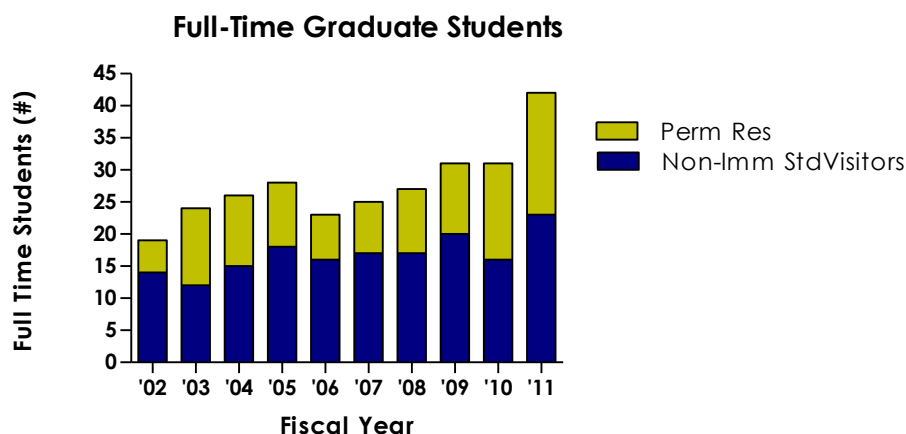
This program provides students with the foundation to become independent researchers as either basic scientists or clinical pharmaceutical sciences. The program has four tracks: Biochemical Pharmacology, Medicinal Chemistry, and Pharmaceutics and Clinical Pharmaceutical Sciences (a specialized program to train students to be independent clinical and translational researchers.)

2010-2011 Admission Demographics

- 12 PhD students were selected from over 250 applicants for admission to the 2010/2011 academic year (10 for Fall admission and 2 for Spring admission)
 - 3 U.S. citizens/permanent residents – 1 with PharmD degree
 - 9 non-U.S. citizens – 7 with a degree in pharmacy
- 2 MS students joined the program in Fall 2010, 1 MS student joined in January 2011

2011-2012 Admission Demographics

- 16 PhD students were selected from over 220 applicants for Fall 2011
 - 5 U.S. citizens – 2 with PharmD degree
 - 11 non-U.S. citizens – 9 with Pharmacy degrees
- 1 MS student was selected for Fall 2011.



Full time students in FY11:

- **45% (19/42)** of the PhD students are U.S. citizens or permanent residents.
- **50% (21/42)** of the PhD students have pharmacy degrees.
- **3** students passed their comprehensive examination and achieved PhD candidate status.

Student Completing Graduate Degrees in 2010-2011

Kelong Han, PhD

Advisor: Raman Venkataramanan, PhD
 Graduated: December 2010 (Defense completed August 2010)
 Dissertation Title: Clinical Pharmacokinetics and Population Pharmacokinetic Analysis of Voriconazole in Transplant Patients
 Current Position: Genentech

Yuyan Jin, PhD

Advisor: Robert R. Bies, PharmD, PhD
 Graduated: December 2010 (Defense completed October 2010)
 Dissertation Title: Quantifying Variability in Drug Disposition, Response and Public Health Outcomes: The Implementation of Pharmacometric Based Modeling and Simulation Approaches
 Current Position: Pfizer

Dong Eun Kim, MS

Advisor: Yong Tae Kwon, PhD
 Graduated: December 2010 (Thesis completed October 2010)
 Thesis Title: The Role of the N-End Rule Pathway in Cardiovascular Development, Signaling, and Homeostasis
 Current Position: PhD Student, Switzerland

Nisanne Ghonem, PharmD, PhD

Advisor: Raman Venkataramanan, PhD
Graduated: December 2010 (Defense completed December 2010)
Dissertation Title: Treprostinil for Protection of Liver Grafts Against Ischemia and Reperfusion Injury During Orthotopic Liver Transplantation - A Translational Study
Current Position: Postdoctoral Fellow, Yale School of Medicine

Jiangquan (Jocelyn) Zhou, PhD

Advisor: Samuel M. Poloyac, PharmD, PhD
Graduated: August 2011 (Defense completed June 2011)
Dissertation Title: Evaluation of the Effects of Therapeutic Hypothermia and Cardiac Arrest on Specific Cytochrome P450 Isoform Activity
Current Position: Novartis

Tian Zhou, MS

Advisor: Dexi Liu, PhD
Graduated: August 2011 (Defense completed June 2011)
Thesis Title: Effectiveness and Safety of Hydrodynamic Gene Delivery in Animals with Fibrotic Liver
Current Position: PhD student in Dr. Lisa Rohan's Lab, University of Pittsburgh School of Pharmacy

Awards**National**

- Yijun Huang won the Award for the Best Podium Presentation at the 44th Annual Mid-Atlantic Graduate Student Symposium (MAGSS) in Medicinal Chemistry. June 28, 2011.
- Kareem Khoury won the Excellence in Graduate Student Research – Graduate Student Symposium Drug Discovery and Design– AAPS Annual Meeting. New Orleans, LA. November 2010.
- ZuWei Zhai received the 2011 Research Society on Alcoholism Student Merit Award. April 29, 2011.

Travel Awards

- Yijun Huang won the Division of Medicinal Chemistry Travel Grant, American Chemical Society, August 2010.

Research or Presentation Awards

- Mark Donnelly's poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 2nd Annual Research Retreat held at the Seven Springs Mountain Resort, Seven Springs, PA.
- Jie Gao's poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 2nd Annual Research Retreat held at the Seven Springs Mountain Resort, Seven Springs, PA.
- Tiantian Gong's poster was awarded a podium presentation at the University of Pittsburgh School of Pharmacy 2nd Annual Research Retreat held at the Seven Springs Mountain Resort, Seven Springs, PA.

Competitive Fellowships

- Mark Donnelly received an NRSA Pre-doctoral Fellowship (F31) for his proposal “Role of 20-HETE and EETs in Cerebrovascular Complications after aSAH” Mentor- Samuel Poloyac, PharmD, PhD. (Funded January 2011-January 2012)
- Lindsay Ferguson received an AFPE Pre-Doctoral Fellowship in Pharmaceutical Science for her proposal “Effects of Vaginal Fluid on the Stability of Microbicide Candidates: Preclinical Evaluations and Drug Delivery Strategy Development” Mentor-Lisa Rohan, PhD. (September 2011-August 2012)
- Rebecca Hammond received an NRSA Pre-doctoral Fellowship (F31) for her proposal “The Role of GPR30 in Mediating Estrogen Effects on Neurons and Cognitive Performance.” Mentor- Robert Gibbs, PhD. (April 1, 2011- March 31, 2013)
- Kareem Khoury received an American Chemical Society Medicinal Chemistry Fellowship for his proposal “Synthesis and Evaluation of potent small molecule p53/MDM2 antagonists” Mentor- Alexander Döemling, PhD. (August 2011-August 2012)
- Diana Pinchevsky received an AFPE Pre-Doctoral Fellowship In Pharmaceutical Science for her proposal “Identifying genetic factors that link depression and cardiovascular diseases to translate the findings to biomolecular pathophysiology research and patients’ outcomes.” Mentor-Tanya Fabian, PharmD, PhD. (September 2011-August 2012)
- Yifei Zhang has been awarded a two-year pre-doctoral fellowship from American Heart Association for her proposal “Novel Polymeric Vectors for Pulmonary uPA Gene Therapy.” Mentor- Wen Xie, MD, PhD. (July 2011-June 2013)

Other Awards

- Ayman Akil was awarded the September 2010 Certificate of Appreciation for Outstanding Performance as AAPS Student Chapter chair at the University of Pittsburgh.
- Yijun Huang won the Norman R. and Priscilla A. Farnsworth Student Award, University of Pittsburgh. June 7, 2011.
- Diana Pinchevsky and Mohammad Shawaqfeh were both awarded the Jewish Healthcare Foundation Patient Safety Fellowship, 2010-2011.
- Diana Pinchevsky won the Randy and Renée Juhl Pharmacy Graduate Scholar Award, University of Pittsburgh. June 7, 2011.
- Shashi Sriram received the Life Sciences Intern Award, Office of Technology Management, University of Pittsburgh, 2011.
- Shashi Sriram received Graduate Student Excellence Award University of Pittsburgh School of Pharmacy June 7, 2011.

Publications, Presentations

In FY11, graduate students:

- Published 18 papers in peer-reviewed journals.
- Made 25 presentations at national and international scientific meetings.

The School of Pharmacy hosted the Second Annual Graduate Student and Postdoc Research Retreat at Seven Springs Resort, Seven Springs, Pa., in June 2011. Graduate student awards were announced at the banquet:

- | | |
|----------------------------|---|
| • Diana Pinchevsky, PharmD | Randy and Renée Juhl Pharmacy Graduate Scholar Award |
| • Yijun Huang, MS | Norman R. and Priscilla A. Farnsworth Student Award |
| • Timothy Pouland, BS | Graduate Student Teaching Award |
| • Shashi Sriram, MS | Pharmaceutical Sciences Graduate Student Excellence Award |

Clinical Pharmaceutical Scientist Program

The Clinical Pharmaceutical Scientist Program is a specialized track of the graduate program that trains students to be independent clinical and translational researchers. Students utilize contemporary research approaches to generate new discoveries applicable to the disposition and activity of drugs in humans. The newly formed Center for Clinical Pharmaceutical Sciences is now responsible for directing this program.

Major Accomplishments

- Created a new course offered jointly with the Universities of Minnesota, North Carolina, and Pittsburgh for first- and second-year graduate students. TOPICS IN TRANSLATIONAL RESEARCH, structured as a journal club, focuses on translational investigations. All three programs will participate in discussions by live video-conferencing.
- Published the first ever core competencies for the PhD training in the Clinical Pharmaceutical Sciences to serve as a resource for the growing number of programs in this area of research. Poloyac SM, Empey KM, Rohan LC, Skledar SJ, Empey PE, Nolin TD, Bies RR, Gibbs RB, Folan M, Kroboth PD. Core Competencies for Research Training in the Clinical Pharmaceutical Sciences at the University of Pittsburgh School of Pharmacy. *Am J Pharm Educ.* 2011; 75(2):27. PMID:21519417. PMCID: PMC3073101.
- Enrolled four PhD students with PharmD degrees into the Pre-Doctoral Fellowship-Clinical Scientist Associate (CSA) position where part of their support comes from a TA stipend and part from the health system for CSA clinical work.

Combined PharmD-PhD Program

Initiated in 2007, this program is designed to give students the opportunity to enter the graduate program during the third professional year. It permits the students to complete some of the course requirements for the PhD with electives in their PharmD program. The goal is to recruit pharmacists to the PhD program and encourage them to become faculty at schools of pharmacy.

- The first PharmD student, Diana Pinchevsky, committed to the program for the fall of 2008 and is mentored by Dr. Tanya Fabian.
- The second student, Lindsay Ferguson, committed to the program and entered the graduate program full-time in fall 2009 to work in Dr. Lisa Rohan's laboratory after receiving her PharmD degree in April 2009.
- Dana Roman committed to the graduate program to work in Dr. Kerry Empey's laboratory. She entered the Graduate program full-time in fall 2010 after receiving her PharmD degree in April 2010.

2010–2011 Pharmaceutical Sciences Graduate Students

Name	Advisor	Track	Enrollment	PhD/MS
Akil, Ayman	Rohan, Lisa	Pharmaceutics	Sep-07	PhD
Alghazwani, Yahia Salim	Venkataramanan, R.	Pharmaceutics	Jan-10	MS
Almehezia, Abdulrahman	Xie, Sean	MedChem	Sep-09	PhD
AlSaggar, Mohammad	Liu, Dexi	Pharmaceutics	Sep-10	PhD
Alshabi, Ali Mohamed	Liu, Dexi	Pharmaceutics	Jan-10	MS
AlShogram, Osama	Nolin, Tom	CPS*	Sep-10	PhD
Anderson, Kacey	Poloyac, Samuel	CPS*	Sep-10	PhD
Bonner, Jennifer	Venkataramanan, R.	Pharmaceutics/CPS*	Sep-04	PhD
Chen, Weiquing (Emily)	Xie, Wen	Pharmaceutics	Sep-10	PhD
Chowdhury, Ananda	Xie, Sean	MedChem	Sep-08	PhD
Donnelly, Mark	Poloyac, Samuel	Pharmaceutics/CPS	Sep-06	PhD
Ferguson, Lyndsay	Rohan, Lisa	Pharmaceutics/CPS	Sep-09	PhD
Gao, Jie	Xie, Wen	Biochemical Pharmacology	Sep-06	PhD
Ghazwani, Mohammed	Li, Song	Pharmaceutics	Jan-10	MS
Ghonem, Nisanne	Venkataramanan, R.	Pharmaceutics/CPS*	Sep-05	PhD
Gong, Tiantian	Rohan, Lisa	Pharmaceutics	Sep-10	PhD
Hammond, Rebecca	Gibbs, Robert	Biochemical Pharmacology	Sep-07	PhD
Hu, Minlu	Rohan, Lisa	Pharmaceutics	Sep-10	MS
Huang, Yijun	Doemling, Alexander	MedChem	Sep-08	PhD
Ihunna, Chibueze	Xie, Wen	Biochemical Pharmacology	Sep-09	PhD
Jiang, Mengxi	Xie, Wen	Biochemical Pharmacology	Sep-09	PhD
Jin, YuYan	Bies	Pharmaceutics/CPS	Jan-06	PhD
Khoury, Kareem	Doemling, Alexander	MedChem	Sep-08	PhD
Kim, Dong Eun	Kwon, Yong Tae	Biochemical Pharmacology	Sep-07	PhD
Kim, Sung Tae	Kwon, Yong Tae	Biochemical Pharmacology	Sep-09	PhD
Kimbrow, Tia	Rohan, Lisa	Pharmaceutics	Sep-09	PhD
Lu, Jianqin	Li, Song	Pharmaceutics	Sep-10	MS
Momper, Jeremiah	Venkataramanan, R.	Pharmaceutics/CPS*	Sep-06	PhD
Parise, Robert	Venkataramanan, R.	Pharmaceutics/CPS*	Sep-05	PhD
Pinchevsky, Diana	Fabian/ Poloyac	Pharmaceutics/CPS*	Jan-08	PhD
Pouland, Timothy	Billy Day	MedChem	Sep-09	PhD
Roman, Dana	Empey, Kerry	CPS*	Sep-10	PhD
Schreiter, Brielle	Xie, Sean	MedChem	Sep-09	PhD
Shaik, Sadik Basha Jafra	Poloyac, Samuel	Pharmaceutics/CPS*	Sep-07	PhD
Sharma, Shringi	Venkataramanan, R.	Pharmaceutics/CPS*	Sep-05	PhD
Shawaqfeh, Mohammad	Venkataramanan, R.	Pharmaceutics/CPS	Sep-07	PhD
Sriram, Shashikanth	Kwon, Yong Tae	Biochemical Pharmacology	Jan-07	PhD
Wang, Xun	Wipf, Peter	MedChem	Sep-10	PhD
Wang, Zhuzhu	Wipf, Peter	MedChem	Sep-10	PhD
Whetstone, Ryan	Gold, Barry	MedChem	Sep-07	PhD

Name	Advisor	Track	Enrollment	PhD/MS
Zhai, ZuWei	Tarter/Ridenour	Pharmaceutics/CPS*	Sep-08	PhD
Zhang, Peng	Li, Song	Pharmaceutics	Sep-10	PhD
Zhang, Yifei	Li, Song	Pharmaceutics	Sep-09	PhD
Zhou, Jiangquan	Poloyac, Samuel	Pharmaceutics/CPS	Sep-06	PhD
Zhou, Tian	Liu, Dexi	Pharmaceutics	Sep-08	PhD

*CPS – Clinical Pharmaceutical Scientist Program

Students Selected for Pharmaceutical Sciences Graduate Program Beginning in Fall 2011

Name	Advisor	Track	PhD/MS
Almazroo, Omar	Venkataramanan, R.	CPS*	PhD
Alshabi, Ali	Venkataramanan, R.	CPS*	PhD
Alvarez, Celeste	Gold, Barry	Medicinal Chemistry	PhD
Eichinger, Katherine	Empey, Kerry	CPS*	PhD
Feturi, Feturi	Venkataramanan, R.	Pharmaceutics	PhD
Grab, Sheila	Rohan, Lisa	Pharmaceutics	PhD
Hu, Minlu	Xie, Wen	Pharmaceutics	PhD
Jennings, Crystal	Wipf, Peter	CPS*	PhD
Joshi, Rujuta	Venkataramanan, R.	Pharmaceutics	PhD
Kalluri, Hari	Venkataramanan, R.	Pharmaceutics	PhD
Kirshner, Ziv	Gibbs, Robert	Biochemical Pharmacology	PhD
Liu, Peipei	Xie, Wen	Biochemical Pharmacology	PhD
Long, Tao	Yao, Jeffrey	Biochemical Pharmacology	PhD
Regev, Galit	Rohan, Lisa	Pharmaceutics	PhD
Walsh, Dustin	Nolin, Thomas	CPS*	PhD
Xu, Qi	Xie, Sean	Medicinal Chemistry	MS
Zhang, Xiaolan	Li, Song	Pharmaceutics	PhD

*Clinical Pharmaceutical Scientist Program and Pharmaceutics Track

Graduate Student Publications

- **Akil A**, Parniak MA, Dezzutti CS, Moncla BJ, Cost MR, Li M, Rohan LC. (2011) Development and characterization of a vaginal film containing dapivirine, a non-nucleoside reverse transcriptase inhibitor (NNRTI), for prevention of HIV-1 sexual transmission. *Drug Delivery and Translational Research*. 2011; 1:209-22.
- Mhaidat NM, **Alshogran OY**, Khabour O, Alzoubi KH, Matalka II, Haddadin WJ, Mahasneh IO, Aldaher AN. Multi-drug resistance 1 genetic polymorphism and prediction of chemotherapy response in Hodgkin's Lymphoma. *J Exp Clin Cancer Res*. 2011; 30(1):68. [Epub ahead of print].
- **Ihunnah CA**, **Jiang M**, Xie W. Nuclear receptor PXR, transcriptional circuits and metabolic relevance. *Biochim Biophys Acta*. 2011; 1812(8):956-63. Epub 2011 Feb 2.

- Wada T, **Ihunnah CA**, **Gao J**, Chai X, Zeng S, Philips BJ, Rubin JP, Marra KG, Xie W. Estrogen sulfotransferase inhibits adipocyte differentiation. *Mol Endocrinol*. 2011; 25(9):1612-23. Epub 2011 Aug 4.
- **Hammond R**, Gibbs RB. GPR30 is positioned to mediate estrogen effects on basal forebrain cholinergic neurons and cognitive performance. *Brain Res*. 2011;1379:53-60. Epub 2010 Dec 5.
- **Huang Y**, Doemling A. The Gewald Multicomponent Reaction. *Molecular Diversity*. 2011; 15(1):3-33.
- Czarna A, Beck B, Srivastava S, Popowicz G, Wolf S, **Huang Y**, Bista M, Holak T, Dömling, A. (2010), Robust Generation of Lead Compounds for Protein–Protein Interactions by Computational and MCR Chemistry: p53/Hdm2 Antagonists. *Angewandte Chemie International Edition*. 2010; 49:5352–6.
- Doemling A, **Huang Y**. ChemInform Abstract: Piperazine Scaffolds via Isocyanide-Based Multicomponent Reactions. *ChemInform*. 2010; 41: 2859-83.
- **Khoury K**, Popowicz G, Holak T, Dömling A. The p53-MDM2/MDMX axis – A Chemotype Perspective. *Med Chem Comm*. 2011; 2:246-60.
- **Momper JD**, Ridenour TA, Schonder KS, Shapiro R, Humar A, Venkataramanan R. The impact of conversion from Prograf to generic tacrolimus in liver and kidney transplant recipients with stable graft function. *Am J Transplant*. 2011 Jun 30.
- **Sriram SM**, Han DH, **Kim ST**. Partners in Crime: Ubiquitin-Mediated Degradation and Autophagy. *Sci. Signal*, 2011; 4(178): jc4.
- Tasaki T, **Sriram SM**, Kwon YT. 2012, N-End Rule Pathway. *Annual Review of Biochemistry* (Commissioned review article in preparation).
- **Sriram SM**, Tasaki T, Kwon YT, 2011, N-End Rule Pathway: Progress and Future. *Nature Reviews Molecular Cell Biology* (Commissioned review article in revision).
- Li J, Kuruba R, Wilson A, Gao X, **Zhang YF**, Li S. Inhibition of endothelin-1-mediated contraction of hepatic stellate cells by FXR ligand, *PLoS One*. 2010; 5(11):e13955.
- Li J, **Zhang YF**, Kuruba R, Gao X, Gandhi CR, Xie W, Li S. Roles of miR-29a in the Antifibrotic Effect of FXR in Hepatic Stellate Cells. *Mol Pharmacol*. 2011; 80(1):191-200. Epub 2011 Apr 21.
- **Zhou T**, Kamimura K, Zhang G, Liu D. Intracellular gene transfer in rats by tail vein injection of plasmid DNA. *AAPS Journal*. 2010; 12(4):692-8. Epub 2010 Sep 22.

Graduate Student Accepted Presentations, Posters, and Podiums

- 2nd Annual Mylan School of Pharmacy Research. Duquesne University. Pittsburgh, PA. Quick Dissolve Films as Drug Delivery Systems for Combination Microbicides. October 20, 2011. **Akil AY**.

- Society of Toxicology Conference. Washington, DC. A Functional Cross-talk between Liver X receptor-Alpha and Constitutive Androstane Receptor Links Lipogenesis and Xenobiotic Responses. March 7, 2011. **Ihunnah CA.**
- Mid-Atlantic Area Graduate Student Symposium (MAGSS). Duquesne University, Pittsburgh, PA. Expression of the functional human Cannabinoid Receptor 2 fusion protein in E.coli membrane. July 27, 2011. **Chowdhury AN.**
- Cephalon Inc. Frazer, PA. Genes, Biomarkers and Outcome in Subarachnoid Hemorrhage: Focus on 20-HETE and EETs. July 29, 2010. **Donnelly MK.**
- International Winter Eicosanoid Conference. Baltimore, MD. Quantitation of CYP-Eicosanoids in CSF of Subarachnoid Hemorrhage Patients. March 13, 2011. **Donnelly MK.**
- AAPS Annual Meeting, New Orleans, LA. Improved UPLC-MS/MS Method to Measure CYP-AA Metabolites in CSF of SAH Patients. November 11, 2010. **Donnelly MK.**
- UPMC Presbyterian Pharmacy Grand Rounds Series. Current State of the Microbicide Field. September 29, 2010. **Ferguson LM.**
- 2nd Annual Mylan School of Pharmacy Research. Duquesne University, Pittsburgh, PA. Vaginal Delivery of UC781 in Woman's Condom Capsules. October 20, 2010. **Gong TI.**
- Society for Neuroscience Annual Meeting. San Diego, CA. Effects of basal forebrain cholinergic lesions and estradiol on relative levels of estrogen receptor mRNAs in the rat forebrain. November 15, 2010. **Hammond RE.**
- 2nd Annual Mylan School of Pharmacy Research. Duquesne University, Pittsburgh, PA. GPR30: Effects on Basal Forebrain Cholinergic Function and Spatial Learning. Pharmaceutical Research: Sharing today's Innovation for Tomorrow's Advances. October 20, 2011. **Hammond RE.**
- Gordon Research Seminar (GRS) & Gordon Reference Conference (GRC) on "High Throughput Chemistry & Chemical Biology." Colby-Sawyer College, NH. A Novel Approach for the Discovery of p53-Mdm2 Antagonists. June 18-24, 2011. **Huang YI.**
- First Experiences in Research, University of Pittsburgh. Protein-Protein Interaction Directed Libraries. April 19, 2011. **Huang YI and Khoury KA.**
- 2nd Annual Mylan School of Pharmacy Research. Duquesne University, Pittsburgh, PA. Applications of Gewald Multicomponent Reaction in Drug Discovery. October 20, 2010. **Huang YI.**
- Science 2010. University of Pittsburgh, Alumni Hall. Discovery of Anticancer Drug Candidate Targeting Protein-Protein Interaction. October 7, 2010. **Huang YI.**
- 43rd Annual Mid-Atlantic Graduate Student Symposium (MAGSS) in Medicinal Chemistry. Purdue University, West Lafayette, IN. Discovery of Low-molecular-weight Protein-protein Interaction Antagonists via Multicomponent Reactions. July 19, 2010. **Huang YI.**

- 44th Annual Mid-Atlantic Graduate Student Symposium (MAGSS) in Medicinal Chemistry. Duquesne University, Pittsburgh, PA. Novel p53-Mdm2 Antagonists as Potential Anticancer Drug Candidates. June 27, 2011. **Huang YI**.
- 240th ACS National Meeting. Boston, MA. Isocyanide-based MCRs for Diversity-oriented Synthesis of Gewald Thiophene Scaffolds. August 24, 2010. **Huang YI**.
- 240th ACS National Meeting. Boston, MA. Multicomponent Reactions Integrated Approach for the Discovery of p53-Mdm2 Antagonists. August 26, 2010. **Huang YI**.
- Gordon Med Chem Conference 2011. Discovery of potent P53/MDM2/MDM4 inhibitors using ANCHOR.QUERY. August 10, 2011. **Khoury KA**.
- PSWC 2010 Congress for Students and Postdoctoral Fellows meeting. Discovery of first non-cyclic p53/MDM2 inhibitor via multicomponent reactions. November 13, 2010. **Khoury KA**.
- 2010 AAPS Annual Meeting and Exposition. Discovery of first non-cyclic p53/MDM2 inhibitor via Multicomponent reactions, poster presentation. November 15, 2010. **Khoury KA**.
- 2010 AAPS Annual Meeting and Exposition. Discovery of first non-cyclic p53/MDM2 inhibitor via Multicomponent reactions, podium presentation. November 15, 2010. **Khoury KA**.
- American Transplant Congress. Philadelphia, PA. Clinical pharmacokinetics of cidofovir with and without probenecid used for the treatment of BK virus nephropathy in renal transplant recipients. April 30, 2011. **Momper JD**.
- AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside. Bethesda, MD. Impaired renal drug transport capacity in kidney transplant recipients with BK virus infection. March 14, 2011. **Momper JD**.
- Proceedings of the American Association for Cancer Research. Effects of the aldehyde dehydrogenase inhibitor, disulfiram, on the plasma pharmacokinetics and metabolism of benzaldehyde dimethane sulfonate (NSC281612, DMS612, BEN) in mice. April 2011. **Parise RA**.
- AAPS Annual Conference. New Orleans, LA. Monooxygenated Metabolites of Arachidonic Acid In Cerebral Ischemia: Evaluating Pathways of Neuroprotection. November 14-19, 2010. **Shaik JS**.
- 13th International Winter Eicosanoid Conference. Baltimore, MD. Soluble EpoxideHydrolase(sEH) Inhibitor Trans-4-[4-(3-Adamantan-1-yl-Ureido)-Cyclohexyloxy]-Benzoic Acid (t-AUCB) is Neuroprotective in a Rat Temporary Focal Ischemia Model. March 13-16, 2011. **Shaik JS**.
- XII International Small Bowel Transplantation Symposium. Washington, DC. Mechanistic analysis of vitamin B6 deficiency following Small Bowel transplantation. September 15-18, 2011. **Shawaqfeh MS** and **Bonner JJ**.

- 2010 Pharmaceutical World Congress & American Association of Pharmaceutical Sciences (AAPS) Annual Meeting, New Orleans, LA. Antiretroviral Drugs Inhibit the Metabolism of Sunitinib and Sorafenib in Primary Cultures of Human Hepatocytes. 2010. **Shawaqfeh MS**.
- Pharmacy Grand Rounds, ACPE Accredited. Clinically Relevant Drug Interactions Mediated By Drug Transporters. Sponsored by University of Pittsburgh Center for Continuing Education in the Health Sciences. 2010. **Shawaqfeh MS**.
- Drug Use and Disease State Management Program, University of Pittsburgh Medical Center. Therapeutic Approaches to Acute Insomnia in Hospitalized Patients. 2010. **Shawaqfeh MS**.
- 11th Annual WPIC Research Day. Pittsburgh, PA. Response inhibition, orbital frontal cortex activity and psychological dysregulation in adolescence. June 2, 2011. **Zhai ZU**.
- 2011 College on Problems of Drug Dependence. Hollywood, FL. Orbital frontal cortex activity predicts executive cognitive functioning in early adolescents. June 23, 2011. **Zhai ZU**.
- 2011 Research Society on Alcoholism. Atlanta, GA. Response inhibition, orbital frontal cortex activity and psychological dysregulation in adolescence. June 26, 2011. **Zhai ZU**.
- 2011 Society for Research in Child Development. Montreal, Quebec, Canada. Executive cognitive functioning latent structure in boy and girl offspring of fathers with vs. without illegal drug use disorder. April 2, 2011. **Zhai ZU**.

Postdoctoral Fellows

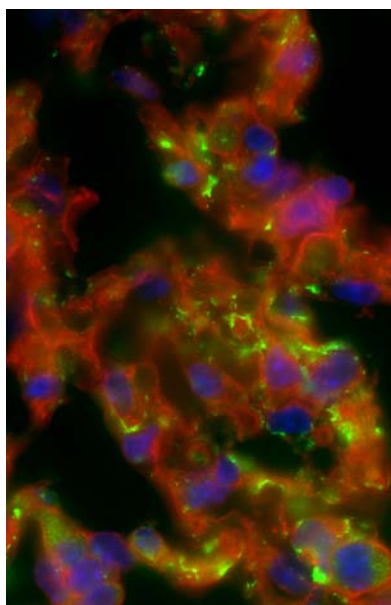
School of Pharmacy Postdoctoral Associates FY11

Name	Degree	Degree/University	Field	Country
Bonamassa, Barbara	PhD	University of Bologna	Pharmacology and Toxicology	Italy
Cao, Haiping	PhD	Chinese Academy of Sciences	Organic Chemistry	China
Chithambarampillai, Venkateswaran	PhD	Texas Tech	Pharmacology and Toxicology	USA
Gao, Mingming	PhD	China Pharmaceutical University	Microbial and Biochemical Pharmacy	China
He, Jinhan	PhD	Peking University	Physiology and Pathophysiology	China
Huang, Yixian	PhD	Shanghai Institute of Organic Chemistry	Organic Synthesis	China
Inaba, Yuka	PhD	Tokyo Medical and Dental University	Biomedical Science	Japan
Li, Hai	PhD	Sichuan University	Organic Design and Synthesis	China
Kanefuji, Tsutsumu	MD	Niigata University-Medical Degree	Medicine	Japan
Korotchenko, Vasily	PhD	Moscow State University	Organic Chemistry	Russia
Kuruba, Ramalinga	PhD	Indian Institute of Chemical Technology	Lipid Science	India
Rong, Hui	MD	Changzhi Medical College-Medical Degree	Pathology and Pathophysiology	China

Name	Degree	Degree/University	Field	Country
Shi, Xiongjie	PhD	Chinese Academy of Sciences	Hydrobiology	China
Srinivasan, Ajay	PhD	University of Pune	Biotechnology	India
Wang, Kan	PhD	University of Pittsburgh	Chemistry	USA
Wang, Wei	PhD	Wuhan University	Chemistry	China
Yang, Peng	PhD	Tsinghua University	Chemistry	China
Zhang, Wei	PhD	Fudan University	Pharmaceutics	China
Zhao, Jieli	PhD	Virginia Polytechnic Institute and State University	Bioorganic and Medicinal Chemistry	USA

Advancing Human Health Through Research





Advancing Human Health Through Research

The overall goal of the School of Pharmacy's research programs is to advance human health through research supported by a diversified funding portfolio that ranges from the molecular to patient outcomes. School of Pharmacy investigators are using state-of-the-art techniques to answer important questions leading to new drug targets and improved drug therapy. Faculty are identifying sources of variability to improve patient outcomes and creating evidence-based guides for therapy. The quality of the science is shown through successful competition for NIH research support. As stated in Long-Range Plan 2006–2012:

By 2012, the School of Pharmacy will:

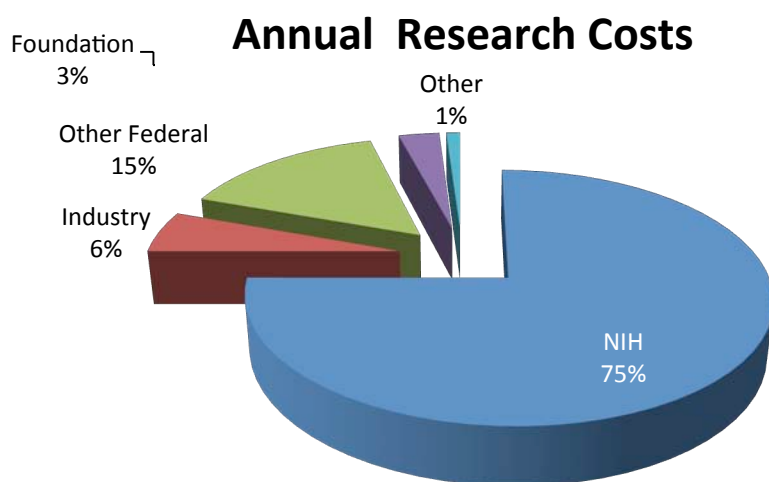
- **Be recognized as a research school of distinction.**

RESEARCH BY THE NUMBERS FOR FY11

- **24** faculty members were principal investigators.
- **69**: the number of active research projects.
- **\$51,724,534** in total active grants.

In FY11, these funded projects generated:

\$12,553,775 in total costs (see graph below for funding source).

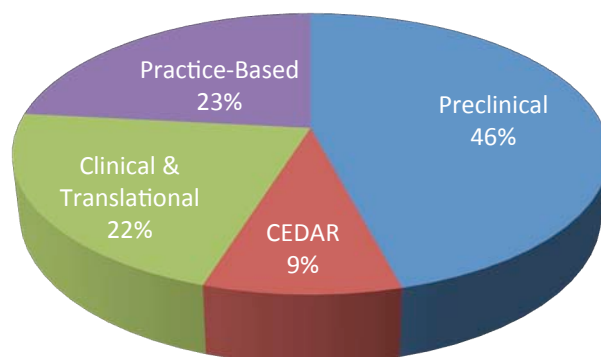


Our faculty members were recognized for their accomplishments and their expertise in ways outside of their grant awards.

- **23** faculty members served on scientific journal editorial boards.
- **13** faculty members served on NIH grant review committees.
- **52** – the number of invited research presentations by faculty.

Faculty research resulted in 133 peer-review research publications.

Peer-Reviewed Publications by Type



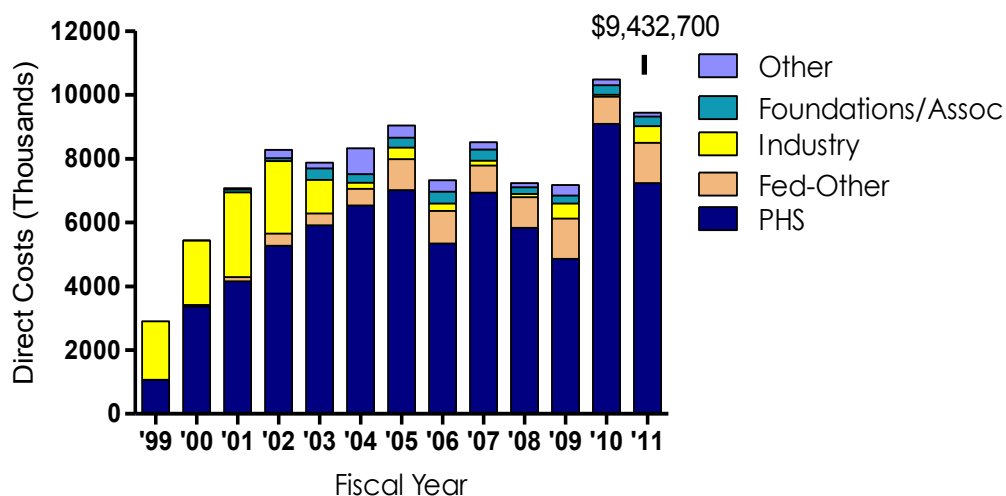
RESEARCH FUNDING

Research in the School of Pharmacy is focused on medication discovery, development, and delivery and drug use in improving human health.

Annual Grant Costs by Source

The annual costs for FY11 were **\$12.5 million** with **\$9.4 million in direct costs** (shown in the following graph) and \$3.1 million in indirect costs. The graph and tables below provide the detail regarding FY11 sources of funding for direct costs.

