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Our effort to make estrogen receptor positive breast cancer a history

Estrogen receptor positive breast cancer is a group of diseases, which cannot have one stop solution. It comes up with various complications of drug resistant and reoccurrence of the disease. Our approach is to speculate the combinatorial effort of alteration in genetics, and epigenetics towards the treatment of disease. The findings of our laboratory showed estrogen-related receptor beta (*ERRβ*) to be prognostic marker for breast cancer. *ERRβ*-mediated reduced cancer cell growth and enhanced apoptosis explains the significant association of its high expression with improved patient survival. Also, in response to treatment with plant derived extract artemisinin, upregulated expression of tumor suppressor genes along with reduced expression of oncogenes significantly associated with growth stimulating signaling pathways that suggests its efficacy as an effective drug in breast cancer treatment. Abrogated nicotine-induced increased breast tumor growth upon DZNepA treatment suggested the promising role of EZH2 inhibition in environment effected disease development. In addition, NEDD8 is an emerging molecule in the field of translational protein modification and regulation. A well-known substrate of NEDD8 is TP53. Our study elucidate that over expression of NEDDylated TP53 enhances apoptosis in breast cancer, thus suggesting that NEDDylated TP53 is active and that Noxa is one of the crucial pro-apoptotic effectors of NEDDylated TP53-mediated apoptosis and also NEDDylated TP53 induces the promoter activity of well-known cell cycle regulator p21. Significant involvement of ERRβ and NEDD8 in growing tamoxifen resistance in estrogen receptor positive breast cancer directs their combined effort towards disease progression. Therefore, a synergistic effect of modification of genes in addition to treatment with promising growth inhibiting drugs can be proved to be an effective strategy towards breast cancer treatment and combating resistance towards drugs.

Biography

Sandip K Mishra has been an active researcher in the field of epigenetics of breast cancer since his postdoctoral training in UT MD Anderson Cancer Center, Houston, TX. Before that his Doctoral thesis was on Molecular Gerontology. He served as a faculty in the Department of Neurosurgery, UT MD Anderson Cancer Center, Houston, TX before moving to a reputed National Institute under Department of Biotechnology, Govt. of India as a Senior Scientist. Now he is serving as a tenured Snr. Scientist equivalent to Professor and Principal Investigator of Cancer Biology Laboratory. He has published several papers in high impact peer reviewed journals. He is serving on the editorial boards for the Journal of Cancer Science and Research. He is also serving as the Associate Editor of World Journal of Cancer Research, He is an active member of AACR, USA. He has several grants from funding agencies of Govt.of India. Since he started his career in India towards the end of the year 2007, under his guidance one graduate student was already awarded Ph.D. degree. Six more graduate students are working for their Doctoral degrees under his guidance. Besides postdoctoral student, technicians and other project staffs are also working under him. Dr. Mishra has been honored with several awards including Amgen Award during his postdoctoral training in UT MDACC. In recent past his findings was accepted as late breaking abstract in AACR meeting.

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