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Notable and Newsworthy



Dr. Brian Le has been promoted to Associate Professor (CHS) effective July 1, 2021. Dr. Le joined the faculty in 2014 and has made significant contributions to the clinical and educational success of our Department.

Dr. Stephen Nakada will serve as the Mostafa Elhilali Virtual Visiting Professor at McGill University on March 31st. This will mark the third virtual Visiting Professorship for Dr. Nakada since the pandemic.



Upcoming Event

Dr. David Paolone Men's Health Visiting Professorship
Tobias S. Köhler, MD, MPH
Topic: "IPP PLAN: Tales of Penile Implant Woe"
April 7, 2021 at 7:00AM

The Department of Urology is pleased to welcome Dr. Tobias Köhler as our 2021 Dr. David Paolone Men's Health Visiting Professor. Tobias S. Köhler, MD, MPH, FACS, Professor of Urology, specializes in the treatment of erectile and sexual dysfunction, and BPH (enlarged prostate) in the Department of Urology at the Mayo Clinic in Rochester, MN. He is head of Mayo Men's Health and program director for the Mayo Andrology Fellowship. He received his undergraduate, medical degree, Masters of Public Health in Epidemiology, and Urology Specialty Training all from the University of Minnesota in Minneapolis. This was followed by an andrology fellowship at Northwestern School of Medicine in Chicago. Dr. Köhler spent his first nine years of academic practice at Southern Illinois University School of Medicine in Springfield, Illinois rising to Full Professor before matriculating back to his home state of Minnesota. He most recently has completed wellness coaching course work and is in the process of becoming a certified wellness coach.



Dr. Köhler is an active member of American Urological Association, North Central Section, and is the Secretary of the Sexual Medicine Society of North America. He has published more than 250 peer reviewed scientific articles, book chapters, and scientific abstracts. Additionally, he has presented both locally and nationally on various subjects including erectile dysfunction, low testosterone, BPH, surgical education, and penile prostheses.

For more information, or if you would like to attend this event, please contact Denise Mussehl at mussehl@urology.wisc.edu.

An Epigenetic Field of Susceptibility Detects Prostate Cancer from Non-tumor Biopsies



Prostate cancer (PC) is the most frequently observed cancer in men, with approximately 1 in 6 diagnosed in their lifetime. Despite its high incidence, PC detection remains clinically challenging. Typically, prostate specific antigen (PSA) is used to detect PC, and if abnormal, a 10–12 core biopsy is obtained under ultrasound guidance. Over 40% of patients with a negative biopsy receive a second biopsy, and many will receive additional biopsies in an effort to detect this microscopic disease. Indeed, repeat biopsies account for roughly 780,000 of the 1.2 million biopsies done annually. While MRI has improved the detection of larger volume cancers, roughly 30% of significant PCs remain undetected by this approach. The biology of this common, multifocal, and microscopic disease presents unique molecular opportunities to improve its detection.

The concept of a field defect, which can explain the multifocality of some cancers, including prostate, colon, and bladder, suggests that preneoplastic molecular alterations may exist in benign tissues. The predilection of PC for the peripheral zone of the prostate and its frequent multifocality suggest a field of susceptibility. This field change strongly links to epigenetic alterations, the initial finding being a loss of genomic imprinting for the insulin-like growth factor-2 (IGF2) gene [1]. It is also characterized by a panel of DNA methylation changes at specific loci that persist even in regions spatially remote (over 1 cm) from tumor bearing areas [2]. Because of the widespread nature of these methylation changes in normal tissue, their use may offer increased sensitivity over diagnostic approaches using methylation associated with peritumor, or 'halo', alterations found in some benign tissues

adjacent to cancer.

This field of susceptibility offers an opportunity for improved detection of the disease, acting as a 'fingerprint' for disease detection. In a recent multicenter study, the predictive strength of a panel of loci to detect cancer presence and grade in patients with negative biopsy tissue was tested [3]. This study indicated that cancer can be detected from normal tissue, and suggests an approach to reduce the number of repeat and initial prostate biopsies in the future. These changes may have the potential to act as a harbinger of disease, identifying individuals at risk of cancer. As epigenetic changes can be modulated, patients with an 'at risk' fingerprint could, in the future, be targeted for chemoprevention strategies. Why not work to prevent prostate cancer, rather than having to cure it?

1. Fu VX, Dobosy JR, Desotelle JA et al. Aging and cancer-related loss of insulin-like growth factor 2 imprinting in the mouse and human prostate. *Cancer Res* 2008; 68: 6797-6802.
2. Yang B, Bhusari S, Kueck J et al. Methylation profiling defines an extensive field defect in histologically normal prostate tissues associated with prostate cancer. *Neoplasia* 2013; 15: 399-408.
3. Yang B, Etheridge T, McCormick J et al. Validation of an epigenetic field of susceptibility to detect significant prostate cancer from non-tumor biopsies. *Clin Epigenetics* 2019; 11: 168.

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