UNIVERSITY of HOUSTON
COLLEGE OF PHARMACY

Report to the Texas Pharmacy Congress — November 13-14, 2018

$2M+ NCI GRANT BACKS UHCOP, BAYLOR ALLIANCE ON CANCER DISPARITIES

With the support of a $2.17 million grant from the National Cancer Institute, UH College of Pharmacy and the Dan L. Duncan Comprehensive Cancer Center at Baylor College of Medicine have formed a research and education alliance aimed at reducing cancer health disparities through novel drug discovery/development as well as recruiting and training future researchers.

UHCOP's **Diana S-L. Chow**, Ph.D., FNAI, and BCM's **Martin Matzuk**, M.D., Ph.D., serve as co-principal investigators for the alliance. The grant funds will be roughly split between UHCOP and the DLDCCC-BCM, but all elements will incorporate cross-institutional projects and programs.

One component of the alliance is support

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for research projects in which certain racial/ethnic populations carry a higher cancer burden in specific forms of the disease, such as breast and liver cancers. The initial pilot projects funded for the first two years are: "FOXA1 inhibitors to overcome endocrine resistance in ER+ breast cancer," which is being led by UHCOP's **Meghna Trivedi**, Pharm.D., Ph.D., and **Gregory Cuny**, Ph.D., and BCM's Rachel Schiff, Ph.D.; and "Discovery of UHRF1 inhibitors in the treatment of hepatocellular carcinoma," which is being headed by BCM's **Damian Young**, Ph.D., and **Chad Creighton**, Ph.D., and UHCOP's Xinli Liu, Ph.D. Two more projects will be selected and funded in the third and fourth years.

The goals of the Cancer Research Education Program (CREP) component include enhancing the research experience of undergraduate and graduate students; developing new research curricula and seminar series; and preparing culturally diverse and health disparity-aware researchers. CREP efforts will be led by UHCOP's **Trivedi** and BCM's **Jason Yustein**, M.D., Ph.D., and **Laurie Connor**, Ph.D.

ACCP OUTSTANDING STUDENT CHAPTER

The UHCOP Chapter of the Student College of Clinical Pharmacy (SCCP) has taken the national title as the 2018 Outstanding Student Chapter by its parent organization, the American College of Clinical Pharmacy (ACCP).

Marking its first national title only four years after forming, the UHCOP chapter was recognized with a plaque and a $1,000 check during the ACCP 2018 Global Conference on Clinical Pharmacy Oct. 20-23 in Seattle. In addition, chapter member **Goran Flajc** was honored with the chapter's Outstanding Student Chapter Member Award, and Chapter President **Katie Rascon** earned a Geriatrics PRN Travel Award to attend the conference.

Among the chapter's highlights from the year were screenings and immunizations for 400-plus patients; participating in Hepatitis C screening training and Operation Naloxone training and outreach to area schools and outpatient substance abuse treatment centers; and separate P1-P2 and P3 meetings to focus on content relative to the students' education/career stage.

IPHO CHAPTER LANDS NATIONAL TOP 5 SPOT, LEADERSHIP POSTS

After its first full year of operation, the UH College of Pharmacy Chapter of the Industry Pharmacists Organization secured a "Top 5" ranking among student chapters nationwide, while two of its members earned national posts.

ASADI

Pharm.D. candidate **Angelica Asadi**, who served as the chapter's 2017-18 president, has been appointed as National Student Officer of Professional Development and Chief Internship Officer. In these respective roles, Asadi promotes the professional growth of IPhO chapters nationwide and oversees the IPhO Virtual-Flex Internship program.

NGUYEN

Current Chapter President-elect **Jennifer Nguyen** has been appointed 2017-18 Region Student Officer for the Western Region, with responsibilities including serving as a fellowship liaison, and identifying and sharing best practices among the region's seven chapters.

Student News

ASP CHAPTER EARNS 3RD CONSECUTIVE OPERATION DIABETES AWARD

With its education outreach and hands-on wellness screenings reaching more than 6,700 people, the UH College of Pharmacy Chapter of the American Pharmacists Association-Academy of Student Pharmacists brought home its third consecutive regional Operation Diabetes Award from the APhA-ASP Region 6 Midyear Regional Meeting Oct. 12-14 in St. Louis, Mo.

