

# Pharmacology & Toxicology

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Boonshoft  
School of Medicine  
WRIGHT STATE UNIVERSITY

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## CHAIR'S CORNER



*Dr. Jeffrey Travers*

The Department of Pharmacology and Toxicology newsletter keeps our alumni, the Boonshoft School of Medicine, and Wright State University apprised of the happenings in the department. The newsletter will be issued three times per year, and can be found on the departmental website: <http://medicine.wright.edu/pharmacology-and-toxicology>.

Each issue contains a section that highlights a faculty colleague or a program. For this issue, will be highlighting Saber Hussain, Ph.D., senior scientist at WPAFB and professor of pharmacology and toxicology. To join the departmental mailing list and receive an electronic version, or to provide suggestions, please email Catherine Winslow at [Catherine.Winiso@wright.edu](mailto:Catherine.Winiso@wright.edu).

## DEPARTMENT UPDATES

### Department Overcoming Coronavirus Pandemic

The pandemic caused by the novel coronavirus (COVID-19), which originated in Wuhan, China, has resulted in considerable impact in the department. Not only were laboratories temporarily closed, but all instruction went to virtual, computer-based learning. We are proud to report that the entire department rose to the occasion, and a new sense of "normalcy" has developed. More than a dozen new M.S. students arrived in January, having been delayed from starting in the fall. Faculty have stepped up and many are reteaching classes to accommodate the influx of new students.

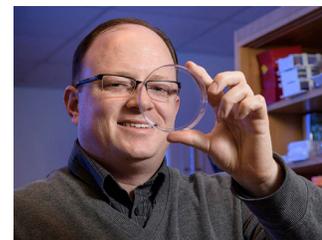
*Dr. Michael Kemp and  
Dr. Yanfang Chen*

### Drs. Kemp, Chen, and Travers Add New Extramural Grants

Several new grants are to be awarded to department faculty. Dr. Michael Kemp awarded a Veterans Affairs Clinical VA Merit Award, entitled, "Mapping DNA Repair and Error-Prone DNA Synthesis in Geriatric Skin." His revised proposal was scored a 1.9 percent. Drs. Chen and Travers were awarded a new NIH R01 Award, entitled, "UVB radiation-generated microvesicle particles as effectors for photosensitivity." This revised proposal was scored at a 5 percent. Of importance, both of these new grants take advantage of and support the Pharmacology Translational Unit. Congrats to all involved, including Drs. David Cool and Craig Rohan.

### New M.D.-M.S. Class to Join the Department

We are thrilled to announce that five new M.D.-M.S. students will be starting the studies towards their M.S. in pharmacology this summer. The new class members are Megan Cleary, Timothy Frommeyer, Michael Gilbert, Ericson Torralba, and Alexander Vollmar.



*(continued on page 2)*

## DEPARTMENT UPDATES *(continued)*

### Welcome aboard! Pharmacology Alumni Board Installed in Department

To keep track of the many outstanding accomplishments of our alumni, we now have a special display board in the department. We are also spotlighting alumni on our Facebook page—we now have over 4,000 followers! Please email any news or other items for posting directly to Catherine Winslow at Catherine.Winslow@wright.edu.

### New Studies Begin in the Pharmacology Translational Unit

One of the goals of the department is to foster translational studies to facilitate the process where discoveries at the laboratory bench can be brought to the clinic. The Pharmacology Translational Unit (PTU), located in the Wright State Physicians Health Center on campus, is set up to conduct both translational research studies as

well as pharmaceutical clinical trials. Regarding the latter, the PTU is currently conducting almost a dozen pharma-sponsored studies. These include testing a Phosphodiesterase-4 inhibitor in both adults and children with psoriasis, and two new studies testing novel agents for the challenging skin diseases prurigo nodularis and hidradenitis. We also have a novel study testing if high doses of oral vitamin D can treat psoriasis. If you have questions or for more details, please contact Dr. Travers or PTU Director Elizabeth Cates at 937-245-7500.

## KUDOS

**Dr. Terry Oroszi** is now a situation awareness specialist advanced practitioner (SAS-AP). This is a specialized designation from the Arcuri Group Examiners Panel to recognize special training.

A great colleague in an emergency!

**Dr. Trevor Bihl**, adjunct assistant professor, was recently promoted to DR-3 (GS-14 equivalent) at the Air Force Research Laboratory (AFRL) Sensors Directorate in January 2021. At AFRL, Dr. Bihl leads a diverse \$15M+ R&D portfolio in autonomous systems and data analytics.

