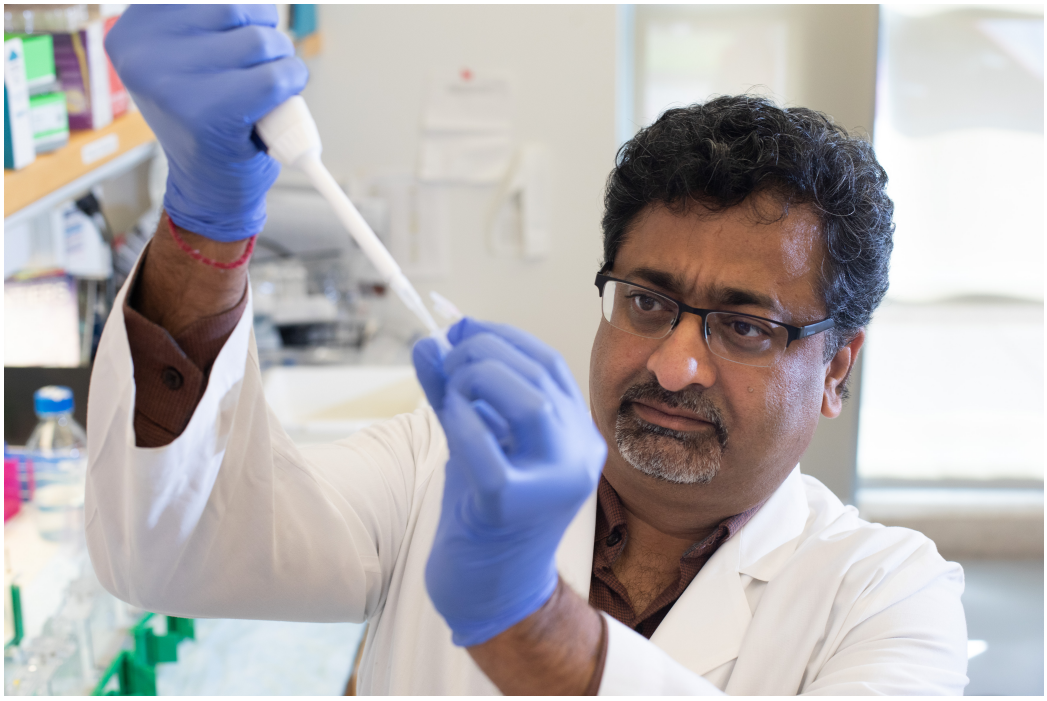
Med School Watercooler

NEWS FROM FREDERICK P. WHIDDON COLLEGE OF MEDICINE AT THE UNIVERSITY OF SOUTH ALABAMA

Thursday, March 7, 2024

Researchers identify novel risk predictor of prostate cancer aggressiveness and racially disparate outcomes



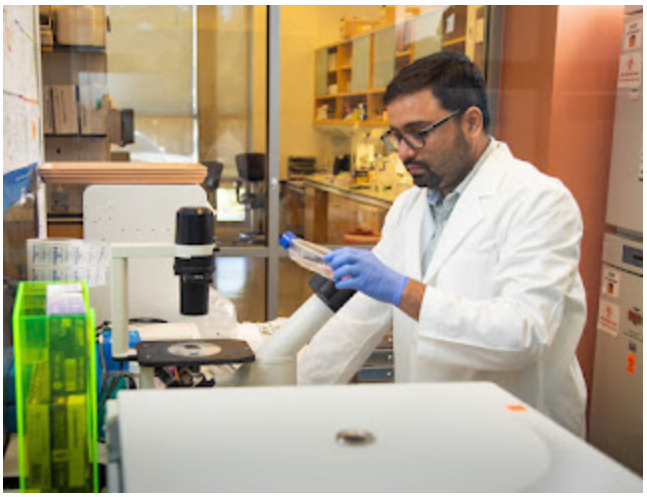
Ajay Singh, Ph.D, professor of pathology, is principal investigator of the project.

