



BIOENGINEERING

UNIVERSITY of WASHINGTON

A Department of the College of Engineering & School of Medicine

BIOEN 509 – DEPARTMENTAL SEMINAR SERIES

Thursday, Mar. 1st 2012, 12:30-1:20 PM

Foege Bioengineering Building N130A

Circulating microRNAs as Potential Cancer Biomarkers

Prof. Muneesh Tewari

Associate Member, Divisions of Human Biology, Clinical Research and Public Health Sciences, Fred Hutchinson Cancer Research Center

MicroRNAs are short (approximately 22 nucleotide long) non-protein-encoding RNAs that function to influence gene expression by binding to an repressing messenger RNA targets. MicroRNA profiles in tissues have been found to be useful biomarkers for cancer and other diseases. We and others have found that microRNAs are also present in the circulation in a highly stable, cell-free form (i.e., in plasma and serum); these analytes are being investigated as a blood-based biomarkers for a wide range of disease states. The seminar will review the discovery of circulating miRNAs, recent results on understanding the mechanisms that protect circulating microRNAs from degradation in the bloodstream, and prospects and challenges for the further clinical diagnostic development of circulating microRNA biomarkers.

Dr. Tewari earned an M.D. and Ph.D. from the University of Michigan in 1997, where he worked with Dr. Vishva Dixit on mechanisms of apoptosis for his thesis research. He then completed an internship and residency in Internal Medicine at the University of Michigan Hospitals and a Medical Oncology fellowship at Dana-Farber Cancer Institute. Following a postdoctoral research fellowship in systems biology and genetics at Dana-Farber Cancer Institute/Harvard Medical School, he joined the Fred Hutchinson Cancer Research Center as an Assistant Member in 2005. In 2008, his laboratory reported that microRNAs are released from cancer cells into the bloodstream and circulate in a highly stable form, which has spawned a growing research field investigating circulating microRNAs as biomarkers for not only cancer but also a range of other conditions, including autoimmune and cardiovascular diseases. Dr. Tewari's laboratory continues to investigate both fundamental miRNA biology as well as clinical oncology applications of circulating microRNAs.



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