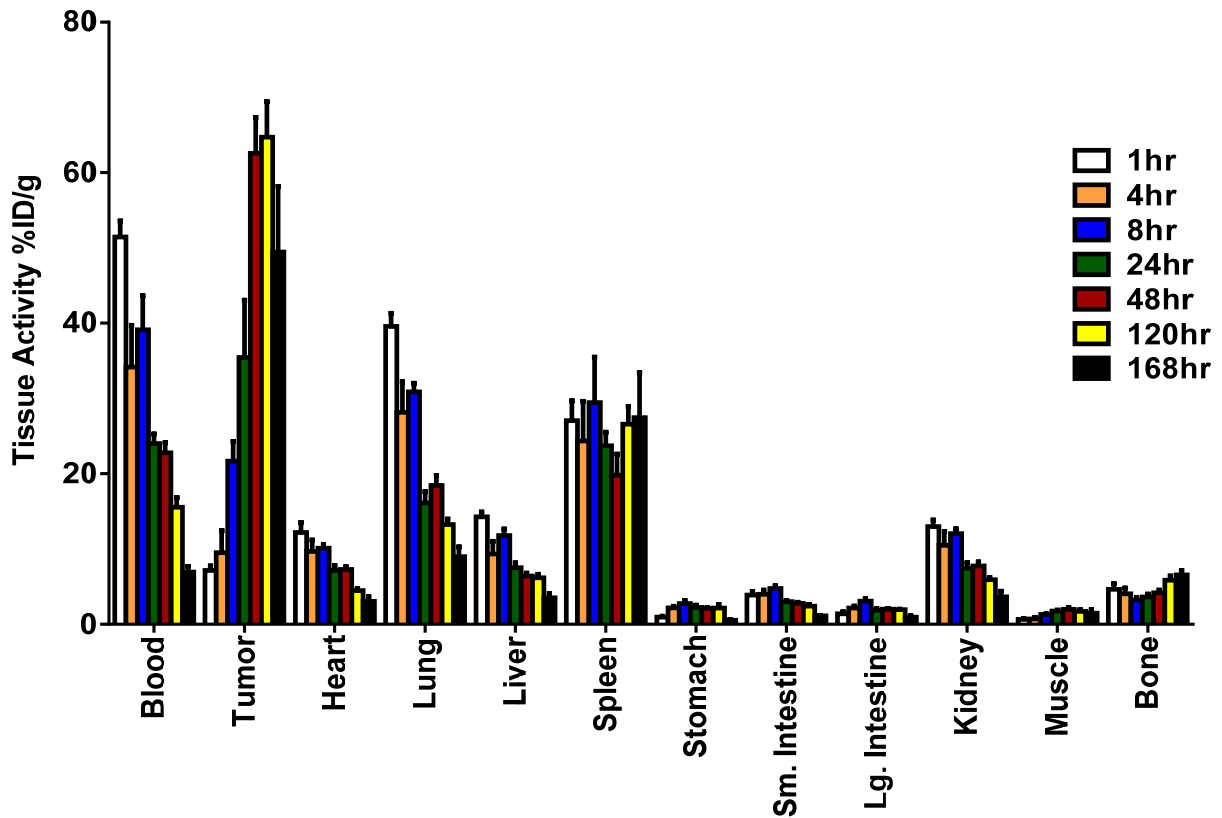
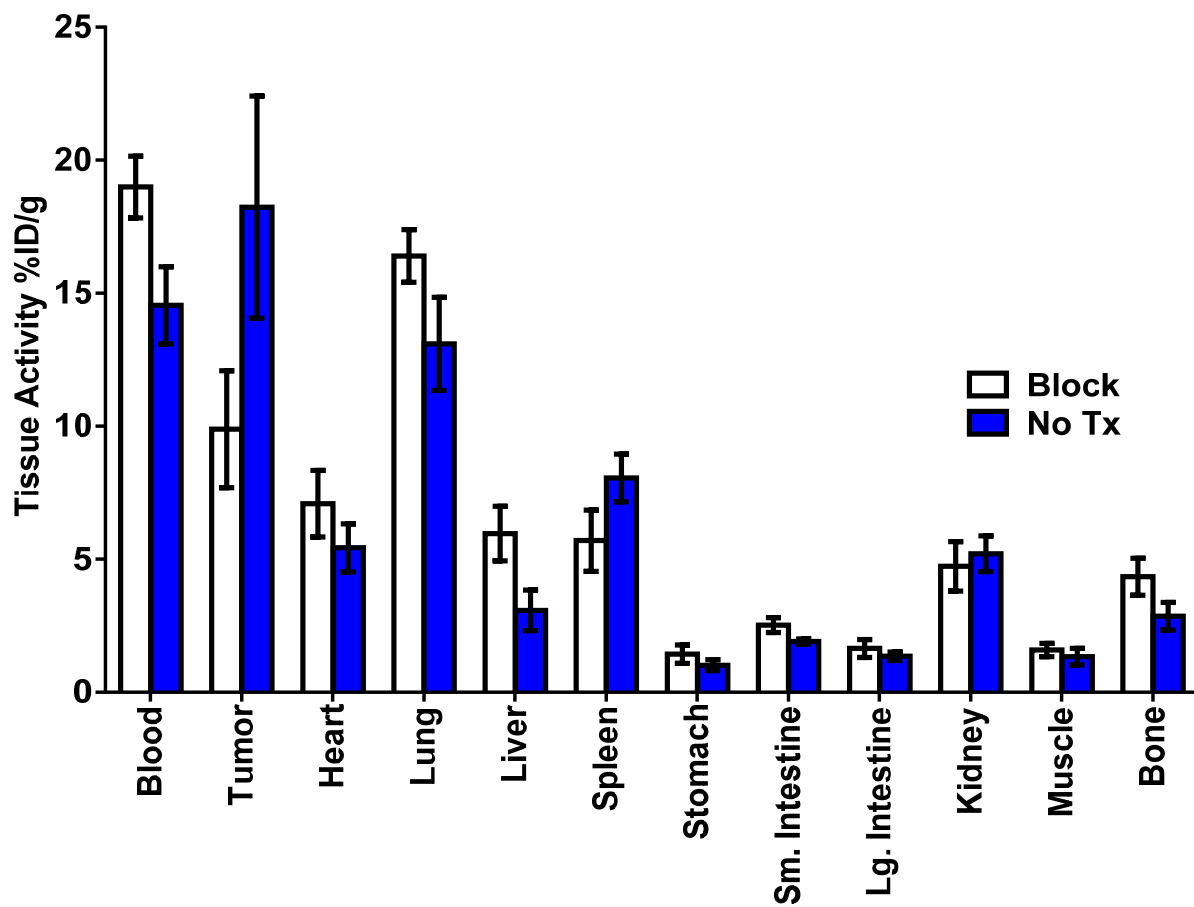


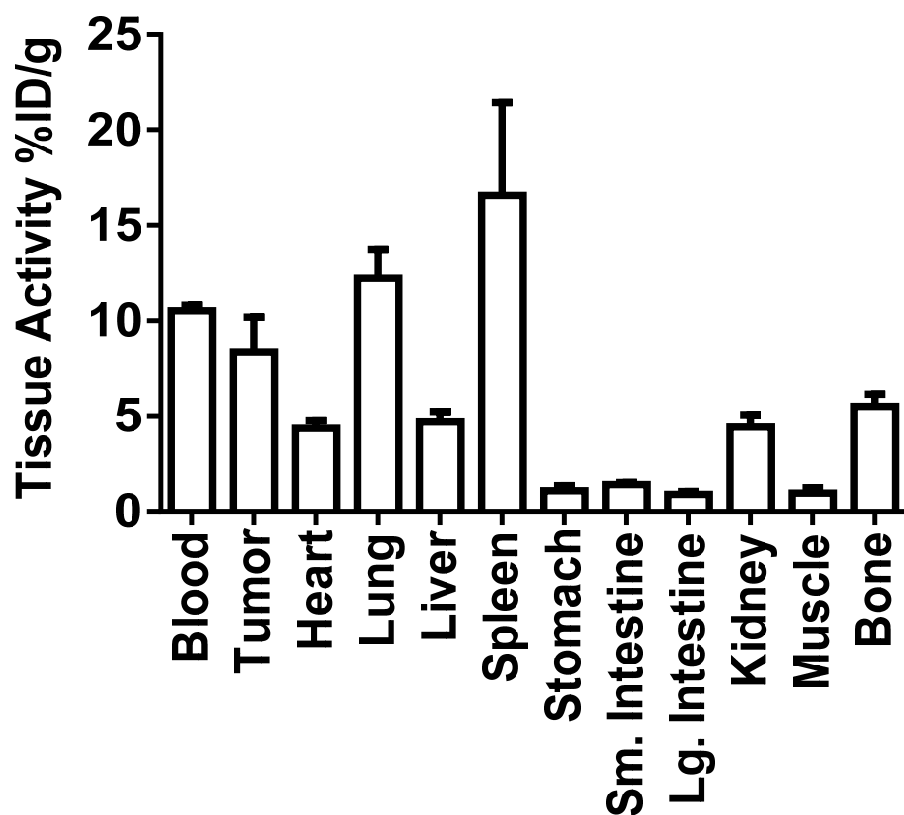
Supplemental Figure 1. (Left) A plot of the Lindmo data acquired for ^{89}Zr -2109A in HEK293T cells transiently transfected with full length human STEAP1. (Right) A representative immunoblot of whole cell lysates from cells transfected with STEAP1 or empty vector.



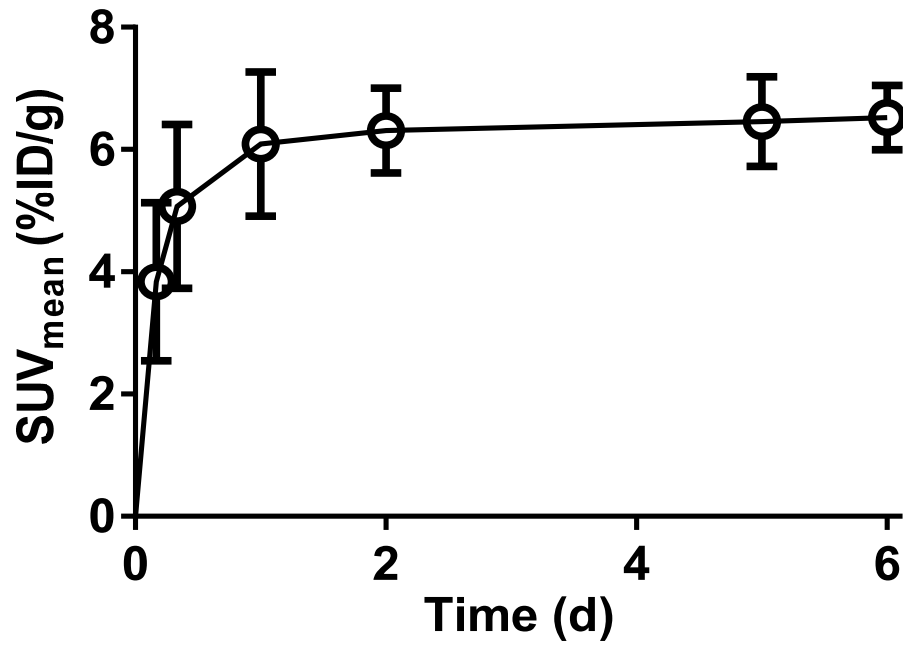
Supplemental Figure 2. A biodistribution plot of intact male mice bearing CWR22Pc tumors. Data are reported as mean %ID/g \pm one standard deviation.