Direct Costs: Research Funding



Direct Costs for Research by Funding Category

Source	FY05	FY06	FY07	FY08	FY09	FY10	FY11
PHS	\$7,013,478	\$5,338,778	\$6,934,873	\$5,829,075	\$4,856,912	\$9,083,208	\$7,229,748
Federal-Oth	974,624	1,024,805	846,586	961,814	1,264,891	856,030	1,268,055
Industry	359,881	232,777	156,419	99,363	468,401	60,226	518,140
Found/Assoc	313,274	369,428	351,468	209,084	255,048	296,641	305,600
Other	380,527	355,421	222,110	134,181	327,396	187,737	111,157
TOTAL	\$9,041,784	\$7,321,209	\$8,511,456	\$7,233,517	\$7,172,648	\$10,483,842	\$9,432,700

RESEARCH DETAILS

FY11 PHS Funding

Investigator	Agency	Agency #	Title	Direct \$	Indirect \$	Total
B. Day	NIH	R01 CA090787	Mechanisms and Prevention of Etoposide-Induced Leukemia	9,874	5,085	14,959
B. Day	NIH	R56 NS065789	PINK1 Regulation of Neuronal and Mitochondrial Homeostasis	17,531	9,028	26,559
B. Day	NIH	R01 NS037459	Cyclooxygenase 2 and Ischemic Neuronal Injury	21,835	11,245	33,080
B. Day	NIH	RC4 DK090770	Small Molecule-Mediated Augmentation of Kidney Regeneration	80,000	41,200	121,200
B. Day	NIH	R01 AI057083	Small Molecule Inhibitors of HIV Nef	28,225	14,536	42,761
B. Day	NIH	R01 CA129127	The Role of PKD3 in Prostate Carcinogenesis	2,687	1,383	4,070

Investigator	Agency	Agency #	Title	Direct \$	Indirect \$	Total
A. Doemling	NIH	R21 GM087617	Anchor: A PDB-wide and Web-Based Discovery Resource of Small Molecular Weight Protein Interaction (Ant)agonists	99,000	44,326	143,326
A. Doemling	NIH	U19 AI068021A	Mitochondrial Targeting Against Radiation Damage	17,483	9,004	26,487
A. Doemling	NIH	P41 GM094055	Protein Protein Interaction Directed Libraries	249,604	77,046	326,650
M. Donnelly	NIH	F31 NR012608	Role of 20-HETE and EETs in Cerebrovascular Complications after aSAH	26,946	-	26,946
R. Gibbs	NIH	R01 NS06005	Environmental Enrichment and Cholinergic Mechanisms After TBI	8,923	4,595	13,518
R. Hammond	NIH	F31 AG034035	The Role of GRP30 in Mediating Estrogen Effects on Neurons and Cognitive Performance	25,920	-	25,920
L. Kirisci	NIH	K02 DA017822	Quantifying and Tracking Risk for Substance Use Disorder	125,450	9,970	135,420
Y. Kwon	NIH	R01 HL083365	Role of Ubiquitin in Cardiovascular System	242,750	107,809	350,559
S. Li	NIH	R21 CA155983	Polymeric System for Synergistic Targeting of AR Signaling in Prostate Cancer	130,500	67,208	197,708
S. Li	NIH	R01 HL091828	Non Viral Gene Therapy for Lung Injury	250,000	128,750	378,750
S. Li	NIH	R01 HL094488	Irradiation Damage and Protection of Pulmonary Endothelium Oxidative Lipidomics	15,670	8,070	23,740
S. Li	NIH	U19 AI068021	Mitochondrial Targeting Against Radiation Damage	70,949	33,601	104,550
D. Liu	NIH	R01 EB007357	Image-Guided Hydrodynamic Gene Delivery	277,563	142,945	420,508
D. Liu	NIH	R01 HL098295	Computer-Assisted Hydrodynamic Gene Delivery for Hemophilia Gene Therapy	241,390	124,316	365,706
S. Poloyac	NIH	R21 HD058846	COX2-Derived Cyclopentenone Prostaglandins Exacerbate Hypoxic Ischemic Brain Injury by Inhibiting Protein Disulfide Isomerase and Worsening Endoplasmic Reticulum Stress	2,729	1,405	4,134
S. Poloyac	NIH	R01 NR004339	Determining Genetic and Biomarker Predictors of DCI and Long term Outcomes after a SAH	141,706	59,766	201,472
S. Poloyac	NIH	R01 NS069247	Overcoming Membrane Transporters to Improve CNS Drug Therapy	23,918	12,318	36,236
S. Poloyac	NIH	UL1 RR024153	University of Pittsburgh Clinical and Translational Science Institute	12,105	3,914	16,019

Investigator	Agency	Agency #	Title	Direct \$	Indirect \$	Total
L. Rohan	NIH	U01 AI068633	Microbicide Trials Network	102,576	57,778	160,354
L. Rohan	NIH	U19 AI082637	Combination HIV Antiretroviral Rectal Microbicide Program - Core C	156,976	78,390	235,366
L. Rohan	NIH	R21 AI088586	Development of a Novel Nanoparticle Pyrimidinedione Vaginal Polymeric Film as an Anti-HIV Microbicide	63,889	32,043	95,932
L. Rohan	NIH	U19 AI082639	Alternative Formulations of Tenofovir and UC781	1,938,405	386,151	2,324,556
L. Rohan	NIH	R33 AI079801	Microbicide Properties of RT Inhibitor Combinations	82,134	48,048	130,182
L. Rohan	NIH	U19 AI082623	RT Inhibitor CSIC and Entry Inhibitor Retrocyclin RC101 as Microbicides	189,219	46,599	235,818
C. Scelsi	NIH	R56 AG027017	Longitudinal Impact of Anti-hypertensive Polypharmacy on Geriatric Syndromes	14,371	7,401	21,772
A. Seybert	NIH	R01 LM010019	Using Medical Records Repositories to Improve the Alert System Design	15,220	7,838	23,058
R. Tarter	NIH	P50 DA005605	Drug Abuse Vulnerability: Mechanisms and Manifestations	1,285,523	484,890	1,770,413
R. Venkataraman	NIH	U10 HD047905	Impact of Pregnancy on Drug Absorption, Disposition and End Organ Response	114,964	59,206	174,170
W. Xie	NIH	R01 ES014626	Regulation of Sulfotransferases by LXR and Its Implication in Pathophysiology	256,037	97,356	353,393
W. Xie	NIH	R01 DK076962	The Hepatoprotective Role of the Orphan Nuclear Receptor LXR	299,602	154,295	453,897
W. Xie	NIH	R01 DK083952	A Novel Role of the Aryl Hydrocarbon Receptor in Hepatic Steatosis	205,425	105,794	311,219
W. Xie	NIH	R21 ES019629	The Regulation of Human Hydroxysteroid Sulfotransferase by Nuclear Receptor ROR	125,000	64,375	189,375
X. Xie	NIH	P50 GM067082	New Concepts, Methodologies and Scaffolds for Diversity-Oriented Organic Synthesis	55,149	28,402	83,551
X. Xie	NIH	R01 DA 025612	Structure and Function of CB2 Ligand and G-protein Recognition Pockets	202,500	104,288	306,788
TOTAL				\$7,229,748	\$2,680,374	\$9,910,122

FY11 Other Federal Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
C. Culley	AHRQ	Enhancing the Detection and Management of Adverse Drug Events in the Nursing Home	12,299	6,334	18,633
R. Farrah	Univ. of Iowa	Antiviral Lectins as Microbicides	14,675	7,558	22,233
R. Gibbs	National Science Foundation	Role of GPR30 in Estrogen-Mediated Effects on Cholinergic Function and Cognition	93,736	48,274	142,010
D. Huryn	SAIC-Frederick	Discovery and Optimization of Inhibitors of STAT3 Activation for the Treatment of Squamous Cell Carcinoma of the Head and Neck	102,756	52,919	155,675
D. Huryn	SAIC-Frederick	Administrative Support for the UP-CDC	167,093	84,765	251,858
D. Huryn	SAIC-Frederick	Discovery and Optimization of Inhibitors of STAT3 Activation for the Treatment of Squamous Cell Carcinoma of the Head and Neck (Purchase Order 1)	6,601	3,399	10,000
S. Li	Dept of Defense	Targeted Co-delivery of Synthetic MicroRNA and microRNA Expression Vector for Rapid and Sustained Inhibition of Breast Cancer	75,000	38,625	113,625
Y. Li	PA State University	Functional Analysis of Nuclear Receptor Variants	44,000	22,660	66,660
Y. Li	Van Andel Institute	Structural and Functional Studies of the Nuclear Receptor PPARgamma	38,709	19,935	58,644
S. Poloyac	UNCCH	Cytochrome P450 Derived Eicosanoids and Inflammation	12,786	7,099	19,885
J. Pringle	Mercy Behavioral Health	New Lease on Life	48,387	11,613	60,000
J. Pringle	SAMSHA	The Pennsylvania Medical Residency Training Program (MR- SBIRT)	493,889	11,947	505,836
J. Pringle	Allegheny County	Strategic Prevention Framework State Incentive Grant (SPF-SIG)	122,224	25,276	147,500
L. Rohan	Univ of Louisville	Antiviral Lectins as Microbicides	20,635	10,628	31,263
C. Scelsi	Health Resources & Serv. Admin.	Geriatric Education Center	6,907	553	7,460
W. Xie	St. Jude Children's Hospital	Regulation of PXR by Cell Cycle and Phosphorylation	8,358	4,304	12,662
TOTAL			\$1,268,055	\$355,889	\$1,623,944

FY11 Industry Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
K. Coley	Takeda Pharmaceuticals	Reclassification of ICD-9 Coding for Patients with Gout: Evaluation of Patient Characteristics, Prescribing Patterns and Resource Use	\$68,500	\$17,125	\$85,625
D. Liu	Pain Therapeutics Inc.	Expression of Human Factor IX in Large Animals Using the OC31 Gene Expression	58,725	32,886	91,611
J. Pringle	Healing Our Village	A Patient Clinical Team Collaboration Model of Diabetes Self Management	51,324	13,242	64,566
J. Pringle	Pharmacy Quality Assurance	Phase II Pennsylvania Demonstration Project	46,591	4,659	51,250
R. Smith	Novo Nordisk	Self-Directed Online Learning Platform for Mobile Devices	293,000	-	293,000
TOTAL			\$518,140	\$67,912	\$586,052

FY11 Foundation and Association Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
D. Brody	American Chemical Society	Synthesis and Evaluation of Discodermolide Analogs	\$24,000	\$ -	\$24,000
K. Coley	Jewish Healthcare Fnd.	Pharmacists as Advocates in Care Transitions	93,500	-	93,500
J. He	AHA	Regulation of CD36 by the Aryl Hydrocarbon Receptor (AhR) and Its Implication in Fatty Liver Disease	45,000	-	45,000
Y. Li	AHA	Mechanism and Specificity of Ligand Bind and Coactivator Assembly by PPARgamma	70,000	7,000	70,000
S. Meyer	Josiah Macy Jr. Fdn.	Interprofessional Modeling and Caring for the Elderly (JP-MACY)	21,818	2,182	24,000
J. Pringle	Staunton Farm Fdn.	Allegheny General Hospital Emergency Department Pilot Program	51,282	8,718	60,000
TOTAL			\$305,600	\$17,900	\$323,500

FY11 Other Funding

Investigator	Agency	Title	Direct \$	Indirect \$	Total
S. Li	CRDF	Farnesoid X Receptor and Hepatic Stellate Cells	\$15,000	\$ -	\$15,000
F. Vitale	Purdue Univ.	CEASE Program – Phase II Smoking Cessation Program	96,157	-	96,157
TOTAL			\$111,157	\$ -	\$111,157

RESEARCH RECOGNITION OF FACULTY

Faculty members received various forms of recognition for their accomplishments and their expertise during FY10.

- 20 faculty members served on scientific journal editorial boards.
- 12 faculty members served on NIH grant review committees.
- 51 – the number of invited research presentations by faculty.
 - presentations at 13 universities in 10 states
 - 21 Presentations at 20 scientific meetings in 13 states
 - 10 presentations at 9 universities in 4 countries
 - 13 presentations at 11 international scientific meetings in 9 countries

Members of Editorial Boards

Faculty Member	Number	Editorial Board
Jan H. Beumer, PharmD, PhD	3	The Open Chemical and Biomedical Methods Journal Journal of Chromatography and Separation Techniques Cancer Chemotherapy and Pharmacology
Colleen M. Culley, PharmD, BCPS	2	Clin-Alert American Journal of Health-System Pharmacy
Billy W. Day, PhD	2	Current Molecular Pharmacology Journal of Environmental Protection Science
Alexander Doemling, PhD	2	Molecular Diversity
Barry Gold, PhD	2	Editorial Advisory Board of Burger's Medicinal Chemistry and Drug Discovery Editorial Advisory Board of Future Medicinal Chemistry
Robert B. Gibbs, PhD	1	Hormones and Behavior
Sandra L. Kane-Gill, PharmD, MS, FCCM	2	Critical Care Medicine
Levent Kirisci, PhD	1	Bipolar Disorder: International Journal of Psychiatry and Neurosciences
Edward P. Krenzelok, PharmD	1	Lexi-Comp Clinical Toxicology
Song Li, MD, PhD	2	Journal Gene Medicine Biological Procedure On-Line
Dexi Liu, PhD	4	Gene Therapy (Member) Molecular Therapy (Member) Pharmaceutical Research (Member) AAPS Journal (Associate Editor)
Scott M. Mark, PharmD, MS, MEd, MPH, MBA, FACHE, FASHP, FABC	1	Co-Editor for Director's Forum in Hospital Pharmacy
Susan M. Meyer, PhD	1	Journal of Research in Interprofessional Education
Thomas D. Nolin, PharmD, PhD	2	American Journal of Kidney Diseases Journal of Clinical Pharmacology
Ty A. Ridenour, PhD	1	Current Drug Abuse Reviews
Lisa C. Rohan, PhD	1	AIDS Research and Therapy
Amy L. Seybert, PharmD	1	American Journal of Pharmacy Education
Ralph E. Tarter, PhD	8	Directions in Substance Abuse Counseling (Advisory Board) Journal of Developmental and Physical Disabilities American Journal on Addictions Journal of Child and Adolescent Substance Abuse (Book review editor)

Faculty Member	Number	Editorial Board
		Drug and Alcohol Dependence Experimental and Clinical Psychopharmacology Clinical Psychology Review Prevention Science
Gordon J. Vanscoy, PharmD, CACP, MBA	3	American Journal of Oncology Review Journal of Thrombosis and Thrombolysis Drug Formulary Review
Raman Venkataramanan, PhD	6	Journal of Clinical Pharmacology Therapeutic Drug Monitoring The Open Clinical Chemistry Journal The Open Pharmacology Journal Current Clinical Pharmacology The Journal of Transplantation
Regis R. Vollmer, PhD	1	Editor, Clinical and Experimental Hypertension
Wen Xie, MD, PhD	5	Current Drug Metabolism World Journal of Gastroenterology Drug Metabolism Letters Drug Metabolism Reviews Molecular Endocrinology

Faculty Participation in NIH Review Committees and Panels

Faculty Member	No. of Panels
Billy W. Day, PhD	1
Alexander Doemling, PhD	2
Barry Gold, PhD	1
Levent Kirisci, PhD	2
Song Li, MD, PhD	2
Dexi Liu, PhD	4
Samuel M. Poloyac, PharmD, PhD	1
Ty A. Ridenour, PhD	1
Lisa C. Rohan, PhD	1
Michael M. Vanyukov, PhD	6
Raman Venkataramanan, PhD	3
Wen Xie, MD, PhD	3
Xiang-Qun (Sean) Xie, PhD	2

Invited Research Presentations

- Dept. Chemistry, Slippery Rock University. Slippery Rock, PA. Discovery, Design and Development of New Microtubule Stabilizers. September 24, 2010. **Day BW.**
- U.S.-Japan Society for Promotion of Science Alumni Association. Seattle, WA. High throughput chemical genetic screen identifies novel small molecule modulators of FGF signaling pathway. March 11, 2011. **Day BW.**
- Center for Vaccine Research, University of Pittsburgh. Center for Vaccine Research, BST 3. Immune Enhancement Strategies for Fighting Infectious Diseases. February 2, 2011. **Empey KM.**

- University of Kentucky. Lexington, KY. The impact of therapeutic hypothermia on drug metabolism and transport following critical injury. March 18, 2011. **Empey PE.**
- CMCR seminar. Biotech Center, University of Pittsburgh. Lipid and Polymer Based Drug Delivery Systems for Experimental Therapeutics Agents. February 23, 2011. **Gao X.**
- Society for the Advancement of Native Americans and Chicanos in Science. Anaheim, CA. Recognition of DNA damage. September 30, 2010. **Gold B.**
- American Chemical Society. New Orleans, LA. The effect of DNA damage on structure, stability and repair. December 2, 2010. **Gold B.**
- American Chemical Society. Boston, MA. The effect of site-specific modifications of DNA on thermodynamic stability, ion binding and hydration. August 22, 2010. **Gold B.**
- International Symposium on Nucleic Acids Chemistry. Yokohama, Japan. Manipulation of the electrostatic potential in the DNA grooves. June 10, 2011. **Gold B.**
- University of Tokyo. Tokyo, Japan. The effect of DNA damage on structure, stability and repair. November 8, 2010. **Gold B.**
- International Network of Person-Centered Medicine. Geneva, Switzerland. Quantitative evaluation and prediction of individual risk for addiction. April 30, 2011. **Kirisci L.**
- North American Congress of Clinical Toxicology. Denver, CO. Friends and Foes in the Plant World. October 11, 2010. **Krenzelok EP.**
- World Class Institute Jeju Conference. Jeju, Korea. The N-end rule pathway: its functions in cardiovascular development and signaling. September 22, 2010. **Kwon YT.**
- Korea Research Institutes of Biotechnology and Bioengineering. Daejeon, Korea. Regulated protein degradation by protein N-terminus: structural basis and functions. May 5, 2011. **Kwon YT.**
- Seoul National University, Korea. Seoul, Korea. N-end rule pathway in ubiquitin-proteasome system and autophagy. April 6, 2011. **Kwon YT.**
- ACRT/AFMR/SCTS Joint Annual Meeting. Washington, DC. A self-administered questionnaire to identify patients at risk for medication-related problems. April 28, 2011. **Pater KS.**
- Winter Eicosanoid Conference. Baltimore, MD. HETEs and EETs on Subarachnoid Hemorrhage: Discovering the Relationship with Patient Complications and Outcomes. March 14, 2011. **Poloyac SM.**
- NHLBI and DOD. Bethesda, MD. Effects of Hypothermia on Pharmacology. February 25, 2011. **Poloyac SM.**
- University of Pittsburgh Department of Environmental and Occupational Health. Pittsburgh, PA. P450 enzymes in critical care illness: roles in drug metabolism and disease pathogenesis. March 3, 2011. **Poloyac SM.**

- University of Minnesota. Minneapolis, MN. Pharmacy's Role in Advancing Clinical and Translational Research: Examples in Critical Care Illness. April 26, 2011. **Poloyac SM**.
- Pharmacy Quality Alliance, Inc. Washington DC. SBI – Screening and Brief Intervention: What is it? June 2, 2011. **Pringle JL**.
- Students for Sensible Drug Policy. Baltimore, MD. Recent Evidence of SBIRT's Effectiveness. August 24, 2010. **Pringle JL**.
- SAMHSA Grantees Meeting. Bethesda, MD. SBIRT: Lessons Learned and Moving Forward. Screening, Brief Intervention, and Treatment (SBIRT). November 2, 2010. **Pringle JL**.
- Association for Medical Education and Research in Substance Abuse. Bethesda, MD. Teaching and Assessing Clinical Skill in Screening, Brief Intervention, and Referral to Treatment (SBIRT). November 3, 2010. **Pringle JL**.
- SAMHSA. Washington, DC. Screening and Brief Intervention (SBI) for Medication Adherence: Background and the PA Collaborative Project. May 11, 2011. **Pringle JL**.
- Substance Abuse and Mental Health Services Administration. Baltimore, MD. State SBIRT: Systems Implementation, Implications, and Impact. August 24, 2010. **Pringle JL**.
- Morehouse School of Medicine. Atlanta, GA. Screening, Brief Intervention, and Referral to Treatment Methods. September 22, 2010. **Pringle JL**.
- Healthcare Intelligence Network. Webinar. Improving Medication Adherence Benchmarks through Community Pharmacist Interventions. May 25, 2011. **Pringle JL**.
- Prevention Science Methodology Group. Tampa, FL. Prevention Science Methodology Group, Comparison of Three Analytic Approaches for Small Sample Within-subject Prevention Research. May 24, 2011. **Ridenour TA**.
- College on Problems of Drug Dependence. Hollywood, FL. The role of parental rearing behavior, mental disorders and substance use for cannabis use and cannabis use disorders in offspring. June 22, 2011. **Ridenour TA**.
- Western Psychiatric Institute and Clinic. Pittsburgh, PA. Developmental Momentum and Risk for Substance Use Disorder in Youth Experiencing Chronic Stress. October 22, 2010. **Ridenour TA**.
- NIH: DAIDS Workshop: Optimization of Preclinical Methods for Improved Prioritization and Advancement of Lead Microbicide Candidates. Washington, DC. Preclinical Evaluation of APIs and formulations for pharmacokinetics/ pharmacodynamics Ex vivo explant-based evaluation. December 7, 2010. **Rohan LC**.
- Centers for Disease Control (CDC). Atlanta, GA. The development of rectal microbicides for HIV prevention. April 20, 2011. **Rohan LC**.
- Biomed Health and Wellness Foundation Inaugural Main Salon. Cannes, France. Is Behavior Change Possible - Panel Discussant. April 16, 2011. **Smith RB**.

- World Psychiatric Association. Geneva, Switzerland. Intervention for Addiction. May 2, 2011. **Tarter RE.**
- NIDA Genetics Consortium. Bethesda, MD. Measurement of Liability to Addiction. November 29, 2010. **Vanyukov MM.**
- Pediatric Intestinal Transplant Congress. Chicago, IL. Medication use in pediatric small bowel transplant patients. September 9, 2010. **Venkataramanan R.**
- NIEHS workshop on Dose-Response Approaches for Nuclear Receptor-Medicated Modes of Action. Research Triangle Park, NC. CAR-Current State of Knowledge and Role in Biology/Physiology. September 27, 2010. **Xie W.**
- Endocrine Division Research Conference, Division of Endocrinology, Diabetes, and Metabolism, University of Pittsburgh. Pittsburgh, PA. Orphan Nuclear Receptors in Metabolic Diseases. January 6, 2011. **Xie W.**
- Center for Molecular Toxicology and Carcinogenesis, Penn State University. University Park, PA. The Endobiotic Functions of the Xenobiotic Receptors. October 13, 2010. **Xie W.**
- Department of Physiology and Pharmacology and the Interdisciplinary Toxicology Program, University of Georgia. Athens, GA. The Xeno- and Endobiotic Functions of Orphan Nuclear Receptors. March 28, 2011. **Xie W.**
- Asia-Pacific ISSX (APISSX). Tainan, Taiwan. Drug-Herb Interactions: Mechanism and Clinical Significance. April 22, 2011. **Xie W.**
- School of Pharmaceutical Sciences, Sun Yat-Sen University. Guangzhou, China. Nuclear Receptor-Mediated Crosstalk between Drug Metabolism and Energy Metabolism. April 27, 2011. **Xie W.**
- School of Medicine, Sun Yat-Sen University. Guangzhou, China. Nuclear Receptor-Mediated Gene Regulation and its Implications in Pathophysiology. April 26, 2011. **Xie W.**

Patient Care Invited Talks

- Pennsylvania Society of Health-System Pharmacists. Pittsburgh, PA. Anticoagulation Update: Dabigatran and Extended Duration Low Molecular Weight Heparin. November 13, 2010. **Benedict NJ.**
- HRSA - PSPC. National Learning Session via Teleconference. HRSA Patient Safety and Clinical Pharmacy Services Learning Session #2 Mentoring Teams Round-Robin: The Five Strategies that Drive Change...It's in the Bag! (Change Package, that is!). May 10, 2011. **Connor SE.**
- AACP. Pittsburgh, PA. Patient Safety and Clinical Pharmacy Services Regional Meeting: Enhancing Diabetes Care through an Interprofessional Approach to Performance Improvement. July 29, 2010. **Connor SE.**

- AACP. Chicago, IL. Patient Safety and Clinical Pharmacy Services Regional Meeting: Enhancing Diabetes Care through an Interprofessional Approach to Performance Improvement. September 13, 2010. **Connor SE**.
- UPMC Pathology Department, UPMC Presbyterian. Pharmacogenomics. January 7, 2011. **Empey PE**.
- American Pain Foundation. Washington, DC. A Profile of Acetaminophen Toxicity: A U.S. Poison Center Perspective. November 10, 2010. **Krenzelok EP**.
- European Association of Poisons Centres and Clinical Toxicologists XXXI International Congress. Dubrovnik, Croatia. Experience with the Use of PC Data for Public Health Purposes with a Focus on Non-Pharmaceuticals. May 26, 2011. **Krenzelok EP**.
- American Pharmaceutical Association. Washington, DC. Regulatory Activities to Support the Safe Use of Acetaminophen. June 18, 2011. **Krenzelok EP**.
- Hematology/Oncology Pharmacy Association. The Grand America Hotel. Salt Lake City, UT. Chemotherapy in Pregnancy. March 24, 2011. **Lippman L**.
- Pennsylvania Pharmacists Association. Camp Hill, PA. Pharmacists Role in the Medical Home. February 5, 2011. **McGivney MS**.
- American College of Clinical Pharmacy Annual Meeting. Austin, TX. Cockcroft-Gault vs. MDRD for Drug Dosing – Does One Equation Fit All? October 18, 2010. **Nolin TD**.
- American Society of Nephrology 43rd Annual Meeting and Scientific Exposition. Denver, CO. Drug Dosing in AKI. November 17, 2010. **Nolin TD**.
- Continuous Renal Replacement Therapy: CRRTeams 2010 Conference. Pittsburgh, PA. Drug Dosing Workshop: Principles of Drug Dosing and Management for Patients on Various Forms of RRT. October 21, 2010. **Nolin TD**.
- Univ of Pittsburgh Renal Electrolyte Division. Pittsburgh, PA. Drug Dosing in RRT. March 25, 2011. **Nolin TD**.
- ASHP 45th Midyear Clinical Meeting. Anaheim CA. 10 Tips for Increasing the IQ of your smart pumps. December 6, 2010. **Skledar SJ**.

Invited Education Talks

- University of Pittsburgh Mobile Computing in Healthcare Conference. Pittsburgh, PA. Tools, not toys – How to use the iPad to enhance your productivity in an academic setting. October 29, 2010. **Empey PE**.
- University of Tennessee College of Pharmacy. Memphis, TN. It's about the Research . . . and the People. April 27, 2011. **Kroboth PD**.

- American Association of Colleges of Pharmacy. Savannah, GA. Strategic Planning and Programmatic Assessment. February 28, 2011. **Kroboth PD**.
- APhA. Seattle, WA. Community Pharmacy Fellowship Experience. March 26, 2011. **McGivney MS**.
- University of Connecticut School of Pharmacy. Storrs, CT. An Unusual Journey with Lessons Learned. September 8, 2010. **Meyer SM**.
- American Association of Colleges of Pharmacy. Seattle, WA. Charting the Course: Planning Efficient and Effective Approaches to Assessment and Evaluation. July 13, 2010. **Meyer SM**.
- American Association of Colleges of Pharmacy. Seattle, WA. Implementing Interprofessional Education in the Classroom. July 13, 2010. **Meyer SM**.
- American Association of Colleges of Pharmacy. Seattle, WA. Speaking the Same Tongue: Coming to Consensus on the Language of Assessment and Evaluation. July 13, 2010. **Meyer SM**.
- NMA. Cincinnati, OH. Team-Based Learning Approach to Self-Care. September 17, 2010. **Pater KS**.
- American Association of Colleges of Pharmacy. Seattle, WA. Interprofessional Science Education: Development and Implementation of a Course in Translational Research in the Health Sciences. July 24, 2010. **Poloyac SM**.
- American College of Clinical Pharmacy. Austin, TX. Barriers, Hurdles, and Lessons Learned in the Scholarship of Teaching and Learning. October 25, 2010. **Seybert AL**.
- American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. Portfolios in Experiential Education. July 12, 2010. **Seybert AL**.

School of Pharmacy Publications in Peer-Reviewed Journals

Pre-clinical Research

- Akil A, Parniak M, Dezzutti C, Moncla B, Cost M, Li M, **Rohan LC**. Development and Characterization of a Vaginal Film Containing Dapivirine, a Non-nucleoside Reverse Transcriptase Inhibitor (NNRTI), for prevention of HIV-1 Sexual Transmission. *Drug Delivery and Translational Research*. 2011; 1:209-22.
- Balasubramani M, Nakao C, Uechi GT, Cardamone J, Kamath K, Leslie KL, Balachandran R, Wilson L, **Day BW**, Jordan MA. Characterization and detection of cellular and proteomic alterations in stable stathmin-overexpressing, taxol-resistant BT549 breast cancer cells using offgel IEF/PAGE difference gel electrophoresis. *Mutation Research*. 2011; 722(2):154-64.
- Beckner ME, Fellows-Mayle W, Zhang Z, Agostino NR, Kant JA, **Day BW**, Pollack IF. Identification of ATP citrate lyase as a positive regulator of glycolytic function in glioblastomas. *Int J Cancer*. 2010; 126(10):2282-95.

- Bonamassa B, Hai L, **Liu D**. Hydrodynamic Gene Delivery and Its Applications in Pharmaceutical Research. *Pharm. Res.* 2011; 28(4):694-701.
- Bonamassa B, **Liu D**. Non-Viral Gene Transfer as a Tool for Studying Transcription Regulation of Xenobiotic Metabolizing Enzymes. *Adv. Drug Del. Rev.* 2010; 62(13):1250-6.
- Ma C, Lazo JS, **Xie XQ**. Compound Acquisition and Prioritization Algorithm for Constructing Structurally Diverse Compound Libraries. *ACS Combinatorial Science.* 2011; 13(3):223-31.
- Ma C, Wang L, **Xie XQ**. Ligand Classifier of Adaptively Boosting Ensemble Decision Stumps (LiCABEDS) and Its Application on Modeling Ligand Functionality for 5HT-Subtype GPCR Families. *Journal of Chemical Information and Modeling.* 2011; 51 (3):521-31.
- Ma C, Wang L, **Xie XQ**. GPU Accelerated Chemical Similarity Calculation for Compound Library Comparison. *Journal of Chemical Information and Modeling.* DOI: 2011; 10.1021/ci1004948.
- Chao F, Gong W, Zheng Y, Li Y, Huang G, Gao M, Li J, Kuruba R, Gao X, **Li S**, He F. Upregulation of scavenger receptor class B type I expression by activation of FXR in hepatocyte. *Atherosclerosis.* 2010; 213(2):443-8.
- Cherra SJ III, Kulich SM, Uechi G, Balasubramani M, Mountzouris J, **Day BW**, Chu CT. Regulation of the autophagy protein LC3 by phosphorylation. *The Journal of cell biology.* 2010; 190(4):533-9.
- Cole AM, Patton DL, **Rohan LC**, Cole AL, Cosgrove-Sweeney Y, Rogers NA, Ratner D, Sassi AB, Lackman-Smith C, Tarwater P, Ramratnam B, Ruchala P, Lehrer RI, Waring AJ, Gupta P. The formulated microbicide RC-101 was safe and antivirally active following intravaginal application in pigtailed macaques. *PLoS One.* 2010; 5(11):e15111.
- Daghestani HN, **Day BW**. Theory and applications of surface plasmon resonance, resonant mirror, resonant waveguide grating, and dual polarization interferometry biosensors. *Sensors.* 2010; 10(11):9630-46.
- Epperly MW, Goff JP, **Li S**, Gao X, Dixon T, Wang H, Franicola D, Shen H, Rwigema JC, Kagan VE, Bernard M, Greenberger JS. Intraesophageal administration of GS-nitroxide (JP4-039) protects against ionizing irradiation-induced esophagitis. *In Vivo.* 2010; 24(6):811-9.
- Ganguly M, Wang RW, Marky LA, **Gold B**. Thermodynamic characterization of DNA with 3-deazaadenine and 3-methyl-3-deazaadenine substitutions. *J. Phys. Chem. B.* 2010; 114(22):7656-61.
- **Gao J, Xie W**. PXR and CAR at the crossroad of drug metabolism and energy metabolism. *Drug Metab Dispos.* 2011; 38(12):2091-5 (2010) PMID: 20736325.
- Garg S, Goldman D, Krumme M, **Rohan LC**, Smoot S, Friend D. Advances in development, scale up and manufacturing of microbicide gels, films, and tablets. *Antiviral Research.* 2010; Volume 88 (Supplement 1):S19-29.
- Ghonem N, Yoshida J, Stolz DB, Humar A, Starzl TE, Murase N, **Venkataramanan R**. Treprostinil, a Prostacyclin Analog, Ameliorates Ischemia-Reperfusion Injury in Rat Orthotopic

Liver Transplantation. *Am J Transplant*. Epub Jun 10, 2011. DOI: 10.1111/j.1600-6143.2011.03568.x

- **Gibbs RB**. Does short-term estrogen therapy produce lasting benefits in brain? *Endocrinology*. 2010; 151(3):843-5.
- **Gibbs RB**, Chipman AM, Nelson D. Donepezil Plus Estradiol Treatment Enhances Learning and Delay-Dependent Memory Performance by Young Ovariectomized Rats with Partial Loss of Septal Cholinergic Neurons. *Horm. & Behav.* 2011; 59(4):503-11.
- Goff JP, Epperly MW, Dixon T, Wang H, Franicola D, Shields D, **Wipf P**, **Li S**, Gao X, Greenberger JS. Radiobiologic Effects of GS-Nitroxide (JP4-039) on the Hematopoietic Syndrome. *In Vivo*. 2011; 25(3):315-23.
- Gong W, Zheng Y, Chao F, Li Y, Xu Z, Huang G, Gao X, **Li S**, He F. The anti-inflammatory activity of HMGB1 A box is enhanced when fused with C-terminal acidic tail. *Journal of Biomedicine and Biotechnology*. Published online 2010 April 1. DOI: 10.1155/2010/915234.
- Hammond R, **Gibbs RB**. GPR30 is positioned to mediate estrogen effects on basal forebrain cholinergic neurons and cognitive performance. *Brain Res*. 2011; 1379:53-60.
- Hammond R, Nelson D, **Gibbs RB**. GPR30 co-localizes with cholinergic neurons in the basal forebrain and enhances potassium-stimulated acetylcholine release in the hippocampus. *Psychoneuroendocrinology*. 2011; 36(2):182-92.
- He J, Nishida S, Xu M, Makishima M, **Xie W**. PXR prevents cholesterol gallstone disease by regulating biosynthesis and transport of bile salts. *Gastroenterology*. [2011 Feb 23. Epub ahead of print] PMID: 21354151, June 2011; 140(7):2095-106.
- Hulme C, Akritopoulou-Zanze I, Dai WM, Beck B, Srivastava S, Wang W, Wang K, Czarna A, Holak TA, Meireles L, Camacho C, Raghavan B, **Day BW**, **Dömling A**, Qin C, Zhang R, Wang Q, Ren J, Tian L, Nikulnikov M, Krasavin M, Krasavin M, Parchinsky V, Shkavrov S, Bukhryakov K, Tsirulnikov S, Krasavin M, Bushkova E, Parchinsky V, Krasavin M, Kalinski C, Kysil V, Tsirulnikov S, Ivachtchenko A, Potapov VV, Kysil VM, Fetisova NA, Nikitin AV, Ivachtchenko AV, Potapov VV, Ilyn AP, Fetisova NA, Kravchenko DV, Ivachtchenko AV, Shilova O, Ilyn A, Ivachtchenko A, Shkirando AM, Kysil VM, Potapov VV, Ivachtchenko AV, Vaddula BR, Kumar D, Sharad S, Dube U, Kapur S. Multi-component reactions in drug discovery. *Advances in experimental medicine and biology*. 01/2011; 699:75-106. DOI: 10.1007/978-1-4419-7270-5_3.
- Ihunnah CA, Jiang M, **Xie W**. Nuclear Receptor PXR, transcriptional circuits and metabolic relevance. *Biochim Biophys Acta*. (2011 Feb 1. Epub ahead of print), PMID: 21295138, 2011; 1812(8):956-963.
- Myint KZ, Ma C, Wang L, **Xie XQ**. Fragment-Similarity-based QSAR (FS-QSAR) Algorithm for Ligand Biological Activity Predictions. *SAR and QSAR in Environmental Research*. 2011; 22(3):385-410.
- Kang HS, Okamoto K, Kim YS, Takeda Y, Bortner CD, Dang H, Wada T, **Xie W**, Yang XP, Liao G, Jetten AM. Nuclear orphan receptor TAK1/TR4-deficient mice are protected against

obesity-linked inflammation, hepatic steatosis, and insulin resistance. *Diabetes*. 2011; 60:177-188 (2010) PMID: 20864514.

- Kang HS, Okamoto K, Takeda Y, Beak JY, Gerrish KE, Bortner CD, Degraff LM, **Wada T**, **Xie W**, Jetten AM. Transcriptional profiling reveals a role for ROR in regulating gene expression in obesity-associated inflammation and hepatic steatosis. *Physiol Genomics*. 2011; 43(13):818-28.
- Kline AE, McAloon RL, Henderson KA, Bansal UK, Ganti BM, Ahmed RH, **Gibbs RB**, Sozda CN. Evaluation of a Combined Therapeutic Regimen of 8-OH-DPAT and Environmental Enrichment after Experimental Traumatic Brain Injury. *Journal of neurotrauma* 2010; 27(11): 2021-32.
- Lakshman MK, Singh MK, Parrish D, Balachandran R, **Day BW**. Azide-tetrazole equilibrium of C-6 azidopurine nucleosides and their ligation reactions with alkynes. *The Journal of organic chemistry*. 2010; 75(8):2461-73.
- Li J, Kuruba R, Wilson A, Gao X, Zhang Y, **Li S**. Inhibition of Endothelin-1-Mediated Contraction of Hepatic Stellate Cells by FXR Ligand. *PloS one*. 2010; 5(11):1-9.
- Li J, Zhang Y, Kuruba R, Gao X, **Xie W**, **Li S**. Roles of miR-29a in the antifibrotic effect of FXR in hepatic stellate cells. *Mol Pharmacol*. [2011 Apr 21. Epub ahead of print] PMID: 21511916, 2011; 80(1):191-200.
- **Li S**, Ou Z, **Wada T**, Gramignoli R, Strom SC, Huang M, **Xie W**. MicroRNA hsa-miR-613 Targets the Human LXR {alpha} Gene and Mediates a Feedback Loop of LXR {alpha} Autoregulation. *Molecular endocrinology*. (Baltimore, Md.), April 2011; 25(4):584-96.
- Liu H, Li W, Ahmad M, Miller TM, Rose ME, **Poloyac SM**, Uechi G, Balasubramani M, Hickey RW, Graham SH. Modification of ubiquitin-C-terminal hydrolase-L1 by cyclopentenone prostaglandins exacerbates hypoxic injury. *Neurobiology of Disease*. 2010; 41(2):318-28.
- Monti P, Broxson C, Inga A, Wang R-W, Menichini P, Tornaletti S, **Gold B**, Fronza G. "3-Methyl-3-deazaadenine, a stable isostere of N3-methyl-adenine, is efficiently bypassed by replication in vivo and by transcription in vitro. *DNA Repair*. June 2011; ISSN #1568-7864.
- Monti P, Traverso I, Casolari L, Menichini P, Inga A, Ottaggio L, Russo D, Iyer P, **Gold B**, Fronza G. Mutagenicity of N3-methyladenine: a multi-translesion polymerase affair. *Mutation Research*. 2010; 683(1-2):50-6.
- Myint K, **Xie X-Q**. Recent Advances in Fragment-Based QSAR and Multi-Dimensional QSAR Methods. *Int. J. Mol. Sci*. 2010; 11(10):3846-66.
- Osman S, Waud WR, Gorman GS, **Day BW**, Koide K. Evaluation of FR901464 analogues in vitro and in vivo. *Med Chem Comm*. 2011; 2(1):38-43.
- Ou Z, **Wada T**, Gramignoli R, **Li S**, Strom SC, Huang M, **Xie W**. MicroRNA hsa-miR-613 targets the human LXR gene and mediates a feed-back loop of LXR autoregulation. *Mol Endocrin*. 2011; 25(4):584-96.

