Supplemental Information

SI Materials and Methods

Antisera used in immunoblots and ChIP assays

Antibodies used for immunoblots were as follows: AR (N-20, directed against amino acids 1-20 by Bethyl Laboratories, and validated by immunoblot, IP, IHC, and ChIP to perform identically to commercial antisera directed against this epitope), PARP1 (Active Motif, Cat#39559), PARP (for verification of knockdown)(Cell Signaling, Cat#9542S), PAR (Enzo Life Sciences, Cat#804-220-R100), CDK4 (Santa Cruz, Cat#sc-601), GAPDH (Santa Cruz, Cat#sc-25778), Histone H4 (Millipore Cat#07-108), Lamin B (Santa Cruz, Cat#sc-6217) and Ran (BD Transduction Labs, Cat#610340). Antibodies for ChIP assays were as follows: AR (N-20), PARP1 (Active Motif, Cat#39559), Histone H1 (Millipore, Cat#05-457), H3K4me2 (Millipore Cat#07-030), FoxA1 (Abcam, Cat#5089), GATA2 (Santa Cruz, Cat#sc-9008x), and H3K4me3 (Invitrogen, Cat#49-1005).

MEF transfection

Cells were seeded at $2x10^5$ cells per well (in 6 well dishes), and allowed to grow 24 hours before transfection. For each well of cells, 4ug of DNA plus serum free media to 50ul were mixed. In a separate tube, 10ul Lipofectamine 2000 (Invitrogen, 11668)) plus 40ul serum free media were mixed. Separately the DNA and Lipofectamine were incubated 5 minutes at room temp, then mixed together and incubated at room temp for 20 minutes before added to the cells. The cells were grown an additional 24 hours before treatment(1).

Dose response/cell survival analysis

Prostate cancer cell lines were plated at $1x\ 10^3$ cells per well (Ab1, 22RV1 and C4-2) as previously described(2-4), except for LNCaP and LAPC4 cell lines which were plated at

$2x10^3$ cells/well in 100ul into 96 well flat bottom culture plates. These dilutions allowed for cells to be plated at 50-70% confluency, depending on the cell line. Once cells attached to the bottom of the 96-well plates (6 hr later), ABT-888 was added at the indicated doses in triplicate in 100ul of additional media. Plates were then incubated at 37C°, 5% CO_2 for 5-7 days. Cell culture media was discarded from the plates and the surviving cells were washed 3 times with PBS. To lyse the surviving cells, 100ul/well H_2O was then added and cells were lysed at 37C°. After 1 hour, cell survival was measured by staining for double-stranded DNA via Quant-iT Picogreen(Invitrogen, Carlsbad, CA, 1:200 dilution with H_2O) and the fluorescence was detected as previously described by a TECAN SpectraFluor. Survival rate was determined by averaging the fluorescence intensity of the treated wells (in triplicate) divided by the fluorescence intensity of the untreated wells.

LB1 cell reporter assay

LB1 cells as described previously (5) were seeded in steroid-proficient media, treated for 24h with either control or ABT888 (2.5uM). 36h after treatment, cells were harvested, lysed, and relative luciferase activity was assessed using a luminometer. Relative luciferase activity was compared to total protein present in the lysate (determined by modified Lowry assay).