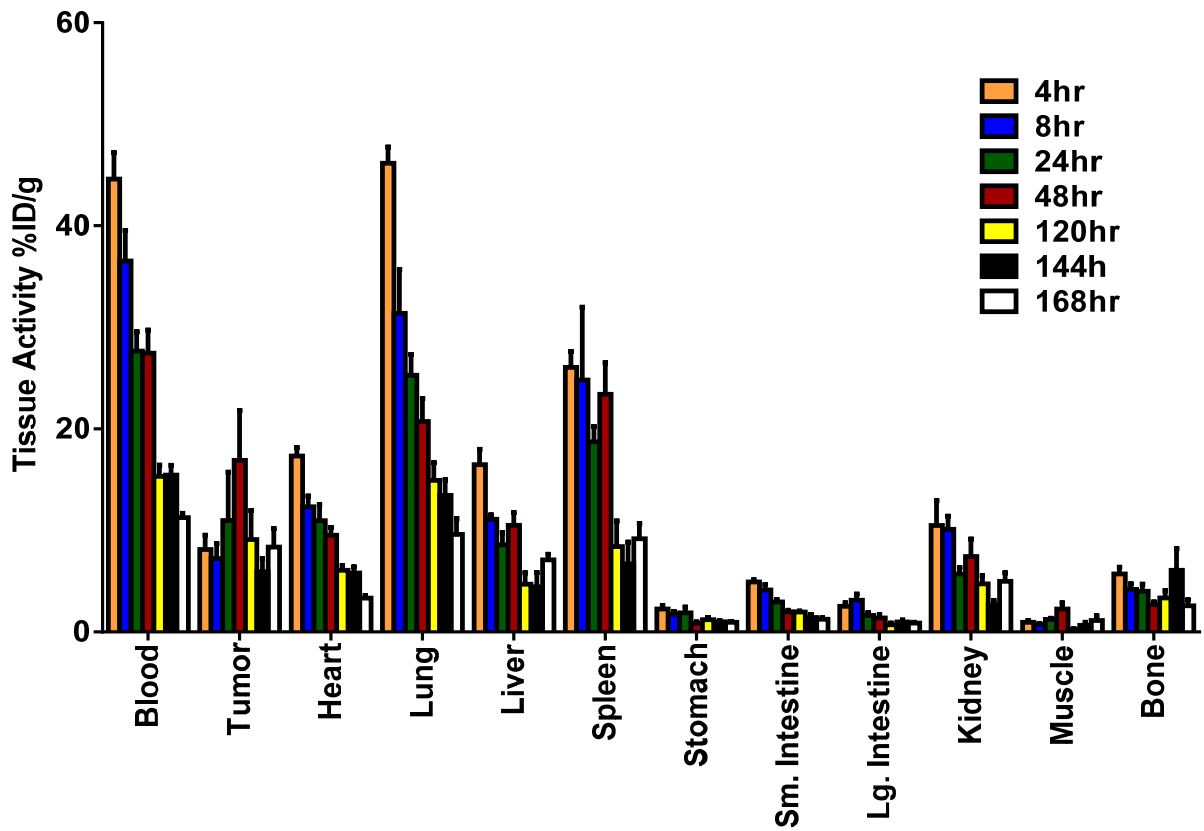
Supplemental Figure 3. Biodistribution plot of intact male mice bearing CWR22Pc tumors and co-injected with ^{89}Zr -2109A and excess cold 2109A. Data are reported as mean %ID/g \pm one standard deviation.