Over the course of hosting or participating in 32 events during the year, the Operation Diabetes team provided more than 1,000 blood glucose screenings and 42 diabetic foot exams as well as presented risk reduction/disease management education to more than 1,600 individuals.

The program chairs and members made a deliberate effort to increase the chapter's support of American Diabetes Association initiatives, including the national APhA-ASP organization's partnership with Walmart for a wellness day that included more than 40 UHCOP Pharm.D. students providing screenings and education to 600 individuals at more than 20 Greater Houston-area stores.

The chapter also joined forces with the UH College of Optometry, UH School of Nursing and fellow UHCOP organization Student National Pharmaceutical Association for an interprofessional health fair to mark World Diabetes Day.

Faculty & Research News

Susan Abughosh, Ph.D., associate professor, has been awarded a $174,000 grant from Valeant Pharmaceuticals International Inc. for the project, "Drug Utilization and Medication Adherence Among Medicare Patients With Hepatic Encephalopathy and Predictors of Hospital Re-admission."

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Bernadette Asias-Dinh, Pharm.D., BCACP, BCPS, CDE, clinical assistant professor, recently graduated from the two-year American College of Clinical Pharmacy Academy Teaching & Learning program.

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Faculty members **Austin De La Cruz**, Pharm.D., BCPP, **Xinli Liu**, Ph.D., and **Sujit Sansgiry**, Ph.D., were recognized with the Rho Chi Society Beta Omicron Chapter's 2017-18 Excellence in Teaching Awards presented at the Oct. 18 Robert L. Boblitt Lecture.

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Kevin W. Garey, Pharm.D., M.S., FASHP, professor, has received a subcontract award of $114,750 per year for five years from Texas A&M Health Science Center for the National Institutes of Allergy and Infectious Diseases project, "Decoding the clinical impact of the recent evolution of metronidazole resistance on Clostridium difficile infection." Garey also received a $94,021 grant from Tetraphase Pharmaceuticals Inc. for the project, "In vitro and pharmacologic properties of eravacycline against C. difficile growth and toxin production; a mechanistic study."

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Tahir Hussain, Ph.D., has been named the inaugural Joseph P. and Shirley Shipman Buckley Endowed Professor of Drug Discovery, which created through a gift bequest from the estate of the late UHCOP dean and his wife.

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Mustafa F. Lokhandwala, Ph.D., FAHA, FASN, UHCOP executive vice dean for Research, has been named the inaugural Joseph P. and Shirley Shipman Buckley Endowed Professor for the Heart and Kidney Institute (HKI). The endowed professorship to support HKI's current and future leaders was created through a bequest from the late UHCOP dean and his wife. Lokhandwala has served as HKI's director since 2006.

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Bradley K. McConnell, Ph.D., FAHA, FCVS, associate professor, has been awarded a $154,000 grant from the American Heart Association for his project, "Gravin Signalosome Mediates Cardiac Signaling and Transcriptome Variation in Heart Failure."

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Vincent H. Tam, Pharm.D., BCPS (AQ-ID), professor, was inducted as a Fellow of the Infectious Diseases Society of America during IDWeek Oct. 3-7 in San Francisco, Calif. Tam also has received a $28,345 subaward from the University of Texas Medical Branch on the National Allergy and Infectious Diseases-funded study, "FDA approved non-antibiotic drugs to combat multiple drug resistant microbes."

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Douglas Thornton, Ph.D., Pharm.D., BCPS, assistant professor, has been appointed as a Reviewer for the Study Section on Psychosocial Interventions with Office-Based Opioid Treatment for Opioid Use Disorder of the Patient Centered Outcomes Research Institute (PCORI).