Researchers at the USA Health Mitchell Cancer Institute and the University of South Alabama are studying the role of MYB proteins in prostate cancer aggression and therapy resistance. In a recently published study in iScience journal, they examined the expression of MYB in prostate tumor tissues of various histological grades and clinical stages from Black and white patients, and evaluated if it could be used to predict the risk of cancer recurrence following primary therapy.

According to the Centers for Disease Control and Prevention, cancer of the prostate is the second most common malignancy in American men. Black men are 70% to 80% more likely to develop prostate cancer than white men and are twice more likely to die because of the disease. Importantly, poor clinical outcomes in Black patients are noted at every stage of the cancer continuum.

The prostate gland's growth and function are highly dependent on the male hormones collectively referred to as androgens. Androgens promote the growth of both healthy and cancerous prostate cells by binding to and activating the androgen receptor, a protein that is expressed in prostate cells. Reducing androgen levels via androgen-deprivation therapy, or castration therapy, is the primary treatment option for advanced and metastatic prostate cancer. However, the cancer comes back in most patients due to abnormal reactivation of the androgen receptor.

Ajay Singh, Ph.D., leader of the cancer biology and cancer disparities program at the Mitchell Cancer Institute, is principal investigator of the project funded by a grant from the U.S. Department of Defense. The research team is studying the molecular causes and mechanistic underpinnings of racial disparities in prostate cancer.



Mohammad Aslam Khan, Ph.D., is lead author of the study.

"Even prostate cancer thought to be slow growing and less lethal based on morphological features and other available markers can be deadlier in Black men," said Singh, who is also a professor of pathology at the Whiddon College of Medicine. "Thus, there remains a need for more reliable biomarkers to make better risk predictions and treatment decisions for the survival of all prostate cancer patients and reduce the disparity gaps."

MYB is a proto-oncogene encoding for a transcription factor that helps turn specific genes "on" or "off" by binding to nearby regulatory DNA sequences. MYB is involved in the regulation of several cancer-associated genes that promote tumor cell aggressiveness and helps them adapt to constantly changing environmental conditions.

"In an earlier study, we showed that MYB not only makes prostate cancer cells more aggressive but also plays a significant role in failure of castration therapy, leading to its recurrence," said Mohammad Aslam Khan, Ph.D., lead author of the iScience article. Formerly a senior research associate at the Mitchell Cancer Institute, Khan recently accepted a position at St. Jude Children's Research Hospital.

Since Black men experience higher incidence and mortality of prostate cancer than white men, in this study, the researchers examined if MYB was differentially expressed in prostate tumors from patients of these racial backgrounds. "Our research shows that MYB expression increases progressively in malignant prostate cells as it gains more aggressive features," Khan said. "We also found that prostate tumors in Black men have a higher abundance of this protein even in some low-grade cancers."

Singh said the data suggests that MYB is a better predictor of prostate cancer recurrence than existing morphologic and molecular prognostic markers, such as

serum levels of prostate-specific antigen (PSA) at the time of diagnosis and Gleason scores.

"Thus, MYB can be exploited as a biomarker to distinguish between indolent and aggressive disease and help in making better treatment decisions," he said. "Our data also pushes for developing newer therapies and prevention strategies that either target MYB directly or the mechanisms that control its overexpression in prostate cancer in the first place."

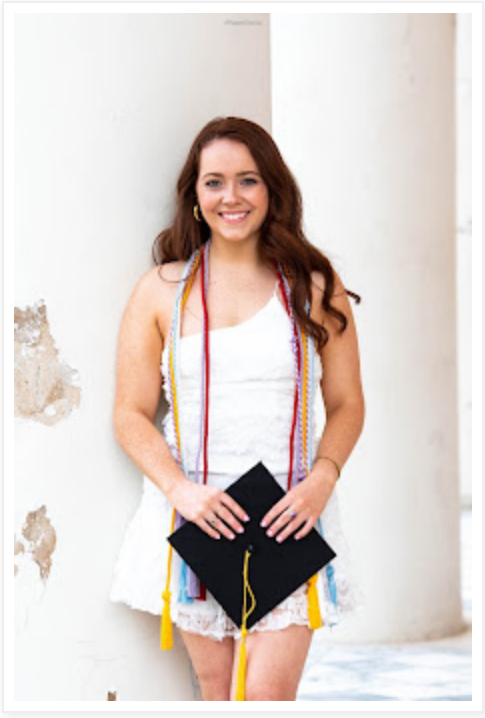
The next step, Singh said, would be to initiate a multi-center study in larger cohorts of prostate cancer patients.