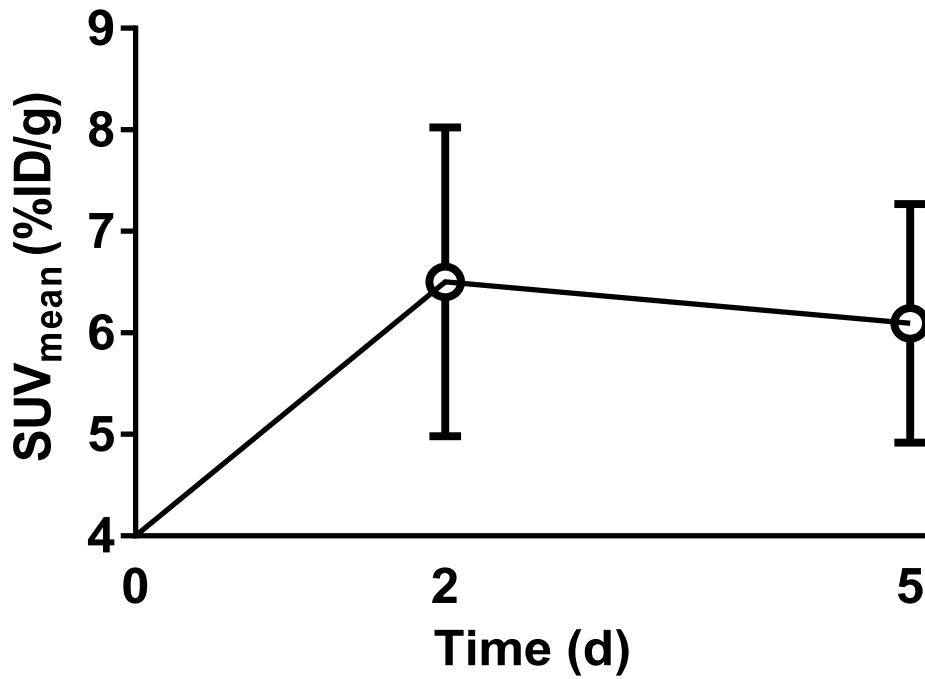
Supplemental Figure 4. Biodistribution plot of intact male mice bearing PC3 xenografts injected with $^{89}\text{Zr-2109A}$. Tumor-bearing mice were treated with $^{89}\text{Zr-2109A}$, and at 168 h post injection, were sacrificed and blood and tissues were harvested for biodistribution studies. Data are reported as mean %ID/g \pm one standard deviation.



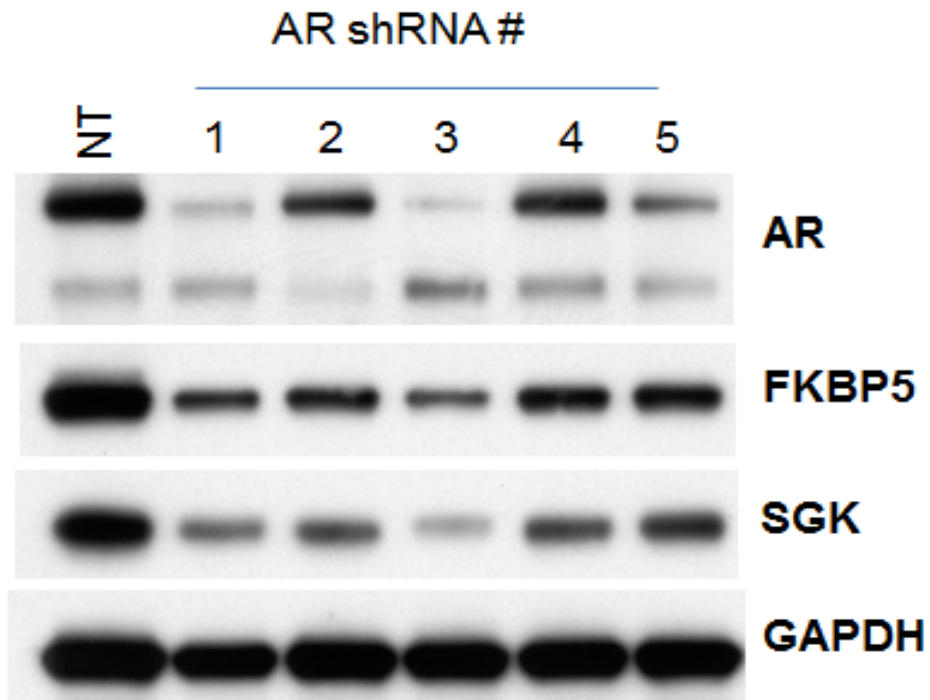
Supplemental Figure 5. Region of Interest (ROI) analysis for the PC3 tumors injected with ⁸⁹Zr-2109A. SUV_{mean} data are reported as mean %ID/g ± one standard deviation. Imaging data are available upon request.



