

TTP Sponsored Seminar Series

presents

Martin Matzuk, MD, PhD

Stuart A. Wallace Chair and Professor
Department of Pathology & Immunology
Director of The Center for Drug Discovery
Baylor College of Medicine (BCM)

Host: Kevin N. Dalby, PhD

*“Collaborating with the Center for
Drug Discovery at BCM to Produce
Next Generation Medicines”*

Friday, September 30, 2016

1:00 pm

BME 3.204

This seminar will be preceded by a technical talk by Biotek/Griener/n3D.

TTP (*Targeted Therapeutic drug discovery and development Program*)

Collaborating with the Center for Drug Discovery at Baylor College of Medicine to Produce Next Generation Medicines

Martin Matzuk, MD, PhD, Damian Young, PhD, and Hongbing Huang, PhD

Abstract: The Center for Drug Discovery (CDD) at Baylor College of Medicine (BCM) (<https://www.bcm.edu/research/centers/drug-discovery>) was created in 2012. The CDD collaborates with more than 100 laboratories whose research interests span a diverse array of medically related subjects. Because the cost of traditional high-throughput screening (HTS) is impractical for university researchers, there is a dearth of academic participation in translating basic research discoveries to useful drugs in the clinic. Through the recent development of economical and highly effective screening alternatives to HTS, the CDD is developing small-molecule probes, preclinical candidates, and drugs for researchers and clinicians in Texas. Our vision is to bridge the gap between academic research and pharmaceutical discovery and provide researchers with an economical path to preclinical drug discovery. To accomplish this goal, the CDD has developed several seamless and interactive screening platforms as follows: 1) Platform 1 is the DNA-Encoded Chemistry Technology (DEC-Tec) platform that we have established over the last 1.5 years; we are creating libraries consisting of hundreds of millions of drug-like molecules attached to a DNA tag (*i.e.*, a “bar code”) and performing screens in a single tube instead of thousands of microtiter plates; 2) Platform 2 is the fragment-based NMR screening platform that will utilize a state-of-the-art 800 MHz NMR instrument to identify and characterize lead compounds directed against novel disease-related targets; 3) Platform 3, the BCM drug discovery screening platform (a BCM Advanced Technology Core), has the capability to run a wide range of cell-based phenotypic assays and protein-based biochemical and biophysical assays; and 4) Platform 4 is the Medicinal Chemistry platform that validates hits uncovered in Platforms 1, 2, and 3 and performs hit-to-lead development and lead optimization for preclinical drug candidates. The instrumentation and personnel in our platforms are sufficiently versatile to both uncover novel healthcare-related targets and develop the future lead compounds to complete our drug-development pipeline. Medical chemists and structural biologists collaborate with other investigators in the CDD to develop novel drugs from lead compounds. To help academic investigators develop novel chemical probes and drug candidates, our presentation will include our strategies and approaches to building DNA-encoded chemical libraries and will illustrate how DEC-Tec screening can lead to the discovery of avid inhibitors. Collaboration is an integral and necessary part of our success and is supported in part by the Welch Foundation, a CPRIT Core Facility Support Award, and a Biotech collaborative grant.

Biography: Martin M. Matzuk, M.D., Ph.D. is the Director of the Center for Drug Discovery and Stuart A. Wallace Chair and Professor in the Department of Pathology and Immunology at Baylor College of Medicine. Dr. Matzuk earned his M.D. and Ph.D. from Washington University School of Medicine, performed residency training in pathology at the University of Pennsylvania, is a board-certified Clinical Pathologist, and has been

Director of Clinical Chemistry at Ben Taub General Hospital since 1993. He has mentored over 40 students, postdocs, and medical fellows in his two decade tenure at Baylor College of Medicine. His research focuses on deciphering germ cell, TGF-beta superfamily, hormonal, and small RNA signaling pathways in male and female fertility and reproductive cancers, and he has generated over 100 mouse models to study these processes. Dr. Matzuk has co-authored more than 300 papers, including 25 papers in Cell, Nature, and Science journals, and he holds 12 patents for his biomedical research discoveries. His honors include the Richard E. Weitzman Award from the Endocrine Society, the HypoCCS Award from Eli Lilly, the Society for the Study of Reproduction Research Award, the Pfizer Outstanding Investigator Award from the American Society for Investigative Pathology, the Roy O. Greep Award from The Endocrine Society, a MERIT award from the National Institutes of Health, and the 5th International Fundacion IVI Award for the Best Basic Research Record in Reproductive Medicine.