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MicroRNAs in frequently deleted loci of prostate cancer: Novel players in disease progression, recurrence and metastasis

Sharanjot Saini

University of California, USA

A major clinical challenge in prostate cancer is the elucidation of pathways of tumor progression, recurrence and metastasis, which could lead to the design of better diagnostic and therapeutic strategies against the disease. This lecture will address the role of novel microRNA (miRNA) genes located at frequently deleted genomic region in prostate cancer epithelial-to-mesenchymal transition (EMT), recurrence and metastasis. The most frequent alteration in the prostate oncogenome is the loss of chromosome (chr) 8p21 that has been traditionally associated with the loss of homeodomain protein, NKX3.1, that plays important roles in prostate carcinogenesis. Genomic deletions of this region increase significantly with tumor grade and are associated with poor prognosis in prostate cancer suggesting the critical involvement of this region in prostate cancer progression. Recent genomic studies suggest that this region harbors alternative tumor suppressor genes apart from NKX3.1. However, the identity of these tumor suppressors has largely remained elusive. Our studies support a novel, paradigm shifting hypothesis that this frequently deleted locus is associated with a cluster of miRNA genes that are lost in prostate cancer and play an important mechanistic role in prostate cancer progression and metastasis by regulating Epithelial-mesenchymal transition (EMT). Also, these miRNA genes regulate prostate cancer tumor-initiating cells, implicating a role in prostate cancer recurrence. These studies have high transformative potential in the field of prostate cancer and will potentially identify new agents for diagnosis, prognosis and therapy of advanced prostate cancer.

Biography

Sharanjot Saini is an Assistant Professor in the Department of Urology at UCSF/SFVAMC. Her research is primarily focused on understanding the molecular basis of progression and metastasis of prostate cancer. She completed her Post-doctoral training at University of Massachusetts Medical School Worcester and the University of California, San Francisco (UCSF)/SFVAMC. She currently holds a NCI RO1 Grant from the NIH and has authored over 42 peer reviewed papers and 4 book chapters. She is a reviewer and editor for major oncology journals.

SainiS@urology.ucsf.edu