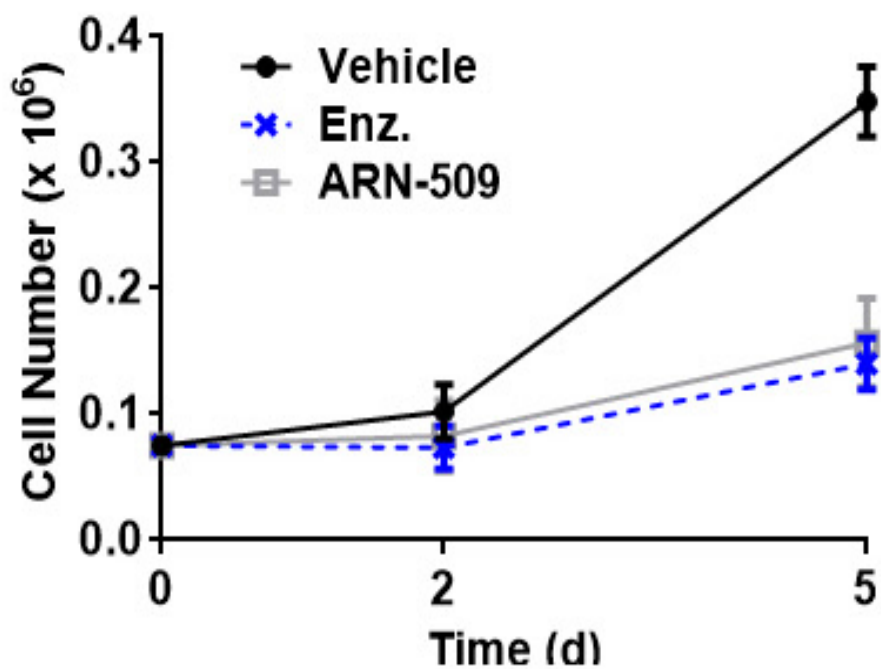
Supplemental Figure 6. Biodistribution plot of intact male mice bearing CWR22Rv1 xenografts. Data are reported as mean %ID/g \pm one standard deviation.



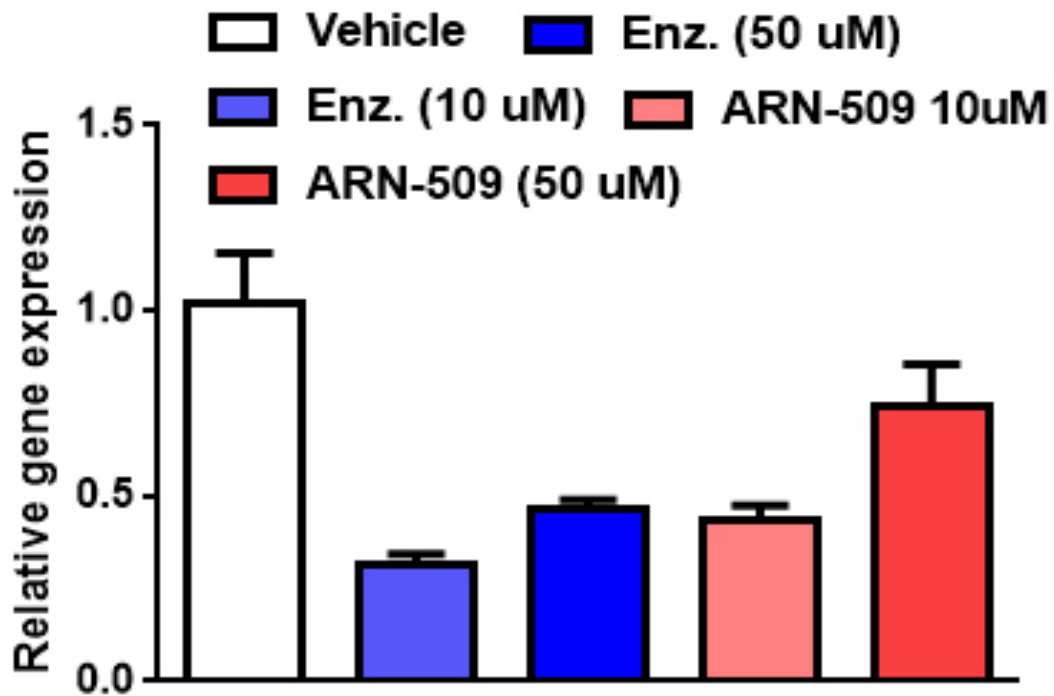
Supplemental Figure 7. Region of Interest (ROI) analysis for the CWR22Rv1 tumors treated with ⁸⁹Zr-2109A. SUV_{mean} data are reported as mean %ID/g ± one standard deviation. Imaging data are available upon request.