- Pokala VN, Witt-Enderby PA, **Gibbs RB**, Johnson DA. Selective septohippocampal cholinergic lesioning in rat brain: Effects on muscarinic receptor function and secretase enzyme activity. *Curr. Topics in Pharmacol*. 2010; 14:73-8.
- Pondugula SR, **Xie W**, Cheng T. PXR and hepatocyte proliferation. *Journal of Experimental and Clinical Medicine*. 2011; 2:260-1 (2010).
- Robinson EH, Gowda ASP, Spratt TE, **Gold B**, Eichman BF. An unprecedented nucleic acid capture mechanism for excision of DNA damage. *Nature*. 2010; 468(7322):406-11.
- Russo D, Fronza G, Ottaggio L, Monti P, Perfumo C, Inga A, Iyer P, **Gold B**, Menichini P. Xrcc1 deficiency influences the cytotoxicity and the genomic instability induced by Me-lex, a specific inducer of N3-methyladenine. *DNA Repair*. 2010; 9(7):728-36.
- Sassi AB, Cost MR, Cole AL, Cole AM, Patton DL, Gupta P, **Rohan LC**. Formulation Development of Retrocyclin-1 (RC-101) as an anti-HIV vaginal microbicide. *Antimicrobial Agents and Chemotherapy*. 2011; 55(5):2282-9.
- Settles S, Wang R-W, Fronza G, **Gold B**. Effect of N3-Methyladenine and an isosteric stable analogue on DNA polymerization. *J. Nucl. Acids*. 2010; Article 426505:1-14.
- Singh SK, Szulik MW, Ganguly M, Khutsishvili I, Stone MP, Marky LA, **Gold B**. Characterization of DNA with an 8-oxoguanine modification. *Nucleic Acids Res*. 2011; 39(12):1-13.
- Sriram SM, **Kwon YT**. The molecular principles of N-end rule recognition. *Nat. Struct. Mol. Biol*. 2010; 17(10):1164-5.
- Tentori L, Muzi A, Dorio AS, Scarsella M, Leonetti C, Shah GM, Xu W, Camaioni E, **Gold B**, Pellicciari R, Dantzer F, Zhang J, Graziani G. Pharmacological Inhibition of Poly(ADP-ribose) Polymerase (PARP) Activity in PARP-1 Silenced Tumour Cells Increases Chemosensitivity to Temozolomide and to a N3-Adenine Selective Methylating Agent. *Current Cancer Drug Targets*. 2010; 10(4):368-83.
- Theken KN, Deng Y, Kannon MA, Miller TM, **Poloyac SM**, Lee CR. Activation of the acute inflammatory response alters cytochrome P450 expression and eicosanoid metabolism. *Drug metabolism and disposition: the biological fate of chemicals*. 2010; 39(1):22-29.
- Vogt A, Codore H, **Day BW**, Hukriede NA, Tsang M. Development of automated imaging and analysis for zebrafish chemical screens. *Journal of Visualized Experiments*, <http://www.jove.com/details.php?id=1900> 40(2010).
- Vollmer LL, Jimenez M, Camarco DP, Zhu W, Daghestani HN, Balachandran R, Reese CE, Lazo JS, Hukriede NA, Curran DP, **Day BW**. A simplified synthesis of novel dictyostatin analogs with in vitro activity against epothilone B resistant cells and antiangiogenic activity in zebrafish embryos. *Molecular cancer therapeutics*. 2011; 10(7):994-1006.
- Wang L, Xie Z, **Wipf P**, **Xie XQ**. Residue Preference Mapping of Ligand Fragments in the Protein Data Bank. *Journal of Chemical Information and Modeling*. 2011; 51(4):807-815.

- Wang L, Schnaare RL, Dezzutti C, Anton P, **Rohan LC**. Rectal Microbicides: Clinically relevant approach to design of rectal specific placebo formulations. *AIDS Research and Therapy*. 2011; 8:12.
- **Xie W**. Development of novel therapeutic strategy by regulating the nuclear hormone receptor. *Adv Drug Deliv, Rev*. 2011; 62:1217 (2010) PMID: 20951751.
- Yang FY, Cheng Y, **Kwon YT**, Eckardt S, Leu NA, McLaughlin KJ, Wang PJ. UBR2, the ubiquitin E3 ligase of the N-end rule pathway, interacts with and stabilizes TEX19 in spermatogenesis. *PLOS One*. 5:e14017, 2010; 5(11):14017.
- You Z, Cao H, Gao J, Shin PH, **Day BW**, Wang Y. A functionalizable polyester with free hydroxyl groups and tunable physiochemical and biological properties. *Biomaterials*. 2010; 31(12):3129-38.
- Zhai Y, **Wada T**, Zhang B, Khadem S, Ren S, Kuruba R, **Li S**, **Wen X**. A functional crosstalk between LXRA and CAR links lipogenesis and xenobiotic responses. *Molecular Pharmacology*. 2010; 78(4):666-74.
- Zhang B, Cheng Q, Ou Z, Lee JH, Xu M, Kochhar U, Ren S, Huang M, Pflug BR, **Xie W**. Pregnane X receptor as a therapeutic target to inhibit androgen activity. *Endocrinology*. 2011; 151:5721-5729 (2010) PMID:20962047.
- Zhou T, Kamimura K, Zhang G, **Liu D**. Intracellular Gene Transfer in Rats by Tail Vein Injection of Plasmid DNA. *AAPS Journal*. 2010; 12(4):692-8.
- Zhu W, Jiménez M, Jung WH, Camarco DP, Balachandran R, Vogt A, **Day BW**, Curran DP. Streamlined syntheses of (–)-dictyostatin, 25,26-dihydro-16-desmethyldictyostatin, and 6-epi-25,26-dihydro-16-desmethyldictyostatin. *Journal of the American Chemical Society*. 2010; 132(26):9175-87.

CEDAR

- Conway KP, Levy J, **Vanyukov M**, Chandler R, Rutter J, Swan GE, Neale M. Measuring addiction propensity and severity: the need for a new instrument. *Drug and Alcohol Dependence*. 2010; 111(1-2):4-12.
- Cornelius JR, **Kirisci L**, **Reynolds M**, Clark DB, Hayes J, **Tarter R**. PTSD contributes to teen and young adult cannabis use disorders. *Addictive Behaviors*. 2010; 35:91-4.
- De Genna NM, **Feske U**, Angiolieri T, Gold MA. Race and sexually transmitted disease in women with and without borderline personality disorder. *Journal of Women's Health*. March 2011; 20(3):333-40.
- Fidalgo TM, **Tarter RE**, daSilveira ED, **Kirisci L**, daSilveira DX. Validation of a short version of the revised Drug Use Screening Inventory in a Brazilian sample of adolescents. *American Journal on Addictions*. 2010; 19(4):364-7.
- **Kirisci L**, **Reynolds M**, **Vanyukov M**, **Ridenour T**, Hayes J, Mezzich JE. Developing an institutional informational base and bibliographical clearinghouse. *International Journal of Person-Centered Medicine*. 2011; 1(1):109-12.

- Maher BS, Vladimirov VI, Latendresse SJ, Thiselton DL, McNamee R, Kang M, Bigdeli TB, Chen X, Riley BP, Hetteima JM, Chilcoat H, Heidbreder C, Muglia P, Murrelle EL, Dick DM, Aliev F, Agrawal A, Edenberg H, Kramer J, Tischfield J, Nurnberger J, Devlin B, Ferrell RE, **Kirillova GP, Tarter RE**, Kendler KS, **Vanyukov MM**. The AVPR1A gene and substance use disorders: association, replication and functional evidence. *Biological Psychiatry*. 2011 Apr 22. [Epub ahead of print]
- **Reynolds M, Tarter R, Kirisci L**, Clark D. Marijuana but not alcohol use during adolescence mediates the association between transmissible risk for substance use disorder and number of lifetime violent offenses. *Journal of Criminal Justice*. 2011; 39(9):218-23.
- **Ridenour TA, Tarter RE, Kirisci L, Vanyukov M**. Could a continuous measure of individual transmissible risk be useful in clinical assessment of substance use disorder? Findings from the national epidemiological survey on alcohol and related conditions. *Drug & Alcohol Dependence*. 2011 Jun 27. [Epub ahead of print]
- **Tarter R**, Fishbein D, **Kirisci L, Mezzich A, Ridenour T, Vanyukov M**, Wu J. Deviant socialization mediates transmissible and contextual risk on cannabis use disorder development: A prospective study. *Addiction*. 2011; 106(7):1301-8.
- **Tarter R, Kirisci L, Mezzich A**, Patton D. Multivariate comparison of male and female adolescent substance abusers with accompanying legal problems. *Journal of Criminal Justice*. 2011; 39(3):207-11.

Clinical and Translational Research

- Alaniz C, **Mohammad RA**, Welage LS. High-dose proton pump inhibitors in patients with variceal hemorrhage. *Arch Intern Med*. 2010; 170(18):1698.
- **Aspinall SL**, Smith KJ, Cunningham FE, Good CB. Incremental cost-effectiveness of various monthly doses of vardenafil. *Value in Health*. 1, 2011; 14(1):97-101.
- **Aspinall SL**, Zhao X, Handler SM, Stone RA, Kosmoski JC, Libby EA, Francis SD, Goodman DA, Roman RD, Bieber HL, Voisine JM, Jeffery SM, Hepfinger CA, Hagen DG, Martin MM, Hanlon JT. The quality of warfarin prescribing and monitoring in Veterans Affairs nursing homes. *Journal of the American Geriatrics Society*. 2010; 58(8):1475-80.
- Bhama JK, Pilewski JM, Zaldonis D, Fontes PA, DeVera M, **Shullo MA**, Shigemura N, Bermudez CA, Toyoda Y, Mccurry KR. Does Simultaneous Lung–Liver Transplantation Provide an Immunologic Advantage Compared to Isolated Lung Transplantation. *The Journal of Thoracic and Cardiovascular Surgery*. 2011; 141(5):e36-8.
- Beigi RH, Han K, **Venkataramanan R**, Hankins GD, Clark S, Hebert MF, Easterling T, Zajicek A, Ren Z, Mattison DR, Caritis SN. Obstetric-Fetal Pharmacology Research Units Network., Pharmacokinetics of oseltamivir among pregnant and nonpregnant women. *Am J Obstet Gynecol*. 2011; 204(6 Suppl 1):S84-8. Epub 2011 Mar 9. PubMed PMID: 21492826; PubMed Central PMCID: PMC3111757.
- **Beumer JH**, Tawbi H. Role of histone deacetylases and their inhibitors in cancer biology and treatment. *Curr Clin Pharmacol*. 2010; 5(3):196-208.

- **Beumer JH**, Eiseman JL, Gilbert JA, Holleran JL, Yellow-Duke AE, Clausen DM, D'Argenio DZ, Ames MM, Hershberger PA, Parise RA, Bai L, Covey JM, Egorin MJ. Plasma pharmacokinetics and oral bioavailability of the 3,4,5,6-tetrahydrouridine (THU) prodrug, triacetyl-THU (taTHU), in mice. *Cancer Chemother Pharmacol*. 2011; 67(2):421-30. Epub 2010 May 5.
- Bodnar LM, Himes KP, **Venkataramanan R**, Chen JY, Evans RW, Meyer JL, Simhan HN. Maternal serum folate species in early pregnancy and risk of preterm birth. *Am J Clin Nutr*. 2010; 92(4): 864-71. Epub 2010.
- Caritis SN, Sharma S, **Venkataramanan R**, Rouse DJ, Peaceman AM, Sciscione A, Spong CY, Varner MW, Malone FD, Iams JD, Mercer BM, Thorp JM Jr, Sorokin Y, Carpenter M, Lo J, Ramin S, Harper M. Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network. Pharmacokinetics of 17-hydroxyprogesterone caproate in multifetal gestation. *Am J OBGYN*, July 2011; 205(1):40e1-8e.
- Carter BL, Clarke W, Ardery G et al. Collaborators: **Farrah RM** et al. A cluster-randomized effectiveness trial of a physician-pharmacist collaborative model to improve blood pressure control. *Circ Cardiovasc Qual Outcomes*. 2010; 3(4):418-23.
- Chaiffetz D, Dimartini AF, **Venkataramanan R**. Prolonged excretion half-life of 11-nor-9-carboxy- Δ^9 -THC following cessation in a chronic, heavy marijuana user: implications for liver transplant assessment. *Psychosomatics*. 2011; 52(2):190-3.
- Chuang PY, Conley YP, **Poloyac SM**, Okonkwo DO, Ren D, Sherwood PR, Hravnak M, Alexander SA. Neuroglobin genetic polymorphisms and their relationship to functional outcomes after traumatic brain injury. *Journal of Neurotrauma*. 2010; 27(6):999-1006.
- Clausen DM, Guo J, Parise RA, **Beumer JH**, Egorin MJ, Lazo JS, Prochownik EV, Eiseman JL. In vitro cytotoxicity and in vivo efficacy, pharmacokinetics, and metabolism of 10074-G5, a novel small-molecule inhibitor of c-Myc/Max dimerization. *J Pharmacol Exp Ther*. 2010; 335(3):715-27. Epub 2010 Aug 26.
- Coons JC, Plauger KM, **Seybert AL**, Sokos GG. Worsening heart failure in the setting of dronedarone initiation. *Ann Pharmacotherapy*. 2010 Sep; 44(9):1496-500. Epub 2010 Jul 13.
- Crago EA, Thampatty BP, Sherwood PR, Kuo CWJ, Bender C, Balzer J, Horowitz M, **Poloyac SM**. Cerebrospinal Fluid 20-HETE is Associated with Delayed Cerebral Ischemia and Poor Outcomes after Aneurysmal Subarachnoid Hemorrhage. *Stroke*. 2011; 42(7):1872-7.
- Dasta JF, Boucher BA, Brophy GM, Cohen H, Hassan E, Maclaren R, Muzykovsky K, Martin SJ, Pass SE, **Seybert AL**. Intravenous to oral conversion of antihypertensives: a toolkit for guideline development. *Ann Pharmacother*. 2010; 44(9):1430-47. Epub 2010 Aug 11.
- Devabhakthuni S, **Seybert AL**. Oral antiplatelet therapy for the management of acute coronary syndromes: defining the role of prasugrel. *Crit Care Nurse*. 2011; 31(1):51-63. Epub 2010 Jun 30, 2011.

- DiNardo M, **Donihi AC**, Forte P, Gieraltowski L, Korytkowski MT. Standardized Glycemic Management Improves Peri-operative Glycemic Outcomes in Same Day Surgery Patients with Diabetes. *Endocrine Practice*. 2011; 17(3):404-11.
- **Donihi AC**, Gibson J, DiNardo M, Koerbel G, Korytkowski MT. Role of a targeted glycemic management team in an academic medical center hospitalized patients. *Endocrine Practice*. 2011 Feb 25:1-15. [Epub ahead of print].
- **Empey KM**, Peebles RS Jr, Kolls JK. Pharmacologic advances in the treatment and prevention of respiratory syncytial virus. *Clinical Infectious Diseases*. 2010; 50(9):1258-67.
- Gesin G, **Kane-Gill SL**, Dasta JF, Birrer KL, Kolnik L, Cheatham M. Diazepam as a component of goal-directed sedation in critically ill trauma patients. *Journal of Critical Care*. 2011; 26(2):122-6.
- Ghannoum M, **Nolin TD**, Lavergne V, Hoffman RS. Blood purification in toxicology: Nephrology's ugly duckling. *Adv Chronic Kidney Dis*. 2011; 18(3):160-6.
- Gokhman R, **Smithburger PL**, **Kane-Gill SL**, **Seybert AL**. Pharmacologic and pharmacokinetic rationale for combination therapy of pulmonary arterial hypertension. *J Cardiovasc Pharmacol*. 2010; 56(6):686-95.
- Han K, Bies R, **Johnson H**, Capitano B, **Venkataramanan R**. Population pharmacokinetic evaluation with external validation and Bayesian estimator of voriconazole in liver transplant recipients. *Clin Pharmacokinet*. 2011; 50(3):201-14.
- Han K, Capitano B, Bies R, **Potoski BA**, Husain S, Gilbert S, Paterson DL, McCurry K, **Venkataramanan R**. Bioavailability and population pharmacokinetics of voriconazole in lung transplant recipients. *Antimicrob Agents Chemother*. 2010; 54(10):4424-31.
- Hanlon JT, Wang X, Handler SM, Weisbord SD, Pugh MJ, Semla T, Stone RA, **Aspinall SL**. Potentially Inappropriate Prescribing of Primarily Renally Cleared Medications for Older Veterans Affairs Nursing Home Patients. *Journal of the American Medical Directors Association*. 2011; 12(5):377-83.
- Hanlon JT, Handler SM, **Aspinall SL**. Program to improve prescribing of primarily renally cleared medications in older Veteran community living center (CLC) patients. *Fed Practit*. 2010; 27(10):34-6.
- Husain S, Capitano B, Corcoran T, Studer SM, Crespo M, Johnson B, Pilewski JM, Shutt K, Pakstis DL, Zhang S, Carey ME, Paterson DL, McCurry KR, **Venkataramanan R**. Intrapulmonary disposition of amphotericin B after aerosolized delivery. *Transplantation*. 2010; 90(11):1215-9.
- Jin Y, Pollock BG, **Coley KC**, Miller D, Marder SR, Florian J, Schneider L, Lieberman J, Kirshner M, Bies RR. Population pharmacokinetics of perphenazine in schizophrenia patients from CATIE: impact of race and smoking. *Journal of clinical pharmacology*. 2010; 50:73-80.
- **Kane-Gill SL**, Visweswaran S, Saul MI, Wong I, Penrod L, Handler SM. Computerized detection of adverse drug reactions in the medical ICU. *Int J Med Inform*. 2011; 80(8):570-8.

- Karuppiyah S, **Farrah R**. Alvimopan (Enterg) for the Treatment of Postoperative Ileus. *American Family Physician*. 2011; 83(8):978-9.
- Khandhar SJ, Shah HV, **Shullo MA**, Zomak R, Navoney M, McNamara DM, Kormos RL, Toyoda Y, Teuteberg JJ. Long-Term Effects on Renal Function of Dose-Reduced Calcineurin Inhibitor and Sirolimus in Cardiac Transplant Patients. *Clinical Transplantation*. Epub, Feb 2011.
- Kozminski M, Busby R, **McGivney MS**, Klatt PM, Hackett S, Merenstein JM. Pharmacist integration into the medical home: qualitative analysis. *J Am Pharm Assoc*. 2011; 51(2):173-83.
- **Krenzelok EP**, Mrvos R. Friends and Foes in the Plant World: A Profile of Ingestions and Fatalities. *Clinical Toxicology*. 2011; 49(3):142-9.
- Kullar R, Leonard S, Davis S, Delgado G, Wahby K, Pogue J, Sheth A, Shah P, **Falcione BA**, Rybak M. Validation of the effectiveness of a vancomycin nomogram in achieving target trough concentrations of 15 to 20 mg/L suggested by the vancomycin consensus guidelines. *Pharmacotherapy*. 2011; 31(5):441-8.
- Lauffenburger JC, **Jonkman LJ**, Lange E, **Connor SE**, Sibale C. A public health approach to site-specific formulary management: Addressing deficient drug supplies in Malawi. *International Journal of Pharmacy Practice*. 2011; 19(3):201-5.
- Lavsa SM, **Fabian TJ**, Saul MI, **Corman SL**, **Coley KC**. Influence of medications and diagnoses on fall risk in psychiatric inpatients. *American Journal of Health-System Pharmacy*. 2010; 67(15):1274-80.
- Luong ML, Sareyyupoglu B, Nguyen MH, Silveira FP, Shields RK, **Potoski BA**, Clancy CJ, Pasculle AW, Toyoda Y. Probiotic-Associated Lactobacillus Infection In Heart And Lung Transplant Recipients: A Case Report. *Transplant Infectious Diseases*. 2010; 12(6):561-4.
- **Mohammad RA**, Goldberg T, Dorsch MP, Cheng JW. Antiplatelet therapy after drug-eluting stent placement. *Clin Ther*. 2010; 32(14):2265-81.
- **Mohammad RA**. Use of granulocyte colony-stimulating factor in critically ill patients with severe sepsis or septic shock. *AJHP*. 2010; 67(15):1238-45.
- Momper JD, **Venkataramanan R**, **Nolin TD**. Nonrenal drug clearance in CKD: Searching for the path less traveled. *Adv Chronic Kidney Dis*. 2010; Review 17(5):384-91.
- **Nolin TD**, Arya V, Sitar DS, Pfister M. Optimizing drug development and use in patients with kidney disease. *J Clin Pharmacol*. 2011; 51(5):628-30.
- Powolny AA, Bommarreddy A, Hahm ER, Normolle DP, **Beumer JH**, Nelson JB, Singh SV. Chemopreventative potential of the cruciferous vegetable constituent phenethyl isothiocyanate in mouse model of prostate cancer. *J Natl Cancer Inst*. 2011; 103(7):571-84.
- **Pringle J**, Melczak M, Aldridge A, Snyder M, **Smith R**. Medication adherence and its relationship to the therapeutic alliance: Results from an innovative pilot study within a community pharmacy MTM practice. *Innovations in Pharmacy*. 2011; 2(1), Article 33.

- Randhawa PS, **Schonder KS**, Shapiro R, Farasati N, Huang Y. Polyomavirus BK neutralizing activity in human immunoglobulin preparations. *Transplantation*. 2010; 89(12):1462-5.
- Ramalingam SS, Kummar S, Sarantopoulos J, Shibata S, LoRusso P, Yerk M, Holleran J, Lin Y, **Beumer JH**, Harvey RD, Ivy SP, Belani CP, Egorin MJ. Phase I study of vorinostat in patients with advanced solid tumors and hepatic dysfunction: a National Cancer Institute Organ Dysfunction Working Group Study. *J Clin Oncol*. 2010; 28(29):4507-12.
- Salonia R, **Empey PE**, **Poloyac SM**, Wisniewski SR, Klamerus M, Ozawa H, Wagner AK, Ruppel R, Bell MJ, Feldman K, Adelson PD, Clark RS, Kochanek PM. Endothelin-1 is increased in cerebrospinal fluid and associated with unfavorable outcomes in children after severe traumatic brain injury. *Journal of neurotrauma*. 2010; 27(10):1819-25.
- **Schonder KS**, **Corman SL**, Hung WY. Early risk factors for persistent anemia after kidney transplantation. *Pharmacotherapy* 2010; 30(12):1214-20.
- Sheridan K, **Potoski BA**, Shields RK, Nau GJ. Intravitreal Concentration of Daptomycin Following Systemic Intravenous Administration in a Patient with Endogenous Endophthalmitis. *Pharmacotherapy*. 2010; 30(12):1247-51.
- Shields RK, Kwak EJ, **Potoski BA**, Doi Y, Adams-Haduch JM, Silveira FP, Toyoda Y, Pilewski JM, Crespo M, Pasculle AW, Clancy CJ, Nguyen MH. High Mortality Rates Among Solid Organ Transplant Recipients Infected with Extensively Drug-Resistant *Acinetobacter baumannii*: using in vitro antibiotic combination testing to identify the combination of a carbapenem and colistin as an effective treatment regimen. *Diagnostic Microbiology and Infectious Diseases*. 2011; 70(2):246-52.
- Simhan HN, Himes KP, **Venkataramanan R**, Bodnar LM. Maternal serum folate species in early pregnancy and lower genital tract inflammatory milieu. *Am J Obstet Gynecol*. Mar 26. [Epub ahead of print], March 2011; 205(1):61.
- Singh MK, **Shullo MA**, Kormos RL, Lockard K, Zomak R, Simon MA, Bermudez C, Bhama JK, McNamara DM, Toyoda Y, Teuteberg JJ. The Degree of Improvement in Renal Function after Mechanical Circulatory Support Impacts Renal Function after Cardiac Transplantation. *Annals of Thoracic Surgery*. 2011; 91:1348-1354.
- **Smithburger PL**, Buckley MS, Bejian S, Burenheide K, **Kane-Gill SL**. A critical evaluation of clinical decision support used for the detection of drug-drug interactions. *Expert Opin Drug Safety*. [Epub ahead of print], 2011.
- **Smithburger PL**, **Kane-Gill SL**, **Benedict N**, **Falcione BA**, **Seybert AL**. Grading the severity of drug-drug interactions in the intensive care unit: A comparison between clinical opinion and database severity ratings. *Annals of Pharmacotherapy*. 2010; 44(11):1718-24.
- **Smithburger PL**, **Kane-Gill SL**, **Seybert AL**. Significance of drug-drug interactions in cardiac intensive care units. *Annals of Pharmacotherapy*. 2010; 44:1054-1060.
- Stilley C, DiMartini A, DeVera M, Flyn W, King J, Sereika S, **Tarter R**, Dew M, Rathnamala G. Liver transplant recipients: individual, social, and environmental resources. *Progress in transplantation*. (Aliso Viejo, Calif.), 2010; 20(1):58-67.

- Thampatty BP, Sherwood PR, Gallek MJ, Crago EA, Ren D, Hricik AJ, Kuo CW, Klamerus MM, Alexander SA, Bender CM, Hoffman LA, Horowitz MB, Kassam AB, **Poloyac SM**. Role of Endothelin-1 in Human Aneurysmal Subarachnoid Hemorrhage: Associations with Vasospasm and Delayed Cerebral Ischemia. *Neurocritical Care*. [Epub ahead of print], 2010; 15(1):19-27.
- Wessels AM, Bies RR, Pollock BG, Schneider LS, Lieberman JA, Stroup S, Li CH, **Coley KC**, Kirshner MM, Marder SR. Population Pharmacokinetic Modeling of Ziprasidone in Patients With Schizophrenia From the CATIE Study. *J Clin Pharmacol*. Published online 5 January 2011; DOI: 10.1177/0091270010387604.
- Zenzano T, Allan JD, Bigley MB, Bushardt RL, Garr DR, Johnson D, Lang W, Maeshiro R, **Meyer SM**, Shannon SC, Spolsky VW, Stanley JM. The Roles of Healthcare Professionals in Implementing Clinical Prevention and Population Health. *American Journal of Preventive Medicine*. 2011; 40(2):261-7.
- Zhou J, **Poloyac SM**. The effect of therapeutic hypothermia on drug metabolism and response: cellular mechanisms to organ function. *Expert Opin Drug Metab Toxicol*. [Epub ahead of print], July 2011; 7(7):803-16.

Education

- **Benedict NJ, Schonder KS**. Patient simulation software to augment an advanced pharmaceuticals course. *American J Pharm Educ*. 2011; 75(2), Article 21.
- **Benedict NJ**. Virtual Patient and Problem-Based Learning in Advanced Therapeutics. *American J Pharm Educ*. 2010; 74(8), Article 143.
- **Hall DL, Corman SL, Drab SR, Smith RB, Meyer SM**. Application of a Technology-Based Instructional Resource in Diabetes Education at Multiple Schools of Pharmacy. *Currents in Pharmacy Teaching and Learning*. 2010; 2:108-13.
- Lavsa SM, **Corman SL, Culley CM, Pummer TL**. Reliability of Wikipedia as a medication information source for pharmacy students. *Currents in Pharmacy Teaching & Learning*. 2011; 3: 154-8.
- Maeshiro R, Evans CH, Stanley JM, **Meyer SM**, Spolsky VW, Shannon SC, Bigley MB, Allan JD, Lang WG, Johnson KL. Using the Clinical Prevention and Population Health Curriculum Framework to Encourage Curricular Change. *Amer J Preventive Medicine*. 2011; 40(2):232-44.
- **Poloyac SM, Empey KM, Rohan L, Skledar SJ, Empey PE, Nolin TD, Bies RR, Gibbs RB, Folan M, Kroboth PD**. Core Competencies for Research Training in the Clinical Pharmaceutical Sciences. *American J Pharm Educ*. 2011; 75 (2):Article 27.
- **Seybert AL, Kane-Gill SL**. Elective course in acute care using online learning and patient simulation. *Am J Pharm Educ*. 2011; 1:75(3):54.
- Smith KM, Sorensen T, Connor KA, Dobesh PP, Hoehns JD, Marcus KB, Pass S, **Seybert AL**, Shapiro NL. Value of Conducting Pharmacy Residency Training – The Organizational Perspective (2008 Task Force on Residencies). *Pharmacotherapy*. 2010; 30(12):490e–510e.

- Snyder ME, **Meyer SM, McGivney MA, Smith RB**. A Pilot Study: The Design and Preliminary Evaluation of Web-based Materials to Teach Pharmacist-Physician Collaboration During Community-based Advanced Pharmacy Practice Experiences. *International J Pharmacy Education*. 2010; 6(1):1-19.

RESEARCH OVERVIEW

Center for Pharmacogenetics

Faculty

Yong Tae Kwon, PhD, Associate Professor
 Song Li, MD, PhD, Associate Professor
 Yong Li, PhD, Assistant Professor
 Wen Xie, MD, PhD, Professor
 Xiang Gao, PhD, Research Assistant Professor
 Jiang Li, PhD, Research Assistant Professor
 Takafumi Tasaki, PhD, Research Assistant Professor
 Tara Wada, PhD, Instructor

Graduate Students

Wenqing (Emily) Chen, BS, MS
 Jie Gao, MS
 Mohammed Ghazwani, BS
 Chibueze Ihunnah, BS
 Mengxi Jiang, BS
 Sung Tae Kim, BS, MS
 Jilong Li
 Jianqin Lu, BS
 Shashi Sriram, MS
 Peng Zhang, BS, MS
 Yifei Zhang, BS, MS

Postdoctoral Fellows

Jinhan He, PhD
 Yuka Inaba, PhD
 Xiongjie Shi, PhD

Major Accomplishments

- Takafumi Tasaki and colleagues in the Kwon lab found that UBR4, the recognition component of the N-end rule pathway, is a new component of autophagy machinery, called phagophore, and regulates the activity of the autophagy-lysosomal system.
- Takafumi Tasaki and colleagues in the Kwon lab constructed knockout mice lacking UBR4 and found that UBR4-deficient mouse embryos die at midgestation due to impaired angiogenesis and vascular smooth muscle cell functions.
- Takafumi Tasaki in collaboration with the University of Oxford group found that the ubiquitin ligase UBR3 regulates cellular levels of the essential DNA repair protein APE1 and is required for genome stability. (Meisenberg et al., *Nuc. Acids Res.*, 2011).
- Jee Young An, a previous student in the Kwon lab, in collaboration with the University of Pennsylvania group found that UBR2, the ubiquitin E3 ligase of the N-end rule pathway, interacts with and stabilizes a stem cell-specific protein, TEX19. (Yang et al., *PLOS One* 5:e14017, 2010).

- Shashi Sriram in the Kwon lab established the molecular principles of substrate recognition in the N-end rule pathway. (Sriram et al., *Nat. Struct. Mol. Biol.* 17:1164-1165, 2010).
- Song Li's lab has identified novel mechanisms by which FXR/FXR ligands exert antifibrotic and anti-portal hypertensive effect in hepatic stellate cells.
- Song Li's lab has developed a new ligand that is effective in targeted delivery of lipidic vectors to various types of cancers that overexpress sigma 2 receptor.
- Song Li received NIH funding (01/01/11-12/31/12, DC: \$275,000) "*Polymeric System for Synergistic Targeting of AR Signaling in Prostate Cancer*" (R21 CA155983).
- Song Li received DOD funding (09/15/10-10/14/11, DC: \$75,000) "*Targeted Codelivery of Synthetic microRNA and microRNA Expression Vector for Rapid and Sustained Inhibition of Breast Cancer*" (BC096039).
- Wen Xie received a 2-year (01/01/11 – 12/31/12) \$416,625 NIH R21 grant titled "The Regulation of Human Hydroxysteroid Sulfotransferase by Nuclear Receptor ROR." The goal of this project is to study the regulation of human hydroxysteroid sulfotransferase by nuclear receptor ROR.
- Wen Xie was invited to serve as Session Chair for the Oral Presentation Session #5 "Herb & Drug Interaction," *4th Asia-Pacific ISSX (APISSX) Meeting*, Tainan, Taiwan, April 23-25, 2011.
- Wen Xie was invited to serve as a member of the Scientific Advisory Board, *17th North American ISSX Regional Meeting*, Atlanta, GA. October 16-20, 2011.
- Wen Xie was invited to serve as an *ad hoc* member of the NIH special emphasis panel "Developmental Pharmacology." July 2011.
- Wen Xie was invited to serve as an *ad hoc* member of the DOD Prostate Cancer Research Program. June 2011.
- Wen Xie was invited to serve as *Ad hoc* Reviewer, NIH/NIEHS Intramural Program, Laboratory for Reproductive and Developmental Toxicology (October 17-19, 2010).
- Wen Xie was invited to serve as *Ad hoc* Reviewer, NIH/NIEHS, Annual Superfund Basic Research Program (P42) Review Meeting (October 26-28, 2010).

Selected Publications

- Sriram SM, Kim BY, **Kwon YT**. The N-end rule pathway: emerging functions and molecular principles of substrate recognition. *Nat. Rev. Mol. Cell. Biol.* (provisionally accepted).
- Tasaki T, Sriram SM, **Kwon YT**. The N-end rule pathway. *Ann. Rev. Biochem.* (provisionally accepted).
- Meisenberg C, Tait PS, Dianova II, Wright K, Edelmann MJ, Ternette N, Tasaki T, Kessler BM, Parsons JL, **Kwon YT**, Dianov GL. Ubiquitin ligase UBR3 regulates cellular levels of the essential DNA repair protein APE1 and is required for genome stability. *Nuc. Acids Res.* In Press.

- Yang F, Cheng Y, **Kwon YT**, Eckardt S, Leu NA, McLaughlin KJ, Wang PJ. UBR2, the ubiquitin E3 ligase of the N-end rule pathway, interacts with and stabilizes TEX19 in spermatogenesis. *PLOS One*. 2010; 5:e14017.
- Sriram SM, **Kwon YT**. The molecular principles of N-end rule recognition. *Nat. Struct. Mol. Biol.* 2010; 17:1164-5.
- Li J, Kuruba R, Wilson A, Gao X, Zhang Y, **Li S**. Inhibition of endothelin-1-mediated contraction of hepatic stellate cells by FXR ligand. *Plos One*. 2010; 5:e13955.
- Li J, Zhang Y, Kuruba R, Gao X, Gandhi CR, Xie W, **Li S**. Roles of miR-29a in the antifibrotic effect of FXR in hepatic stellate cells. *Mol Pharmacol*. 2011; 80:191-200.
- Zhai Y, Wada T, Zhang B, Khadem S, Ren S, Kuruba R, Li S, **Xie W**. A functional crosstalk between LXR α and CAR links lipogenesis and xenobiotic responses. *Mol Pharmacol*. 2010; 78: 666-74.
- Gao J, **Xie W**. PXR and CAR at the crossroad of drug metabolism and energy metabolism. *Drug Metab Dispos*. 2010; 38:2091-5.
- Zhang B, Cheng Q, Ou Z, Lee JH, Xu M, Kochhar U, Ren S, Huang M, Pflug BR, **Xie W**. Pregnane X receptor as a therapeutic target to inhibit androgen activity. *Endocrinology*. 2010; 151(12):5721-9.
- Kang HS, Okamoto K, Kim YS, Takeda Y, Bortner CD, Dang H, Wada T, **Xie W**, Yang XP, Liao G, Jetten AM. Nuclear orphan receptor TAK1/TR4-deficient mice are protected against obesity-linked inflammation, hepatic steatosis, and insulin resistance. *Diabetes*. 2010; 60(1):177-88.
- Ou Z, Wada T, Gramignoli R, Li S, Strom SC, Huang M, **Xie W**. MicroRNA hsa-miR-613 targets the human LXR α gene and mediates a feed-back loop of LXR α autoregulation. *Mol Endocrinol*. 2011; 25(4):584-96.
- Ihunnah CA, Jiang M, **Xie W**. Nuclear Receptor PXR, transcriptional circuits and metabolic relevance. *Biochim Biophys Acta*. 2011; 1812(8):956-63.
- He J, Nishida S, Xu M, Makishima M, **Xie W**. PXR prevents cholesterol gallstone disease by regulating biosynthesis and transport of bile salts. *Gastroenterology*. 2011; 140(7):2095-106.
- Kang HS, Okamoto K, Takeda Y, Beak JY, Gerrish KE, Bortner CD, Degraff LM, Wada T, **Xie W**, Jetten AM. Transcriptional profiling reveals a role for ROR α in regulating gene expression in obesity-associated inflammation and hepatic steatosis. *Physiol Genomics*. 2011; 43(13):818-28.

Selected Invited Research Presentations

- World Class University (WCU) Distinguished Lecture Series. Seoul National University. Seoul, Korea. The N-end rule pathway in autophagy. April 6, 2011. **Kwon YT**.
- NIEHS workshop on Dose-Response Approaches For Nuclear Receptor-Medicated Modes of Action. CAR-Current State of Knowledge and Role In Biology/Physiology. September 28, 2010. **Xie W**.

- Center for Molecular Toxicology and Carcinogenesis, Penn State University. The Endobiotic Functions of the Xenobiotic Receptors. October 13, 2010. **Xie W.**
- Endocrine Division Research Conference, Division of Endocrinology, Diabetes, and Metabolism, University of Pittsburgh. Orphan Nuclear Receptors in Metabolic Diseases. January 6, 2011. **Xie W.**
- Department of Physiology & Pharmacology and the Interdisciplinary Toxicology Program, University of Georgia. The Xeno- And Endobiotic Functions of Orphan Nuclear Receptors. March 28, 2011. **Xie W.**
- 2011 Asia-Pacific ISSX (APISSX) Meeting. Tainan, Taiwan. Drug-Herb Interactions: Mechanism and Clinical Significance. April 24, 2011. **Xie W.**
- School of Pharmaceutical Sciences, Sun Yat-Sen University. Guangzhou, China. Nuclear Receptor-Mediated Crosstalk between Drug Metabolism and Energy Metabolism. April 27, 2011. **Xie W.**
- School of Medicine, Sun Yat-Sen University. Guangzhou, China. Nuclear Receptor-Mediated Gene Regulation and its Implications in Pathophysiology. April 26, 2011. **Xie W.**
- Beijing Proteome Research Center (BPRC). Beijing, China Nuclear Hormone Receptors in Hepatobiliary Diseases. June 10, 2011. **Xie W.**
- College of Life Science, Beijing Normal University. Beijing, China. Activation of PXR Sensitizes Mice to Gallstone Disease. June 13, 2011. **Xie W.**
- School of Public Health, Peking University Health Science Center. Beijing, China. Nuclear Receptor-Mediated Crosstalk between Xenobiotic Metabolism and Lipid Metabolism. June 15, 2011. **Xie W.**

Drug Discovery Institute

Faculty

Billy Day, PhD, Professor

Alex Doemling, PhD, Professor

Barry Gold, PhD, Professor

Paul Johnston, PhD, Research Associate Professor

Xiangqun (Sean) Xie, PhD, Professor

Graduate Students

Abdulrahman Almezizia, BPharm
Ananda Chowdhury, BS, MSc
Yijun Huang, BS, MS
Kareem Khoury, BS
Timothy R. Pouland, BS
Zhuxhu Wang, BS, MS
Ryan D. Whetstone, BS, MS

Postdoctoral Fellows

Manjori Ganguly, PhD
Ajay Srinivasan, PhD
Haiping Cao, PhD
Tadamichi Nagashima, PhD
Vasiliy Korotchenko, PhD
Jielu Zhao, PhD
Peng Yang, PhD
LiRong Wang, PhD
Kan Wang, PhD
Wei Wang, PhD

The Drug Discovery Institute (DDI) is an interdepartmental institute with faculty, pre-doctoral and postdoctoral students from the Departments of Pharmaceutical Sciences, Chemistry, Pharmacology and Chemical Biology, and Computational and Systems Biology. The focus of the DDI is to identify small molecules that can be used as chemical probes for biological activities and as leads for new therapies for human diseases.