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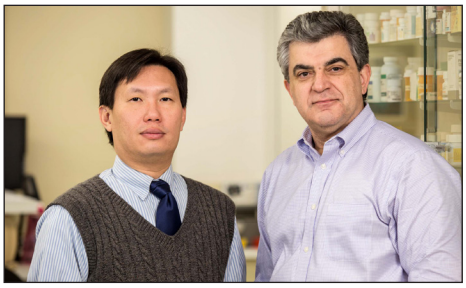
The following UHCOP faculty members received tenure and/or promotions effective Sept. 1, 2018: **Mohammad Asghar** – Associate Professor with tenure; **Joydip Das** – Professor; **Marc Fleming** – Associate Professor with tenure; **D. Gomika Udugamasooriya** – tenure; and **Yang Zhang** – tenure.

TAM EARNS $3.5M NIH GRANT FOR ANTIMICROBIAL COMBO 'BEST FIT'

A University of Houston collaboration between Pharmacy and Engineering researchers to develop a new platform to help guide clinical decision-making of the "best fit" antimicrobial combinations for multidrug resistant infections recently received a major boost with a new five-year, $3.5 million grant from the National Institute of Allergy and Infectious Diseases.

UHCOP Professor Vincent H. Tam, Pharm.D., BCPS (AQ-ID), FIDSA, serves as principal investigator on the newly funded phase, entitled "Personalized Antimicrobial Combinations to Combat Resistance," of a decade-long work with UH Engineering Professor Michael Nikolaou, Ph.D.



UHCOP's Vincent Tam and UH colleague, Engineering Professor Michael Nikolaou, have developed an algorithm to guide clinical decision-making for the 'best fit' antimicrobial combinations.

Based on their previous work funded by NIH and the National Science Foundation, Tam and Nikolaou are developing a "novel precision medicine platform" incorporating a monitoring device and data-processing algorithm.

Their design also is intended as an alternative to the traditional trial-and-error approach of antimicrobial drug development by extrapolating the effect of novel agents or combinatorial regimens on pathogenic species, with an emphasis on complete eradication of potentially resistant bacterial subpopulations, in concert with the microorganism's growth cycle.

ASGHAR TARGETS AGE-RELATED KIDNEY DECLINE IN $459K NIH PROJECT

With the support of a $459,000 grant from the National Institute on Aging, UHCOP Associate Professor **Mohammad Asghar**, Ph.D., is investigating the interplay between transcriptional and mitochondrial systems as a potential new drug targets for halting or reversing age-related kidney function decline.

Asghar is studying the interaction between transcription factors Nrf2 and Sp1 and mitochondrial protein ATP-synthase.

In his preliminary studies in rodent model of aging, Asghar found that older rats had reduced kidney function through reduced creatinine clearance. In addition, he found that reduced mitochondrial and kidney functions were associated with reduced levels of transcription factors Nrf2 and Sp1 and decreased cellular levels of mitochondrial ATP-synthase enzyme protein.

Hussain's goals for the project are to determine the role of Nrf2 in mitochondrial and kidney functions in rats, and determine causal role of Nrf2 in regulation of mitochondrial and renal cell functions in HK-2 cells.

The results of Hussain's work could pave the way for new therapeutics to not only restore or preserve kidney function in older adults, but also prevent the cardiovascular events commonly associated with kidney impairment.

Mohammad Asghar is investigating the potential role of mitochondrial respiration as well as how the underlying mechanisms impact the kidney function in aging.

CPRIT FUNDS WORK TO HALT COLORECTAL CANCER FROM RARE GENETIC DISORDER

UH TAKES FOUNDING ROLE IN CPRIT-FUNDED, TSU-BASED PK/PD CORE

UHCOP Professor **Ming Hu**, Ph.D., has received a $200,000 grant from the Cancer Prevention Research Institute of Texas (CPRIT) to further development of his novel therapeutic to prevent the development or progression of colorectal cancer resulting from the rare inherited disorder familial adenomatous polyposis (FAP).

FAP is characterized by the growth of hundreds to thousands of polyps that inevitably turn cancerous. No drug therapy exists for FAP, and the current standard of care is complete colectomy by the teenage years to very early adulthood at best to avoid the development of cancer.