Not only that, he and his wife Dr. Ji Bihl recently wrote a children's book on COVID-19.

**Dr. Alex Carpenter's** abstract has been selected for one of the 16 plenary lectures

*Below: The cover of "Understanding COVID-19 for Kids" by Drs. Ji and Trevor Bihl.*

at the Society for Investigative Dermatology's virtual meeting in May. Dr. Carpenter is a postdoctoral researcher in Dr. Mike Kemp's laboratory.

Congrats to Dr. Carpenter!

It has been an exciting six months for **Christine Rapp** and her family with her son Ethan's wedding to Michaela in September 2020 and her daughter Allison's acceptance into The Ohio State Veterinary Medicine Program. Congrats to everyone!

**Professor Khalid Elased** and his former master's students published a research article in the journal *Frontiers in Pharmacology*: Laale F. Alawi, Sanjeev Dhakal, Sana E. Emberesh, Harshal Sawant, Anhar Hosawi, Unmesha Thanekar, Nadja Grobe, and Khalid M. Elased. Effects of Angiotensin II Type 1A Receptor on

ACE2, Nephrylsin and KIM-1 in Two Kidney One Clip (2K1C) Model of Renovascular Hypertension. *Frontiers in Pharmacology*, 29 January 2021. <https://doi.org/10.3389/fphar.2020.602985>

*Below: Michaela and Ethan Rapp. Bottom right: Allison Rapp.*



*Below: Dr. Mike Kemp and Dr. Alex Carpenter.*



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**Understanding  
COVID-19  
for Kids**



## SPOTLIGHT

Each issue of the departmental newsletter will spotlight an individual faculty or program in the department. For this issue, we highlight Saber Hussain, Ph.D., Senior Scientist at WPAFB and Professor of Pharmacology & Toxicology.



Above: Saber Hussain, Ph.D.

**D**r. Saber Hussain was the driving force behind successfully obtaining the United States Air Force Cooperative Research and Development Agreement (CRADA) award, which supports moving part of AF collaborative laboratory here into the department. Dr. Hussain was born and raised outside of Hyderabad, India, where his father owned a small agricultural business. Dr. Hussain has three brothers and two sisters. He recounts always having a strong interest in science, trying to figure out just how things work. He earned his undergraduate degree in biology and chemistry, then Ph.D. (1991) in biology, at the Indian Institute of Chemical Technology, Osmania University, Hyderabad. Following postdoctoral fellowships at the University of Urbino, Italy, and Geneva, Dr. Hussain came to the U.S. in 1994. He served as a visiting scholar at the FDA National Center for Toxicology Research in Little Rock, Arkansas, for two years. He next was an assistant professor at Tuskegee University in Alabama until 1999, when he moved to Dayton to work as a research toxicologist at Wright-Patterson Air Force Base. He became affiliated with the department in 2000. Dr. Hussain has simply thrived here in

Dayton. He has garnered multiple awards for his innovative toxicology research to include the prestigious AFRL Fellow, 2017 SK Manchanda Memorial FIPS Oration Award, AFOSR STAR team award in 2016, and the Mentor of the Year Award at WPAFB in 2007. Dr. Hussain has published over 150 manuscripts and has trained many graduate students and postdoctoral fellows.

Dr. Hussain married Durdana in 1992. They have four children, son Zeshan (26), who is currently in the M.D.-Ph.D. program at Harvard; daughter Hafsa (24), a medical student at Neoucom medical school in Ohio; son Naumaan (19), who is studying computer science at Vanderbilt University; and son Imraan (9). When not working on his passions of research and education, Dr. Hussain enjoys reading and poetry. Regarding his role models, one of the major ones was his father, who was very passionate and motivated all around him.

To Dr. Saber Hussain, our very accomplished colleague, we are very pleased to highlight you and your efforts, and are so pleased that you will be working, in part, here in the department.

## PUBLICATIONS

Some manuscripts are so good we cannot wait until the end of the year to list them.

2020 manuscripts from departmental faculty—a good year that included several solo author manuscripts, including from Professor Alvarez-Leffmans.

Abhilasha KV, Sumanth MS, Thyagarajan A, **Sahu RP**, Kemparaju K, Marathe GK. Reversible cross-tolerance to platelet-activating factor signaling by bacterial toxins. *Platelets*. 2020 Aug 22;1-8. doi: 10.1080/09537104.2020.1810652. Epub ahead of print. PMID: 32835559.

