

RADIOLOGY RESEARCH UPDATE

Fall 2020, Issue 18

Department of Diagnostic Radiology and Nuclear Medicine

FACULTY SPOTLIGHT



Professor **Jean Jeudy, MD** joined the department in 2005 after completing a year fellowship in the cardiothoracic section. In addition to his clinical appointment in cardiothoracic imaging, he is on the staff of the American Institute of Radiologic Pathology, and Co-Course Director of the Coronary CT angiography course, both programs of the American College of Radiology.

Dr. Jeudy's research interests focus on CT and MRI cardiac imaging and quantitative imaging and informatics. He is a sub investigator on numerous current and completed federal and industry grants. Recently he was awarded \$37,718 for a contract from Bayer Healthcare LLC, for "Historical CTPA cases for Machine Learning/Artificial Intelligence Development (CTEPH.AI)" The aim of the research is to retrospectively analyze relevant patient history factors and image findings

related to chronic thromboembolic pulmonary hypertension, in order to train machine learning algorithms developed by Bayer that are designed to support enhanced diagnosis for CTEPH at the time of image interpretation by radiologists.

In 2020 Dr. Jeudy completed an InferRead Lung CT.AI study sponsored by Infervision US Inc. This reader study evaluated radiologist's performance reading chest CT scans, with and without aid of InferRead CT Lung. The InferRead Lung CT.AI product is now FDA cleared with the culmination of Dr. Jeudy's efforts.

Dr. Jeudy is currently researching the cardiovascular effects of COVID-19 on athletes and the imaging protocols and guidelines that have thus far been developed to assess athletes prior to their resuming training and competition. He is working with colleagues in sports medicine and pediatric cardiology, and in conjunction with the athletics program at University of Maryland at College Park (UMCP), to identify and implement best practices regarding this rapidly emerging issue. The formulation of standardized imaging screening protocols of athletes before their return to play is essential for the safety of these athletes and the viability of collegiate sports programs during the coronavirus pandemic. In conjunction with his efforts at

UMCP, Dr. Jeudy is also Director of the Cardiac MR Core Lab for the Student Athlete COVID-19 Registry in the Big Ten collegiate athletic conference. This registry will be the most comprehensive collection of cardiovascular imaging and clinical data regarding student athletes and COVID-19. The registry will coordinate data from 14 university athletic programs and will be an evolving resource for both the Big Ten conference and the NCAA.

Dr. Jeudy has been named one of the region's "Top Docs" by *Baltimore Magazine*, three times, most recently in 2020.

GRANTS

Derik Davis, MD was awarded \$309,000 for a two year R03 grant from NIH/NIA for "Shoulder Pain, Rotator Cuff Tear, Coordination, and Mobility in Aging."

Dirk Mayer, Dr rer nat, along with Joseph Pao Yung Kao, PhD, Professor and Associate Director, Center for Biomedical Engineering & Technology, and Department of Physiology, were awarded \$424,875 for a two year R21 grant from NIH/NIBIB for "Enzyme-enabled Hyperpolarized ¹³C MRI for Antibody-targeted Imaging."

Barton Lane, MD was awarded \$59,044 for a one year contract from Maryland Development Center, LLC/DARPA entitled "Wearable

Ultrasound for Imaging and Modulation.”

Charles White, MD was awarded \$52,070 for a two year grant from American College of Radiology entitled “Transcatheter Aortic Valve Replacement (TAVR) Registry.”

FIGLEY FELLOWSHIP AWARDED TO AWAN

Congratulations to **Omer Awan, MD, MPH** who received the American Roentgen Ray Society’s 2021 Melvin M. Figley Fellowship in Radiology Journalism. Recipients of this award are given the opportunity to learn the fundamentals of medical writing, manuscript preparation and editing, peer review, the ethics of scientific journalism, and journal publication and printing through hands-on experience with the *American Journal of Roentgenology* Editor in Chief and production staff.

RESEARCH CELEBRATION HIGHLIGHTS

A hybrid in person/virtual Research Day was held on October 14. There was much to celebrate.

Over the past five years, federal and non-federal funding increased ten-fold, from \$522K in 2015 to \$5.9M in 2020 and the dollar amount of grants submitted in FY 2020 totaled nearly \$55M!

Congratulations to the recipients of the Research Day awards:

Reubin S. Mezrich Research Prize: **Linda Chang, MD**

Bruce Roberts Line Prize: **Derik Davis, MD**

RSNA Roentgen Research Award: **Steve Rothenberg, MD**

Thank you to **Dr. Elias Melhem, Dr. Dheeraj Gandhi, Dr. Rao Gullapalli, and Dr. Barry Daly** for hosting the event and to all those who attended in person or virtually to celebrate the accomplishments.



(Drs. Chang and Melhem)



(Dr. Davis)



(Drs. Resnik and Rothenberg)

All Research Day photos are courtesy of Dr. Barry Daly.

FEATURED PUBLICATIONS

Su P, **Guo S, Roys S**, Maier F, Bhat H, **Melhem ER, Gandhi D, Gullapalli R, Zhuo J.**

Transcranial MR Imaging-Guided Focused Ultrasound Interventions Using Deep Learning Synthesized CT. *AJNR Am J Neuroradiol.* 2020 Sep 3. Epub ahead of print.

Chen R, Lee K, Herskovits EH. Computational Framework for Detection of Subtypes of Neuropsychiatric Disorders based on DTI-derived Anatomical Connectivity. *Neuroradiol J.* 2020 Oct;33(5):393-399.

Wang Z & Alzheimer’s Disease Neuroimaging Initiative. Brain Entropy Mapping in Healthy Aging and Alzheimer’s Disease. *Front Aging Neurosci.* 2020 Nov 10. <https://doi.org/10.3389/fnagi.2020.596122>

Chang L, Liang H, Kandel SR, He JJ. Independent and Combined Effects of Nicotine or Chronic Tobacco Smoking and HIV on the Brain: A Review of Preclinical and Clinical Studies. *J Neuroimmune Pharmacol.* 2020 Oct 27. Epub ahead of print.

O’Connor EE, Zeffiro TA, Lopez OL, Becker JT. Differential Effects of an AIDS Defining Illness and Chronic HIV Infection on Gray Matter Volume. *Clin Infect Dis.* 2020 Oct 14. Epub ahead of print.