Major Accomplishments

- Awarded patent (US 61/521,287) for “Novel p62-ZZ Chemical Inhibitor with Therapeutic Potential for Multiple Myeloma Treatment.” Submitted two additional provisional patents.
- Established Computational Chemical Genomics Screening (CCGS) Center that promotes interdisciplinary research, education and training, and foster collaborations by providing state-of-the-art computational-chemical-genomics-based *in-silico* drug design approaches developed by School of Pharmacy faculty members.
- Awarded new NIH grant to conduct computational chemical genomics studies for STAT3 lead discovery and structurally-diverse library design.
- Conducted the first pre-clinical development studies of pharmacokinetics, drug metabolism, and proof of concept for lead chemicals discovered in the DDI. The first targets were potential cancer therapy; evaluation of two novel inhibitors of MDM-xx binding to P-53 in mice.
- Licensed Anchor Query, created by Alex Doemling (Pharmacy) and Carlos Comacho (Structural Biology), to a new startup company that will provide services to pharmaceutical companies in computational discovery of molecules to block protein-protein interactions.
- Completed the development, optimization and validation of a high throughput screening assay to identify small molecule inhibitors of the HIV Nef-dependent activation of Hck tyrosine kinase activity. Six Nef:Hck leads have been identified that reproducibly block Nef-dependent HIV-1 replication, dock to a site in the Nef dimerization interface model, and work against SIV in the same concentration range.
- Developed and validated a panel of biochemical assays to investigate the more likely intracellular target(s) of the Dex-induced GR-GFP translocation inhibitors.

Selected Publications

- Balasubramani M, Nakao C, Uechi GT, Cardamone J, Kamath K, Leslie KL, Balachandran R, Wilson L, **Day BW**, Jordan MA. Characterization and detection of cellular and proteomic alterations in stable stathmin-overexpressing, taxol-resistant BT549 breast cancer cells using offgel IEF/PAGE difference gel electrophoresis. *Mutation Research*. 2011; 722(2):154-64.
- Ballatore C, Brunden KR, Trojanowski JQ, Lee VM, Smith AB 3rd, **Huryn DM**. Modulation of protein-protein interactions as a therapeutic strategy for the treatment of neurodegenerative tauopathies. *Curr Top Med Chem*. 2011; 11:317-30.
- Beckner ME, Fellows-Mayle W, Zhang Z, Agostino NR, Kant JA, **Day BW**, Pollack IF. Identification of ATP citrate lyase as a positive regulator of glycolytic function in glioblastomas. *Int J Cancer*. 2010; 126(10):2282-95.
- Cherra SJ III, Kulich SM, Uechi G, Balasubramani M, Mountzouris J, **Day BW**, Chu CT. Regulation of the autophagy protein LC3 by phosphorylation. *Journal of Cell Biology*. 2010; 190(4):533-9.
- Daghestani HN, **Day BW**. Theory and applications of surface plasmon resonance, resonant mirror, resonant waveguide grating, and dual polarization interferometry biosensors. *Sensors*. 2010; 10(11):9630-46.
- Dudgeon D, Shinde, SN, Hua Y, Shun TY, Lazo JS, Strock CJ, Giuliano KA, Taylor DL, **Johnston PA**. Implementation of a 220,000 Compound HCS Campaign to Identify Disruptors of the Interaction between p53 and hDM2, and Characterization of the Confirmed Hits. *J Biomol Screen*. 2010; 15:766-82.
- Ganguly M, Wang RW, Marky LA, **Gold B**. Thermodynamic characterization of DNA with 3-deazaadenine and 3-methyl-3-deazaadenine substitutions. *J. Phys. Chem. B*. 2010; 114(22):7656-61.
- Huang Y, Wolf S, Koes D, Popowicz G, Camacho C, Holak T, **Dömling A**. Exhaustive Fluorine Scanning toward Potent p53-Mdm2 Antagonists *ChemMedChem*, 2011. In Press.
- **Huryn DM**, Brodsky JL, Brummond KM, Chambers PG, Eyer B, Ireland AW, Kawasumi M, Laporte MG, Lloyd K, Manteau B, Nghiem P, Quade B, Seguin SP, Wipf P. Chemical methodology as a source of small-molecule checkpoint inhibitors and heat shock protein 70 (Hsp70) modulators. *Proc Natl Acad Sci USA*. 2011; 108:6757-62.
- Lakshman MK, Singh MK, Parrish D, Balachandran R, **Day BW**. Azide-tetrazole equilibrium of C-6 azidopurine nucleosides and their ligation reactions with alkynes. *The Journal of organic chemistry*. 2010; 75(8):2461-73.
- Ma C, Lazo JS, **Xie XQ**. Compound Acquisition and Prioritization Algorithm for Constructing Structurally Diverse Compound Libraries. *ACS Combinatorial Science*. 2011; 13(3):223-31.
- Monfardini, I, J-W. Huang, B. Beck, J. F. Cellitti, M. Pellicchia, A. Dömling Screening Multicomponent Reactions for X-Linked Inhibitor of Apoptosis-Baculoviral Inhibitor of Apoptosis Protein Repeats Domain Binder. *J Med Chem*. 2011; 54:890-900.

- Myint K, **Xie X-Q**. Recent Advances in Fragment-Based QSAR and Multi-Dimensional QSAR Methods. *Int. J. Mol. Sci.* 2010; 11(10):3846-66.
- Robinson EH, Gowda ASP, Spratt TE, **Gold B**, Eichman BF. An unprecedented nucleic acid capture mechanism for excision of DNA damage. *Nature*. 2010; 468(7322):406-11.
- Settles S, Wang R-W, Fronza G, **Gold B**. Effect of N3-Methyladenine and an isosteric stable analogue on DNA polymerization. *J. Nucl. Acids*. 2010; Article 426505:1-14.
- Shun TY, Lazo JS, Sharlow ER, **Johnston PA**. (2011) Identifying Actives from HTS Data Sets, Practical Approaches for the Selection of an Appropriate HTS Data Processing Method and Quality Control Review. *J Biomol Screen*. 2011; 16:1-14.
- Singh SK, Szulik MW, Ganguly M, Khutsishvili I, Stone MP, Marky LA, **Gold B**. Characterization of DNA with an 8-oxoguanine modification. *Nucleic Acids Res*. 2011; 39(12):1-13.
- Soares KM, Blackmon N, Shun TY, Shinde SN, Takyi HK, Wipf P, Lazo JS, **Johnston PA**. Profiling the NIH Small Molecule Repository for Compounds That Generate H(2)O(2) by Redox Cycling in Reducing Environments. *Assay Drug Dev Technol*. 2011; 8:152-71.
- Vollmer LL, Jimenez M, Camarco DP, Zhu W, Daghestani HN, Balachandran R, Reese CE, Lazo JS, Hukriede NA, Curran DP, **Day BW**. A simplified synthesis of novel dictyostatin analogs with in vitro activity against epothilone B resistant cells and antiangiogenic activity in zebrafish embryos. *Molecular Cancer Therapeutics*. 2011; 10(7):994-1006.
- Wang L, Xie Z, **Wipf P**, **Xie XQ**. Residue Preference Mapping of Ligand Fragments in the Protein Data Bank. *Journal of Chemical Information and Modeling*. 2011; 51(4):807-15.
- Wang W, Ollio S, Herdtweck E, **Dömling A**. Polycyclic Compounds by Ugi-Pictet-Spengler Sequence. *Journal Organic Chemistry* 2011; 76:637-44.
- Wolf S, Huang Y, Popowicz G, Holak T, **Dömling A**. Ugi Multicomponent Reaction Derived p53-Mdm2 Antagonists. *J Am Chem Soc*, 2011. In Press.

Selected Invited Research Presentations

- Dept. Chemistry, Slippery Rock University. Slippery Rock, PA. Discovery, Design and Development of New Microtubule Stabilizers. September 24, 2010. **Day BW**.
- U.S.-Japan Society for Promotion of Science Alumni Association. Seattle, WA. High throughput chemical genetic screen identifies novel small molecule modulators of FGF signaling pathway. March 11, 2011. **Day BW**.
- Structural Biology Seminar Series: Sloan-Kettering Institute. August 2010. **Doemling A**.
- University of Calicut, Kerala, India. January 2011. **Doemling A**.
- Helmholtz Institute for Medicinal Chemistry, Saarbrücken. January 26, 2011. **Doemling A**.

- Freie Universität Berlin. January 28, 2011. **Doemling A.**
- UBCI Satellite Conference MTDDP. June 15, 2011. **Doemling A.**
- Society for the Advancement of Native Americans and Chicanos in Science. Anaheim, CA. Recognition of DNA damage. September 30, 2010. **Gold B.**
- American Chemical Society. Boston, MA. The effect of site-specific modifications of DNA on thermodynamic stability, ion binding and hydration. August 22, 2010. **Gold B.**
- International Symposium on Nucleic Acids Chemistry. Yokohama, Japan. Manipulation of the electrostatic potential in the DNA grooves. June 10, 2011. **Gold B.**
- University of Tokyo. Tokyo Japan. The effect of DNA damage on structure, stability and repair. November 8, 2010. **Gold B.**
- High Content Screening for Drug Discovery Session, 8th Annual CHI High Content Analysis Conference, San Francisco, CA. Development and Implementation of an Androgen Receptor Nuclear Localization HCS of 220,000 Compounds on the ArrayScan VTI and ImageXpress Ultra; Head to Head Comparison of the Performance of the two Automated Imaging Platforms. January 11, 2011. **Johnston PA.**
- Novel probes and Biosensors Session, 8th Annual CHI High Content Analysis Conference, San Francisco, CA. HCS Assays to Identify Protein-Protein Interaction Disruptors - Characterization of the hits identified by screening the p53-hDM2 and AR-TIF2 protein-protein interaction biosensors. January 11, 2011. **Johnston PA.**

Microbicide Product Pharmaceuticals Group and Microbicide Clinical Trials Network Central Laboratory Core

The Pharmaceuticals Group is involved with formulation development and design of drug delivery systems for microbicide products to prevent the spread of HIV and other sexually transmitted infections. This group also contributes to the development of in vitro models for formulation assessment to predict clinical outcome. The laboratory has experience with the development of microbicide products utilizing many dosage form platforms. Delivery systems are being designed for small molecule, protein and peptide, and genetically modified bacteria microbicide drug candidates.

Faculty

Lisa C. Rohan, PhD, Associate Professor

Research Staff

Marilyn R. Cost
Phillip W. Graebing
Lin Wang
Yuan Shi

Graduate Students

Ayman Akil, BS
Lindsay M. Ferguson, PharmD
Tiantian Gong, BS, MS
Sheila M. Grab
Minlu Hu, BS
Galit Regev
Tian Zhou, BS, MS

Postdoctoral Fellows

Hrushikesh Agashe, PhD
Wei Zhang, PhD

Major Accomplishments

- Developed a film product for vaginal delivery of the potent anti-HIV agent Dapivirine. Clinical evaluation with the product developed in the Pharmaceuticals lab will be initiated next year.
- Developed a rectal specific microbicide product for HIV prevention containing the antiviral tenofovir which will be the first rectal specific microbicide to be evaluated in the clinic. The IND is currently being filed and clinical trial initiation is planned for the beginning of next year.
- Funding for the Pharmaceuticals Group over the past year has been provided through 10 separate NIH grants and several grants from not for profit organizations, foundations, and individual donors. Newly funded projects within the past year include 3 NIH grants to support work toward a novel nanoparticle pyrimidinedione anti-HIV product, development of reverse transcriptase inhibitors as microbicides, and the development of thermostable vaginal probiotic microbicides.
- In collaboration with Kate Morrow at Brown University the group is evaluating the acceptability of the film dosage form as compared to vaginal films. This clinical trial has already begun and will be completed next year. A focus group study evaluating perceptions of women of the vaginal film dosage form relative to other vaginal dosage forms was completed in collaboration with Maria Fan. In this study the film dosage form was identified as an acceptable product form for women to administer HIV prevention products.

Selected Publications

- Sassi AB, Bunge KE, Hood BL, Conrads TP, Cole AM, Gupta P, **Rohan LC**. Retrocyclin-1 (RC-101) a potential anti-HIV topical microbicide: preformulation and stability in biological fluids. *AIDS Research and Therapy*. 2011; 8:27.
- Yang H, Parniak MA, Dezzutti C, Hillier SL, **Rohan LC**. A Thermodynamic Study of the Cyclodextrin-UC781 Inclusion Complex using HPLC Methods. *Journal of Inclusion Phenomena and Macrocyclic Chemistry*. In Press.
- Mahalingam A, Jay J, Langheinrich K, Shukair S, McRaven M, **Rohan LC**, Herold, B, Hope T, Kiser P. pH-responsive synthetic mucin-like polymers inhibit the transport of HIV in vitro. *Biomaterials*. In Press.
- Akil A, Parniak M, Dezzutti C, Moncla B, Cost M, Li M, **Rohan LC**. Development and Characterization of a Vaginal Film Containing Dapivirine, a Non-nucleoside Reverse Transcriptase Inhibitor (NNRTI), for prevention of HIV-1 Sexual Transmission. *Drug Delivery and Translational Research*. 2011; 1:209-22.
- Sassi AB, Cost, MR, Cole AL, Cole AM, Patton DL, Gupta P, **Rohan LC**. Formulation Development of Retrocyclin-1 (RC-101) as an anti-HIV vaginal microbicide. *Antimicrobial Agents and Chemothe*. 2011; 55(5):2282-9. PMID 21321138.
- Mahalingam A, Simmons A, Ugaonkar S, Watson K, Dezzutti C, **Rohan LC**, Buckheit R, Kiser P. Vaginal microbicide gel for the delivery of IQP-0528, a pyrimidinedione analog with a dual mechanism of action against HIV-1. *Antimicrobial Agents and Chemother*. 2011; 55(4):1650-60. PMID 21245437.

- Wang L, Schnaare RL, Dezzutti C, Anton P, **Rohan LC**. Rectal Microbicides: Clinically relevant approach to design of rectal specific placebo formulations. *AIDS Research and Therapy*. 2011; 7:8-12. PMID 21385339.
- Cole AM, Patton DL, **Rohan LC**, Cole AL, Cosgrove-Sweeney Y, Rogers NA, Ratner D, Sassi AB, Lackman-Smith C, Tarwater P, Ramratnam B, Ruchala P, Lehrer RI, Waring AJ, Gupta P. The formulated microbicide RC-101 was safe and antivirally active following intravaginal application in pigtailed macaques. *PLoS One*. 2010; 5(11):e15111. PMID:21124745.

Selected Invited Presentations

- CDC. Atlanta, GA. The development of rectal microbicides for HIV prevention. April 20, 2011. **Rohan LC**.
- NIH DAIDS Workshop: Optimization of Preclinical Methods for Improved Prioritization and Advancement of Lead Microbicide Candidates. Washington, DC. (Key speaker) Preclinical Evaluation of APIs and formulations for pharmacokinetics/pharmacodynamics *Ex vivo* explant-based evaluation. December 7, 2010. **Rohan LC**.

International Impact

The Pharmaceutics Group continues to have international impact. Major activities over the past year include hosting visitors from Peoples Republic of China whose visit was coordinated by Global Pittsburgh for project Public Health. The presentation to the group was entitled “MWRI Pharmaceutics Laboratory Activities toward HIV Prevention.” Additionally the lab continues to train international scientists in the field, the most recent trainee was Nicholas Obitte, PhD – Lecturer, Nsukka Department of Pharmaceutical Technology and Industrial Pharmacy, Faculty of Pharmaceutical Sciences, University of Nigeria, Enugu State Nigeria, Africa.

Center for Education and Drug Abuse Research

The year 2011 marked the 21st anniversary of the Center for Education and Drug Abuse Research (CEDAR). The Center has enrolled 775 families from the Pittsburgh metropolitan area in a longitudinal study of substance abuse. These families are in varying stages of follow-up.

Faculty

Ralph E. Tarter, PhD, Professor and Center Director
 Galina P. Kirillova, PhD, Research Assistant Professor
 Levent Kirisci, PhD, Professor
 Maureen D. Reynolds, PhD, Research Assistant Professor
 Ty A. Ridenour, PhD, Research Associate Professor
 Michael Vanyukov, PhD, Professor

Graduate Student

ZuWei Zhai, BA

Postdoctoral Fellow

Michelle Horner, DO

Major Accomplishments

- **Maureen Reynolds** was awarded a subcontract with the University of Michigan funded by NIDA.
- **Levent Kirisci** received an SBIR contract funded by NIDA.

Selected Publications

- Stilley C, DiMartini A, DeVera M, Flynn W, King J, Sereika S, **Tarter RE**, Dew M, Rathnamala G. Liver transplant recipients: Individual, social and environmental resources. *Progress in Transplantation*. 2010; 30:58-67.
- Cornelius J, **Kirisci L**, **Reynolds MD**, Clark D, Hayes J, **Tarter RE**. PTSD contributes to teen and young adult cannabis use disorders. *Addictive Behaviors*. 2010; 35(2):91-4.
- Fidalgo T, deSilvia E, deSilvia D, **Kirisci L**, **Tarter RE**. Validation of a short version of the Revised Drug Use Screening Inventory (DUSI-R) in a Brazilian sample of adolescents. *American Journal on Addictions*. 2010; 19(4), 364-7.
- **Tarter RE**, **Kirisci L**, **Mezzich A**, Patton D. Multivariate comparison of male and female adolescent substance abusers with accompanying legal problems. *Journal of Criminal Justice*. 2011; 39(3), 207-11.
- **Reynolds MD**, **Tarter RE**, **Kirisci L**, Clark D. Marijuana but not alcohol use during adolescence mediates the association between transmissible risk for substance use disorder and number of lifetime violent offenses. *Journal of Criminal Justice*. 2011; 39:218-23.
- **Tarter RE**, Fishbein D, **Kirisci L**, **Mezzich A**, **Ridenour TA**, **Vanyukov M**. Deviant socialization mediates transmissible and contextual risk for cannabis use disorder development: A prospective study. *Addiction*. 2011; 106(7), 1301-8.

Selected Invited Presentations

- 4th Geneva Conference on Person-Centered Medicine, Geneva, Switzerland. Person Centered Care for People Abusing Substances. **Kirisci L**, **Ridenour TA**, Bogen D, **Tarter RE**.

Center for Clinical Pharmaceutical Sciences

Faculty

Samuel M. Poloyac, PharmD, PhD, Associate Professor and Center Director
Kerry M. Empey, PharmD, PhD, Assistant Professor
Philip E. Empey, PharmD, PhD, Assistant Professor
Mary M. Folan, PhD, Assistant Professor
Margaret Beth Minnigh, PhD, Assistant Professor
Thomas D. Nolin, PharmD, PhD, Assistant Professor
Lisa C. Rohan, PhD, Associate Professor
Ryan K. Shields, PharmD, Instructor, School of Medicine
Susan J. Skledar, MPH, Associate Professor
Raman Venkataramanan, PhD, Professor

Graduate Students

Osama Y. Alshogran, BS, MS
Kacey B. Anderson, BS
Jennifer J. Bonner, BA, PharmD
Mark K. Donnelly, BS
Lindsay M. Ferguson, PharmD
Nisanne S. Ghonem, PharmD
Tiantian Gong, BS, MS

Jeremiah D. Momper, PharmD
Robert A. Parise, BS
Diana N. Pinchevsky, PharmD
Sadik Basha Jafar Shaik, MPharm
Mohammad S. Shawaqfeh, MS, PharmD
Jiangquan (Jocelyn) Zhou, MA

Major Accomplishments

- Center members have given a total of 33 presentations and have published 55 peer reviewed papers over the past year.
- Lisa Rohan** has served as a reviewer over the past year for the NIH-NIDA Avant Garde Award for HIV/AIDS Research (ZDA1 NXR-B16) and the Bill & Melinda Gates Foundation – Global Health Proposal. She was also appointed to the Editorial Board for AIDS Research and Therapy Journal and assisted with the Organization of the International Microbicides 2010 meeting held in Pittsburgh, PA May 22-25, 2010.
- Ryan Shields** was awarded an NIH KL2 Career Development Award from the Clinical Research Scholars Program in the Clinical and Translational Science Institute. This makes Ryan the third recipient of the KL2 Career Development Award along with current Scholars **Kerry Empey** and **Philip Empey**.
- Philip Empey** helped lead an initiative with ACCP to develop a guide for health professionals on “Educating Patients About Pharmacogenomics and Genetic Testing” that provides health professionals with guidance on how to educate their patients about this emerging subject matter and its role in pharmacotherapeutic decision-making.
- Margaret Beth Minnigh** and **Samuel Poloyac** have established the Small Molecule Biomarker Core Analytical Facility. This facility has provided analytical assessment necessary for the funded research 9 investigators and established 6 new assays in support of translational research. The core has also provided letters of support and consultation to 7 additional investigators of which 4 have currently pending R21 or R01 grant submissions.

Selected Publications

- Shields RK**, Clancy CJ, Vadnerkar A, Kwak EJ, Silveira FP, Abdel-Massih R, Pilewski JM, Crespo M, Toyoda Y, Bhama JK, Bermudez C, Nguyen MH. Posaconazole serum concentrations among cardiothoracic transplant recipients: Factors impacting levels and correlation with clinical response. *Antimicrob Agents Chemother.* 2011; 55(3):1308-11.
- Poloyac SM, Empey KM, Rohan LC, Skledar SJ, Empey PE, Nolin TD, Bies RR, Gibbs RB, Folan M, Kroboth PD.** Core Competencies for Research Training in the Clinical Pharmaceutical Sciences at the University of Pittsburgh School of Pharmacy. *Am J Pharm Educ.* 2011;75(2):27. PMID: PMC3073101.
- Crago EA, Thampatty BP, Sherwood PR, Kuo CWJ, Bender C, Balzer J, Horowitz M, **Poloyac SM.** Cerebrospinal Fluid 20-HETE is Associated with Delayed Cerebral Ischemia and Poor Outcomes after Aneurysmal Subarachnoid Hemorrhage. *Stroke.* 2011; 42(7):1872-7.

- **Nolin TD**, Ouseph R, Himmelfarb J, McMenamin ME, Ward RA. Multiple-dose pharmacokinetics and pharmacodynamics of N-acetylcysteine in patients with end-stage renal disease. *Clin J Am Soc Nephrol*. 2010; 5(9):1588-94. PMC2974398.
- **Momper JD, Ridenour TA, Schonder KS**, Shapiro R, Humar A, **Venkataramanan R**. The Impact of Conversion From Prograf to Generic Tacrolimus in Liver and Kidney Transplant Recipients With Stable Graft Function. *Am J Transplant*. 2011. [Epub ahead of print] PubMed PMID: 21714845.
- Ghonem N, Yoshida J, Stolz DB, Humar A, Starzl TE, Murase N, **Venkataramanan R**. Treprostinil, a Prostacyclin Analog, Ameliorates Ischemia-Reperfusion Injury in Rat Orthotopic Liver Transplantation. *Am J Transplant*. 2011 [Epub ahead of print] PMID: 21668631.

Selected Invited Presentations

- CDC. Atlanta, GA. The development of rectal microbicides for HIV prevention. April 20, 2011. **Rohan LC**.
- NIH DAIDS Workshop: Optimization of Preclinical Methods for Improved Prioritization and Advancement of Lead Microbicide Candidates. Washington, DC. (Key speaker) Preclinical Evaluation of APIs and formulations for pharmacokinetics/pharmacodynamics *Ex vivo* explant-based evaluation. December 7, 2010. **Rohan LC**.
- ACRT/SCTS Joint Annual Meeting in Washington, DC. Effect of mild therapeutic hypothermia on fentanyl and midazolam clearance in a rat model of cardiac arrest. **Empey PE**, Miller TM, Melick JA, Kochanek PM, **Poloyac SM**.
- NHLBI and DoD Workshop: Hypothermia and Hemostasis in Severe Trauma (HYPOSTAT): A New Crossroads. Bethesda, MD. Effects of Hypothermia on Pharmacology. February 2011. **Poloyac SM**.
- University of Pittsburgh Alumni Society. Pittsburgh, PA. Early Intervention in Stroke: A Life Saving Approach. February 2011. **Poloyac SM**.
- American Association of Colleges of Pharmacy Annual Meeting Teachers Seminar, Seattle, WA. Interprofessional Science Education: Development and Implementation of a Course in Translational Research in the Health Sciences. July 2010. **Poloyac SM**.
- Critical Care Nephrology: 2010 Update program at Renal Week 2010, the American Society of Nephrology 43rd Annual Meeting and Scientific Exposition. Denver, CO. Drug Dosing in AKI. November 17, 2010. **Nolin TD**.
- International Pediatric Intestinal Transplant Conference. Chicago, IL. Medication Use in Pediatric Intestinal Transplant patients. September 2010. **Venkataramanan R**.

Gibbs Laboratory

Faculty

Robert B. Gibbs, PhD, Professor

Graduate Student

Rebecca L. Hammond, BS

Major Accomplishments

- Demonstrated that galanthamine, a cholinesterase inhibitor used to treat Alzheimer's-related dementia, can enhance beneficial effects of estrogen replacement on cognitive performance in aged rats similar to the effect of donepezil.
- Provided evidence that the ability to enhance the effects of estrogen replacement by using a cholinesterase inhibitor is dependent on the degree of cholinergic cell loss, such as loss associated with aging and Alzheimer's disease.
- Generated new data showing that orexin-containing cells in the hypothalamus express the novel estrogen receptor GPR30. Is consistent with hypothesis that one mechanism by which estrogen replacement may enhance cognitive performance is via activation of orexin-containing cells, which in turn should enhance alertness and attention.

Selected Publications

- Kline AE, McAloon RL, Henderson KA, Bansal UK, Ganti BM, Ahmed RH, **Gibbs RB**, Sozda, CN. Evaluation of a Combined Therapeutic Regimen of 8-OH-DPAT and Environmental Enrichment After Experimental Traumatic Brain Injury, *J Neurotrauma*. 2010; 27(11):2021-32. DOI: 10.1089/neu.2010.1535; PMCID 2978058.
- Pokala VN, Witt-Enderby PA, **Gibbs RB**, Johnson DA. Selective septohippocampal cholinergic lesioning in rat brain: Effects on muscarinic receptor function and secretase enzyme activity. *Curr. Topics in Pharmacol*. 2010; 14:73-8.
- **Hammond R, Gibbs RB**. GPR30 is positioned to mediate estrogen effects on basal forebrain cholinergic neurons and cognitive performance. *Brain Res*. 2011; 1379:53-60, doi:10.1016/j.brainres. 2010.11.098; PMCID 3046317.
- **Gibbs RB**, Chipman AM, **Nelson D**. Donepezil Plus Estradiol Treatment Enhances Learning and Delay-Dependent Memory Performance by Young Ovariectomized Rats with Partial Loss of Septal Cholinergic Neurons. *Horm. & Behav*. 2011; 59(4):503-11. DOI S0018-506X(11)00026-2 [pii] 10.1016/j.yhbeh.2011.01.011; PMCID 3081392.
- **Gibbs RB**, Chipman AM, **Hammond R, Nelson D**. Galanthamine Plus Estradiol Treatment Enhances Cognitive Performance in Aged Ovariectomized Rats. *Horm. & Behav*. 2011 In Press.

**Advancing the
Health of the Public
Through Partnerships**





Advancing the Health of the Public Through Partnerships

The School of Pharmacy is committed to improving health by developing and standardizing models of patient-focused practice, working in conjunction with our primary partner, UPMC, and other partners. This component of the School's mission is primarily driven by members of the Department of Pharmacy and Therapeutics. Our faculty members serve a broad spectrum of patients including ambulatory clinics, physician practices, underserved care settings, pharmacist run diabetes services, inpatient medicine, critical care units, and transplant services. We are committed to advancing optimal patient care by leading medication therapy.

By 2012, the School of Pharmacy will have:

- **Become a leader in standardizing the elements of practice so that pharmacists enhance the care of patients in the community, in institutions, and during transitions of care.**

PATIENT CARE BY THE NUMBERS FOR FY11

In FY11, School of Pharmacy faculty members:

- Provided care to more than **7,000** underserved and underinsured patients through the Grace Lamsam Pharmacy Program for the Underserved.
- Gave **85** invited presentations on patient care or professional training.
- Published **30** peer-reviewed papers on patient care.
- Graduated the **first** Geriatrics Pharmacy Fellow in the country.
- Competed and received **1** of **20** PGY1 Expansion Grants from the American Society of Health-System Pharmacists (ASHP) Research and Education Foundation to establish a new pharmacy practice residency position at WPIC (WPIC Pharmacy Department and UPMC Presbyterian Shadyside).
- Developed **1** new PGY2 residency program in underserved care in a partnership with UPMC Matilda Theiss Health Center, a federally qualified health center.
- Continued to lead the expansion of facilities using more than **5,000** intravenous intelligent infusion ("smart") pump devices across **19** UPMC facilities, preventing **> 400** potential intravenous infusion-related adverse events per month.
- Developed **2** patient educational videos, viewed on iPad technology, that are being used to teach inpatients. Licensed **1** video, the warfarin video, to the UPMC SmartRoom, which will enable it to be viewed by hospitalized patients "on-demand" on the television screen in their room.
- Led the program that administered **> 3,000** seasonal influenza vaccines during influenza season.

- Developed **62** protocols and e-record sets to improve medication outcomes for UPMC patients.
- Won **6** awards in the UPMC Quality Fair.
- Mentored **2** Clinical Pharmaceutical Sciences Associate graduate students on Fellowship Award projects from the Jewish Healthcare Foundation.
- Educated more than **1,600** high-risk hospitalized patients including more than 700 patients newly started on warfarin and 150 patients newly started on insulin.

PROGRAMS FOR COMMUNITY-DWELLING PATIENTS

Faculty

Sharon E. Connor, PharmD, Assistant Professor
 Scott R. Drab, PharmD, Assistant Professor
 Deanne L. Hall, PharmD, Assistant Professor
 Lauren J. Jonkman, PharmD, Instructor
 Melissa S. McGivney, PharmD, Associate Professor
 Stephanie H. McGrath, PharmD, Assistant Professor
 Karen S. Pater, PharmD, Associate Professor
 Janice L. Pringle, PhD, Research Associate Professor

Residents

Anthony M. DiCriscio, PharmD, PGY1 Community Practice Resident
 Yardlee S. Kauffman, PharmD, PGY1 Community Practice Resident
 Ted J. Turner, PharmD, PGY1 Community Practice Resident

Major Accomplishments

In FY11, School of Pharmacy faculty members:

- Won 2 awards for work in the underserved:
 - HRSA Patient Safety and Clinical Pharmacy Services Collaborative Health Outcome Management Award: **Jonkman LJ**.
 - Clinical Pharmacy Services Improvement Award (for work in improving diabetes care at the Birmingham Free Clinic): **Jonkman LJ**.
- Worked on active grants totaling \$1,182,152 and published 5 manuscripts in peer-reviewed journals.
- Developed a partnership with UPMC Matilda Theiss Health Center (a Federally Qualified Health Center), and developed a new PGY2 residency program in underserved care. **Jonkman LJ**.
- Initiated standardized patient baseline and follow-up evaluation of incoming residents' patient care skills (18 residents participated). **Pater KS, McGivney MS**.
- Worked on the Pennsylvania Project, a statewide initiative for pharmacist training in medication therapy management services:
 - Completed Phase II of the Project.
 - Trained more than 190 pharmacists trained via one-day live training sessions.

- Neared completion of Phase 3, the delivery of the statewide curriculum, which will be made available August, 2011. **McGivney MS, Hall DL, Meyer SM.**
- Served as invited panelist for two national 2010–2011 committees:
 - APhA/AACP Medication Therapy Management (MTM) Curricular Project Expert Advisory Panel. **McGivney MS.**
 - APhA/ASHP Ambulatory Care Preparatory Review Course Content Development Team and Content Matter Expert. **McGivney MS.**
- Tailored the delivery of a diabetes education program for pharmacists in the state of Bahia, Brazil.
 - The intended goal of the project is to engage as many practicing pharmacists possible in the use of an existing, online diabetes education program, DM Educate®. The qualitative study is specifically aimed at determining key characteristics of pharmacists, namely their learning styles, desired communication profiles and their access to technology in order to tailor the delivery of DM Educate® so as to further enhance pharmacists' ability to obtain continuing health education that underscores the most cutting edge treatment and management of diabetes mellitus. **Copozzolo N, Smith RB, Drab SR.**
- Created a student rotation in Brazil. **Drab SR.**
- Established a new clinical pharmacist position within the Cardiovascular Institute at University Center. In FY11, more than 270 anticoagulation patients with more than 4,000 INRs were managed. **Hall DL.**
- Established a Smoking Cessation Collaborative Practice that will begin in July 2011 within the Cardiovascular Institute. **Hall DL.**
- Anticoagulation Service. Managing 1,235 chronic patients in 2011 resulting in 22,779 INRs managed with a 71% in-range percentage. **Hall DL.**
- Administered 3,089 influenza vaccinations to University faculty/staff (1,168), students (670; majority were medical students), UPMC employees (556), non-employees (195) from September 2010 through January 2011 as part of the Falk Pharmacy Based Immunization Program. Pharmacy students in the P4, P3 and P2 years participated within the scheduled clinics accounting for 160 experiential learning hours in the P2 year and 67 within the P3 year. **Hall DL.**

Selected Community Practice Publications

- Lauffenburger J, **Jonkman LJ**, Lange E, Sibale C, Connor SE. A public health approach to site-specific formulary management: Addressing deficient drug supplies in Malawi. *International Journal of Pharmacy Practice* (in press). 2011.
- **Jonkman LJ**, Connor SE, Herbert MI. Improving free clinic care in southwestern Pennsylvania. *Pharmacy Today*. 2011; 18.
- Kozminski M, Busby R, **McGivney MS**, Klatt PM, Hackett S, Merenstein JM. Pharmacist integration into the medical home: qualitative analysis. *J Am Pharm Assoc*. 2011; 51:173-83.

- Snyder ME, Rice KR, Primack BA, **McGivney MS**, Pringle JL, Smith RB. Exploring Successful Community Pharmacist-Physician Collaborative Working Relationships Using Mixed Methods. *J Soc Admin Pharm*. 2010; 6(4):307-23.
- **Drab SR**, Hall DL. Type 2 diabetes mellitus: New onset. In: Schwinghammer TL, ed. *Pharmacotherapy casebook: A patient-focused approach*. 8th ed. New York, NY: McGraw-Hill, 2011. Case answers provided in: *Instructor's Guide to Accompany the Pharmacotherapy Casebook*. 8th ed. New York, NY: McGraw-Hill, 2011.
- **McGrath SH**. Getting started with medication therapy management services. *Drug Store News*. 2010; (5)29-33.
- **Hall DL**, Buchanan J, Helms BE, Eberts MW, Mark SM, Manolis C, Peele P, Docimo AB. Health expenditures and therapeutic outcomes of a pharmacist-managed anticoagulation service vs. usual medical care. *Pharmacotherapy*. 2011; 31(7):686–94.
- **Hall DL**, Pater KS. Implementation of a Medication Therapy Management in a Hospital-Based Outpatient Pharmacy. *Hospital Pharmacy*. 2011; 46(7):512–18.
- **Pringle JL**, Melczak M, Aldridge A, Snyder M, Smith R. Medication adherence and its relationship to the therapeutic alliance: Results from an innovative pilot study within a community pharmacy MTM practice. *Innovations in Pharmacy*. 2011; vol 2(1): article 33.
- Johnjulio J, **Pringle JL**. Developing and Evaluating SMaRT: SBIRT Medical and Residency Training in Medical Residency. *Substance Abuse*. 2010; 31(3).

Selected Presentations

Invited Presentations

- 20th Annual Medical Ethics Update 2011: Ethical Issues in Health Care Reform, University of Pittsburgh Center for Bioethics and Health Law. Implications of Health Care Reform for Pharmacy. April 2011. **Gibbs RB**, **Jonkman LJ**, **McGivney MS**, Saul M.
- University of Pittsburgh School of Law Review Course. Pittsburgh, PA. Implications of Health Care Reform for Pharmacy. April 2011. **McGivney MS**.
- PPA Midyear Meeting. Camp Hill, PA. Pharmacists Role in the Medical Home. February 2011. **McGivney MS**.
- Panel Member: SAMHSA Innovation in Treatment & Recovery Systems. Bethesda, MD. State SBIRT: Systems Implementation, Implications, and Impact. August 2010. **Pringle JL**.
- Students for Sensible Drug Policy Meeting. Baltimore, MD. Recent Evidence of SBIRT's Effectiveness. August 2010. **Pringle JL**.
- Merck & Co., Inc. Center Valley, PA. Reflections on Our SBIRT Experience. Presentation at Continuing Medical Education. September 2010. **Pringle JL**.
- Grand Rounds Morehouse School of Medicine. Atlanta, GA. Screening, Brief, Intervention, and Referral to Treatment Methods. September 2010. **Pringle JL**.