Ahamad N, Khan S, Xu YJ. RecQ DNA Helicase Rqh1 Promotes Rad3ATR Kinase Signaling in the DNA Replication Checkpoint Pathway of Fission Yeast. *Mol Cell Biol*. 2020 Aug 14;40(17):e00145-20. doi: 10.1128/MCB.00145-20. PMID: 32541066; PMCID: PMC7431050.

Alawi LF, Emberesh SE, Owuor BA, Chodavarapu H, Fadnavis R, El-Amouri SS, Elased KM. Effect of hyperglycemia and rosiglitazone on renal and urinary nephrilysin in db/db diabetic mice. *Physiol Rep*. 2020 Feb;8(3):e14364. doi: 10.14814/phy2.14364. PMID: 32026607; PMCID: PMC7002536.

Alkawar AMM, Castellanos AJ, Carpenter MA, Hutcherson RJ, Madkhali MAO, Johnson RM, Bottomley M, **Kemp MG**. Insulin-like Growth Factor-1 Impacts p53 Target Gene Induction in UVB-irradiated Keratinocytes and Human Skin. *Photochem Photobiol*. 2020 Nov;96(6):1332-1341. doi: 10.1111/php.13279. Epub 2020 Jun 1. PMID: 32416609.

Alshahrani S, Fernandez-Conti F, Araujo A, **DiFulvio M**. Rapid determination of the thermal nociceptive threshold in diabetic rats. *J Vis Exp*. 2012 May 17;(63):e3785. doi: 10.3791/3785. PMID: 22643870; PMCID: PMC3466937.

**Alvarez-Leefmans FJ**. CrossTalk proposal: Apical NKCC1 of choroid plexus epithelial cells works in

the net inward flux mode under basal conditions, maintaining intracellular Cl<sup>-</sup> and cell volume. *J Physiol*. 2020 Nov;598(21):4733-4736. doi: 10.1113/JP279867. Epub 2020 Sep 1. PMID: 32870510.

Chauhan SJ, Thyagarajan A, **Chen Y**, **Travers JB**, **Sahu RP**. Platelet-Activating Factor-Receptor Signaling Mediates Targeted Therapies-Induced Microvesicle Particles Release in Lung Cancer Cells. *Int J Mol Sci*. 2020 Nov 12;21(22):8517. doi: 10.3390/ijms21228517. PMID: 33198218; PMCID: PMC7696385.

Chen R, Wargo JJ, Williams A, Cates E, Spandau DF, Knisely C, **Travers JB**. Single Ablative Fractional Resurfacing Laser Treatment For Forearm Actinic Keratoses: 6-Month Follow-Up Data From An Inpatient Comparison Between Treated and Untreated Sites. *Lasers Surg Med*. 2020 Jan;52(1):84-87. doi: 10.1002/lsm.23175. Epub 2019 Nov 17. PMID: 31736123; PMCID: PMC6982525.



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- Khatib J, Wargo JJ, Krishnamurthy S, **Travers JB**. Hemorrhagic Bullous Lichen Sclerosus: A Case Report. *Am J Case Rep*. 2020 Oct 7;21:e919353. doi: 10.12659/AJCR.919353. PMID: 33024070; PMCID: PMC7552941.
- Konger RL, Ren L, **Sahu RP**, Derr-Yellin E, Kim YL. Evidence for a non-stochastic two-field hypothesis for persistent skin cancer risk. *Sci Rep*. 2020 Nov 5;10(1):19200. doi: 10.1038/s41598-020-75864-2. PMID: 33154396; PMCID: PMC7645611.
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- Liu L, Fahy KE, Awoyemi AA, Thapa P, Kelly LE, Chen J, **Bihl JC**, **Cool DR**, **Chen Y**, Rapp CM, Johnson RM, **Travers JB**. Thermal Burn Injury Generates Bioactive Microvesicles: Evidence for a Novel Transport Mechanism for the Lipid Mediator Platelet-Activating Factor (PAF) That Involves Subcellular Particles and the PAF Receptor. *J Immunol*. 2020 Jul 1;205(1):193-201. doi: 10.4049/jimmunol.1901393. Epub 2020 May 20. PMID: 32434939; PMCID: PMC7342023.
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