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NPM1 promotes the progression of castration-resistant prostate cancer through a c-Myc-mediated pathway via BRD4

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Castration-resistant prostate cancer (CRPC) is a lethal, drug-resistant form of prostate cancer (PCa) that is currently almost incurable. C-Myc is one of the crucial effectors of the androgen receptor(AR) signaling pathway and plays pivotal roles in CRPC progression and drug resistance. In the present study, we showed that nucleophosmin 1(NPM1), a transcription factor, is overexpressed in PCa cells and tissues and that the dysregulation of NPM1 promotes CRPC cell proliferation and invasion. We also demonstrated that c-Myc was transcriptionally upregulated by NPM1 and that this effect was diminished by blockade of bromodomain containing 4 (BRD4). More importantly, treatment with a BRD4 inhibitor combined with NPM1 inhibitor suppressed the malignant progressicon of CRPC cells in vitro and in vivo. These results indicated that NPM1 may be a previously completely unrecognized PCa driver gene that promotes CRPC progression through a c-Myc-mediated pathway via BRD4, and that NPM1 could be a potential target for PCa, especially CRPC, treatment.

Biography

Xinan Wang is from Tongji University, China. His research interest includes Cancer Genetics and Epigentics, Prostate Cancer etc.

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