**Supplementary Figure Legends**

**Supplementary Figure 1.** **Enzalutamide resistant VCaP prostate cancer cells.** **A**, VCaP cells were implanted subcutaneously in non-castrated mice and grown until tumors reached the size of approximately 100mm3. Xenografted mice were randomized and then received vehicle or 30mg/kg enzalutamide as indicated 5days/week for 5 weeks. Mean tumor volume ±s.e.m is shown. Statistical significance by two-tailed Student’s t-test. **B**, RT-qPCR analysis of *AR*, *AR-v7*, *MYC* and *GR* expression in VCaP xenograft tumors from mice treated with vehicle (n=20), or with enzalutamide (n=20). **C**,RT-qPCR analysis of *AR,* *AR-v7* and AR target *SLC45A3* in 8 independent enzalutamide-resistant tumor-derived (ERTC) VCaP sub-lines. Relative fold expression with mean ± s.d is plotted. Parental VCaP cells served as control.

**Supplementary Figure 2. Direct comparison of various BET inhibitors in prostate cancer cells. A,** Cell viability curves for the LNCAP and LNCaP-AR prostate cancer cells treated with DMSO or BET inhibitor JQ1, OTX-015, or I-BET762. N = 4 wells of a 96-well plate per condition. Mean ± s.e.m. is plotted. **B,** IC50 for JQ1, I-BET762 and OTX-015 in LNCaP vs LNCaP-AR is listed.

**Supplementary Figure 3. De-recruitment of BRD2/3/4 from the SRSF1 and U2AF1 promoter by JQ1.** The genome browser view of ChIP-seq depicting loss of BRD2/3/4 recruitment to the *SRSF1* and *U2AF1* promoter upon JQ1 treatment in VCaP cells. The y-axis denotes reads per million per base pair (r.p.m. bp-1), the x-axis denotes the genomic position. The bottom panel depicts the H3K27ac mark and Med1 occupancy on the same promoter region in VCaP cells. The ChIP-seq is from our previous publication ([7](#_ENREF_7)).

**Supplementary Figure 4. AR- and ERG-positive PDX model displays sensitivity to JQ1. A, B and C,** Xenografted mice were randomized and then received therapy for 5days/week. Mean tumor volume ± s.e.m. is shown. Statistical significance by two-tailed Student’s t-test. Inset in A shows the western blot for ERG and AR in the PDX, with VCaP as control.