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विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार के अधीन एक स्वायत्त संस्थान
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To whom it may concern

Epigenetic dysregulation plays a crucial role in the pathogenesis of various human diseases, including aggressive and therapy-resistant cancers such as Triple-Negative Breast Cancer (TNBC). Dr. Das' laboratory investigates the functional diversity of the chromatin 'reader' family of proteins that have provided valuable insights into TNBC progression and their sensitization towards therapeutic regimen. Studies from their laboratory unveiled novel mechanisms including the modulation of critical signaling pathways, extracellular matrix (ECM) remodeling, and regulation of tumor-promoting/suppressing genes, regulated by the chromatin readers. These functional discoveries shed light on the intricate molecular processes underlying TNBC proliferation, metastasis, therapeutic resistance, and cellular plasticity. Remarkably, their studies identified that Wnt/β-Catenin, TGFβ, FGF and IFN signaling pathways are regulated by the chromatin readers and are instrumental in the TNBC progression. Moreover, the chromatin readers are not only involved in cellular migration and invasion but also in other specialized cellular programs including anoikis resistance and ECM remodeling to regulate metastatic potential. Further, the research from Dr. Das' laboratory provided novel insights into the regulation of the gene expression programs by these reader family proteins to modulate cellular differentiation events providing new avenues to counteract the aggressive behavior of TNBC. These discoveries provide a deeper understanding of the molecular landscape of TNBC, offering potential targets for therapeutic intervention and the development of innovative treatment strategies. Hence, these findings hold significant implications for improving patient outcomes and advancing our knowledge of the complex epigenetic mechanisms underlying TNBC.

Thank you

Regards
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