- Kerr Drugs, Inc. Raleigh, NC. Study of Medication Adherence and Its Relationship to Therapeutic Alliance. September 2010. **Pringle JL.**
- Association for Medical Education and Research in Substance Abuse (AMERSA), 34th Annual National Conference. Bethesda, MD. Teaching and Assessing Clinical Skill in Screening, Brief Intervention, and Referral to Treatment (SBIRT). November 2010. **Pringle JL.**
- Screening, Brief Intervention, and Treatment (SBIRT) Grantee Meeting. Bethesda, MD. SBIRT: Lessons Learned and Moving Forward. November 2010. **Pringle JL.**
- Merck, Inc. Florida. Relationship-Centered Care: Engaging in Effective Communication with Patients. April 2011. **Pringle JL.**
- Improving Medication Adherence Benchmarks through Community Pharmacists Healthcare Intelligence Network. Webinar. May 2011. **Pringle JL.**
- Substance Abuse and Mental Health Services Administration. Washington, DC. Screening and Brief Intervention (SBI) for Medication Adherence: Background and the PA Collaborative Project. June 2011. **Pringle JL.**
- Substance Abuse and Mental Health Services Administration. Rockville, MD. SBIRT State Medicaid Activation Strategies: The Never-Ending Story. June 2011. **Pringle JL.**
- American Diabetes Association Annual Meeting. San Diego, CA. Motivational Interviewing for Diabetes Self-Management. June 2011. **Pringle JL.**
- Pharmacy Quality Alliance. Washington, DC. SBI – Screening and Brief Intervention. What Is It? June 2011. **Pringle JL.**
- Jewish Healthcare Foundation. Pittsburgh, PA. Evaluation of the Juvenile Justice and New Hope Programs. October 2010. **Pringle JL.**
- Out Intervention Pharmacy Quality Alliance. Pittsburgh, PA. November 2010. **Pringle JL.**
- Substance Abuse and Mental Health Services Administration Site Visit. Pittsburgh, PA. SMaRT Medical Residency Training. February 2011. **Pringle JL.**

Continuing Education Presentations

- AACP's Enhancing Diabetes Care through an Interprofessional Approach to Performance Improvement Regional Meeting, University of Pittsburgh School of Pharmacy. Case Study—A Local Organization in Action. July 2010. **Jonkman LJ.**
- ASHP/APhA Ambulatory Care Review Course. ASHP Summer Meeting. Denver, CO. Practice Management. June 2011. **McGivney MS.**
- ASHP/APhA Ambulatory Care Review Course. ASHP Summer Meeting. Denver, CO. Complex Ambulatory Case 1. June 2011. **McGivney MS.**

- University of Pittsburgh School of Pharmacy Spring CE Seminar. Pittsburgh, PA. Opportunities to provide patient care in outpatient settings: collaborative practice and compensation. May 2011. **McGivney MS.**
- Conemaugh Memorial Medical Center: Lee Hospital. Johnstown, PA. PA Project: Medication Therapy Management Practice Development Training. May 2011. **McGivney MS.**
- APhA Annual Meeting. Seattle, WA. Community Pharmacy Fellowship Experience. March 2011. Snyder MS, **McGivney MS.**
- ASHP/APhA Ambulatory Care Review Course. APhA Annual Meeting. Seattle, WA. Practice Management. March 2011. **McGivney MS.**
- ASHP/APhA Ambulatory Care Review Course. APhA Annual Meeting. Seattle, WA. Complex Ambulatory Case 1. March 2011. **McGivney MS.**
- ASHP/APhA Ambulatory Care Review Course. ASHP Midyear Meeting. Anaheim, CA. Practice Management. December 2010. **McGivney MS.**
- ASHP/APhA Ambulatory Care Review Course. ASHP Midyear Meeting. Anaheim, CA. Complex Ambulatory Case 1. December 2010. **McGivney MS.**
- Lehigh Valley Hospital Center. Allentown, PA. PA Project: Medication Therapy Management Practice Development Training. November 2010. **McGivney MS.**
- PPA Annual Meeting. Mars, PA. PA Project: Medication Therapy Management Practice Development Training. October 2010. **McGivney MS.**
- Peninsula Pharmacists Association. Williamsburg, VA. Role of Insulin Analogs in Type 2 Diabetes. September 19, 2010. **Drab SR.**
- Pennsylvania Pharmacists Association Annual Conference. Mars, PA. Making Sense of Insulin Therapy: A Review of Insulin and Insulin Injecting Devices. October 1, 2010. **Drab SR.**
- Pennsylvania Pharmacists Association Annual Conference. Mars, PA. Motivating Our Patients to Monitor Blood Glucose: Issues to Discuss During a Two Minute Consult. October 2, 2010. **Drab SR.**
- Washington County Pharmacists Association. Hagerstown, MD. New Treatment Options for Type 2 Diabetes: Incretin-Based Therapy. October 6, 2010. **Drab SR.**
- National Community Pharmacists Association Annual Meeting. Philadelphia, PA. Beyond Glycemic Control Alone: The Importance of Treating the Entire Type 2 Diabetes Disorder. October 24, 2010. **Drab SR.**
- The 2010 American Society of Health System Pharmacists Mid-Year Meeting. Anaheim, CA. Hyperglycemia in Non-critically Ill Patients: Challenges and Opportunities for Clinical Pharmacists throughout Patient Stays. December 6, 2010. **Drab SR.**

- Motivating Our Patients to Monitor Blood Glucose Update 2010: Issues to Discuss During a Two-Minute Consult. **Drab SR.**
 - Durham/Orange County Pharmaceutical Association; Durham, NC, January 27, 2011.
 - The 2011 American Pharmacists Association Annual Meeting; Seattle, WA, March 26, 2011.
 - Washington State Pharmacist's Association; Coeur d'Alene, ID, June 4, 2011.
 - North Dakota Pharmacist's Association; Grand Fork, ND, June 11, 2011.
- New York State Council of Health System Pharmacists 50th Annual Assembly. Verona, NY. Motivational Interviewing Strategies that Empower and Engage Patients with Diabetes. April 30, 2011. **Drab SR.**
- Peninsula Pharmacists Association. Yorktown, VA. Pregnancy Complicated by Diabetes. May 15, 2011. **Drab SR.**
- APhA Annual Meeting. Seattle, WA. Defining MTM Opportunities for Community Pharmacists: An Analysis of Pennsylvania Medicare Part D Programs. March 2011. DiCriscio A, **McGrath SH**, Pringle JL, Turner T, McGivney MS.
- PPA Annual Meeting. Camp Hill, PA. Taking Collaborative Drug Therapy Management (CDTM) to the Community Setting. February 2011. Duenas GM, **McGrath SH.**
- Pennsylvania Project MTM Training. **Hall DL.** 275 Pennsylvania Pharmacists to date completed online training. 183 Participated in the Live MTM Training dates:
 - 8/10/11: Erie/LECOM; 14 participants; Trainers: Stephanie Harriman, Deanne Hall; Randy Heemer (LECOM), Abby Kahala (LECOM)
 - 9/30/11: Mars (PPA); 22 participants; Trainers: Melissa McGivney, Pam Kroener (DU), Justin Scholl (Rite Aid at the time)
 - 11/16/11: Lehigh Medical Center; 25 participants; Trainers: Melissa McGivney; Adam Welch (Wilkes), Gladys Garcia (Jefferson)
 - 2/3/11: Camp Hill (PPA); 24 participants; Trainers: Deanne Hall; Ted Turner
 - 5/16/11: Conemaugh Medical Center, Johnstown; 23 participants; Trainers: Melissa McGivney; Rob Maher (DU) and Justin Scholl (LECOM)

Posters

- American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. Systematic Documentation of Student-Patient Experiences: The "PITT" Form. July 2010. **Hall DL**, Seybert AL, Schonder KS, McGivney MS, Skledar SJ, Pschirer JJ, Howrie DL, Keyes M.
- American College of Clinical Pharmacy Annual Meeting. Austin, TX. A rigorous methodology for small sample clinical pharmacy research evaluation of insulin dosing strategies in four nursing home patients with diabetes. October 2010. **Hall DL**, Ridenour T, Pineo T.
- American College of Clinical Pharmacy Annual Meeting. Austin, TX. Medication discrepancies in patients recently discharged from the hospital. October 2010. Elrod SS, Coley KC, Kapoor WM, Fischer GS, **Hall DL.**
- American College of Clinical Pharmacy Annual Meeting. Austin, TX. Comparison of health spending resources and therapeutic outcomes of a pharmacist-managed anticoagulation service

vs. usual medical care. October 2010. **Hall DL**, Buchanan J, Helms BE, Eberts MW, Mark SM, Manolis C, Peele P, Docimo AB.

- American Association of Colleges of Pharmacy Annual Meeting. San Antonio, Texas. Model for Mass Dissemination of Pharmacist Motivational Interviewing Training. July 10, 2011. **Pringle JL**.
- American Association of Colleges of Pharmacy Annual Meeting. San Antonio, Texas. Teaching Pharmacy Students the Principles for Successful Implementing Pharmacy Care Innovations. July 11, 2011. **Pringle JL**.

Community Practice Grants Awarded

- Kauffman Y, Cerussi N, Pringle JL, **McGivney MS**. “Identifying medication-related needs of HIV patients: foundation for community-pharmacist based services.” Pennsylvania Pharmacists Association Foundation. \$1000. February, 2011.
- Kauffman Y, Cerussi N, Pringle JL, **McGivney MS**. “Identifying medication-related needs of HIV patients: foundation for community-pharmacist based services.” APhA Foundation. \$1000. December 2010.
- **McGivney MS**, Smith, RB. Community Pharmacy Resident Educational Grant. Rite Aid Corporation. \$40,000/year. July 2009-2011.
- To **Drab SR**:
 - Diabetic Monitoring and Education Grant. \$686.00, LifeScan Inc, a Johnson & Johnson Company, Milpitas, CA, 2010.
 - Diabetic Monitoring and Education Grant. \$472.00, Roche Diagnostics, Indianapolis, IN, 2010.
 - Diabetic Monitoring and Education Grant. \$350.00, Abbott Diabetes Care, Alameda, CA, 2010.
 - Diabetic Monitoring and Education Grant. \$625.00, Bayer Corp, Pittsburgh, PA, 2010.
 - Diabetic Monitoring and Education Grant. \$380.00, Novo Nordisk, Pittsburgh, PA, 2010.

HOSPITAL-BASED PROGRAMS

UPMC Pharmacy Transplant Group

Faculty

Michael A. Shullo, PharmD, Assistant Professor
Heather J. Johnson, PharmD, Assistant Professor
Kristine S. Schonder, PharmD, Assistant Professor
Raman Venkataramanan, PhD, Professor

Graduate Students

Yahia S. Alghazwani, PharmBs
Jennifer J. Bonner, BA, PharmD
Nisanne S. Ghonem, PharmD, PhD
Kelong Han, MS
Jeremiah D. Momper, PharmD
Mohammed S. Shawaqfeh, PharmD, MS

Resident

David Johnson, PharmD, PGY2 Transplant Resident

Major Accomplishments

In FY11, School of Pharmacy faculty members:

- Served as co-chair of the National Quality Forum End-Stage Renal Disease Steering Committee. The committee evaluates measures for public reporting and quality improvement addressing quality of care for patients with end-stage renal disease (ESRD). Measures recommended for endorsement by the Steering Committee are used by national organizations, such as the Centers for Medicare and Medicaid Services (CMS) and the Centers for Disease Control (CDC). **Schonder KS.**
- Served as a session co-chair for Complications Associated With Drugs And Antibodies Following Heart Transplantation at the 31st Annual Meeting and Scientific Sessions of the International Society of Heart and Lung Transplant. **Shullo MA.**

Selected Publications

- **Momper JD**, Zhang S, Randhawa PS, Shapiro R, **Schonder KS**, **Venkataramanan R.** Determination of cidofovir in human plasma after low dose drug administration using high-performance chromatography-tandem mass spectrometry. *J Pharm Biomed Anal.* 2010; 53(4):1015-21.
- **Schonder KS**, **Corman SL**, Hung WY. Early risk factors for persistent anemia after kidney transplantation. *Pharmacotherapy.* 2010; 30(12):1214-20.
- Khandhar SJ, Shah HV, **Shullo MA**, Zomak R, Navoney M, McNamara DM, Robert L, Kormos RL, Toyoda Y, Teuteberg JJ. Long-Term Effects on Renal Function of Dose-Reduced Calcineurin Inhibitor and Sirolimus in Cardiac Transplant Patients. *Clinical Transplantation.* [Epub Feb 2011].
- Bhama JK, Pilewski JM, Zaldonis, Fontes PA, DeVera M, **Shullo MA**, Shigemura N, Bermudez CA, Toyoda Y, McCurry KR. Does Simultaneous Lung - Liver Transplantation Provide an Immunologic Advantage Compared to Isolated Lung Transplantation. *The Journal of Thoracic and Cardiovascular Surgery.* 2011; 141:e36-8.
- Singh M, **Shullo MA**, Kormos RL, Lockard K, Zomak R, Simon MA, Bermudez C, Bhama J, McNamara D, Toyoda Y, Teuteberg JJ. The Degree of Improvement in Renal Function after Mechanical Circulatory Support Impacts Renal Function after Cardiac Transplantation. *Annals of Thoracic Surgery.* 2011; 91:1348-54.
- Husain S, Capitano B, Corcoran T, Studer SM, Crespo M, Johnson B, Pilewski JM, Shutt K, Pakstis DL, Zhang S, Carey ME, Paterson DL, McCurry KR, **Venkataramanan R.** Intrapulmonary Disposition of Amphotericin B After Aerosolized Delivery of Amphotericin B Lipid Complex (Abelcet; ABLC) in Lung Transplant Recipients. *Transplantation.* 2010; [Epub ahead of print] PubMed PMID: 20881664.
- Han K, Capitano B, Bies R, **Potoski BA**, Husain S, Gilbert S, Paterson DL, McCurry K, **Venkataramanan R.** Bioavailability and population pharmacokinetics of voriconazole in lung transplant recipients. *Antimicrob Agents Chemother.* 2010; 54(10):4424-31. Epub 2010 Aug 2. PubMed PMID: 20679503; PubMed Central PMCID:PMC2944566.

Selected Presentations

Posters

- American Transplant Congress. Philadelphia, PA. Clinical pharmacokinetics of low-dose cidofovir without and with concomitant probenecid used for the treatment of BK virus infection in renal transplant recipients. April 30-May 4, 2011. **Momper J**, Shapiro R, Randhawa P, Zhao Y, Zhang S, **Schonder KS**, **Venkataramanan R**.
- American Transplant Congress. Philadelphia, PA. Lower Tacrolimus Goal Levels after Routine Induction Therapy with Alemtuzumab in Cardiac Transplantation: Impact on Renal Outcomes. April 2011. Teuteberg JJ, Zomak R, Navoney M, Kormos RL, Toyoda Y, McNamara D, **Shullo MA**.
- International Society of Heart and Lung Transplant. San Diego, CA. Heart Transplantation in Sensitized Recipients, the Impact of Pre-Transplant Donor-Specific Antibodies on Clinical Outcome. April 2011. Sareyyupoglu B, Toyoda Y, Fujimoto K, Teuteberg JJ, **Shullo MA**, Zaldonis D, Bonde P, Bhama JK, Bermudez C, Kormos RL, Zeevi A.
- International Society of Heart and Lung Transplant. San Diego, CA. Steroid-Free Immunosuppression after Routine Alemtuzumab Induction in Cardiac Transplantation: Three Year Outcomes. April 2011. Teuteberg JJ, Zomak R, Navoney M, Bermudez C, Bonde P, Bhama JK, Kormos RL, McNamara DM, ToyodaY, **Shullo MA**.

UPMC Pharmacy Critical Care Group

Faculty

Amy L. Seybert, PharmD, Associate Professor
Sandy L. Kane-Gill, PharmD, MSc, Associate Professor
Neal J. Benedict, PharmD, Assistant Professor
Bonnie A. Falcione, PharmD, Assistant Professor
Pamela L. Smithburger, PharmD, Assistant Professor
Philip E. Empey, PharmD, PhD, Assistant Professor
Samuel M. Poloyac, PharmD, PhD, Associate Professor

Residents

Michael J. Armahizer, PharmD, PGY2 Critical Care Resident
Sandeep Devabhakthuni, PharmD, PGY2 Cardiology Resident

Major Accomplishments

- Committee chair of sedation guideline and interruption protocol development for Medical Intensive Care Unit Mobility Project. **Smithburger PL**.
- 2010 Alcohol Withdrawal Guidelines co-author; Guidelines for the management of alcohol withdrawal for nursing and medical staff of the Surgical/Trauma ICU for use in patient care. **Benedict NJ**.
- Editor of book, *High-risk IV Medications in Special Patient Populations*. **Kane-Gill SL**.
- Served as invited reviewer for the AHRQ Special Emphasis Panel/Scientific Review Group-Advancing Patient Safety with Simulation Research. **Kane-Gill SL**.

- Served as appointed vice chair of the Paragon Quality Improvement Committee of the Society of Critical Care Medicine. **Kane-Gill SL**.
- Improved patient safety by developing the Continuous Infusion Information Sheet for bedside nurses regarding standard drip rates, concentrations, adverse reactions, and onset and duration of action of the commonly utilized medications in the Medical Intensive Care Unit. **Smithburger PL**.
- Worked with a multidisciplinary team from the Critical Care Service Committee to implement an electronic standardized sedation assessment scale to assure compliance with hospital regulatory accreditation standards. **Falcione BA**.
- Co-directed the ACCP initiative to develop a guide for health professionals on “Educating Patients About Pharmacogenomics and Genetic Testing” that provides health professionals with guidance on how to educate their patients about this emerging subject matter and its role in pharmacotherapeutic decision-making. **Empey PE**.

Selected Critical Care Publications

- **Armahizer M, Benedict N**. “FAST HUG: ICU Prophylaxis.” Invited paper for the American Society of Health-System Pharmacists. *Clinical Pearls for New Practitioners*. 2011.
- Salonia S, **Empey PE, Poloyac SM**, Wisniewski SR, Klamerus M, Ozawa H, Wagner AK, Ruppel R, Bell MJ, Feldman K, Adelson D, Clark RS, Kochanek PM. Endothelin-1 is increased in cerebrospinal fluid and associated with unfavorable outcomes in children after severe traumatic brain injury. *J Neurotrauma*. 2010; 27(10):1819-25. PMID: 20684675.
- Kullar R, Leonard S, Davis S, Delgado G, Wahby K, Pogue J, Sheth A, Shah P, **Falcione BS**, Rybak M. Validation of the effectiveness a vancomycin nomogram in achieving target trough concentrations of 15 to 20 mg/L suggested by the vancomycin consensus guidelines. *Pharmacotherapy*. 2011; 31(5):441-48.
- **Kane-Gill SL**, Visweswaran S, Saul MI, Wong I, Penrod L, Handler SM. Computerized detection of adverse drug reactions in the medical ICU. *Int J Med Inform* 2011; 80:570-8.
- Gesin G, **Kane-Gill SL**, Dasta JF, Birrer KL, Kolnik L, Cheatham M. Diazepam as a component of goal-directed sedation in critically ill trauma patients. *J Crit Care*. 2011; 122-6.
- **Kane-Gill SL, Smithburger PL**. Transitioning knowledge gained from simulation to pharmacy practice. *Am J Pharm*. Ed 2011.
- Crago EA, Thampatty BP, Sherwood PR, Kuo CWJ, Bender C, Balzer J, Horowitz M, **Poloyac SM**. Cerebrospinal Fluid 20-HETE is Associated with Delayed Cerebral Ischemia and Poor Outcomes after Aneurysmal Subarachnoid Hemorrhage. *Stroke*. 2011; 42(7):1872-7.
- Zhou J, **Poloyac SM**. The Effect of Therapeutic Hypothermia on Drug Metabolism and Response: Cellular Mechanisms to Organ Function. *Expert Opin Drug Metab Toxicol*. April 8, 2011 [Epub ahead of print].
- Theken KN, Deng Y, Kannon MA, Miller TM, **Poloyac SM**, Lee CR. Activation of the acute inflammatory response alters cytochrome P450 expression and eicosanoid metabolism. *Drug Metab Dispos*. 2011; 39(1):22-9.

- Thampatty BP, Sherwood PR, Gallek MJ, Crago EA, Ren D, Hricik AJ, Kuo CW, Klamerus MM, Alexander SA, Bender CM, Hoffman LA, Horowitz MB, Kassam AB, **Poloyac SM**. Role of Endothelin-1 in Human Aneurysmal Subarachnoid Hemorrhage: Associations with Vasospasm and Delayed Cerebral Ischemia. *Neurocrit Care* Feb. 1, 2011 [Epub ahead of print].
- Liu H, Li W, Ahmad M, Miller TM, Rose ME, **Poloyac SM**, Uechi G, Balasubramani M, Hickey RW, Graham SH. Modification of ubiquitin-C-terminal hydrolase-L1 by cyclo-pentenone prostaglandins exacerbates hypoxic injury. *Neurobiol Dis*. 2011; 41(2):318-28.
- Chuang PC, Conley YP, **Poloyac SM**, Okonkwo DO, Ren D, Sherwood PR, Hravnak M, Alexander S. Neuroglobin Genetic Polymorphisms and Their Relationship to Functional Outcomes Following Traumatic Brain Injury. *Journal of Neurotrauma*. 2010; 27(6):999-1006. PMC2943497.
- **Seybert AL**, Coons JC. Atrial Arrhythmias. *Cardiovascular Pharmacotherapy: A Point-of-care Guide*. American Society of Health System Pharmacists. 2010.
- Smith KM, Sorensen T, Connor KA, Dobesh PP, Hoehns JD, Marcus KB, Pass S, **Seybert AL**, Shapiro NL. Value of Conducting Pharmacy Residency Training –The Organizational Perspective (2008 Task Force on Residencies). *Pharmacotherapy*. 2010; 30(12):490e-510e.
- **Smithburger PL, Kane-Gill SL, Benedict NJ, Falcione BA, Seybert AL**. Grading the severity of drug-drug interactions in the intensive care unit: A comparison between clinical opinion and database severity ratings. *Ann Pharmacother*. 2010; 44:1718-24.
- **Smithburger PL, Kane-Gill SL, Seybert AL**. Significance of drug-drug interactions in cardiac intensive care units. *Drug Saf*. 2010; 33(10):879-88.
- **Smithburger PL, Seybert AL, Armahizer MJ, Kane-Gill SL**. QT prolongation in the intensive care unit: commonly used medications and the impact of drug-drug interactions. *Expert Opin Drug Saf*. 2010; 9(5):699-712.
- Gokhman R, **Smithburger PL, Kane-Gill SL, Seybert AL**. Pharmacokinetic rationale for combination therapy of pulmonary arterial hypertension. *J Cardiovasc Pharmacol*. 2010; 56:686-95. [Epub ahead of print].
- **Smithburger PL, Kane-Gill SL, Benedict NJ, Falcione BS, Seybert AL**. Grading the Severity of Drug-Drug Interactions in the Intensive Care Unit: A Comparison between Clinician Assessment and Proprietary Database Severity Rankings. *Annals of Pharmacotherapy*. 2010; 44(11):1718-24 PMID: 20959499.

Selected Critical Care Presentations

Posters

- ASHP Midyear Clinical Meeting. Orlando, FL. Patient Reported Outcomes of Sedation in the Critically Ill. December 2010. Felbinger M, **Benedict NJ**, Halle H, **Kane-Gill SL**.
- American College of Clinical Pharmacy Annual Meeting. Austin, TX. Comparing clinician opinion and proprietary database severity ratings for drug-drug interactions in the ICU. October 2010. **Smithburger PL, Kane-Gill SL, Benedict NJ, Falcione BA, Seybert AL**.

- American College of Clinical Pharmacy Annual Meeting. Austin, TX. Medication errors during medical emergencies in a large, tertiary care, academic medical center. October 2010. Gokhman R, **Seybert AL**, Phrampus P, **Kane-Gill SL**.
- Society of Critical Care Medicine Annual Congress. San Diego, CA. Improving prescribing and documentation of immunization and education in patients who undergo emergency splenectomy. January 2011. **Falcione BA**, George BL, Day RD, **Skledar SJ**.
- 40th Society of Critical Care Medicine Congress, San Diego, CA. Answers to Challenging Pharmacotherapeutic Questions: Which drug for routine sedation? **Kane-Gill SL**.
- 40th Society of Critical Care Medicine Congress, San Diego, CA. Prevention without Perfection: CPOE and Clinical Decision Support Knowing the Limits. **Kane-Gill SL**.
- ACRT/SCTS Joint Annual Meeting. Washington, DC. Effect of mild therapeutic hypothermia on fentanyl and midazolam clearance in a rat model of cardiac arrest. April 2011. **Empey PE**, Miller TM, Melick JA, Kochanek PM, **Poloyac SM**.
- SCCM Critical Care Congress. San Diego, CA. Influence of ATP-binding cassette polymorphisms on neurological outcome after traumatic brain injury in humans. January 2011. Cousar J, Sarnaik A, Conley Y, **Empey PE**, Puccio A, Kochanek PM, Okonkwo D, Clark RSB.

Presentations

Invited Presentations

- PSHP 42nd Annual Conference. Pittsburgh, PA. Dabigatran and Extended-Duration Low Molecular Weight Heparins. November 2010. **Benedict NJ**.
- Pennsylvania Society of Health-System Pharmacists Annual Conference. Pittsburgh PA. What's New in Infectious Diseases: A focus on antibacterial agents. November 2010. **Falcione BA**.
- University of North Carolina Division of Experimental Therapeutics Seminar. Chapel Hill, NC. Brain Cytochrome P450 Enzymes and Stroke: Discovering the Relationship with Patient Complications. June 2011. **Poloyac SM**.
- University of Minnesota College of Pharmacy End of the Year Awards Ceremony. Minneapolis, MN. Pharmacy's Role in Advancing Clinical and Translational Research: Examples in Critical Care Illness. April 2011. **Poloyac SM**.
- 13th Annual Winter Eicosanoid Conference Podium Presenter. Baltimore, MD. HETEs and EETs on Subarachnoid Hemorrhage: Discovering the Relationship with Patient Complications and Outcomes. March 2011. **Poloyac SM**.
- University of Pittsburgh Department of Environmental and Occupational Health. Pittsburgh, PA. P450 enzymes in critical care illness: roles in drug metabolism and disease pathogenesis. March 2011. **Poloyac SM**.
- Invited presentation at the University of Kentucky College of Pharmacy in Lexington, KY. The impact of therapeutic hypothermia on drug disposition following critical injury. March 2011. **Empey PE**.

Other

- University of Pittsburgh Multidisciplinary Clinical Research Scholar Program. The impact of therapeutic hypothermia on drug disposition following critical injury. April 2011. **Empey PE**.
- UPMC Pathology Department. Pittsburgh, PA. Pharmacogenomics. January 2011. **Empey PE**.
- Mobile Computing in Healthcare Conference. Pittsburgh, PA. Tools, not toys—How to use the iPad to enhance your productivity in an academic setting. October 2010. **Empey PE**.
- University of Pittsburgh Alumni Society. Pittsburgh, PA. Early Intervention in Stroke: A Life Saving Approach. February 2011. **Poloyac SM**.
- NHLBI and DoD Workshop: Hypothermia and Hemostasis in Severe Trauma (HYPOSTAT): A New Crossroads. Bethesda, MD. Effects of Hypothermia on Pharmacology. February 2011. **Poloyac SM**.

Awards and Honors

- Grant Total: \$250,000. "Using Medical Records Repositories to Improve the Alert System Design," National Library of Medicine, National Institute of Health R01 Grant Award, 2009, Co-investigator. **Seybert AL**.
- 2011 American Society of Health System Pharmacists Fellow. **Seybert AL**.
- BCPS certification from the Board of Pharmacy Specialties. **Smithburger PL**.
- Preceptor of the Year for the PharmD program. **Smithburger PL**.
- SCCM CPP Patient Safety Committee chair-elect. **Smithburger PL**.

UPMC Pharmacy General Inpatient (Internal Medicine and Medication Education Program) Group

School of Pharmacy faculty members provide care to patients on the general units at UPMC Presbyterian in a variety of ways. They precept students and residents on internal medicine units, where they manage patients' medication therapy as members of the patient care team. They lead the hospital-wide Medication Education Program that involves a team of pharmacists and pharmacy students who provide medication education for hospitalized patients with complex medication regimens and those who are newly started on anticoagulants and insulin. They contribute to system-wide interdisciplinary teams with the goal of optimizing the inpatient management of patients, such as those with diabetes or at risk for hyperglycemia.

Faculty

Amy Calabrese Donihi, PharmD, Associate Professor
Rima A. Mohammad, PharmD, Assistant Professor
Kim C. Coley, PharmD, Professor

Resident

Jenny J. Kim, PharmD, PGY2 Internal Medicine Resident

Major Accomplishments

In FY11, School of Pharmacy faculty members:

- Developed and implemented a pharmacist-led transitions of care program at UPMC Presbyterian hospital through a grant funded by the Jewish Healthcare Foundation. **Coley KC, Mohammad RA, Donihi AC, Kim J.**
- Recruited for and successfully initiated a new pharmacy residency program in internal medicine with a focus on transitions of care. **Coley KC.**
- Was appointed to the Pennsylvania Pharmacists Association Transitions of Care Task Force. **Coley KC.**
- Received a grant funded by Takeda Pharmaceuticals for the study entitled, “Evaluation of Comorbidities, Prescribing Patterns, and Resource Use in Patients Presenting with Gout in a Large, Healthcare System.” \$85,625. **Coley KC.**
- Developed and implemented a protocol for the perioperative management of patients using CSII (insulin pumps) and a clinical pathway for patients admitted with diabetes or hyperglycemia. **Donihi AC.**
- Led efforts to create a process for pharmacist documentation in patients’ permanent electronic medical record. **Donihi AC.**
- Educated more than 1,600 high-risk hospitalized patients including more than 700 patients newly started on warfarin and 150 patients newly started on insulin. **Donihi AC, Colega C.**
- Developed patient educational videos that can be used to teach patients in the hospital. These videos are shown to patients on an iPad. The warfarin video was also licensed to SmartRoom which will enable it to be viewed by hospitalized patients “on-demand” on the television screen in their room. **Donihi AC,** pharmacy students.

Selected Publications

- Wessels AM, Bies RR, Pollock BG, Schneider LS, Lieberman JA, Stroup S, Li CH, **Coley KC**, Kirshner MM, Marder SR. Population Pharmacokinetic modeling of ziprasidone in patients with schizophrenia from the CATIE study. *J Clin Pharmacol.* 2011 Jan 5. [Epub ahead of print].
- DiNardo M, **Donihi AC**, Forte P, Gieraltowski L, Korytkowski MT. Standardized Glycemic Management Improves Peri-operative Glycemic Outcomes in Same Day Surgery Patients with Diabetes. *Endocr Pract.* 2011; 17:404-11.
- **Donihi AC**, Gibson J, DiNardo M, Koerbel G, Korytkowski MT. Role of a targeted glycemic management team in an academic medical center. *Endocr Pract.* 2011; 25:1-15. [Epub ahead of print].
- **Mohammad RA**, Eschenauer GA, Matzke GR. Drug Dosing in the Patient with Acute Renal Failure. *Textbook of Critical Care.* 6th ed. Philadelphia: Elsevier Saunders; 2011.
- **Mohammad RA**, Goldberg T, Dorsch MP, Cheng JWM. Antiplatelet therapy after drug-eluting stent placement. *Clin Ther.* 2010; 32(14):2265-81.

- Alaniz C, **Mohammad RA**, Welage LS. High-dose proton pump inhibitors in patients with variceal hemorrhage. *Arch Intern Med*. 2010; 170(18):1698.
- **Mohammad RA**. Use of granulocyte colony-stimulating factor in critically ill patients with severe sepsis and septic shock. *AJHP*. 2010; 67:1238-45

Selected Presentations

Posters

- American College of Clinical Pharmacy. Austin, TX. Risk of hypoglycemia in hospitalized patients prescribed a sulfonylurea. October 2010. Hedrick CM, **Donihi AC**, **Coley KC**.
- American Diabetes Association. San Diego, CA. Impact of inpatient hypoglycemia on morbidity and mortality. June 2011. Cox AE, **Donihi AC**, Saul MI, Korytkowski M.

Invited Presentation

- American College of Clinical Pharmacy. Austin, TX. Review of the management of hepatic encephalopathy. October 2010. **Mohammad RA**.

UPMC Infectious Diseases and Antibiotic Management Program (AMP)

Faculty

Brian A. Potoski, PharmD, Assistant Professor and Associate Director AMP

Gregory A. Eschenauer, PharmD, AMP Pharmacist

Ryan K. Shields, PharmD, Instructor, School of Medicine, and AMP Pharmacist

Resident

Anthony M. Casapao, PharmD, PGY2 Infectious Diseases Resident

Selected Publications

- **Shields RK**, Clancy CJ, Vadnerkar A, Kwak EJ, Silveira FP, Massih RC, Pilewski JM, Crespo M, Toyoda Y, Bhama JK, Bermudez C, Nguyen MH. Posaconazole serum concentrations among cardiothoracic transplant recipients: factors impacting trough levels and correlation with clinical response to therapy. *Antimicrob Agents Chemother*. 2011; 55:1308-1.
- Nguyen M, **Eschenauer GA**, Bryan M, O'Neil K, Furuya EY, Della-Latta P, Kubin CJ. Carbapenem-resistant *Klebsiella pneumoniae* bacteremia: factors correlated with clinical and microbiologic outcomes. *Diagn Microbiol Infect Dis*. 2010; 67:180-4.
- **Shields RK**, Kwak EJ, **Potoski BA**, Doi Y, Adams-Haduch JM, Silveira FP, Toyoda Y, Pilewski JM, Crespo M, Pasculle AW, Clancy CJ, Nguyen MH. High Mortality Rates Among Solid Organ Transplant Recipients Infected with Extensively Drug-Resistant *Acinetobacter baumannii*: using in vitro antibiotic combination testing to identify the combination of a carbapenem and colistin as an effective treatment regimen. *Diagn Microbiol Infect Dis*. 2011; 70:246-52.
- Han K, Capitano B, Bies R, **Potoski BA**, Husain S, Gilbert S, Paterson DL, McCurry K, Venkataramanan R. Bioavailability and Population pharmacokinetics of voriconazole in Lung Transplant Recipients. *Antimicrob Agents Chemother*. 2010; 54:4424-31.

Selected Presentations

Poster

- Interscience Conference on Antimicrobial Agents and Chemotherapy 50th Annual Meeting. Boston, MA. Combination Therapy Options for Extreme Drug Resistant Acinetobacter Susceptible to Colistin and Tigecycline. September 2010. Dorobisz MJ, **Shields RK**, Clancy CJ, Doi Y, Nguyen MH, **Potoski BA**.

Drug Use and Disease State Management (DUDSM) Program

School of Pharmacy faculty members lead the DUDSM program to develop evidence-based guidelines to promote safe and cost-effective use of medications for patients at UPMC. Faculty and hospital-based pharmacists in DUDSM are critical in designing and implementing strategies to incorporate guidelines into daily practice. Pharmacists at UPMC, including the clinical faculty, unit-based clinical pharmacists, operations-based pharmacists, and PGY1 and PGY2 UPMC residents, use these guidelines in the care of patients at all UPMC hospitals.

Faculty

Susan J. Skledar, RPh, MPH, Associate Professor and Director
Colleen M. Culley, PharmD, Associate Professor
Shelby L. Corman, PharmD, MS, Assistant Professor
Tara L. Pummer, PharmD, Assistant Professor

Graduate Students

Jeremiah D. Momper, PharmD
Nisanne S. Ghonem, PharmD
Mohammad S. Shawaqfeh, PharmD
Lindsay M. Ferguson, PharmD
Dana M. Roman, PharmD

Major Accomplishments

In FY11, DUDSM:

- Received the PSHP Innovative and Collaborative Practice Award of the Pennsylvania Society of Health System Pharmacists for “The impact of centralized distribution of barcode readable medications and daily review of scanning failures on scanning compliance in the health-system pharmacy setting.” Mulvanity M, Wasicek KA, **Culley CM**, **Skledar SJ**, **Mark SM**.
- “Venous Thromboembolism Prevention Project.” 2010 Silver Award winner of the Team Excellence in Healthcare Award from the Fine Foundation and Jewish Healthcare Foundation. Ambrosino R, Batross J, Burke A, Campbell S, Cairns L, Kammerer PW, Larkin J, McConnell M, Titus A, Schmieder K, **Skledar SJ**, Sweeney J, Thurner K, Chai X.
- Faculty member was the focus of an American Society of Health-System Pharmacists Career Profile. **Skledar SJ**.
- Designed and implemented 39 guidelines and 23 electronic health record protocols for use of medications in the hospital setting. **Skledar SJ**, **Corman SL**, **Culley CM**, **Pummer TL**, other faculty.

Highlights of translating evidence into protocols include:

- Developed multidisciplinary guidelines for the diagnosis and management of pulmonary hypertension, to be implemented at inpatient and outpatient sites across UPMC in collaboration with physicians, nurses, pharmacists, and members of the UPMC Health Plan. **Corman SL, Skledar SJ, Culley CM.**
- Developed a process for evaluating the efficacy and safety of dietary supplements and complementary and alternative medicines for the formulary, including the test case of citicoline for acute ischemic stroke. **Corman SL, Skledar SJ.**
- Developed a process for procurement, safe administration, and compliance with FDA-mandated Risk Evaluation and Mitigation Strategies (REMS) for alglucosidase alfa (Lumizyme®) for lysosomal storage disorders in collaboration with physicians, pharmacists, nurses, and insurers. **Skledar SJ, Gross PR, Guttendorf S.**
- Designed UPMC health system process for ensuring medication safety with FDA REMS medications (ex. erythropoiesis-stimulating agents). **Skledar SJ.**
- Led the successful expansion of intravenous intelligent infusion (“smart”) pump devices and safety technology to 10 UPMC Cancer Center sites. Safety functionality of pumps now spans more than 5,000 pumps across 19 UPMC facilities.
 - More than 400 potential adverse events are alerted per month via the pump safety alerts, alarms, and advisories. **Skledar SJ, Niccolai CS.**
- Averaged 99% compliance with Surgical Care Improvement Project (SCIP) national core quality measure for the postoperative duration of antibiotics for UPMC Presbyterian inpatients through daily surveillance and intervention (top national compliance tier is 100%). **Culley CM, Carroll BA, Skledar SJ.**
- Continued HealthSystem (HS) leadership for TheraDoc® ADE Surveillance Tool for UPMC. **Culley CM.** (UPMC Pharmacy Supertrainer)
 - Implemented Anticoagulation Assistant module across HS hospitals.
 - Created 19 custom alerts in categories such as antibiotic stewardship, new medications, safety triggers (ex. Ketamine), and REMS program for erythropoiesis-stimulating agents.
 - Leading workgroup of TheraDoc®, Framework®, Rx Partners and UPMC representatives to improve and repair data from skilled nursing facilities (SNF) that cross to TheraDoc® that will be used in patient care and ongoing surveillance research in UPMC-owned SNFs.

