**Supplementary Figure Legends:**

**Supplementary Fig. S1.**

Supplementary Figure S1. Gene Expression of AR-Target Genes in BCa Cell Lines.

A-C) Quantitative real time PCR of three AR-positive BCa cell lines following hormone stimulation. D-E) Gene expression correlation analysis from the rt qPCR data between androgen (DHT) and either estrogen or D-Norgestrel stimulation is plotted for the following 11 genes (*KLK2*, *KLK3*, *ESR1*, *ESR2*, *NR3C3 (PR)*, *NR3C4 (AR)*, *NR3C1 (GR)*, *FCGRT*, *EGFR*, *HER2*, and *FOLH1*). Pearson r-coefficient and statistical evaluation for significance included in data table (G) which shows a significant correlation between DHT and D-Norgestrel treatment but not between DHT and 17β-estradiol treatment.

**Supplementary Fig. S2.**

Supplementary Figure S2. Androgen Binding Activity in vitro.

A) We measured the heterologous competitive binding isotherms of DHT and D-Norgestrel in AR-expressing VCaP cells using a radiolabeled DHT analog, 18F-FDHT. Specific DHT and D-Norgestrel binding IC50’s were 2.16±0.04 nM and 2.71±0.03 nM, respectively. AR binding of 18F-FDHT was abrogated in the presence of enzalutamide (1 µM). B) AR-driven hK2 production in the presence of enzalutamide. Under hormone stimulation with DHT or D-Norgestrel in the presence of the inhibitor we measured secreted hK2 from VCaP cells in vitro using an hK2 immunoassay (Vaisanen 2004).

**Supplementary Fig. S3.**

Supplementary Figure S3. MFM-223 cell growth after 192 hours of treatment with DHT, estrogen, D-Norgestrel and vehicle control.

To evaluate the potential cytotoxic effect of hormone stimulation in the context of gene and protein expression assays utilized in these studies, we performed a trypan blue cell viability assay over an 8 day period in 100 nM hormone concentration. No significant change in the cell number of BCa cells (MFM-223 (shown)) was noted for any of the hormone treatments versus ethanol control.