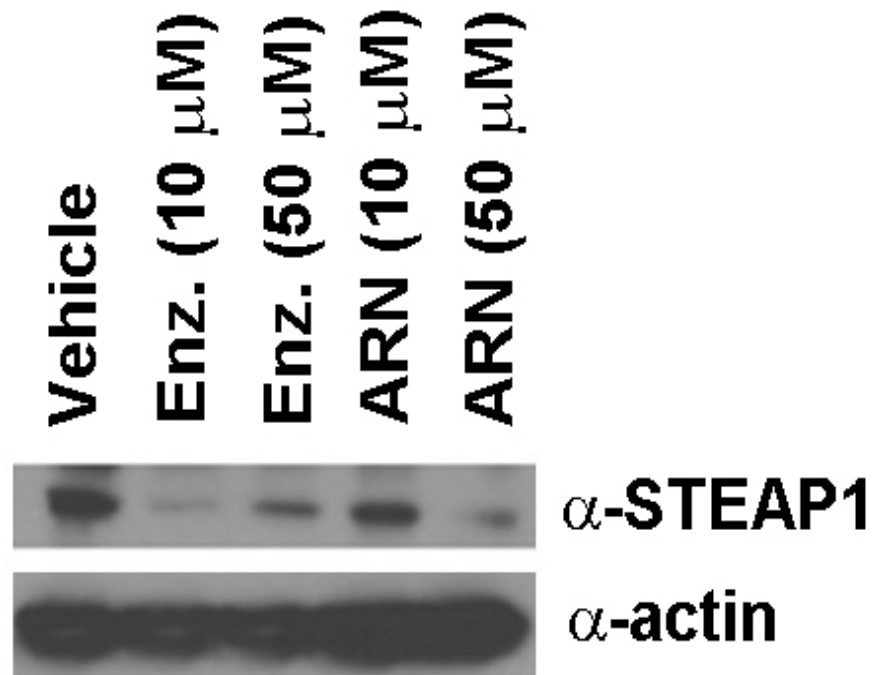
Supplemental Figure 8. A summary of the impact of androgen receptor knockdown with shRNA on additional target genes shows the expected downregulation. CWR22Pc cells were transduced with lentiviral particles harboring discrete AR shRNAs or a non-targeting hairpin, and cells lysates were collected after a 10 day selection period in puromycin.