Hu has proposed developing a novel class of COX-2 inhibitors with the beneficial properties of limited bioavailability in the colon via enzymatic inactivation in the liver and local recycling of the metabolites to the intestine via bile secretion where the inhibitors are reactivated by gut bacteria. The local recycling method of the novel drugs called ReCOX is designed to avoid the deleterious effects of secondary-site organ toxicity through systemic distribution.

If successful, Hu said the ReCOX class of drugs could potentially be used for colon cancer prevention in other high-risk populations.

In other CPRIT news, UHCOP Professor **Diana S-L. Chow**, Ph.D., FNAI, has been recruited as a collaborator on the newly funded $5.1 million Gulf Coast Consortia Center for Comprehensive PK/PD & Formulation (GCC-CCPF) core facility grant awarded to Texas Southern University. UHCOP alumnus **Dong Liang**, Ph.D., professor, chair and director of Graduate Programs of the Department of Pharmaceutical Sciences at TSU's College of Pharmacy and Health Sciences, serves as principal investigator on the grant.

Instead of focusing on drug discovery, the new core is aimed at providing a resource for academic researchers and small biotechnology companies to conduct preclinical pharmacokinetic and pharmacodynamic studies on prospective novel anti-cancer compounds.

The subcontracted work on the project by Chow and her lab is anticipated to total approximately $500,000. The University of Texas MD Anderson Cancer Center and the GCC for Quantitative Biomedical Science faculty researchers also are collaborating on the new core facility.

Recent Publications

Communicating risk of medication side-effects: role of communication format on risk perception. **Sawant R**, **Sansgiry S**. Pharm Pract (Granada). 2018 Apr-Jun;16(2):1174. doi: 10.18549/PharmPract.2018.02.1174. Epub 2018 Jun 27. PMID: 30023029

GPCRs profiling and identification of GPR110 as a potential new target in HER2+ breast cancer. **Bhat RR**, **Yadav P**, **Sahay D**, Bhargava DK, Creighton CJ, Yazdanfard S, Al-Rawi A, Yadav V, Qin L, Nanda S, Sethunath V, Fu X, De Angelis C, Narkar VA, Osborne CK, Schiff R, **Trivedi MV**. Breast Cancer Res Treat. 2018 Jul;170(2):279-292. doi: 10.1007/s10549-018-4751-9. Epub 2018 Mar 24. PMID: 29574636

Transcutaneously refillable nanofluidic implant achieves sustained level of tenofovir diphosphate for HIV pre-exposure prophylaxis. Chua CYX, Jain P, Ballerini A, Bruno G, Hood RL, **Gupte M**, Gao S, Di Trani N, Susnjar A, Shelton K, Bushman LR, Folci M, Filgueira CS, Marzinke MA, Anderson PL, **Hu M**, Nehete P, Arduino RC, Sastry JK, Grattoni A. J Control Release. 2018 Sep 28;286:315-325. doi: 10.1016/j.jconrel.2018.08.010. Epub 2018 Aug 6. PMID: 30092254

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Comment: Critical Care Pharmacists and Medication Management in an ICU Recovery Center. **Wanat MA**, Fitousis K. Ann Pharmacother. 2018 Sep 6:1060028018799290. doi: 10.1177/1060028018799290. [Epub ahead of print] No abstract available. PMID: 30187762

Rational design and development of a stable liquid formulation of riluzole and its pharmacokinetic evaluation after oral and IV administrations in rats. **Sarkar M**, Grossman RG, Toups EG, **Chow DS**. Eur J Pharm Sci. 2018 Dec 1;125:1-10. doi: 10.1016/j.ejps.2018.09.004. Epub 2018 Sep 8. PMID: 30201516

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Identification of alcohol-binding site(s) in proteins using diazirine-based photoaffinity labeling and mass spectrometry. **Das J**. Chem Biol Drug Des. 2018 Oct 22. doi: 10.1111/cbdd.13403. [Epub ahead of print]. PMID: 30346111

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UH Faculty Author

Current/Recent Student, Fellow/Resident, Staff/Postdoc Author