

The role of microRNA (miRNA)s in cancer diagnosis and therapy

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MiRNAs are non-coding single-stranded RNAs comprised of 20-22 nucleotides and considered as a novel class of gene regulators. It has been suggested that miRNA expression correlates with classification of various cancers. About half of the annotated human miRNAs are located in fragile sites of the genome suggesting that these small molecules might have a vital function in cancer progression. miRNAs can regulate gene expression transcriptionally or translationally. There is an emerging evidence that miRNAs are involved in cancer pathogenesis. A number of studies have detected frequent alterations of miRNA expression in a variety of human malignancies including prostate cancer. We have recently demonstrated a widespread deregulation of miRNA expression in human prostate cancer. The status of the selected miRNAs, in human prostate cancer cell lines DU-145, LNCaP, LAPC4, PC3 and prostate cancer specimens have been analyzed. We have transfected these cell lines with precursor miR- and anti miR- molecules and compared the gene expression profiles. We have also compared the targets for these selected miRNAs identified biologically in prostate cancer cells and in three different databases. The expression status of select-targets have been verified and the biological effects of these targets on prostate cancer cell lines are studied. The results obtained in these studies demonstrate that microRNA(s) can be used to find new markers for prostate cancer progression and to define promising targets for prostate cancer therapy.

Biography

Mustafa Ozen has completed his M.D. in 1992 from Erciyes University, Turkey and his Ph.D. in 1999 from The University of Texas MD Anderson Cancer Center and Graduate School of Biomedical Sciences in Houston, Texas USA. He has continued his studies as postdoctoral fellow and is Assistant Professor at the Department of Pathology, Baylor College of Medicine until mid 2007. He is currently Professor and Chair at the Department of Medical Genetics at Istanbul University Cerrahpasa Medical School, Istanbul, Turkey and adjunct Associate Professor at the department of Pathology & Immunology Baylor College of Medicine, Houston, TX. He has published more than 40 papers in reputed journals and serving as an editorial board member of reputed. His papers have been cited more than 1700 times in reputed journals. He has also published book chapters published by internationally renowned publishers.