Selected Publications

- Lavsa SM, **Corman SL, Culley CM, Pummer TL.** Reliability of Wikipedia as a medication information source for pharmacy students. *Currents in Pharmacy Teaching & Learning* 2011; 3:154-8.

Selected Presentations:

Posters

- ASHP 45th Midyear Clinical Meeting. Anaheim, CA. Evaluation of flumazenil use at a tertiary academic medical center. December 6, 2010. Zhu A, **Skledar SJ.**
- ASHP 45th Midyear Clinical Meeting. Anaheim, CA. Analyzing infusion pump patient controlled analgesia administration practices. December 6, 2010. Kim D, Niccolai C, **Skledar SJ.**

- ASHP 45th Midyear Clinical Meeting. Anaheim, CA. Anticoagulation national patient safety goal compliance: tools and results. December 6, 2010. Elefritz J, **Skledar SJ**, Burke A, Fielding K, Ervin KC.
- Society of Critical Care Medicine 40th Congress 2011. San Diego, CA. Improving Prescribing and Documentation of Immunization and Education in Patients Who Undergo Emergency Splenectomy. January 15, 2011. **Falcione B**, **Skledar SJ**, George E.
- ASHP Summer Annual Meeting 2011. Denver, CO. Impact of a Risk Evaluation and Mitigation Strategy for erythropoiesis-stimulating agents on physician prescribing practices and patient care. June 13, 2011. **Mebel E**, Eberts M, **Corman SL**, **Skledar SJ**, **Mark S**.
- Academy of Managed Care Pharmacy Annual Meeting. Minneapolis, MN. Impact of a Prior Authorization on Atypical Antipsychotics in Children Less Than 12 Years of Age: A Retrospective Review. April 2011. Lopata E, Hain J, **Corman SL**, Daw J.
- Society for Medical Decision-Making Annual Meeting. Toronto, ON. Cost-effectiveness of dronedarone compared to amiodarone for patients with paroxysmal atrial fibrillation. October 2010. **Corman SL**, Smith KJ.

Invited Presentations

- ASHP 45th Midyear Clinical Meeting. Anaheim, CA. 10 Tips for Increasing the IQ of Your Smart Pumps. Quality and Safety Pearls 2010. December 6, 2010. **Skledar SJ**.

Other Presentations

- Bristol Myers Squibb Information Technology Site Visit. Pittsburgh, PA. Promoting Safe and Effective Use of Medications, Sponsored by the University of Pittsburgh Medical Center. April 27, 2011. **Skledar SJ**.
- American Society for Quality-Pittsburgh Section. Pittsburgh, PA. The “Smart Pump”: Increasing Safety by Fine-Tuning Drug Library Alerts. March 25, 2011. Niccolai C, **Skledar SJ**.

Geriatrics (Benedum and Shadyside Senior Care Institute) Program

The mission of care is the:

- identification and resolution of drug-related problems in the population that is highly susceptible to adverse drug outcomes
- enhanced adherence of medication regimens through education of patients and family members
- improved drug prescribing by physicians through pharmacy faculty advice and intervention

Faculty

Christine M. Ruby-Scelsi, PharmD, Assistant Professor

Joseph T. Hanlon, PharmD, MS, Professor (secondary pharmacy appointment)

Pharmacy Fellows

Zachary A. Marcum, PharmD, Pharmacy Geriatrics Fellow

Emily P. Peron, PharmD, Pharmacy Geriatrics Fellow

Major Accomplishments

- Expanded pharmacist-provided patient care from Benedum to Shadyside Senior Care. **Ruby CM.**
- Created one of two existing pharmacy geriatrics fellowships in the country, with first graduate in June 2011. **Ruby CM, Hanlon JT.**

Selected Publications

- Ruby CM, Hanlon JT,** Boudreau RM, Newman AB, Simonsick EM, Shorr RI, Bauer DC, Resnick NM. The impact of medication use on urinary incontinence in community dwelling elderly women. *J Am Geriatr Soc.* 2010; 58: 1715-20.
- Marcum ZA,** Perera S, Donohue JM, Boudreau RM, Newman AB, **Ruby CM,** Studenski SA, Kwoh CK, Simonsick EM, Bauer DC, Satterfield S, **Hanlon JT.** Analgesic use for knee and hip osteoarthritis in community-dwelling elders. *Pain Medicine.* 2011.
- Marcum ZA,** Amuan ME, **Hanlon JT,** Aspinall SL, Handler SM, **Ruby CM,** Pugh MJ. Prevalence of unplanned hospitalizations caused by adverse drug reactions among older veterans. *J Am Geriatr Soc.* 2011.

Selected Presentations and Reviews

Posters

- Gerontologic Society of America Annual Meeting. New Orleans, LA. Analgesic Use for Knee and Hip Osteoarthritis in Community Dwelling Older Adults: Findings from the Health ABC Study. November 20, 2010. **Marcum ZA,** Perera S, Donohue JM, Boudreau RM, Newman AB, **Ruby CM,** Studenski SA, Simonsick EM, Bauer DC, Satterfield S, **Hanlon JT.**
- American Geriatric Society Annual Meeting. National Harbor, MD. Adverse Drug Reactions Leading to Hospitalization among Older Outpatient Veterans. May 12, 2011. **Marcum ZA,** Amuan ME, **Hanlon JT,** Aspinall SL, Handler SM, **Ruby CM,** Pugh MJ.
- American Geriatric Society Annual Meeting. National Harbor, MD. Gaps and Opportunities: Care Transition of Older Adults from Nursing Home to Community. May 13, 2011. Tyagi S, Soong K, Ash E, **Ruby-Scelsi C,** Hodes, Gennari A.

Other Presentations

- Alzheimer's Association Greater Pennsylvania Chapter, Spring Symposium. Mars, PA. Appropriate Use of Pharmacotherapy in Alzheimer's Disease. April 18, 2011. **Ruby CM.**

Invited Review

- Geriatrics - Delirium Section in Pharmacotherapy Self-Assessment Program, 7th edition (PSAP-VII), American College of Clinical Pharmacy. July 2011. **Ruby CM.**

UPMC – Western Psychiatric Institute and Clinic

Faculty

Tanya J. Fabian, PharmD, PhD, Assistant Professor

Graduate Student

Diana N. Pinchevsky, PharmD

Major Accomplishments

During FY11:

- WPIC partnered with the University of Pittsburgh School of Pharmacy to establish Forbes Pharmacy as the primary practice site for a PGY1 Community Practice Resident. **Fabian TJ.**
- WPIC Pharmacy Department in partnership with UPMC Presbyterian Shadyside competed for and was awarded one of twenty PGY1 Expansion Grants from the American Society of Health-System Pharmacists (ASHP) Research and Education Foundation. **Fabian TJ.**
- The WPIC Transitional Care team continued to expand the role of pharmacists in transitional care in FY11. During this fiscal year, the team has facilitated discharge planning and addressed issues related to medication access, adherence and reconciliation for 457 patients. **Fabian TJ.**
- Four transition of care pharmacists:
 - Made 2,540 medication-related interventions including 704 medication insurance verification and 446 interventions related to medication reconciliation.
 - Provided a total of 2,067 thirty-day supply prescriptions to 322 patients who have been discharged from WPIC.
 - To date, pharmacists have been directly involved in the discharge planning process for more than 1,500 patients at WPIC. Through this collaborative, multidisciplinary approach we aim to increase medication adherence and attendance of first outpatient appointment and reduce hospital readmissions due to medication-related events.
 - Garnered support to expand the program with an additional FTE, based on the sustained success and increased demand for this patient-centered program.

Select Presentations

Posters

- American College of Clinical Pharmacy Meeting. Austin, TX. Bridging the Transition from Hospital to Home: Implementation of a Medication Discharge Program. October 2010. Montgomery JL, Harms J, Whipple EJ, Sakely KL, **Fabian TJ.**
- WPIC Annual Research Meeting. Pittsburgh, PA. Enhancing Resident Physician Awareness of Out-of-Pocket Medication Costs to Improve Patient Care. June 2011. Fleisch SB, Montgomery JL, Gross ML, **Fabian TJ.**

Other Presentations

- Western Psychiatric Institute and Clinic Medical Staff Meeting. Pittsburgh, PA. Evidence Based Psychiatry: Practice What We Teach. November 30, 2010. **Fabian TJ.**
- UPMC Pharmacy Grand Rounds. Pittsburgh, PA. Psychiatric Pharmacotherapy Update on Psychosis. January 19, 2011. **Fabian TJ.**

- Comprehensive Recovery Services Model of Care CE Series. Pittsburgh, PA. Management of Olanzapine Paomate and the Post Injection Delirium and Sedation Syndrome. March 25, 2011. **Fabian TJ.**
- UPMC Passavant Hospital. Pittsburgh, PA. Psychopharmacology Update Conference. May 18, 2011. **Fabian TJ.**
- Office of Education and Regional Programming Teleconference. Warren, PA. Psychiatric Pharmacotherapy Update: Focus on Depression and Psychosis. May 19, 2011. **Fabian TJ.**
- UPMC Family Medicine Refresher Course. Pittsburgh, PA. Depression Revisited: A Review of Treatment Strategies and Update on Current Controversies. June 9, 2011. **Fabian TJ.**

OTHER PROGRAMS

Pittsburgh Poison and Drug Information Center (PPDIC)

Faculty

Edward P. Krenzelok, PharmD, Professor

Tara L. Pummer, PharmD, Assistant Professor

Major Accomplishments

In FY11, the Poison Center faculty and staff:

- Managed 116,790 poison exposure and poison information calls.
- Completed a senior citizen outreach program by working with community senior citizen agencies. 86,885 pieces of poison prevention and poison center awareness materials were distributed free of charge.
- Held PPC exhibits at 43 local and regional health fairs and county fairs.
- Responded to more than 2,500 requests for poison prevention materials and provided in excess of 750,000 sheets of Mr. Yuk stickers, brochures, and other materials to the residents of the PPC 44 county service region.
- Partnered with Giant Eagle pharmacies to distribute Mr. Yuk poison prevention and poison center awareness materials at 177 stores.
- Mailed 3,000 letters to callers and requested that they contact their Pennsylvania legislator to voice support for poison center funding which was eliminated by Governor Corbett.
- Were successful in having state funding increased from zero to \$350,000 for FY12.

In FY11, the Drug Information faculty and staff:

- Responded to 834 calls with nearly 90% resulting in a patient care intervention the majority of which included management or prevention of an adverse event/medication error, the prevention of therapy interruption, and avoidance of inappropriate therapy.

- Produced 6 newsletters containing important practice information including new medication approvals, adverse drug event alerts, and a selected drug information question response developed to help practitioners stay abreast of recent medication information developments. These newsletters were distributed to all health care practitioners throughout the UPMC Health System.
- Provided experiential experiences for 108 P1 students, 7 P4 students, and 9 pharmacy residents.
- Produced 5 evidence-based medication reviews through the P&T Committee/DUDSM Program formulary development process.

Publications (Refereed)

- Mrvos R, Feuchter AC, Katz KD, Duback-Morris LF, Brooks DE, **Krenzelok EP**. Whole Fentanyl Patch Ingestion: A Multi-Center Case Series. *J Emerg Med*. doi:10.1016/j.jemermed.2011.05.017.
- **Krenzelok EP**, Mrvos R. Friends and Foes in the Plant World: A Profile of Ingestions and Fatalities. *Clin Toxicol*. 2011; 49:142-9.
- **Krenzelok EP**. Datura Poisoning and the Use of Physostigmine. *Clin Toxicol*. 2010; 48:575-6.
- **Pummer TL**, **Krenzelok EP**. Authors' response to letter "Intravenous and enteral *N*-acetylcysteine can be both cost-effective" by Tomaszewski, Cantrell, and Clark. *Clin Toxicol*. 2010; 48:399-400.
- Lavsa SM, **Corman SL**, **Culley CM**, **Pummer TL**. Reliability of Wikipedia as a medication information source for pharmacy students. *Currents in Pharmacy Teaching and Learning*. 2011; 3(2):154-8.

Invited Presentations

- 112th International Congress of Clinical Pharmacology, Therapeutics and Toxicology. Bucharest, Romania. A Profile of Acetaminophen (Paracetamol) Poisoning in the United States. June 7-11, 2011. **Krenzelok EP**.
- American Pharmaceutical Association Self-Care Institute. Washington, DC. Regulatory Activities to Support the Safe Use of Acetaminophen. June 18, 2011. **Krenzelok EP**.
- European Association of Poisons Centres and Clinical Toxicologists XXXI International Congress. Dubrovnik, Croatia. Plant Ingestions: A Profile of Fatalities. May 24-27, 2011. **Krenzelok EP**, Mrvos R.
- European Association of Poisons Centres and Clinical Toxicologists XXXI International Congress. Dubrovnik, Croatia. Experience with the Use of PC Data for Public Health Purposes with a Focus on Non-Pharmaceuticals. May 24-27, 2011. **Krenzelok EP**.
- European Association of Poisons Centres and Clinical Toxicologists XXXI International Congress. Dubrovnik, Croatia. Acetaminophen (Paracetamol) Exposures: A Profile of Life-Threatening and Fatal Outcomes. May 24-27, 2011. **Krenzelok EP**, Green JL, Dart R.
- American Pain Foundation-Advancing the Understanding for the Safe Use of Acetaminophen Conference. Washington, DC. Acetaminophen Exposures: U.S. Poison Center Experience. November 10, 2010. **Krenzelok EP**.

- North American Congress of Clinical Toxicology. Denver, CO. Friends and Foes in the Plant World. October 7-12, 2010. **Krenzelok EP.**
- North American Congress of Clinical Toxicology Meeting. Denver, CO. The impact of federal pseudoephedrine regulations on methamphetamine exposures. October 10, 2010. **Pummer TL.**

Poster Presentations

- North American Congress of Clinical Toxicology Meeting. Denver, CO. The impact of pseudoephedrine regulations on methamphetamine exposures. October 9, 2010. **Pummer TL, Krenzelok EP.**
- ASHP 45th Midyear Clinical Meeting. Anaheim, CA. Evaluation of Gabapentin Abuse Based on Poison Center Exposure Data. December 10, 2010. Jernigan MG, Kipp GM, Felbinger MJ, Sales IA, Johnson HJ, **Krenzelok EP, Pummer TL.**
- American Society of Clinical Pharmacology and Therapeutics Annual Meeting. Dallas, TX. IV Acetaminophen Overdose Simulations: Guidance for Making Decisions on Early Treatment of IV Overdoses. March 2-5, 2011. Dart R, Cantrell L, Offerman SR, Heard KI, **Krenzelok EP,** Rumack B, Gosselin NH, Mouksassi S, Marier F, Hardalo, Breitmeyer JB, Royal MA.
- ASHP 45th Midyear Clinical Meeting. Anaheim, CA. Evaluation of Gabapentin Abuse Based on Poison Center Exposure Data. December 5-9, 2010. Jernigan MG, Kipp GM, Felbinger MJ, **Johnson HJ, Krenzelok EP, Pummer TL.**
- North American Congress of Clinical Toxicology. Denver, CO. The Impact of Federal Pseudoephedrine Regulations on Methamphetamine Exposures. October 7-12, 2010. **Pummer TL, Krenzelok EP.**
- North American Congress of Clinical Toxicology. Denver, CO. Diphenhydramine Ingestion in the Pediatric Population: A Certified Regional Poison Information Center Experience. October 7-12, 2010. Dorfman JL, Chan SC, Mrvos R, Katz K, **Krenzelok EP.**

Publications (Non-Refereed)

- **Krenzelok EP.** Chewable Multiple Vitamins with Iron. *Bulletin of the Allegheny County Medical Society.* 2010; 100:461.
- **Krenzelok EP.** Substances of Abuse: Contemporary Issues and Emerging Trends. *Bulletin of the Allegheny County Medical Society.* 2010; 100:339.
- **Krenzelok EP.** Gastrointestinal Decontamination: Is There Still a Role in the Poisoned Patient? *Bulletin of the Allegheny County Medical Society.* 2010; 100:233.
- **Krenzelok EP.** Household Cleaning Products: A Leading Cause of Accidental Poisoning Exposures. *Bulletin of the Allegheny County Medical Society.* 2010; 100:103.

The Grace Lamsam Pharmacy Program for the Underserved

Under the leadership of Director Sharon Connor, PharmD, and faculty member Lauren Jonkman, PharmD, the Grace Lamsam Pharmacy Program for the Underserved provides pharmaceutical care at community health centers, free primary care clinics, and at shelters and “drop-in” centers in Pittsburgh. The program depends on volunteer pharmacists and students from the Pittsburgh area. The Program serves primarily homeless and low-income patients. Pharmacists work in an interdisciplinary model of

care with a team that includes physicians, nurses, and other health professionals. The Grace Lamsam Pharmacy Program partners with Health Care for the Homeless (HCH), North Side Christian Health Center, and UPMC Matilda Theiss and collaborates with the Program for Health Care to Underserved Populations (PHCUP). The Grace Lamsam Pharmacy Program works to enhance access to cost-effective medicines for patients served by our collaborator groups. The program contributes expertise to reduce cost and assure safe and effective drug therapy.

Faculty

Sharon E. Connor, PharmD, Assistant Professor

Lauren J. Jonkman, PharmD, Instructor

Major Accomplishments

In FY11, the Grace Lamsam Pharmacy Program for the Underserved:

- Was selected to host a regional HRSA Collaborative (Patient Safety and Clinical Pharmacy Services) meeting in Pittsburgh.
- Was selected to present its work in the HRSA Collaborative at the Regional Meeting: Enhancing Diabetes Care through an Interprofessional Approach to Performance Improvement in Pittsburgh, Pa., in July 2010 and in Chicago, Ill., in September 2010.
- Received \$50,000 from The Rite Aid Foundation to manage patients with diabetes and hypertension at the Birmingham Free Clinic and North Side Christian Health Center in December 2010.
- Received three HRSA Patient Safety and Clinical Pharmacy Services 2.0 Awards in October 2010:
 - Clinical Pharmacy Services Improvement Award and Health Outcome Management Award in collaboration with the Birmingham Free Clinic.
 - Outstanding Performance Award in collaboration with North Side Christian Health Center.

Publications

- Lauffenburger JC, **Jonkman LJ**, Lange E, **Connor SE**, Sibale C. A public health approach to site-specific formulary management: Addressing deficient drug supplies in Malawi. *International Journal of Pharmacy Practice*. 2011; 19(3):201-5.

Presentations

- HRSA Patient Safety and Clinical Pharmacy Services Learning Session #2 Mentoring Teams Round-Robin: The Five Strategies that Drive Change...It's in the Bag! (Change Package, that is!) Session. Invited presenter on Measureable Improvement. May 10, 2011. **Connor SE**.
- STFM Annual Conference. Pharmacy Resident in Underserved Care: Creating the Business Case. April 29, 2011. Kowalsky P, **Connor SE**, **Jonkman LJ**, Klatt P, **McGivney MS**.
- American Pharmacist Association Annual Meeting. Seattle, WA. A Pharmacist-Run Smoking Cessation Program for the Underserved. March 2011. Winner of the APhA-APPM Presentation Merit Award. Thompson K, **Connor SE**, **Jonkman LJ**, Scharf D.
- American Society of Health System Pharmacists Midyear Meeting. Anaheim, CA. Management of diabetes mellitus in uninsured patients: perspectives from an urban clinic for the underserved. December 2010. Ray A, Sipes G, Qazi H, **Jonkman LJ**, **Connor SE**.

- Patient Safety and Clinical Pharmacy Services Regional Meeting. Chicago, IL. Enhancing Diabetes Care through an Interprofessional Approach to Performance Improvement. Invited Speaker representing the Birmingham Free Clinic, Invited Speaker representing the North Side Christian Health Center. September 2010. **Connor SE**.
- Patient Safety and Clinical Pharmacy Services Regional Meeting. Pittsburgh, PA. Enhancing Diabetes Care through an Interprofessional Approach to Performance Improvement. July 2010. **Connor SE** (invited speaker representing the North Side Christian Health Center), **Jonkman LJ** (invited speaker representing the Birmingham Free Clinic).
- American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. Online AACP Public Health SIG Questionnaire Utilizing the Clinical Prevention and Population Health Curriculum Framework. July 2010. Gettman DA, Eckstein M, Nash JD, **Connor SE**, Gortney J, Law AV.
- American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. Caring for the Underserved: Student/Resident Learning Opportunities through the HRSA-Patient Safety and Clinical Pharmacy Services Collaborative. July 2010. **Connor SE** (facilitator-roundtable discussion).
- American Association of Colleges of Pharmacy Annual Meeting. Seattle, WA. Caring for the Underserved: A Curriculum Framework. July 2010. **Connor SE** (facilitator-roundtable discussion).

Health Care for the Homeless Clinics

During FY11, the faculty and volunteer pharmacists:

- Provided oversight of the pharmacy program for HCH dispensing almost 7,000 prescriptions to uninsured patients.
- Provided experiences in the community for four pharmacy practice residents and one community practice resident. They also provided experiences for 217 PharmD students.
- Received the HRSA Patient Safety and Clinical Pharmacy Services 2.0:
 - Clinical Pharmacy Services Improvement Award in collaboration with the Birmingham Free Clinic October 2010.
 - Health Outcome Management Award in collaboration with the Birmingham Free Clinic. October 2010.

Alumni and faculty members who provide care at the clinics include: Grant Bender, pharmacist; Sharon Connor, director and assistant professor; Tami Coppler, pharmacist; Shelby Corman, assistant professor; Dana Roman, pharmacist; Lauren Jonkman, instructor; Laura Krugger, pharmacist; Yardlee Kauffman, community care resident; Ana Lupu, pharmacy resident; Erin McCann, pharmacist; Alisa Michaels, pharmacist; Nick Owens, pharmacy resident; Kristine Schonder, assistant professor; Amanda Simpson, pharmacist; Kara Sperandio, pharmacist; and Jen Tkocs, pharmacist.

North Side Christian Health Center

The Pharmacy Services Clinic at this site began in the fall of 2003 at North Side Christian Health Center. This pharmacist-managed clinic is designed to screen patients for eligibility for Pharmaceutical Manufacturers Patient Assistance Programs. Medication therapy management also takes place.

During FY11, pharmacists:

- Provided care for approximately 400 patient care visits.
- Evaluated patients for eligibility for various assistance programs available in the city, county, state and through Indigent Programs.
- Evaluated drug therapy for appropriateness and made recommendations that integrate the resources available to attain the best treatment for the patient.
- Provided experiences for sixteen P4 students, three P3 students, and eight P1 students.
- Provided longitudinal experiences for two community care residents and rotations for one pharmacy practice resident.
- Received the HRSA Patient Safety and Clinical Pharmacy Services 2.0:
 - Outstanding Performance Award in collaboration with North Side Christian Health Center. October 2010.

UPMC Matilda Theiss Health Center (New Clinical Service in 2010)

Pharmacists provide care through collaborative care practice to patients at this federally qualified community health center.

In FY11, faculty:

- Provided care for patients during approximately 200 patient care visits.
- Evaluated drug therapy for appropriateness and made recommendations that integrate the resources available to attain the best treatment for the patient.
- Participated in the HRSA Patient Safety and Clinical Pharmacy Services Collaborative.

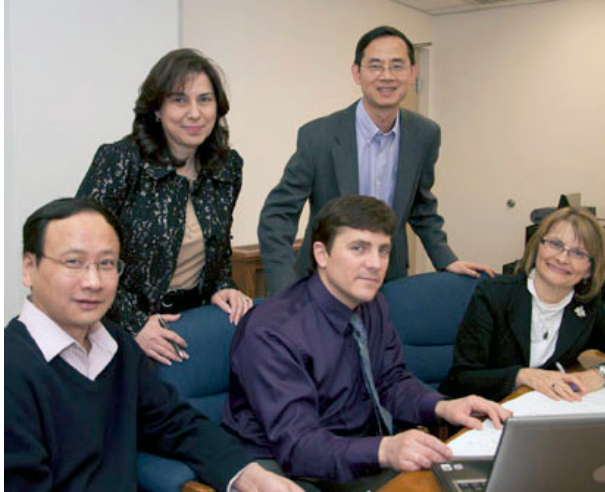
The table on the next page summarizes the care provided through the Grace Lamsam Pharmacy Program in collaboration with the specific entity identified.

Grace Lamsam Pharmacy Program Summary

Service	Description of Service Activities	Location	How often is service provided and at what times	Providers involved in delivering service	# of individuals served/ # attendees
Health Care for the Homeless Pharmacy Partnership Partners include: 1)Health Care for the Homeless 2)Program for Health Care to Underserved Populations 3)Operation Safety Net	<ul style="list-style-type: none"> •On-site pharmacy services •Pharmaceutical Care Quality Assurance •Formulary development and maintenance •Cost-effectiveness Outcomes •Inventory Management Protocols •Development of Clinical Practice Guidelines-Best Practices •Train HCH providers to utilize the patient assistance programs 	Birmingham Free Clinic Women's Center and Shelter Pleasant Valley Shelter Bethlehem Haven Shelter Wellspring Drop-in-Center Salvation Army North Side Drop-in-Center McKeesport 9 th Street Clinic	Monday – Saturday Twelve clinics which meet half-day at various times	Community <ul style="list-style-type: none"> •Volunteers •P1, P2, P3 and P4 students •SOP Faculty Pharmacy residents •13 volunteer pharmacists 	Total patient encounters: approximately 3,200
Preventive Care Clinic (Smoking Cessation)	<ul style="list-style-type: none"> -blood pressure screening -consultation -smoking cessation counseling -blood glucose testing -heart disease screening -diabetes screening 	Birmingham Free Clinic	Thursdays 9am–11:30am	<ul style="list-style-type: none"> • Pharmacy students • SOP faculty • Pharmacy residents 	Total patients: 27 Patient encounters: 104
North Side Christian Health Center	<ul style="list-style-type: none"> •Medication Therapy Management Service •Access to medications through Pharmaceutical Manufacturer Patient Assistance Programs 	North Side Christian Health Center, Community Health Center	Tuesday from 1:00pm–5:00pm Wednesday from 9:00am-12noon	2 Pharmacists 3 Pharmacy Residents P4 students on rotation P3 Students on rotation	Total patient encounters: 400
UPMC Matilda Theiss Health Center	<ul style="list-style-type: none"> • Medication Therapy Management Service •Smoking cessation program with counseling 	Matilda Theiss Health Center	Tuesday/ Wednesday 1:00-4:00pm	Internal Medicine pharmacy resident and Transplant Specialty Pharmacy Resident P1students	Total patient encounters: 200
Salvation Army Harbor Light Center	Medication Therapy Management Service	Salvation Army Harbor Light Rehabilitation Center	Friday 8:00am – 12:00pm	Pharmacist P4s	Total patient encounters: 150

Securing an Adequate Resource Base





Securing an Adequate Resource Base

Achieving the vision of the School of Pharmacy requires a financial and space resource base that supports faculty, staff, and students in their endeavors. The people of the School of Pharmacy are one of its greatest resources. This section includes the resource of people—the faculty, staff, and alumni of the School.

By 2012, the School of Pharmacy will have:

- **Increased the resource base of the School of Pharmacy.**

RESOURCES BY THE NUMBERS FOR FY11

- **\$20.71 million:** The total School of Pharmacy expenditures in FY11 from all sources.
- **\$18,844,917:** The market value of the School's endowment at the end of FY11.
- **\$22,200,019:** The Capital Campaign total at the end of FY11.
- Gifts in FY11 totaled **\$2,624,532**, **65%** of which was contributed by corporations.
- Of the total FY11 gifts, **\$261,362** was from annual gifts.
- The School of Pharmacy has an allocation of and/or leases a total of **82,505 SF** of space in **10** locations in Oakland and the South Side. Space allocation has decreased by 2.6% (**-2,281 SF**) since FY08.
- In FY11, the School of Pharmacy had **75** full-time faculty members who received:
 - **9** national recognitions/awards for educational accomplishments
 - **13** recognitions/awards for research
 - **7** recognitions/awards for practice
 - **2** national recognitions/awards for service

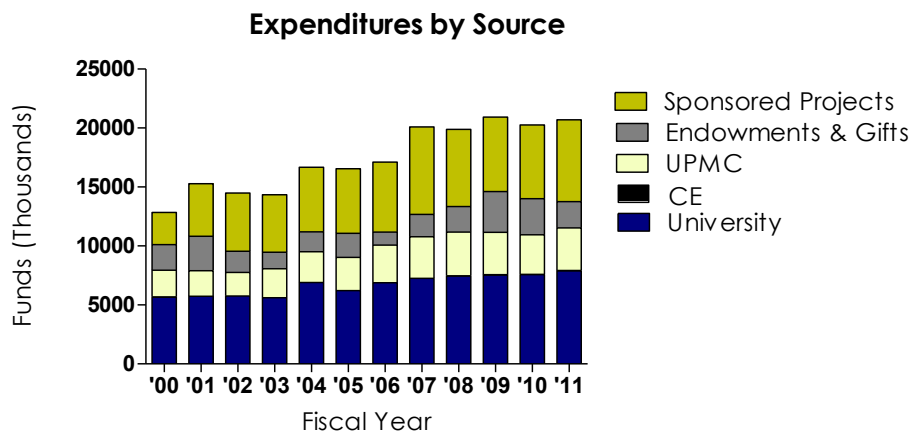
Of our 75 faculty members,

- **17 (22.7%)** have been elected to fellowship in one or more organization.
- **23 (30.7%)** are board certified.
- **36 (48.0%)** are either board certified or fellows, or both!
- Number of staff: **62: 33** are administrative staff and **29** are research staff
- Number of living alumni: **4,887**
- The School of Pharmacy's alumni ranked:
 - **#1** in life memberships in the Pitt Alumni Association in schools and programs with more than 100 alumni
 - **#3** among all University schools and programs in alumni engagement
 - **36.14 percent** of the alumni were engaged with the School of Pharmacy and/or University in some way

FINANCIAL RESOURCES

Budget

Sources of funding for the School of Pharmacy include allocation from the University of Pittsburgh, UPMC, continuing education and auxiliary accounts, gifts and endowments, and sponsored project awards. The graph below represents financial expenditures for fiscal years '00 through '11.



The graph demonstrates the overall growth of financial resources, particularly since 2000. The total expenditures for FY11 were \$20,707,566 with sponsored projects accounting for 33.5% of the expenses. Together, the University (38.1%), sponsored project awards (33.5%), and UPMC (17.4%) accounted for over 89% of the School's funding.

Institutional Advancement

The value of the School of Pharmacy is recognized in many ways, including philanthropic support.

Capital Campaign

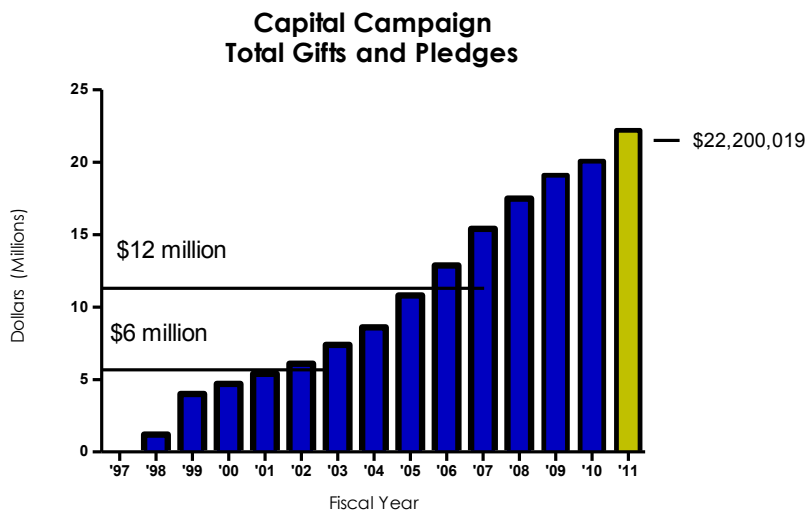
On July 1, 1997, the University launched the Capital Campaign to support students, teaching and learning, and the research of faculty. To date, the School of Pharmacy has raised \$22,200,019 in gifts and pledges for the School's portion of the Capital Campaign.

Securing endowed funds to provide scholarship and professorship support is the primary goal for the School of Pharmacy's Capital Campaign.

School of Pharmacy Capital Campaign by Gift Designation
Gifts and Pledges*
July 1, 1997 – June 30, 2011

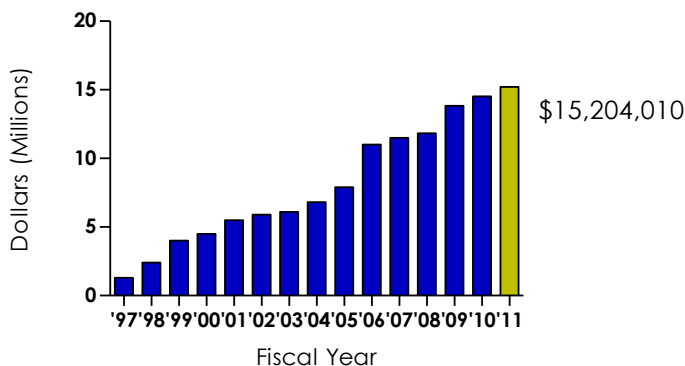
Designation	Amount
Endowed Scholarships and Awards	\$5,294,710
Endowed Professorships (2)	3,000,000
Renovation: Seminar, Student Lounge, Labs	1,733,404
Programs and Research	6,612,574
Other	5,559,331
Total	\$22,200,019

*Includes Voluntary Support (gifts) received during FY11

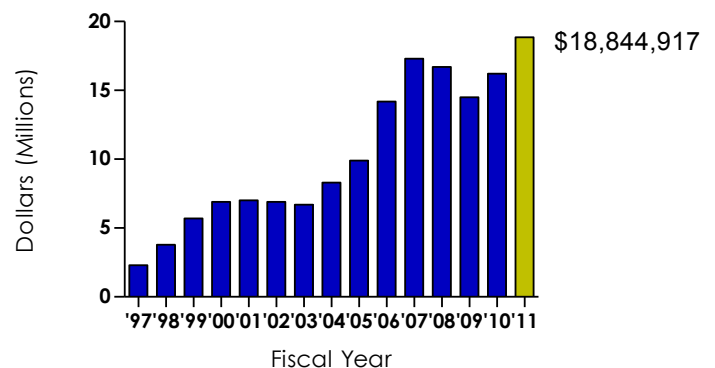


The book value of the School of Pharmacy endowment has continued to grow through gifts as shown in the graph below. It is not surprising that the market value of the endowment has fluctuated with the economic situation of the nation. As the economy has begun to recover, so has the market value of the endowment. Notably, some of the increase is also due to the increase in book value through new gifts.

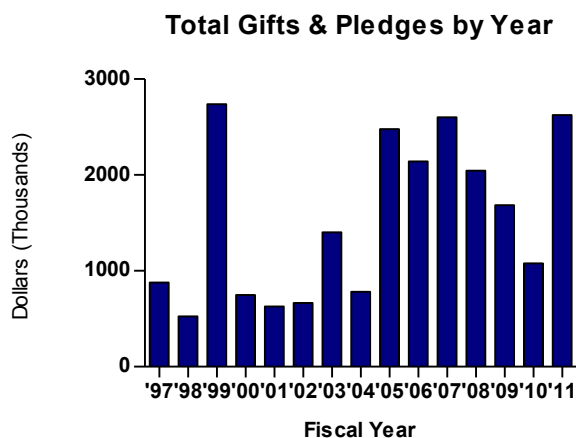
School of Pharmacy Endowment - Book Value



School of Pharmacy Endowment - Market Value



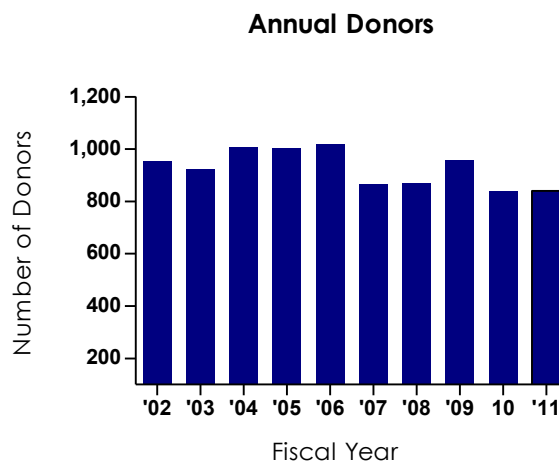
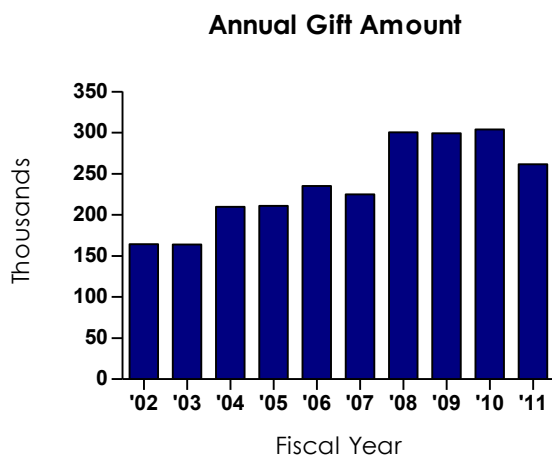
In FY11, the School of Pharmacy raised more money than in any year since 1999. The School of Pharmacy received charitable gifts, pledges, and grants totaling \$2,624,532 from a total of 910 individuals, foundations, corporations, and other organizations. This is more than double the total dollars raised in FY10. The total number of donors also increased in FY11.

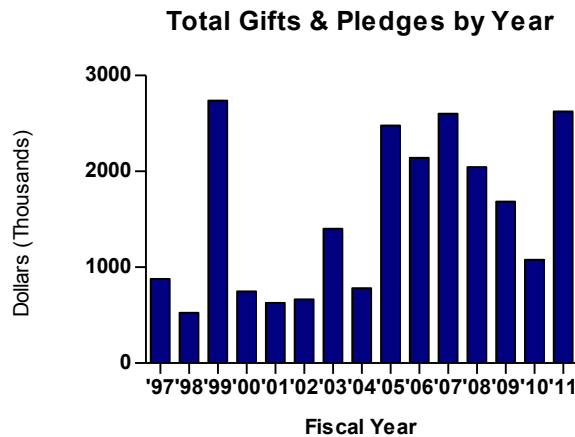


FY11 Giving to the School of Pharmacy by Source

	Alumni	Foundations	Corporations	Organizations	Friends
Amount	\$335,021	\$207,027	\$1,714,751	\$165,888	\$201,845
Percentage	13%	8%	65%	6%	8%

The total dollar amount in gifts and pledges increased—a change due largely to increases in corporate and foundation support. As shown in the graphs below, the annual gift amount was \$261,362; though lower than the previous year, it is higher than any year prior to 2008. The total number of annual donors in FY11 increased slightly to 840.