Additional authors of the study from the Mitchell Cancer Institute and the University of South Alabama include Srijan Acharya, Ph.D.; Shashi Anand, Ph.D.; Fnu Sameeta, Ph.D.; Paramahansa Pramanik, Ph.D.; Christopher Keel, D.O.; Seema Singh, Ph.D.; James Elliot Carter, M.D.; and Santanu Dasgupta, Ph.D.

Read the full article in iScience: "MYB exhibits racially disparate expression, clinicopathologic association, and predictive potential for biochemical recurrence in prostate cancer."

Posted by Med School Watercooler at 10:05 AM

Meet a Med Student: Hannah Hill



Hannah Hill

Age: 24

Class: 2026

Hometown: Beauregard, Alabama

Undergraduate education: B.S. in biomedical sciences, Auburn University

What do you enjoy most about being a medical student at the Whiddon College of Medicine?
I enjoy that I get to work toward my goal of becoming a physician every day, and I get to do it with people I respect and look forward to working alongside one day. The faculty make each of us feel like a priority and openly portray their love for medicine in a way that inspires me daily.

Are you involved in any research, organizations or other initiatives at the Whiddon College of Medicine?
I participated in the Summer Research Program last summer. I worked with Dr. Nathan Polite, one of the trauma surgeons at University Hospital, studying risks of aspiration with enteral feeding in the trauma patient population. I'm a part of the PEERS program, and last year I was a part of the Social Media Committee.

I'm a member of the Emergency Medicine Interest Group and OB-GYN Interest Group.

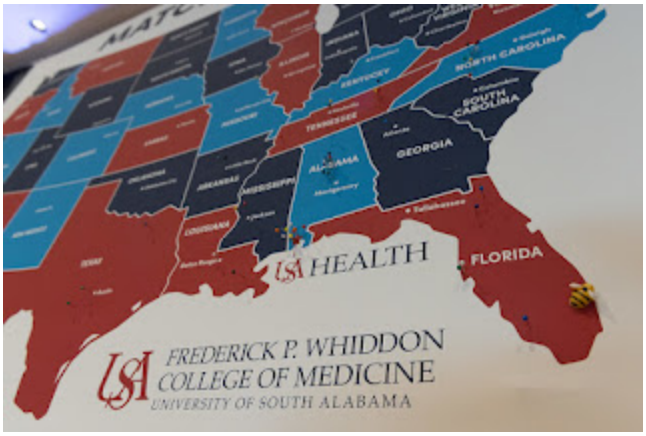
What are your interests and hobbies?
I love going on walks, traveling, and spending time with friends and family.

What is something unique about you?
I could sleep 12-plus hours a night if I never set an alarm.

Posted by Med School Watercooler at 8:00 AM

Tuesday, March 5, 2024

Senior medical students to celebrate Match Day



On Match Day, set for Friday, March 15, the National Resident Matching Program will release results to senior medical students seeking residency positions in the U.S and Canada.

Graduating medical students from the Whiddon College of Medicine will join others from across North America to simultaneously open their envelopes with their assigned matches at 11 a.m. at the Mitchell Center on USA's campus. The students will take turns announcing their residency matches and pinning their locations on a map.

The event begins at 10:30 a.m. The livestream will be available on the Mitchell Center's YouTube channel and shared on the Whiddon College of Medicine's Facebook page.