Supplemental Table S1

mRNA target	**Primer sequences**
KLK3/PSA	Forward: TGTGTGCTGGACGCTGGA Reverse: CACTGCCCCATGACGTGAT
TMPRSS2	Forward: GGACAGTGTGCACCTCAAAGAC Reverse: TCCCACGAGGAAGGTCCC
FKBP5	Forward: GCAACAGTAGAAATCCACCTG Reverse: CTCCAGAGCTTTGTCAATTCC
18S	Forward: GCAATTATTCCCCATGAACG Reverse: GGCCTCACTAAACCATCCAA
UBE2C	Forward: TGGTCTGCCCTGTATGATGT Reverse: AAAAGCTGTGGGGTTTTTCC
ERG	Forward: CGCAGAGTTATCGTGCCAGCAGAT Reverse: CCATATTCTTTCACCGCCCACTCC
PARP1	Forward: TGTAGCCTGTCACGGGCGCT Reverse: GCGTGAAGGCGAATGCAGC
AR	Forward: CAGTGGATGGGCTGAAAAAT Reverse: GGAGCTTGGTGAGCTGGTAG
KLK3/PSA (for *in vivo* work)	Forward: GAGCACCCCTATCAACCCCCTATT Reverse: AGCAACCCTGGACCTCACACCTAA
β-actin	Forward: CGCGAGAAGATGACCCAGAT Reverse: GAGTCCATCACGATGCCAGT
ChIP primers	**Primer sequences**
KLK3/PSA promoter	Forward:CCTAGATGAAGTCTCCATGAGCTACA Reverse: GGGAGGGAGAGCTAGCACTTG
KLK3/PSA enhancer	Forward: TGGGACAACTTGCAAACCTG Reverse: CCAGAGTAGGTCTGTTTTCAATCCA
TMPRSS2 ARE V	Forward: TGGTCCTGGATGATAAAAAAAGTTT Reverse: GACATACGCCCCACAACAGA
MNase primers	**Primer sequences**
KLK3/PSA set 1	Forward: CCACATTGTTTGCTGCACGTTGG Reverse: TGGTCCACAGATCCTCTAGCCCAG
KLK3/PSA set 2	Forward: TTCTGGGCTAGAGGATCTGTGGAC Reverse: CCCAACCCAGAATCCAGCTCCA
KLK3/PSA set 3	Forward: TGTATCTGTGGAGCTGGATTCTGGG Reverse: TCTTTTCCTTGCACTCCCAACCC
KLK3/PSA set 4	Forward: TGGTCTCAGAGTGGTGCAGGGA Reverse: GCCCTAAGACACCAGCACTCAGG
KLK3/PSA set 5	Forward: AGGGCACACTGGGTCTTGGAGT Reverse: GCCTCACGTGCCTAGATCCTTTGC
KLK3/PSA set 6	Forward: GGGATCGTACCCACCCCCTGTT Reverse: GCAGAGGAGACACGCCCAGGA
KLK3/PSA set 7	Forward: TGGGCGTGTCTCCTCTGCCT Reverse: TGCACCAGGCCCTGTAGCTC
KLK3/PSA set 8	Forward: CTGGTGCATCCAGGGTGATCTAGT Reverse: TGTGGAAGGGGAGGGAGAGC
KLK3/PSA set 9	Forward: ACAGCTCTGGGTGTGGGAGGG Reverse: CCATGCTGCTGGAGGCTGGAC

KLK3/PSA set 10	Forward: TGGGTGTGGGAGGGGGTTGT Reverse: TGCTGGCACCCAGAGGCTGA
KLK3/PSA set 11	Forward: TTGGTCAGCCTCTGGGTGCC Reverse: TCATTCCCCAGGACTCCGCCC
KLK3/PSA set 12	Forward: AGGGCTCCTGGGGGAGGCT Reverse: GCTCTCCGGGTGCAGGTGGT
KLK3/PSA set 13	Forward: TGCACCCGGAGAGCTGTGTC Reverse: CCACGTCACGGACAGGGTGA
KLK3/PSA set 14	Forward: CCCTGTCCGTGACGTGGATTGG Reverse: AGGGCTGGCTCCCTCTCCTG
KLK3/PSA set 15	Forward: GAGGGAGCCAGCCCTGACTGT Reverse: AGAGCCCAGCTCCCTGTCTGG
KLK3/PSA set 16	Forward: ACCCCAGCCCAGACAGGGAG Reverse: ATGGGCTTGGAGTGGGGCTG
KLK3/PSA set 17	Forward: GCCCATACCCCCAGCCCCTC Reverse: GCGGGGACCTGGTGTGGGAG
KLK3/PSA set 18	Forward: CGCTCCCTCCCACTTACCCCA Reverse: AGCTGGGAGCAGGGAGCTGG
KLK3/PSA set 19	Forward: CACCAGGTCCCCGCTCCCTC Reverse: GGAGCTGGCTGGGCAATGGG

Supplemental References

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