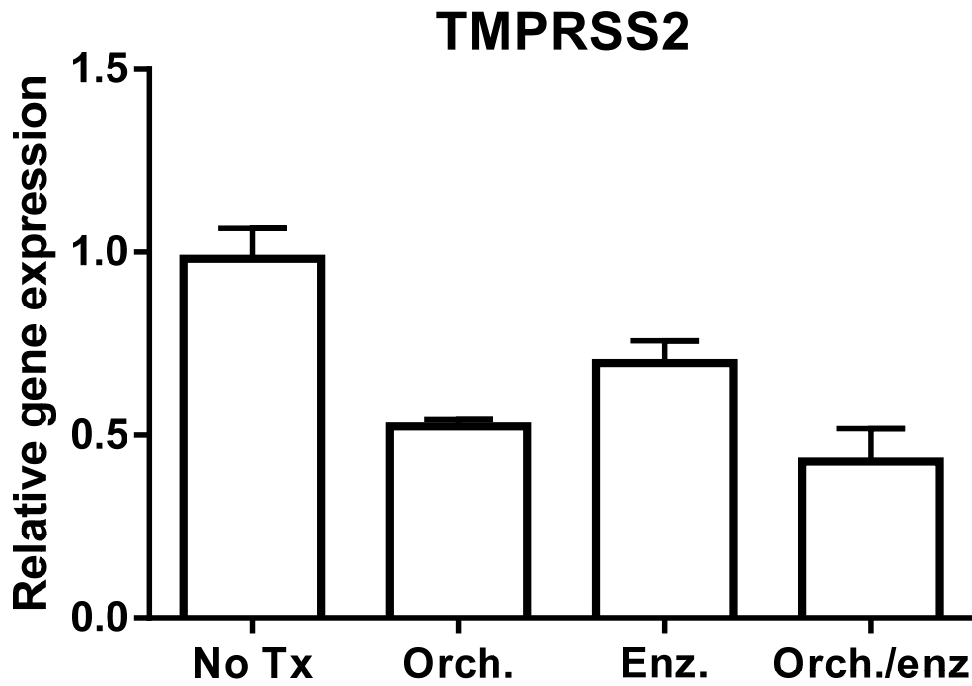
Supplemental Figure 9. A summary of the antiproliferative effects conferred by Enzalutamide and ARN-509 on CWR22Pc in vitro. Both drugs were administered as single agents at 10 μ M, and the CWR22Pc cells were maintained in media containing 10% FBS.



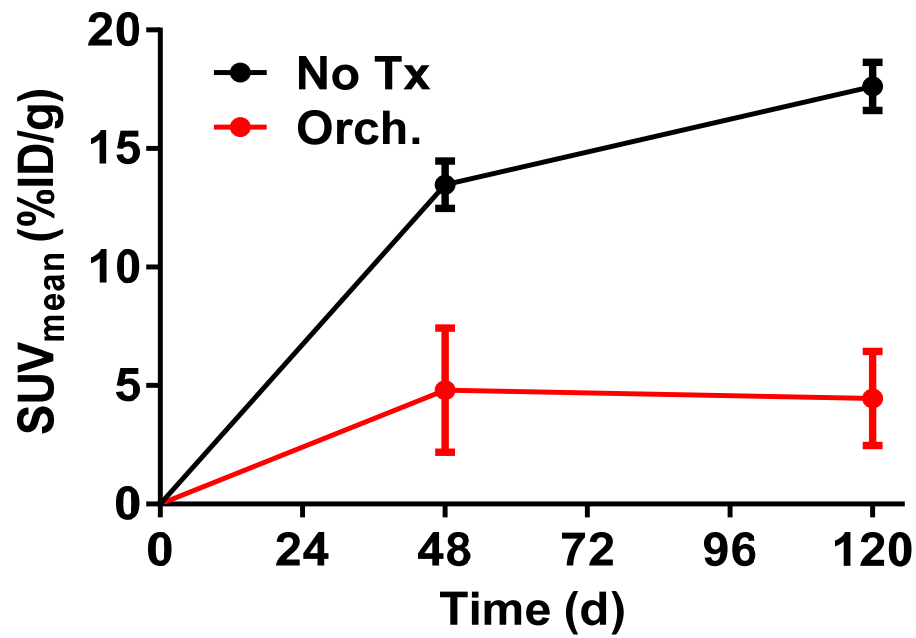
Supplemental Figure 10. A summary of the transcriptional response to antiandrogen treatment for the STEAP1 gene. CWR22Pc cells were treated with vehicle or the indicated antiandrogen for 48 hr, and the cells were harvested for qPCR analysis of STEAP1 mRNA levels.



Supplemental Figure 11. A summary of the translational response to antiandrogen treatment for the STEAP1 gene. CWR22Pc cells were treated with vehicle or the indicated antiandrogen for 72 hr, and the cells were harvested for immunoblot analysis of STEAP1.



Supplemental Figure 12. A summary of the impact of antiandrogen therapy and/or orchiectomy on the TMPRSS2 expression levels in the CWR22Pc xenografts.



Supplemental Figure 13. A summary of the ROI analysis to determine ^{89}Zr -2109A accumulation in the CWR22Pc tumors after no treatment or orchiectomy.