PHYSICAL FACILITIES

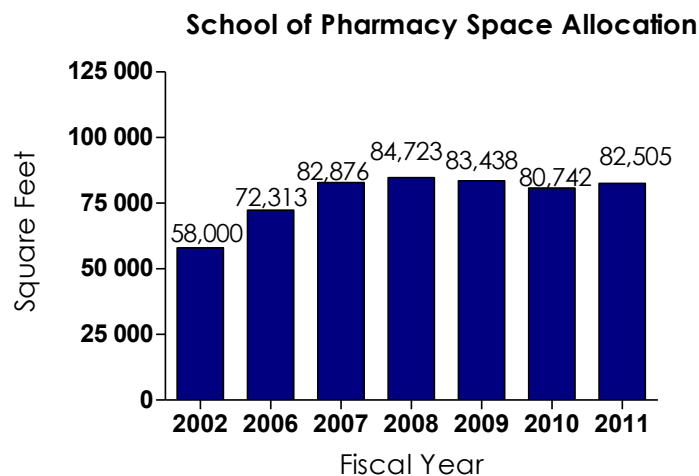
By 2012, we will have:

- **Increased the physical space allocated to the School of Pharmacy.**

At the close of FY11, the School of Pharmacy occupied a total of 82,505 SF, including:

- 46,989 SF in Salk Hall
- 4,297 SF in BSTIII
- 2,704 SF in UPMC Montefiore
- 6,514 SF in UPMC Presbyterian
- 1,091 SF in Falk Clinic
- 1,110 SF (leased) on Craig Street
- 13,590 SF (leased) in Birmingham Towers
- 1,896 SF (leased) in Parkvale Building
- 3,557 SF in Victoria Street offices
- 757 SF in South Presby Tower

As shown in the graph below, the space allocation to pharmacy has decreased by 2.6% since 2008.

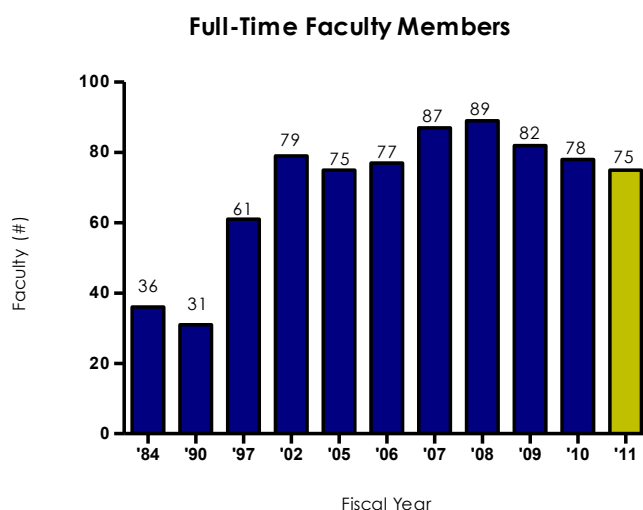


THE RESOURCE OF PEOPLE

We formally recognize that the people of the School are its most valuable resource, and therefore include people in this section.

Faculty

There are 75 full-time and 9 part-time faculty members in the School of Pharmacy, all of whom hold faculty appointments in either the Department of Pharmaceutical Sciences or the Department of Pharmacy and Therapeutics. The changes in number of faculty since 1984 are shown in the graph.



In the Department of Pharmaceutical Sciences, two faculty members earned promotions during FY11; both Alexander Doemling and Wen Xie were promoted to professor with tenure. Paul Johnston was hired as a research associate professor in January 2011. The department and School honored Ada Mezzich, PhD, who retired in December 2010 and David Edwards, PhD, who retired in June 2011. After many years with the University of Pittsburgh, Dexi Liu, PhD, accepted the position of department chair at another university.

In the Department of Pharmacy and Therapeutics, Brian Potoski, PharmD, was promoted to associate professor. Departing during FY11 were Rafael Saenz, PharmD, and Scott Mark, PharmD. The Department of Pharmacy and Therapeutics collaborated with the VA Healthcare System's Center for Health Equity Research and Promotion in the recruitment of Carolyn Thorpe, PhD, and Joshua Thorpe, PhD, who will join the faculty in September 2011; both conduct research in comparative effectiveness in geriatric patients and/or caregivers.

Full-Time Faculty Rank by Department of Primary Appointment*

Faculty Rank	Pharmaceutical Sciences	Pharmacy and Therapeutics	Total for School of Pharmacy
Professor	19	3	22
Associate Professor	5	8	13
Assistant Professor	3	23	26
Instructor	0	3	3
Senior Lecturer	1	0	1
Research Associate Professor	2	1	3
Research Assistant Professor	7	0	7
All Faculty	37	38	75

*Part-time Faculty (numbers not in table) include:

Department of Pharmaceutical Sciences: 2

Department of Pharmacy and Therapeutics: 7

Fellowships in Organizations and Board Certification

Election to fellowship and board certification are two characteristics of faculty members who have distinguished themselves. Of the 75 faculty members, 17 (22.7 %) have been elected to fellowship in one or more organization, 23 (30.7 %) are board certified, and 36 (48.0 %) are elected fellows, board certified, or both. The names, letters indicating the fellowship, and department of affiliation are shown in the table. The organization of the fellowship is indicated at the first use of the initials in the table.

FY11: Faculty Elected to Fellowship in Professional or Scientific Organizations

Name	Fellowship		Department
Kim Coley	FCCP	American College of Clinical Pharmacy	Pharmacy and Therapeutics
Judith Gavalier	FACN	American College of Nutrition	Pharmaceutical Sciences
Barry Gold	AAAS	American Association for the Advancement of Science	Pharmaceutical Sciences
Randy Juhl	FAPhA	American Pharmacists Association	Pharmaceutical Sciences
Sandra Kane-Gill	FCCM	American College of Critical Care Medicine	Pharmacy and Therapeutics
	FCCP	American College of Clinical Pharmacy	
Joanne Kowiatek	FASHP	American Society of Health-Systems Pharmacists	Pharmacy and Therapeutics (Adjunct)
Edward Krenzelok	FAACT	American Association of Clinical Toxicology	Pharmacy and Therapeutics
Patricia Kroboth	FCCP	American College of Clinical Pharmacy	Pharmaceutical Sciences
	FAAPS	American Association of Pharmaceutical Scientists	
Scott Mark	FASHP	American Society of Health-System Pharmacists	Pharmacy and Therapeutics
	FACHE	American College of Healthcare Executives	
	FABC	American Board Company	
Melissa Somma McGivney	FCCP	American College of Clinical Pharmacy	Pharmacy and Therapeutics
Christine Ruby-Scelsi	FASCP	American Society of Clinical Pharmacists	Pharmacy and Therapeutics

Name	Fellowship		Department
Paul Schiff	FAPhA	American Pharmacists Association	Pharmaceutical Sciences
	FAAPS	American Association of Pharmaceutical Scientists	
Amy Seybert	FASHP	American Society of Health-System Pharmacists	Pharmacy and Therapeutics
Susan Skledar	FASHP	American Society of Health-System Pharmacists	Pharmacy and Therapeutics
Randall Smith	FAAPS	American Association of Pharmaceutical Scientists	Pharmaceutical Sciences
Ralph Tarter	FAPS	American Psychological Society	Pharmaceutical Sciences
	FAPA	American Psychopathological Association	
Raman Venkataramanan	FACCP	American College of Clinical Pharmacology	Pharmaceutical Sciences
	FAAPS	American Association of Pharmaceutical Scientists	

FY11: Faculty Board Certifications

Name	Certification		Department
Janet Amico	ABIM	Internal Medicine	Pharmaceutical Sciences
Sherrie Aspinall	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Shelby Corman	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Colleen Culley	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Amy Calabrese Donihi	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Scott Drab	CDE	Diabetes Educator	Pharmacy and Therapeutics
	BC-ADM	Advanced Diabetes Management	
Philip Empey	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Tanya Fabian	BCPP	Psychiatric Pharmacy	Pharmacy and Therapeutics
Bonnie Falcione	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Roberta Farrah	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Deanne Hall	CDE	Diabetes Educator	Pharmacy and Therapeutics
Heather Johnson	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Lauren Jonkman	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Edward Krenzelok	DABAT	Toxicology	Pharmacy and Therapeutics
Lindsay Lippman	BCOP	Oncology	Pharmacy and Therapeutics
Scott Mark	CHE	Certified Healthcare Executive	Pharmacy and Therapeutics
Rima Mohammad	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Karen Pater	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
	CDE	Diabetes Educator	
Brian Potoski	BCPS (AQ-ID)	Pharmacotherapy/Added Qualification in Infectious Diseases	Pharmacy and Therapeutics
Christine Ruby-Scelsi	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Pamela Smithburger	BCPS	Pharmacotherapy	Pharmacy and Therapeutics
Ralph Tarter	ABPP	Clinical Psychology	Pharmaceutical Sciences
Lauren Trilli	BCPS	Pharmacotherapy	Pharmacy and Therapeutics

Faculty Honors, Recognition, and Professional Affiliations

Faculty of the School of Pharmacy have received honors and recognitions for their efforts in education (E), research (R), practice (P), and service (S) as indicated in the table below.

Faculty Member	Recognition/Affiliation	Type*
Neal Benedict	Received Innovation in Education Award from Provost's Advisory Council on Instructional Excellence for "Innovative Instructional Approach to Foster Self-Directed Learning (with Kristine Schonder, School of Pharmacy, and James McGee, School of Medicine	E
	Received Rho Chi Innovation in Teaching Award	E
Billy Day	Elected chairperson-elect of the Steering Committee of the Chemistry in Cancer Research Working Group of the American Association for Cancer Research	R
	Appointed associate editor for <i>Toxicology in Vitro</i>	R
Balwant Dixit	Chaired a forum on Mental Illness and Substance Abuse in Indian Immigrants in North America at the 2011 Bruhan Manarashtra Mandal Convention	S
Alexander Doemling	Invited to teach MCR chemistry and drug discovery for one week at University of Calicut, Kerala, South India	R
	Invited as keynote speaker at 5 th International Conference on Multi-Component Reactions, Hangzhou PR China	R
Barry Gold	Elected as Fellow in American Association for the Advancement of Science	R
Levent Kirisci	Participated as statistical consultant on WHO Project on Assessing Health Systems Toward Person-Centered Care	R
	Named statistical editor of international <i>Journal of Person-Centered Medicine</i>	R
Patricia Kroboth	Participated as a panel member of healthcare experts for Kerr Drug: "Kerr Drug and the Future of Pharmacy in America"	P
Melissa Somma McGivney	Selected to receive the National Association Chair Drug Store's Faculty of the Year Award in August 2011	P
Stephanie McGrath	Selected as one of ten honorable mention awardees for the American Pharmacists Association One-To-One Counseling Program	P
Susan Meyer	Elected secretary of the American Association of Colleges of Pharmacy Council of Deans	S
	Voted School's 2010 APhA-ASP Faculty Member of the Year	E
	Invited to participate in "Team-Based Competencies: Building a Shared Foundation for Education and Clinical Practice" meeting in Washington, DC	E
Thomas Nolin	Co-chaired symposium "Assessing the effect of impaired kidney function on drug exposure, response, and dosing: Challenges and opportunities," at the American Society for Clinical Pharmacology and Therapeutics Annual Meeting	R
	Participated in Acute Dialysis Quality Initiative International Consensus Conference on Blood Purification in Toxicology	P
Karen Pater	Fellow in 2011 Provost's Faculty Diversity Seminar	E
Amy Seybert	Elected as a Fellow of the American Society of Health-System Pharmacists	P
Susan Skledar	Awarded the School's Residency Preceptor of the Year Award	E
Paul Schiff	Voted School's Stanford I. Cohen Teacher of the Year	E
Randall Smith	Participated in Biomedical Health and Wellness Main Salon in Cannes, France	R
Pamela Smithburger	Awarded School's Faculty Preceptor of the Year Award	E
	Received Board Certification as a Pharmacotherapy Specialist	P
	Appointed chair-elect of Safety Committee of Clinical Pharmacy and Pharmacology Section of Society of Critical Care Medicine	P

Faculty Member	Recognition/Affiliation	Type*
Gordon Vanscoy	Invited as commencement speaker for Katz Graduate School of Business	E
Raman Venkataramanan	Received American Pharmacists Association Tyler Prize for Stimulation of Research	R
	Appointed editor in chief of the American Journal of Analytical Chemistry	R
Wen Xie	Invited to attend FASEB translation research symposium on behalf of ASPET	R
Xiang-Qun (Sean) Xie	Invited to serve as member of NIH Biophysics of Neural Systems Study Section, Center for Scientific Review (four-year term)	R

*Type indicates E (Education), R (Research), P (Practice), S (Service).

Alumni and Alumni Engagement

In the five years that the University of Pittsburgh has been ranking its 18 schools and programs in alumni engagement, the School of Pharmacy has held the #1 spot in FY07 and FY09, ranking second in FY08 and FY10 and third in FY11. The term “engagement” includes contributions to the University and participation in events, University support functions, percentage of email addresses available, and online participation.

In FY11:

- 36.14 percent of the 4,887 School of Pharmacy living alumni were engaged with the School of Pharmacy and/or University in some way.
- School of Pharmacy alumni ranked:
 - first (12.44 percent) in life and in regular memberships in the Pitt Alumni Association in schools and programs with more than 100 alumni.
 - third (36.13 percent) in participation in School and University programs in schools and programs with more than 100 alumni.
- Alumni demonstrated their commitment to the University and the School in many ways, including participation in events sponsored by the School and/or the Alumni Society:
 - Alumni Day speaker, Richard Kruzynski (BS '77), gave a presentation to pharmacy students.
 - Pharmacy alumni celebrated Homecoming 2010 with a Banana Split Homecoming Party.
- The School of Pharmacy hosted three receptions at national professional and scientific meetings:
 - National Community Pharmacists Association Convention and Trade Exposition, October 24, 2010, Philadelphia, Pa.
 - American Society of Health-System Pharmacists Midyear Clinical Meeting, December 6, 2010, Anaheim, Calif.
 - American Pharmacists Association Annual Convention, Pennsylvania Pharmacy Association Reception (jointly hosted by the Pennsylvania Schools of Pharmacy), March 27, 2011, Seattle, Wash.
- The School of Pharmacy also hosted:
 - The Nineteenth Annual Career Roundtables, February 23, 2011, William Pitt Union Ballroom. Thirty-six alumni participated in this student event. Alums from 21 practice areas met with the P1 students and answered questions about their individual practice area giving the students a better perspective of the many opportunities a degree in pharmacy can offer.

- The School of Pharmacy Golf Invitational, June 10, 2011, Quicksilver Golf Course. Sixty-six golfers participated, and the event raised \$16,587 for the Alumni Scholarship Fund. In the past eight years, more than \$139,000 has been raised for student scholarships.
- *Rxtravaganza Gala 2011...This Magic Moment*, an annual celebration for alumni and friends, May 14, 2011, Omni William Penn Hotel in Pittsburgh. More than 200 alumni and friends enjoyed the Saturday evening dinner and dancing extravaganza to benefit scholarships. Through the event, an additional \$24,000 was raised.
- The School's Alumni Society recognized two alumni as Distinguished Alumni:
 - Clyde Cressler, BS '69, owner of 15 Medicine Shoppe pharmacies and CL Cressler Inc.
 - Karen Habucky, PhD '87, executive director in Drug Regulatory Affairs at Novartis Pharmaceuticals Corporation

Board of Visitors

Dean Patricia Kroboth and the faculty hosted the School of Pharmacy Board of Visitors on April 4 and 5, 2011. The overarching theme of the visit was the research-to-patient care continuum with a focus on program quality, availability of resources, and opportunities to generate new revenue. Board members held a series of discussions with faculty and students regarding progress toward achieving the strategic goals in these areas.

The visit culminated with a summary meeting of Board members and Senior Vice Chancellor for the Health Sciences Arthur Levine.

Board of Visitors 2010–11

William L. Bailey, PharmD
Senior Director, Medical Affairs
Head, Clinical Operations & Biometrics
Daiichi Sankyo, Inc.

Richard J. Bertz, PhD
Executive Director, Virology and Neurosciences
Discovery Medicine and Clinical Pharmacology
Research and Development
Bristol-Myers Squibb

Daniel J. Cobaugh, PharmD, FAACT, DABAT
Vice President, ASHP Research & Education Fdn.

Karen S. Fisher, RPh, JD
Senior Director and Senior Policy Counsel
Association of American Medical Colleges

Leaf Huang, PhD
Fred N. Eshelman Distinguished Professor and
Chair, Division of Molecular Pharmaceutics
Eshelman School of Pharmacy
Professor, Dept. of Biomedical Engineering
University of North Carolina at Chapel Hill

John P. Innocenti, MBA
President, UPMC Presbyterian Shadyside

Krista M. Pedley, PharmD, MS, CDR, USPHS
Director, Office of Pharmacy Affairs
Health Resources and Services Administration

Patrick Quinn
Senior Director of Trade
Novo Nordisk Inc.

David P. Rotella, PhD
Margaret and Herman Sokol Chair of Chemistry
and Biochemistry
Professor, Department of Chemistry and
Biochemistry
Montclair State University

John T. Tighe III
Founder, President and CEO
TMG Health, Inc.

ENHANCING OUR RESOURCE BASE THROUGH EFFICIENCY AND EFFECTIVENESS

By 2012, the School of Pharmacy will have:

- **Increased effectiveness and efficiency and will have enhanced the personal growth and professional development of the staff.**

Fostering philanthropic support, assuring the efficient utilization of space, acquiring space for new and/or growing programs, and providing the faculty and students with the best teaching technologies are critical to our future success. Those elements are core to the goals of efficiency and effectiveness.

Staff

Sixty-two staff members served in the following roles:

- administrative staff (33)
- research staff (29)

In FY11:

- All 33 administrative staff members met the goal of attending at least one internal professional development program and one external professional development program. The goal was set to enhance the administrative and technical capabilities of the staff as well as the potential for personal job satisfaction.
- Administrative staff implemented iPad technology, which included attending and offering training sessions and restructuring the mechanism for distributing course materials.
- Administrative staff enhanced the reputation of the School by attending meetings, presenting at meetings, serving on committees, and conducting training sessions both within the University and at the national level.
- Staff members implemented a number of “green” initiatives, including:
 - distribution of course handouts electronically
 - online submission of time records, travel and business reports
 - online access/review of accounting reports
 - development of Web applications for gathering information about graduating seniors

Information Technology

In FY11, the Information Technology (IT; administrative) staff:

- Handled 1502 Technology Help Tickets
 - Web and online technology: 388
 - Network/Server Administrator: 382
 - Desktop and Classroom Support: 732
- Created skill enhancement program: iPad Coffee Hour. At weekly coffee hours:
 - Nearly 100% of faculty and staff participated in one or more session.

- IT staff conducted sessions for peer-to-peer mentoring/training to assist faculty and staff to increase their skills and efficiency using iPads and new cloud-based apps such as Dropbox and Evernote.
- During the summer, IT staff combined innovative training techniques as well as practical information to encourage expanded use of new media and technologies.
- Implemented Wiki and blog software to create Web pages for all standing committees, councils, and other formal groups within the School.
 - Content was made easily searchable and able to be managed by committee chairs and made available to all faculty and staff.
- Increased blogging by faculty, students and staff; blogs include:
 - The Daily Dose, Dr. Tara Pummer/students
 - Infectious Disease Blog, Dr. Brian Potoski
 - Social Media Blog, Thomas Waters
 - iPadRx Blog, Thomas Waters
 - Apps Blog, Thomas Waters
- Created dynamic curricular map.
 - A curricular map was created with a database to link courses with learning objectives, teaching and assessment strategies, keywords/topics, and faculty. The “map” is searchable and accessible by faculty, staff, and students via a web interface.
 - Presentations about the map were also made at the American Association of Colleges of Pharmacy meeting and at Howard University.
- Created graduating PharmD student Web application to capture student information. Previously, a paper form that required more than 100 sheets of information to be manually entered into the computer, the Web app provided students with an easy-to-use interface and eliminated 40 FTE’s of staff time. The new system will allow data to be tracked from year to year easily, which wasn’t possible using the older system.
- Implemented a PharmD Tech Resource Team.

The team is made up of at least two students from each class, who agree to assist the faculty or guest speaker if a technology problem disrupts the class. The team members receive some basic trouble-shooting training, and have a manual of common problems and their solutions. Use of the team has decreased the amount of interrupted classroom time as well as provided more qualitative data so that the School can better maintain all classroom technology.

Communications

The responsibility of the Communications Team at the School of Pharmacy is to inform, update, promote, and report to our 5,800 stakeholders. Communications of the School of Pharmacy include:

- Print communications
- Web site
- Facebook Fan page

The School's constituents include alumni, faculty, staff, students and their parents, donors, and potential donors. Print pieces are developed consistent with the School's "brand" developed in 2003 as well as with the University of Pittsburgh brand.

During FY11, the School of Pharmacy Communications Team:

- Developed and coordinated the production and delivery of 23 print pieces with distribution within the University of Pittsburgh and School of Pharmacy and externally to our constituent base of 5,800.
- Developed, produced, and distributed fundraising materials to alumni and friends, resulting in the following contributions:
 - Golf Invitational with support to scholarship in the amount of \$16,000.
 - RxTravaganza 2011 with support to scholarship in the amount of \$24,000.
 - The Phonathon with support for scholarships in the amount of \$9,000.
- Continued the transition of appropriate print pieces for electronic distribution.
- Used Facebook as social media to connect with constituents. Site statistics show 308 new "likes," 78,022 post views, and an average of 345 visitors weekly.
- Maintained and coordinated the secure online registration for RxTravaganza 2011 with 11 percent of the guests using the Web registration.

School of Pharmacy
Long-Range Plan 2006–2012



Long-Range Plan 2006–2012

During FY06, faculty and staff of the School of Pharmacy adopted revised mission, vision, and values statements and finalized a long-range strategic plan that extended through 2011; modifications were made with the input of faculty and staff to extend the plan through 2012.

Mission

The School of Pharmacy is committed to
improving health through
excellence, innovation, and leadership
in education of pharmacists and pharmaceutical scientists,
in research and scholarship,
in care of patients, and
in service to our communities.

Adopted July 2006, Revised July 2009

Vision

To be an outstanding school of pharmacy
renowned for excellence in discovery and
advancement of science-based use of
medicines and other interventions
to enhance the vitality and quality of life.

Adopted July 2006

Values

Integrity guides our daily work.
We foster:
Passion, commitment, and diligence;
Creativity and personal growth;
Collaboration and teamwork;
A culture of respect for the individual.

Adopted July 2006

Long-Range Plan 2006–2012

The School of Pharmacy first embarked on a new long-range planning process in 2001. The plan was developed and implemented with extensive faculty and staff participation, as well as input from students and other stakeholders. By design, the 2001 plan was outcome and mission driven, and closely aligned with the strategic focus areas of the University.

Based on the successful execution of the 2001 - 2006 Long-Range Plan, the leadership of the School of Pharmacy committed to continuing the disciplined planning process. In 2005, the faculty and staff embarked on planning for the current plan that originally extended through 2011, and was subsequently extended to 2012 to coincide with University planning. The Plan serves as a guide for our decisions; it determines what we aspire to become and what we are committed to achieving. Since 2001, the Long-Range Plan has helped our extended School of Pharmacy family discuss opportunities using common language, and make choices based on a common set of strategic priorities and values. The Plan is our framework for resource allocation and ensures that everyone is working toward the same outcomes.



The strategic outcomes are expressed in terms of what we will have become. By 2012, we will have become:

- A leader in pharmacy education;
- A research school of distinction;
- A leader in standardizing the elements of practice so that pharmacists enhance the care of patients in institutions, in the community, and during transitions of care.

Long-Range Plan Organization

Recognizing the wisdom of aligning our School with the University, our Plan coincides with the University's five strategic outcome areas. Our focus areas include:

- Educating the next generation of practitioners and scientists;
- Advancing human health through research;
- Enhancing the health of the community through partnerships;
- Increasing our capabilities by enhancing our efficiency and effectiveness;
- Assuring an adequate resource base.

The strategic outcomes within the Plan are organized using the subheadings of excellence, and innovation and leadership, where excellence refers to the organizational or operational recurring outcomes; innovation and leadership outcomes are strategic. The exception is “assuring an adequate resource base,” which is exclusively focused on excellence.

Annual retreats at the Johnstown and Greensburg campuses and at Southpointe along with half-day sessions on campus have been the major force for developing the Plan, measures, and tactics. PharmD student leaders engage with the process at their selected Annual Student Leadership Retreats and through the Dean's Advisory Board. It has been the firm belief of the School of Pharmacy leadership that the engagement of faculty, staff, students and trainees, and alumni of the School will result in the best possible chances for achieving the stated outcomes of our Long-Range Plan.



Environment: Assessment and Opportunities

Healthcare Issues

Despite technological advances in the ability to diagnose disease and the myriad of sophisticated and expensive medications available, there is a need for increased attention to the care management of individual patients, particularly those with chronic illnesses. Reports on the current state of health care in the United States show that:

- Only about 50% of individuals with chronic illness are treated according to accepted standards, and therapeutic outcomes are often suboptimal.
- 40% to 50% of patients discontinue their medications for chronic disease within one year of initiation of treatment.
- 34% of English-speaking adults aged 65 or older have inadequate health literacy to effectively use the U.S. healthcare system.
- 65% of U.S. adults are either overweight or obese.
- 10% of Americans suffer from chronic disabling conditions.
- The number of persons aged ≥ 65 years is expected to increase from approximately 35 million in 2000 to an estimated 71 million in 2030, and the number of persons aged ≥ 80 years is expected to increase from 9.3 million in 2000 to 19.5 million in 2030.
- Medical errors result in nearly 100,000 deaths annually, with medication errors claiming 7,000 lives yearly. Insulin, narcotics (pain killers), antibiotics, and anticoagulants are responsible for over 50% of those medication-related deaths.

In the report “Crossing the Quality Chasm: A New Health System for the 21st Century” (2001, p 117), the Institute of Medicine identified six redesign imperatives for health care organizations:

- Redesigning care processes;
- Effective use of information technologies;
- Knowledge and skills management;
- Development of effective teams;
- Coordination of care across patient conditions, services, and settings over time;
- Use of performance and outcome measurement for continuous quality improvement and accountability.

Currently, the predominant form of interaction between pharmacists and patients does not meet the needs of people with chronic diseases, particularly those with complicated and expensive drug regimens. In order for therapy to be effective, patients must understand the regimen, accept the responsibility for appropriate self-care, know how to monitor their response to therapy, and have the confidence to communicate with their various healthcare providers. Pharmacists have the knowledge and skill to make a difference, but are currently working in a service delivery model that focuses on the product, not on the information or care process.

Opportunities for the School of Pharmacy:

- Take the lead on a national basis to standardize the pharmacy patient care practice and prepare practicing pharmacists and student pharmacists to care for patients in a standardized way.
- Develop multi-disciplinary training programs for health professionals and disseminate nationally.
- Improve pharmacists' patient-education skills so that patients understand their drug therapies and leading health indicators.
- Partner with nurses and physicians to develop strategies and tactics to improve patient adherence and safety.
- Develop systems and practice models that:
 - improve access to health care;
 - educate consumers about the leading health indicators;
 - are team based;
 - reduce medication errors and increase safety;
 - empower patients to take responsibility for their daily care;
 - improve health outcomes.

Health Disparity

There is disparity in access to and quality of health care for racial and ethnic minorities and low socioeconomic status patients. For example:

- Patients of low socioeconomic position are less likely to receive recommended diabetes services and more likely to be hospitalized for diabetes and its complications.
- Many racial and ethnic minorities and persons of low socioeconomic position are more likely to die from HIV than others in the population. Minorities also account for a disproportionate share of new AIDS cases.
- African Americans and poorer patients have higher rates of avoidable hospital admissions (i.e., hospitalizations for health conditions that, in the presence of comprehensive primary care, rarely require hospitalization).

The Institute of Medicine (IOM) reported that the makeup of healthcare providers does not reflect the diversity in the population in the United States. Although 12% of the population is Latino, only 3.5% are physicians and less than 2% are nurses and pharmacists. African Americans make up 12.5% of our population, but only 5% are physicians and pharmacists. (IOM Report: "In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce", 2004).

Opportunities for the School of Pharmacy:

- Develop a curriculum that promotes cultural competency
- Recruit a more diverse faculty and student population.
- Develop patient awareness and education tools for patients with low health literacy, language barriers, and cultural diversity issues.
- Develop pharmacy care programs for diverse population.

Global Health Issues

The global nature of health care and health products was dramatically demonstrated by the shortfall in influenza vaccine in 2004 resulting from an American company's production facility in the United Kingdom being closed by regulatory actions. The differential cost of drugs among countries has made re-importation of drugs a high visibility political issue in the United States. Harmonization of regulatory requirements for drug development has been on-going for more than 15 years. Now the discovery and development process of new drugs by pharmaceutical companies is international. Most drugs are available globally within a few years of their introduction.

Health care in the United States is also affected by international health issues and developments such as the potential for a global epidemic of a new infection, including SARS, avian influenza, or pandemic influenza. Most experts agree that an influenza pandemic is inevitable and possibly imminent. (WHO report: Avian Influenza). In addition, recent outbreaks of Marburg virus in Africa represent potential future threats given the ease and rapidity of travel between countries. It is also important for United States health and government organizations to continue to partner with international agencies and sister organizations in other countries to address global health issues such as AIDS, tuberculosis and malaria. These partnerships can help improve health and well-being globally.

The terrorist activities in the world over the past decade and particularly the events on September 11, 2001, have greatly increased attention and resources to preparations for biological or chemical terrorism. Pharmacists play a key role in these activities ranging from detection, maintenance of stockpiles of antidotes and drugs for treating patients, and participation in the emergency response. The need for these activities and responsibilities will not, unfortunately, decline over the next five years.

Opportunities for the School of Pharmacy:

- Create international training experiences and partner with other schools on campus to enhance understanding of the threats to global health.
- Exchange faculty and students with universities in other countries.
- Create programs for faculty to experience teaching, research, and practice internationally.
- Include training for management of infectious disease outbreaks.
- Enhance the School of Pharmacy's role in regional emergency preparedness.
- Develop systems and training to assist pharmacists in taking a major role in immunizations.

Research

The National Institutes of Health (NIH) has a major role in setting the national research agenda and is the primary source of competitive research funding. The NIH will be faced with difficult budgeting issues over the next five years with the government's goal to cut the national deficit in half. In FY 2006, NIH has proposed a budget increase of only 0.7%, and it is unlikely that increases over the next five years will be much larger. This comes after a decade during which the NIH budget doubled. A review of the budget allocations by disease area over the last four years indicates that there have not been major shifts in the allocations over this time, and for the most part this will remain true. The NIH Director has begun a process of focusing on multidisciplinary approaches to problem solving, NIH Roadmap Initiative, and two other strategic initiatives—the NIH strategic plan for obesity research and the NIH neuroscience blueprint. Each of these initiatives will affect distribution of funds and have priority over some existing programs.

The progress made by the Human Genome Project has laid the groundwork for a better understanding of how genetics influences disease processes. Over the next five years, research on new technologies is needed to identify and validate functional elements that do not encode protein; monitor gene expression and gene products in real time; determine modulation of gene products in relevant cell types; determine protein abundance; develop non-invasive molecular phenotyping; and correlate genetic variation to human health and disease using haplotype information.

The existing and new methods will generate extensive databases of information requiring new computational biology approaches to effectively manage and use data. There will be increasing focus on identifying genetic contributions to disease and drug response.

The NIH Director has asked for increased funding for research project grants to preserve the ability of scientists to obtain individual funding. The small increase in funding will greatly intensify competition for the available grants. Increases in NIH funding at the School will require careful selection of new faculty to ensure competitiveness and focus on support mechanisms to enhance their chances of funding. The School will need to engage in interdisciplinary research programs and projects with other schools of the health sciences and departments in the University. Research developments in the schools of the health sciences and the new research infrastructure will facilitate the development of these interdisciplinary programs.

The increased competitiveness will make other peer-reviewed research funding sources more attractive to faculty. The Department of Defense, National Science Foundation, and other federal agencies will become more important.

Health services research will be very important in evaluating new pharmacy services, economic impacts, and outcomes from the application of evidence-based medicine. This interdisciplinary research will require expertise in operations, clinical and economic outcomes, business, education, and health policy.

Opportunities for the School of Pharmacy:

- Increase NIH-funded research awards to the School of Pharmacy by recruiting new faculty members who are prepared to be independent or who already are funded investigators to participate in pharmacogenetics, the multi-disciplinary drug discovery program, and other emphasis areas of the school.

- Increase the scope and funding for translational and clinical research, especially hospital-based research conducted by faculty members who have clinical backgrounds.
- Develop health services and health economics research programs on pharmacy care and systems.
- Enhance partnerships with other schools on campus to better position the faculty of the School of Pharmacy and the schools of the health sciences to compete for federal and foundation funding.

The Changing Role of Pharmacists

The Pharmacy Manpower Project reported that community pharmacists in the United States filled three billion prescriptions in 2001. Another 1.98 billion drug orders were fulfilled in hospitals. The number of prescriptions filled by community pharmacists is expected to reach 4 billion by 2010. While the number of prescriptions has continued to increase, there has been a shortage of community pharmacists to provide the service.

One report estimates the community pharmacist shortage today is about 7%-8% and could increase to 25%-27% (38,000) by 2010; this projection was based solely on fulfillment of prescriptions. Currently, the role of the pharmacist is diversifying to include not only order fulfillment, but also drug utilization review, administration, and direct patient care to enhance medication safety and effectiveness. The Pharmacy Manpower Project took into account the changing roles of pharmacists in its projections. The table shows that the increased number of prescriptions is expected to be filled by fewer pharmacists and that by 2020, a projected shortfall of 157,000 pharmacists is expected.

	2001 Estimated Deployment	2020 Forecast Need for Pharmacists
Order Fulfillment (Dispensing)	136,400	100,000
Patient Care	48,000	295,000
Other	12,300	22,000
Total Need	196,700	417,000
Total Supply	N/A	260,000
<i>Projected Shortfall</i>		<i>157,000</i>

The dramatic change in forecast is due to the number of pharmacists involved in patient care in community and institutional settings.

The shortfall in pharmacists has been addressed to some extent by increasing the number of pharmacists graduated each year. Fifteen new schools of pharmacy have been created since 1996, and more new schools are currently in development. In addition to new schools of pharmacy, at least four schools have increased to two or more campuses. There are currently six schools of pharmacy in Pennsylvania. One additional program will be developed in Philadelphia.

The shortage of pharmacists is also being addressed by application of technology and technical staff to prescription order fulfillment. The goal of the application of technology is to reduce the need for a pharmacist in the dispensing function and to provide decision support for drug interactions and

potential adverse drug events. An Arthur Anderson report (Pharmacy Activity Cost and Productivity Study on pharmacist activity suggested that 68% of a community pharmacist time was spent on order fulfillment and recommended the industry seek ways to reduce the amount of time spent by pharmacists in prescription processing. As much as 60%-80% of a pharmacist's time could be freed to apply to patient care. Technology applications include computer physician order entry (CPOE), e-health records, automated fill stations, bar coding, and robotics. In addition to technology, employment of pharmacy technicians to assist in prescription processing is increasing.

Community Pharmacy in Transition

Applications of technology and technical support staff may permit the pharmacist to spend more time on patient-care activities. How the pharmacist will use the time and identify the appropriate parameters of patient care are issues currently being discussed by pharmacy organizations. This discussion has been fueled by recent legislation. The Medicare Prescription Drug Improvement and Modernization Act of 2003 requires the provision of Medication Therapy Management (MTM) services as part of the Medicare part D drug benefit effective January 2006. MTM services must be available to patients with multiple chronic conditions or multiple medications to ensure appropriate medication use and to reduce adverse drug events. The Center for Medicare and Medicaid Services (CMS) is allowing providers to propose the services to be provided. No generally accepted model providing these services in the community currently exists. Parameters of the services and measures to evaluate results including reimbursement and financial issues need to be quickly established.

Opportunities for the School of Pharmacy:

- Develop systems and practice models that:
 - create a healthcare team in the community
 - improve awareness of health concerns;
 - improve access to health care;
 - reduce medication errors and increase safety;
 - improve health outcomes;
 - empower patients to take responsibility for their daily care.
- Provide leadership in defining MTM.
- Develop educational programs for practicing pharmacists to enhance their ability to provide patient care and MTM.
- Enhance the current PharmD curriculum to improve graduates readiness to provide care and improve patient interactions.
- Develop systems and training mechanisms to enable pharmacists to take a major role in immunizations.
- Evaluate alternative service models that include pharmacy service extenders to improve efficiency and volume of patients served.

Institutional Pharmacy Developments

Pharmacists in institutional practice have become the driving force for evidence-based medication usage and medication safety. Drug use review (DUR) programs will increase with the emphasis on defining the evidence-based use of new drugs and counteracting the advertising and detailing efforts of the pharmaceutical companies. Pharmacists will be under pressure to hold drug budget increases to a minimum and to maintain the quality of clinical outcomes.

Growing evidence of the number of medical errors that occur throughout the U.S. healthcare system has prompted increased interest in using technology to improve safety. A significant concern of patients, healthcare organizations and clinicians is medication errors, that occur at a rate ranging from 19%-36% in hospitals; over half of these errors occur during medication administration. In the United States Pharmacopeia Convention's recently published report, almost 2% of all medication errors (approximately 4,000) reported in hospitals during 2003 resulted in significant harm to patients. Pharmacists in hospitals are uniquely positioned to implement and evaluate technology to improve safety. Examples of this technology include bar coding systems, automated dispensing devices, and computerized physician order entry.

Specifically, the Food and Drug Administration's voluntary recall of the COX-2 inhibitors seriously questions the rigor of post-marketing safety monitoring required by the FDA. To respond to these pressures, government and the public will demand more safety data than could ever be collected in clinical trials. Effective post-marketing safety data collection methods will be developed to meet this demand. It is likely that institutional pharmacists will be recruited to monitor side effects and adverse drug events as new drugs enter the market and their health systems. Automation of drug distribution and improved information systems will allow large integrated institutions such as UPMC to develop databases with large numbers of patients for newly approved drug products that will provide an important source for safety analyses.

