**Supplementary figures**

***Fig. S1. The relative mRNA expression of several genes related to tumor progression was detected via the knockdown of AC245100.4.***

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Fig. S1. (A) The up/down regulation genes were sequenced according to the rank of differentially expressed in the RNA-seq analysis. (B) The relative mRNA expression was detected by qRT-PCR in PC3 and DU145 cells with AC245100.4 knocked down. *vs.* Nc. \* P＜0.05, \*\* P＜0.01, \*\*\* P＜0.001.

***Fig. S2. Overexpression efficiency was detected in PC3 and DU145 cell lines.***



Fig. S2. (A&B) Overexpression efficiency was detected by qRT-PCR and western blot in PC3 and DU145 cell lines.\* *P*<0.05, \*\* *P*<0.01*.*

***Fig. S3. The effect of NR4A3 on the proliferation of prostate cancer cells.***



Fig. S3. The effect of NR4A3 on the proliferation of prostate cancer cells. (A&B) The proliferation of PC3 and DU145 cells was determined by CCK-8 and colony formation assays following overexpression of NR4A3. vs. Nc. ns, not significant.