The increasing complexity of drug therapy and number of drugs prescribed for patients have increased the incidence of adverse drug events and created a need for effective medication management for inpatients. Clinical pharmacists' review and management of medication therapy will be increasingly required for safe and effective therapy. Efficient staffing, combined with effective strategies for determining the level of intervention needed based on medication parameters and patient acuity, will be developed to meet this need.

The American Society of Health System Pharmacists has created a long-range plan called "ASHP 2015", patterned after Healthy People 2010. This plan is based on six strategic goals with 31 objectives to address the medication effectiveness and safety issues. The six goals of this plan are to increase the extent to which:

1. Pharmacists help individual hospital inpatients achieve the best use of medications.
2. Pharmacists help individual non-hospitalized patients achieve the best use of medications.
3. Pharmacists actively apply evidence-based methods to the improvement of medication therapy.
4. Pharmacy departments in health systems have a significant role in improving the safety of medication use.
5. Health systems apply technology effectively to improve the safety of medication use.
6. Pharmacy departments in health systems engage in public health initiatives on behalf of their communities.

Pharmacy organizations and regulatory agencies will continue a national effort to increase the number of health systems that engage in pharmacy services that meet these objectives.

Opportunities for the School of Pharmacy:

- Become the leader in evaluating drug therapies and generating evidence-based guidelines for effective and safe use of medications. More importantly, the School, in partnership with the Schools of Nursing and Medicine, can develop and evaluate how to implement guidelines in different clinical settings.
- Become one of the first hospital systems in the country to achieve the objectives of ASHP 2015.
- Develop systems of care that ensure all patients receive appropriate pharmacist interventions and patient education.
- Develop a post-marketing surveillance program to track safety of FDA-approved medications.

Strategic Outcomes

Educating the Next Generation of Practitioners and Scientists

By 2012, the School of Pharmacy will have become a leader in pharmacy education.

Adopted 2005



PHARMD PROGRAM

By 2012, the School of Pharmacy will have:

Excellence

1. Met or exceeded the standards for accreditation by ACPE, earning accreditation for the maximum interval of six years
Measure:
 - a. Years of accreditation granted
2. Consistently demonstrated the excellence of our students and their organizations by the awards and national recognitions they have received.
Measures:
 - a. national and regional awards to individual students (#)
 - b. student organization applications for regional and national awards (#)
 - c. regional and national awards to student organizations. (#)
 - d. graduates who pursue residency training (#)
 - e. graduates who pursue PhD or MS education (#)
 - f. NAPLEX pass rate (%)
 - g. MJPE pass rate (%)
3. Recruited and retained a diverse community of students.
Measures:
 - a. students admitted with degrees (%)
 - b. men admitted (%)
 - c. minorities admitted (%)



Innovation and Leadership

4. Developed a culture of innovation and scholarship in teaching and assessment.
Measures:
 - a. peer review publications (#)
 - b. textbooks and chapters (#)
 - c. presentations
 - d. faculty total producing scholarly work (#)
 - e. seeking grants (#)
 - f. faculty learners in training programs through Pitt or other organizations (#)
 - h. faculty teachers in training programs through Pitt or other organizations (#)

5. Developed credit-based opportunities for students to obtain international study experiences
Measures:
 - a. courses/rotations developed (#)
 - b. students/year (#)

6. Created curricular tracks/areas of concentration for specialization within the PharmD program.
Measures:
 - a. created the opportunity for curricular tracks (yes/no)
 - b. curricular tracks/areas of concentration (#)
 - c. students enrolled in tracks (#)
 - d. students who pursue additional training in AOC after graduation

7. Developed elective and required interprofessional education opportunities and courses within our curriculum.
Measures:
 - a. opportunities (elective, required) (#)
 - b. courses (#)
 - c. students who access interprofessional opportunities (#)

8. Been recognized as a leader in defining and providing innovative curricula that enhances pharmacy-provided patient care.
Measures:
 - a. pharmacy-patient care courses/modules developed/implemented (#)
 - b. number of courses, degree programs, or certificate programs developed (e.g. CTSI, other non-pharmacy-care)
 - c. schools who access the program(s) each year (#) (track each program developed)
 - d. people who access the program(s) per year (#)
 - e. joint degree programs developed(#)
 - f. MTM curriculum developed: (yes / no)
 - g. pharmacists utilizing curriculum as continuing education (#)

9. Explored and potentially developed an "out-of-Pittsburgh" curricular program
Measure:
 - a. opportunities explored (#)

GRADUATE PROGRAM



By 2012 the School of Pharmacy will have:

Excellence

10. Achieved recognition for the quality of the graduate students and graduate program.

Measures:

- a. PhD students in the program (#)
- b. competitive fellowships e.g. AFPE, NRSA, T32, F31 awarded (#)
- c. student awards and honors from external entities (#)
- d. peer-reviewed publications authored by graduate students (#)
- e. students who present at national or international meetings (#)
- f. PhD graduates per year (#)
- g. graduate students who take post-doctoral fellowships (#)
- h. graduate students who take academic, government and industry positions (#)
- i. publications about program (#)
- j. faculty as primary mentors (#)

11. Recruited and retained highly academically qualified graduate students.

Measures:

- a. U.S. citizens or permanent residents admitted (%)
- b. stipend as a % of NIH stipend as a standard (%)

12. Educated graduate students who are highly sought after.

Measures:

- a. graduate students who take positions in industry (#)
- b. graduate students who take positions in government (#)

13. Maintain the excellence of the Clinical Pharmaceutical Scientist Program as a national model for clinical and translational research in the pharmaceutical sciences.

Measures:

- a. faculty as primary mentors in the program (#)
- b. graduate students in the program (#)
- c. invited presentations by faculty about the program (#)
- d. graduates who enter academia (#)
- e. graduate students receiving national awards (#)
- f. graduate students receiving fellowships (#)
- g. presentations at national or international meetings (#)
- h. publications about the program (#)
- i. graduate student publications (#)

Innovation and Leadership

14. Partnered with the Clinical and Translational Science Institute to develop learning opportunities for our students.
Measures:
 - a. opportunities available (#)
 - b. participating students (#)
 - c. courses attended by graduate students (#)
 15. Developed MS program in pharmacy administrative sciences, including institutional and community practice administration.
Measures:
 - a. programs (#)
 - b. students (#)
 16. Advanced the graduate program in order to successfully compete for a PHS training grant.
Measures:
 - a. applications for a PHS training grant submitted (#)
-

RESIDENCY PROGRAM



By 2012 the School of Pharmacy will have:

Excellence

17. Participated in the creation of accredited residency program and training of residents.
Measures:
 - a. residency programs (#)
 - b. programs accredited that are eligible for accreditation (%)
 - c. partners for residency training (#)
 - d. residents total (#)
18. Achieved national recognition for the excellence of our residency programs.
Measures:
 - a. universities from which residents were recruited (#)
 - b. residents who present at a national/regional meeting (%)
 - c. residents who published their research in peer-reviewed journals (%)
 - d. first-year residents continuing to PGY-2 program (%)
 - e. residents who earn an MS MPH or PhD (#)
 - f. residents who take academic positions (%)

19. Trained residents who compete successfully for national grants and awards.

Measures:

- a. # grants received by residents (#)

Innovation and Leadership

20. Defined the criteria for and established "Residencies of Excellence" in targeted areas of focus.

Measures:

- a. develop criteria (yes / no)
- b. residencies that meet the criteria for a "Residency of Excellence" (#)

21. Partnered in the development and implementation of a residency program model that emphasizes the commonality of community and ambulatory programs.

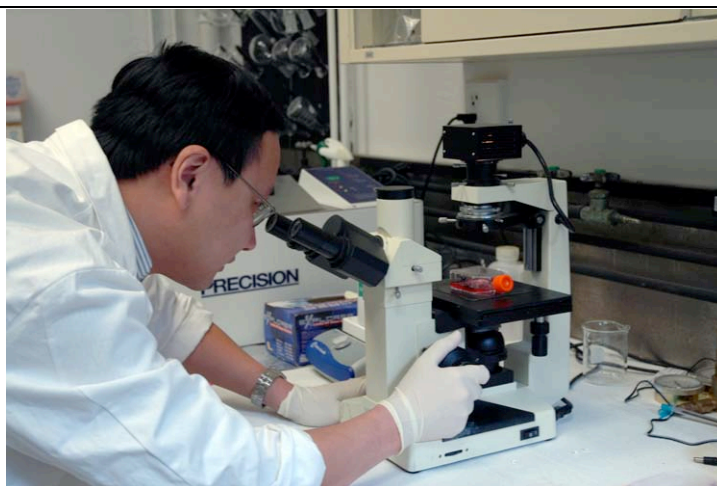
Measures:

- a. community/ambulatory program developed/implemented (yes / no)
- b. residents in community/ambulatory program

Advancing Human Health through Research

By 2012, the School of Pharmacy will become a research school of distinction.

Adopted 2005



By 2012 the School of Pharmacy will have:

Excellence

22. Enhanced our reputation of research excellence.

Measures:

- a. ranking based on NIH funding (# rank)
- b. scientific conferences hosted (# per year)
- c. scientific organization program committees chaired by School faculty (#)
- d. faculty with peer-reviewed funding (%)
- e. peer reviewed publications (#)
- f. faculty participation in program committees of scientific organizations (#)

23. Diversified our portfolio of research funding.

Measure:

- a. non-NIH funding (%)
 1. NSF
 2. DOE
 3. DOD
 4. industry

24. Trained a cadre of PhD and postdoctoral PhD fellows who are highly sought after for careers in academia, industry, and the government.

Measures: postdoctoral fellows:

- a. in training annually (#)
- b. who take academic positions (#)
- c. who take positions in industry (#)
- d. who take positions in government (#)

Innovation and Leadership

25. Competed successfully for a PHS training grant.

Measures:

- a. Funded faculty participating in the graduate program (#)

26. Competed successfully for a program project grant and center grants

Measures:

- a. applications submitted (#)
- b. applications funded (#)

27. Established a program for research that focuses on pharmacy service models and health care outcomes to favorably improve patient care.

Measures:

- a. publications (#)
- b. grants (#)

28. Developed research collaborations through the Clinical and Translational Science Institute at the University of Pittsburgh.

Measures:

- a. grants to School faculty/students funded through the CTSI (#)
- b. programs funded (#)

Enhancing the Health of the Community through Partnerships

By 2012, the School of Pharmacy will have:

- **Become a leader in standardizing the elements of practice so that pharmacists enhance the care of patients in the community, in institutions, and during transitions of care.**

Adopted 2007



By 2012 the School of Pharmacy will have:

Excellence

29. Engaged in significant corporate partnerships for the purpose of providing patient care.

Measures:

- a. hospital partnerships e.g. UPMC Presby/Shadyside, Childrens, VA, St. Margaret, Magee (#)
- b. faculty who have patient-care practices at UPMC (#)
- c. faculty (total) who have patient-care practices (#)
- d. non-institutional partners for MTM and direct patient care (#)

30. Maintained and enhanced our reputation of practice excellence through honors and recognitions of our programs and our faculty.

Measures:

- a. faculty invited to make presentations at national and regional meetings (#)
- b. faculty members invited to consult about patient-care programs (#)
- c. national/regional program awards and recognitions (e.g. Cheers) (#)
- d. UPMC Quality and other awards (#)
- e. peer-reviewed publications about patient care, service models, and/or outcomes (#)
- f. grants for pharmacy service models/patient outcomes (#)
- g. learning visits/calls to our programs (#)

31. Developed evidence-based medication protocols and collaborative practice agreements that improve clinical outcomes, enhance patient safety, and reduce costs.

Measures:

- a. protocols developed (#)
- b. hospitals in which the protocols are implemented (#)
- c. UPMC collaborative practice agreements (#)

32. Provided poison and medication information to the public and to health professionals through our Pittsburgh Poison Center and Drug Information Center.

Measures:

- a. calls answered by Poison Center (#)
- b. calls answered by Drug Information Center (#)

Innovation and Leadership

33. Provided leadership in the safe and effective use of medications for the care of all UPMC patients through development and implementation of a comprehensive system for hospital care and transition to the community.

Measures:

- a. Immunizations administered (#)
- b. Anticoagulation patients treated (INRs handled) # thousands (# thousands)
- c. Medication use guidelines developed and approved (#)
- d. Surgical Care Improvement quality measures (SCIP-1, SCIP-2, SCIP-3) (#, #, #)
- e. Low-molecular weight heparin early discharges (#)

34. Created and implemented a pharmacy service model that integrates faculty and staff pharmacists in provision of care for UPMC patients.

Measures:

- a. Yes / no
- b. patient-care units served by the model (#)
- c. units served by the model per hospital (%)

35. Participated in the care of underserved patients in local and global communities through the Grace Lamsam Pharmacy Program for Underserved Patients.

Measures:

- a. Lamsam Program patients and patient visits (# patients, # visits)
- b. patients who receive MTM/direct patient care (%)
- c. prescriptions provided (#)
- d. locations served (#)
- e. prevention and chronic disease programs (e.g. smoking cessation, immunizations) (#)
- f. collaborative practice agreements in place (#)
- g. grant and gift support (\$ thousands)
- h. students who gain IPPE or APPE experiences through the Program (#)
- i. students who volunteer at Program sites (#)
- j. volunteer pharmacists (#)

36. Partnered to create a state-of-the-art combined Pittsburgh Poison Center and Drug Information Center.

Measures:

- a. Created combined Poison and Drug Information Center: (yes / no)

37. Partnered to provide remote care for patients through technology.

Measures:

- a. developed remote patient care program with a partner: (yes / no)
- b. program implemented: (yes / no)

Enhancing Our Capabilities through Increased Efficiency and Effectiveness

By 2012, the School of Pharmacy will have:

- **increased effectiveness and efficiency and will have enhanced the professional growth of faculty and staff**

Renewed 2005



By 2012 the School of Pharmacy will have:

Excellence

38. Efficiently applied technology to optimize utilization of staff and faculty time and financial resources.

Measures:

- a. programs offered for training faculty and staff on expanded use of technology (#)
- b. faculty and staff trained (#)
- c. applications of commercial and self-built programs and databases (#)
(e.g. School-wide adoption of Outlook for scheduling meetings, room or equipment reservations, Coursecast for capturing video, PENS Software for experiential education, Admissions PharmCas/Pharmadmit, online view of applicant data for admissions committee, Department Manager, Task Stream, Blackboard, Turning Point)

39. Applied technology to effectively and efficiently deliver quality education to facilitate student learning.

Measures:

- a. software applications applied to teaching (#) (e.g. audience response, Pharmacal, Taskstream, Rotation assignment program)
- b. technological platforms (# courses in which they have been adopted)
- c. staff able to support adoption of technology within courses (#)

40. Improved efficiency and cost savings through initiatives identified and lead by the staff.

Measure:

- a. cost savings through bundling software and securing group licenses (\$)
- b. costs saved through channeled spending and related opportunities (\$)

41. Enhanced communication for internal stakeholders

Measures:

- a. Presence of a student portal: (yes / no)
- b. Presence of a faculty and staff portal: (yes / no)

42. Adopted a proven and effective technology platform that serves faculty, staff, students and others

Measures:

- a. calls to technology help desk (#)
- b. satisfactory responses within 24 hours (%)
- c. utilization of School's technology platform for support (# people)
- d. Web page visits(#)

Innovation and Leadership

43. Enhanced faculty and staff knowledge of new technologies for teaching

Measures:

- a. teaching technologies available (ARS, video taping, course cast, etc.) (#)
- b. training sessions offered (#)

44. Application of Lean and Toyota Productions System principles and practices, and value stream mapping for staff and some faculty processes.

Measures:

- a. application of principles: (yes / no)
- b. work processes specified (total # of work specifications developed)
- c. work specifications revised (#)

45. Consistently partnered with CSSD in testing the application of technology.

Measure:

- a. early adopter or beta-testing partnerships with CSSD (# times)



Securing an Adequate Resource Base

By 2012, we will have increased the resource base of the School of Pharmacy.

Renewed 2005

HUMAN RESOURCES

By 2012, the School of Pharmacy will have:

Excellence

Faculty

46. Recruited and retained faculty who are recognized for scholarly, educational, service and practice distinctions.

Measures:

- a. faculty (# full time, #part time)
- b. board certifications earned (# ever)
- c. elected fellows (# faculty ever, # fellowships)
- d. nominations of faculty for awards (#)
- e. research awards to faculty from external organizations (#)
- f. teaching/mentor awards to faculty from external organizations (#)
- g. patient care awards to faculty from external organizations (#)
- h. honors awards to faculty for outstanding service (#)
- i. distinguished alumnus designation, other awards from universities (# ever)
- j. faculty national or regional awards (# ever)
- k. faculty appointments to NIH study sections (#)
- l. editorial board appointments (#)
- m. faculty on non-industry advisory boards (#)
- n. faculty invited to give national/regional presentations (#)
- o. faculty who have received Chancellor's Distinguished award (# ever)
- p. recipients of other Pitt awards/recognitions (#)

47. Enhanced faculty participation in programs that support achievement of professional and academic potential.

Measures:

- a. ACES and other skill development programs sponsored by the School (#)
- b. Faculty participation in University programs (e.g., survival skills program, K award series) (#)
- c. faculty who participate in Office of Research, CTSI and other training modules/programs within (name time) of joining the faculty (%)
- d. faculty who participate in University Teaching Excellence programs (#)
- e. faculty who participate in development programs of professional and scientific organizations (#)

48. Faculty who are engaged as citizens in serving the profession of pharmacy and the academic community.

Measures:

- a. faculty on at least one School of Pharmacy committee (%)
- b. faculty who participate in faculty governance, e.g. faculty assembly or senate (#)
- c. faculty members on University committees in past five years (#)
- d. faculty serving on committees in other Schools or Institutes at the University (#)
- e. elected leaders in local, regional and national organizations
- f. local, regional, and national committee memberships (#)
- g. publications or scholarly article concerning practice or service (#)
- h. presentations of educational programs to academic, institutional, industry, government, and community groups (#)
- i. # of honors and awards received in recognition of outstanding service contributions
- j. % of faculty pharmacists who volunteer for the Lamsam Program

Staff

49. Recruited and retained staff who contribute to the strategic goals of the School and to the culture of teamwork and collaboration.

Measures:

- a. administrative staff who attend biannual staff retreats (# and %)
- b. administrative staff who attend faculty/staff retreats (# and %)

50. Created and implemented individualized development plans for all staff members.

Measures:

- a. internal development programs offered (#)
- b. staff who have attended internal development programs (#)
- c. staff who have attended external development programs (#)

Alumni, Friends, and Other Constituencies



51. Delivered high-quality and timely print and digital publications to internal and external stakeholders

Measures:

- a. times stakeholders received communication from the School (#)
- b. distinct print or electronic pieces developed (#)
- c. on-time production of communication materials (%)
- d. event notifications submitted (#)
- e. press release placements (#)

52. Created a Web site that is easily navigated, features high-quality imaging and that provides up-to-date information.

Measure:

- a. # of times error message on Web site

53. Retained our place among the top schools on campus for alumni engagement.

Measure:

- a. alumni total (#)
- b. rank for alumni engagement
- c. alumni participating in School and University events (#)
- d. email addresses obtained (%)

54. Engaged and supported non-faculty preceptors who support our educational programs.

Measures:

- a. non-faculty preceptors for at least one student (#)
- b. rotations offered by non-faculty preceptors (#)
- c. preceptors who attend preceptor development programs (#)

FINANCIAL RESOURCES

By 2012, we will have:

55. Met the goals for the Capital Campaign.

Measure:

- a. total dollars raised toward the \$27 million Capital Campaign School goal (\$ total in millions)
- b. programs that develop new resource base/increase funding (#)

56. Increased the book value of the School of Pharmacy endowment from \$11 million to \$21 million.

Measure:

- a. Book value of the endowment

57. Increased total dollars and number of contributors through all sources of gifts.

Measures:

- a. total donors including organizations (#)
- b. annual giving (\$)
- c. total gifts and pledges (\$ million)

PHYSICAL RESOURCES



By 2012, we will have:

58. Renovated and refurbished existing space to meet programmatic needs

Measure:

- a. Sq ft renovated/refurbished (# SF)

59. Secured our place in the Master Plan for Oakland, assuring adequate space for the School's programs.

Measures:

- a. Total # assignable square feet of space allocated for School use
- b. Availability of state-of-the art research space in immediate proximity to Salk Hall

Progress At a Glance (PAGE)
School of Pharmacy: Version 10 (as of Sept 2011)

/	Long-Range Plan did not exist or item not part of the Long-Range Plan
→	Introduced to the Long-Range Plan
-	Not addressed that year
☑	Completed, implemented, maintained and does not begin again next year
■	Intervention or change in plan needed
■	Satisfactory Progress

National leader in pharmacy education

LRP #	Measure	Target	FY02 - Strateg Plan 02	FY06 - Strateg Plan 06	FY08	FY09	FY10	FY11
PharmD Program								
Excellence								
1a	Years of ACPE accreditation granted	6	6	-	-	-	6	-
2a	National and regional awards to individual students (#)	15	3	3	19	30	2	
2b	Student organizations applies for regional/national awards	12			10	15	15	14
2c	Regional/national awards to student organizations (#)	track	1	2	5	7	10	4
2d	Graduates who take residency position (#/%)	25%	16 (19%)	11	13	21	26 (24%)	22 (21%)
2e	Graduates who pursue PhD or MS training	5%	2	2	2	1	3 (3%)	4 (4%)
2f	NAPLEX pass rate 1st attempt (%)	>=95%	96.4%	90.1%	99.0%	N/A	98.0%	pending
2g	MJPE pass rate (%)	>=95%		91.6%	96.6%	100.0%	98.0%	pending
3a	Students admitted with degrees (%)	Track data	16%	11%	14.8%	18.5%	14.7%	17 (15.7%)
3b	Men admitted to PharmD program (%)	Track data	31%	36%	38.9%	34.3%	52.3%	37 (34.2%)
3c	Minorities admitted to PharmD program (%)	Track data	4%	5.50%	4.6%	1.9%	4.6%	8 (7.4%)

Innovation and Leadership								
LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY11
4a	Peer Review Publications - teaching/assessment (#)	5	1	5	7	24	8	14
4b	Textbooks and book chapters	Track data	19	10	10		0	1
4c	Presentations re: innovation in teaching/assessment (#)	3	0	→	1		16	23
4d	Faculty producing teaching/assessment scholarly work (#)	10	14	→	13		19	12
4e	Faculty funded grants related to teaching/assessment (#)	4	0	→2	3	21	3	20
4f	Faculty learners in training programs (#)	1	-	→	3	3	1	1
4g	Faculty teachers in training programs (#)	Track data	0					1
5a	International rotations (#)	3	-	→	2	3	4	4
5b	Students participating in international rotations/year (#)	10	-	→	7	7	8	9
6a	Create opportunity for curricular tracks/areas of concentration	Yes	-	Yes	Yes	Yes	Yes	Yes
6b	Curricular tracks/areas of concentration (#)	4	-	→ 1	1	1	1	2
6c	Students enrolled in curricular tracks/areas of concentration (#)	30	-	→	→	→	6	12
6d	Students pursue training in AOC area after graduation (%)	Track data	-	-	-	→	→	
7a	Interprofessional education courses, experiences (#)	Track data	-	→	1	3	5	5
7b	Total students accessing IP experience (#)	Track data	-	→	2	113	115	129
8a	Courses developed outside curriculum (#)	4	-	→	1	2	1	
8b	Outside Curriculum Courses, degree & certificate programs including CTSA (#)	1	-	-	-	1	2	3
8c	Schools who have accessed these programs (#)	55	-	→	40	54	90	90
8d	Joint/combined degree/certificate programs (#)	2	-	→	1	1	1	1
8e	MTM curriculum developed (Yes or No)	Yes	-	→	Yes	Yes	Yes	Yes
9a	Out of Pittsburgh program opportunities explored (#)	Yes	-	→	Yes	Yes	Yes	Yes

Graduate Program								
Excellence								
LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY11

10a	FT Students in the PhD program (#)	40	18	23	26	28	32	42
10b	Fellowships awarded (AFPE, T32) (#)	4	1	4	3	3	3	5
10c	Student awards, honors - external entities incl. travel(#)	6	3	2	5	5	16	8
10d	Peer-reviewed publications by graduate students (#/year)	15	7	16	21	14	16	19
10e	Students who presented at national/international meetings (#)	15		9	10	12	28	17
10f	PhD Graduates/year (#)	Track data	2	6	3	4	1	4
10g	Graduates who take post-doctoral fellowships (%)	75%	1	2	1	3	0	1
10h	Graduates who take academic positions (#)	Track data	0	2	1	0	0	0
10i	Publications about the program (#)	Track data	1	1	0	0	0	1
10j	Faculty as primary mentors (#)	Track data			14	17	14	18
11a	U.S. citizens or permanent residents in program (%)	Track data	30%	36%	35%	25%	47%	50%
11b	Stipend (% of NIH stipend)	>= NIH stipend	75%	R	R	R	R	R
12a	Graduate students who take positions in industry #	Track data	1	2	1	1	1	2
12b	Graduate students who take positions in government #	Track data	0	0	0	0	0	1
13a	Clin Sci Program: faculty as primary mentors (#)	8	5	3	3	5	6	7
13b	Clin Pharm Sci Pgm: students enrolled (#)	12	9	6	9	6	12	19
13c	Clin Pharm Sci Pgm: invited presentations about program (#)	Track data	0	0	2	0	1	0
13d	Clin Pharm Sci Pgm: graduates who enter academia (#)	Track data		1	0	0	0	0
13e	Clin PharmSci Pgm: students receiving national awards (#)	2		2	2	4	6	2
13f	Clin PharmSci students receiving fellowships incl NRSA, AFPE (#)	3		4	2	3	3	4
13g	Clin Pharm Sci: presentations national/int'l meetings (#)	6				11	15	11
13h	Clin Pharm Sci Pgm: publications about program (#)	Track data		1	0	0	0	1
13 i	Clin Pharm Sci Pgm: Graduate student publications (#)	Track data					6	3

Innovation and Leadership

14a	Learning opportunities available through CTSI (#)	1			1	1	1	3
14b	Students who learn through CTSI partnership (#)	Track data			2	3	3	3
15a	MS programs (#)	2		→	2	1	2	2
15a	Students enrolled in MS program (#)	Track data		→	1	1	3	5
15a	MS programs in Pharmacy Administration (#)	2		→	1	2	2	1
15a	Students in Pharmacy Administration MS program(#)	6		→	6	6	7	5
16a	PHS training grant applications submitted INCL nsf (#)	Track data			0	1	1	2

Residency Program

Excellence

LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY11
17a	Affiliations with residency programs (#)	Track data	9	8	12	16	14	16
17b	Accredited programs (% of eligible programs)	100%	100%	100%	100%	100	100	100
17c	Residency program partners (#)	Track data	4	4	6		7	7
17d	Residents (total #)	Track data	12	13	22	31	31	33
18a	Universities from which residents were recruited (#)	Track data	na	7	14	15	12	18
18b	Residents who present at a nat'l/reg'l meeting (%)	100%		11 (85%)	21 (95%)	71.0%	100.0%	100.0%
18c	Residents who publish residency projects within 3 years (%)	100%				19.40%	→	27
18d	PGY-1 residents pursuing PGY-2 - incl management (%)	60%	3 (25%)	2 (50%)	8 (56%)	48.3%	60.0%	77.3%
18e	Residents who earn MS, MPH, PhD (#)		0	0	2	2	3	2
18f	Residents who take academic positions # (%)	25%	3 (17%)	0	3 (21%)	2	2	2 (12.5)
19a	Grants received by residents (#)	Track data			4	2	2	3

Innovation and Leadership

21a	Develop/implement community/ambulatory pgm	Yes	-	→			Yes	Yes
21b	Residents in community/ambulatory pgm (#)	track data	-	→	3	3	4	4

Research school of distinction

LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY11
Excellence								
22a	Total NIH Funds (\$ millions)	8	7.27	8.15	8.51	7.23	14.31	9.91
22a	NIH Direct Costs (\$ millions)	6	5.27	5.27	5.83	5.83	9.08	7.23
22a	Ranking based on NIH funding (#)	10	6	9	9	15	22	23
22b	Scientific conferences hosted(# / year)	track data	0	0	0	3	0	0
22d	Faculty with peer-reviewed funding (%)	33%	37.5%	30%		26%	36%	30%
22e	Peer-reviewed publications (research) (#)	130	118	137	129	132	135	132
23a	Funding other than NIH (%)	33%	32.40%	27.10%	19.40%	32.20%	8.30%	25.00%

24a	Postdoctoral fellows in training annually (#)	14	-	→	17		25	25
24b	Postdoctoral fellows who take academic positions (#)	track data	-	→		→	→	→
24c	Postdoctoral fellows who take positions in industry (#)	track data	-	→		→	→	→
24d	Postdoctoral fellows who take positions in government (#)	track data	-	→		→	→	→
Innovation and Leadership								
25a	Funded faculty participating in graduate program (#)	80%	5	→	9	14		11 of 13
26a	Program project grant applications submitted (#)	track data			0	1	0	0
26b	Program project grant applications funded (#)	track data	1		1	1	0	0
27a	Establish program for pharmacy services research (# publications)	track data				→	→	2
27b	Establish program for pharmacy services research (# grants)	track data				→	→	1
28a	Grants funded through the CTSI (#)	track data	-	-	1	0	1	0
28b	Programs (cores) funded through the CTSI (#)	1	-	-	0	1	0	0

Leader in standardizing pharmacy patient care in community, institutions, and during transitions of care.

LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY11
Excellence								
29a	Institutional (individual hospital) partnerships w/faculty (#)	track data			5	6	6	7
29b	Faculty who have patient-care practices at UPMC (#)	track data				11	11	12
29c	Faculty (total) who have patient-care practices (#)	track data				26	26	27
29d	Non-institutional partners: MTM and direct patient care (#)	track data	-	1	1	2	2	2
30a	Faculty invited to present at national, regional meetings (#)	track data				40	64	39
30c	Nat'l/reg'nal awards/recogn'tns: patient-care programs (#)	track data					21	10
30d	UPMC quality and other awards (#)	track data			4	5	5	8
30e	Peer-reviewed publication - pt care/svc models/outcomes(#)	track data					18	33
30f	Grants-pharm service model/MTM/direct care/outcome (#)	track data					8	
31a	Evidence-based medication protocols developed #	track data				85	53	50
31b	Hospitals in which the protocols are implemented #	track data				15	15	16
31c	Collaborative practice agreements at UPMC (#)	track data						0
32a	Calls answered by Poison Center (# thousands)	track data		118	133.3	106.5	129	116
32b	Calls answered by DI Center (# thousands)	track data			3.7	7.26	6.3	5.9
Innovation and Leadership								
33a	Immunizations administered (#)	track data			602	1556	3004	3089
33b	Anticoagulation patients (INRs handled) (# thousands)	track data			1.06 (28)	1.56(28.46)	3	22.779
33c	Medication use guidelines developed & approved (#)	track data			32	29	39	39
35a	Lamsam Program impact (# patients / # visits in thousands)	track data			6.0/18.0	1500/4100	1775/5000	1556/4667
35b	Patients who receive MTM/direct pt care (%)	track data				400 (27%)	425 (24%)	584
35c	Prescriptions provided (# thousands)	track data				6500	7300	7000
35d	Locations served by the Lamsam Program (#)	track data				8	8	10
35e	Prevention and chronic disease programs (#)	track data				3	4	5
35f	Lamsam Program: collaborative practice agreements (#)	track data	-	-	→	1	2	2
35g	Grant and gift support for Lamsam Program (#)	track data			1	3	1	1
35h	Students in IPPE/APPE through Lamsam Program (#)	track data			161	148	194	217
35i	Students who volunteer at Lamsam Program sites (#)	track data				15	15	9
35j	Pharmacists who volunteer in Lamsam Program (#)	track data				12	17	14
36a	Combined Pittsburgh Poison Ctr and Drug Info Ctr (Y/N)	Yes	-	→	-	Yes	Yes	Yes
37a	Developed remote patient care model (Yes/No)	Yes				N	N	N
37b	Implemented remote patient-care model (Y/N)	Yes				N	N	N

Increased effectiveness and efficiency

LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY 11
Excellence								
38a	Technology training programs offered for faculty/staff (#)				2	2	2	3
38b	Faculty and staff trained on technology (%)				87%	91%	92%	
38c	Commercial& self-built programs & databases applied (#)			1	2	2	2	2
39a	Software applications applied to teaching (#)				3	4	5	5

39b	Technological platforms adopted (% courses)				100%	100%	100%	100%
39c	Staff able to support adoption of course technology (# staff)				6	9	11	12
40a	Cost savings: bundling software & group licenses (\$)				11,480	12,122	12,486	12,800
40b	Savings through channeled spending/other opportunities (\$)				239,000	pending	pending	265000
41a	Presence of a student portal (Y/N)	Yes			Yes	Yes	Yes	Yes
41b	Presence of a faculty and staff portal (Y/N)	Yes			Yes	Yes	Yes	Yes
42d	Web page visits (#)				195,446	198,033		225,979
Innovation and Leadership								
43a	Technologies available for teaching support (#)				5	6	7	7
43b	Technology in education: training sessions offered (#)				1	1	2	1
44a	Application TPS principles - staff & faculty processes (Y/N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44b	Work specifications developed (total #)				106	123	127	131
44c	Work processes revisited/revised (#)				50	42	7	11
45a	Early adopter or beta-testing partnerships with CSSD (#)				1	1	1	1

Securing an adequate resource base

LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY 11
Faculty								
Excellence								
46a	Faculty: full time (part-time) # (#)	80	80		89 (#)	82 FT, 4 PT	78 FT, 4 PT	75FT/9 PT
46b	Board certifications (# ever)	Track data	15		23	17	23	23
46c	Elected fellows (# ever; # fellowships)	15			15	15, #21	15	15
46e	Research awards to faculty from external organizations (#)	Track data		1	0	11	6	9
46f	Teaching/mentor award to faculty - external organization (#)	Track data		1	0	9	9	0
46g	Patient care awards to faculty - external organizations (#)	Track data			1	9	21	10
46h	Honors/awards to faculty for outstanding service (#)	Track data			1	20	9	1
46i	Distinguished alum/other awards from universities (# ever)	Track data			6	15, #20	20	20
46j	Faculty: national/regional awards (# awards ever)	Track data				54	56	
46k	Faculty on NIH study sections (#)	Track data	7	7	7	28	12	12
46l	Editorial board appointments	Track data				30	20	17 (45)
46m	Faculty on non-industry advisory boards (#)	Track data	4	-	-	5	-	-
46n	Faculty invited by external entities to give presentations (#)	Track data	-	-	-	-	63	48
46o	Faculty recipients of Chancellor's Distinguished Award (# ever)	Track data			4	4	4	4
46p	Faculty recipients of other Pitt awards/distinctions (# ever)	Track data				16	16	16
47a	ACES and skill development programs sponsored (#/year)	6	-	-		6	4	4
47d	Faculty: attend University Teaching pgms (#)	Track data					6	4
47e	Faculty in training pgms of professional and scientific org (#)	Track data	-	-	®	9	0	1
48a	Faculty on at least one School of Pharmacy committee (%)	60%	-	-	®	79	72	56
48b	Faculty on University Committee (#)	Track data	-	-	®	17	23	30
48d	Other school/institute/center committee served by SOP faculty(#)	Track data	-	-	®	95	18	18
48e	Elected leaders-local, regional, national organizations (#)	Track data	-	-	®	19	20	16
48f	Local, regional, national committee memberships (#)	Track data	-	-	91	191	163	195
48g	Publications: practice or service (#)	Track data	-	-	-	-	18	16
48h	Educational presentations to academic, institutional, industry, government, and community groups (#)	Track data				181	115	187
Staff								
Excellence								
LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY 11
49a	Administrative staff: full time (part-time) # (#)	Track data					30	31
49b	Admin staff who attend staff retreats (%)	90%			-	90%	90%	N/A
49c	Staff who attend faculty/staff retreats (%)	30%			48%	57%	58%	71%
50a	Internal development programs: sessions offered (#)	1			1	1	1	1
50b	Staff who attend internal development programs (#)	25			18	23	26	27

50c	Staff who attended external development programs (#)	25			23	25	25	26
Alumni, Friends, and Others								
LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY 11
51a	Times stakeholders received communication from School (#)	Track data	-		6	20	14	11
51b	Distinct print or electronic pieces developed (#)	Track data			30	11	30	23
51c	On-time production of communication materials (%)	100%	-			100%	99%	99%
51d	Event notifications (#)	Track data				120	140	132
51e	Media placements (#)	Track data	→	32	38	39	65	51
53a	Alumni Total (#)	Track data			4567	4567	4774	4887
53b	Rank for alumni engagement (#)	1	-	1	1	1	2	3
53c	Alumni that participate in School and University events (#)	Track data	-		40.30%	38.10%	37.90%	36.14%
53d	E-mail addresses obtained (%)	Track data	-		49.90%	49.40%	60.90%	69.00%
54a	Preceptors for least one student in year (#)	Track data				23(P1); 58(P2); 102(P3); 312(P4)	23(P1); 58(P2); 102(P3); 312(P4)	46 (P1); 61 (P2); 101 (P3); 310 (P4)
54b	Rotations offered by non-faculty preceptors (#/percent of total)	Track data				100% (P1); 100% (P2); 87% (P3); 83% (P4)	100% (P1); 100% (P2); 87% (P3); 83% (P4)	93% (P1); 100% (P2); 84% (P3); 81% (P4)
54c	Preceptors attending preceptor development programs (#)	Track data	-	-		344	344	32
Financial Resources								
Excellence								
LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY 11
55a	Dollars raised for capital campaign (\$ cumulative total)	\$27 million			\$17.540	\$18.810	\$20.074	\$22.200
55b	Programs developed that generate new revenue (#)		-		1		0	0
56a	Book value of endowment (\$ million)		\$5.937	\$11.00	\$11.800	\$13.841	\$14.524	\$15.204
57a	Total donors including organizations (#)		-	-	928	1013	882	910
57b	Annual giving amount (\$ thousands)						0.303	0.261
57c	Total gift and pledge contributions (\$ million)		\$0.67	\$2.140	\$2.044	\$1.391	\$1.077	\$2.625
Physical Resources								
Excellence								
LRP #	Measure	Target	FY02	FY06	FY08	FY09	FY10	FY 11
58a	Sq ft renovated/refurbished (#)	Track data	9627	3108	6008	1222	3029	2139
59a	Assignable Sq Ft allocated for School use (#SF-thousands)	113.8	63.5	71.4	84.7	83.4	80.7	82.5
59b	Space assigned for laboratory research (# SF)	51.4	18353	23121	23121	23121	21523	22025