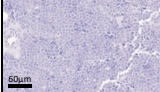
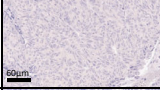
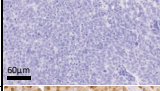
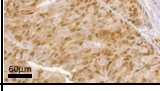
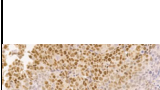
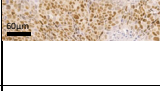
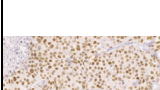

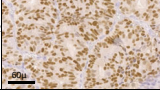
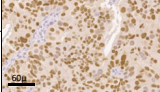
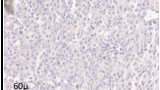
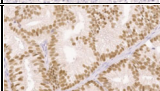


Table S5. Clinical, morphological and molecular features of MDA PCa PDXs pairs derived from the same patient

Patient ID	MDA PCa PDX number	Collection Date	Treatment Status	Last Treatment Category	Prior Treatments	Tumor Site	Pathology Diagnosis	Oncogenic Mutations	Structural Variations (CNVs/ fusions)	IHC AR	RNA expression (FPKM)						
											AR: 0.13	PTEN: 0.01	RB1: 5.69	KDM6A: 0.01	/	/	
PDXs derived from different areas of the same tumor	MDA PCa Pat 144	144-13	/	mCRPC	Chemotherapy	1st Generation ADT	Prostate	Neuroendocrine Carcinoma	TP53 R273C 0.99	PTEN DeepDel; *RB1 transcript portion loss; KDM6A DeepDel; *TMPRSS2-ERG fusion		AR: 0.13	PTEN: 0.01	RB1: 5.69	KDM6A: 0.01	/	/
		144-4	/	mCRPC	Chemotherapy	1st Generation ADT	*Bladder	Neuroendocrine Carcinoma	TP53 R273C 1.00; NRAS Q61K AF 0.46	PTEN DeepDel; *RB1 transcript portion loss; KDM6A DeepDel; TMPRSS2-ERG fusion		AR: 0.03	PTEN: 0.05	RB1: 2.38	KDM6A: 0.01	/	/
	MDA PCa Pat 146	146-10	/	mCRPC	Chemotherapy	1st Generation ADT	*Bladder	Neuroendocrine Carcinoma	TP53 L330fs AF 0.98; RB1 R450fs AF 0.89; SPEN L3016fs AF 0.85	*PTEN DeepDel; MAP3K1 DeepDel		AR: 0.03	PTEN: 2.67	/	/	/	/
		146-12	/	mCRPC	Chemotherapy	1st Generation ADT	*Bladder	Adenocarcinoma	TP53 L198fs AF 0.98; RB1 R451fs AF 0.97; SPEN L3016fs AF 0.87	PTEN DeepDel; MAP3K1 DeepDel; SLC45A3-ELK4 fusion		AR: 135.03	PTEN: 6.12	/	/	/	/
	MDA PCa Pat 316	316-1	/	mCRPC	2nd Generation ADT	/	Bone	Adenocarcinoma	PTEN L265fs AF 0.97; RNF43 R225fs AF 0.70; RNF43 R117fs*8 AF 0.64; SPOP F102Y AF 0.48; SPEN R2103fs AF 0.84; EPHA3 K200fs AF 0.86; NOTCH4 G1892fs AF 0.19; CHEK1 E239fs AF 0.65; PI3KCA R38C AF 0.51; DNMT3A G413fs AF 0.77; KMT2C K2797fs AF 0.32; PAX5 P321fs AF 0.73; KMT2D L434fs AF 0.77	/		AR: 67.62	/	/	/	/	/
		316-2	/	mCRPC	2nd Generation ADT	/	CTC	Adenocarcinoma	AR T878A AF 0.98; PTEN L265fs AF 0.97; RNF43 G659fs AF 0.77; RNF43 R117fs AF 0.62; SPOP F102Y AF 0.49; SPEN R2103fs AF 0.82; EPHA3 K200fs AF 0.83; NOTCH4 G348fs AF 0.66; CHEK1 E239fs AF 0.62; PI3KCA R38C AF 0.48; DNMT3A G413fs AF 0.76; KMT2C K2797fs AF 0.46; TBX3 A71fs AF 0.79; MEN1 R521fs AF 0.76	/		AR: 38.31	/	/	/	/	/
PDXs derived from same patient at different timepoints	MDA PCa Pat-183/203	183-A	Day 0	Naive	/	/	Bone	Adenocarcinoma	/	PTEN DeepDel; TMRPSS2-ERG fusion; SLC45A3-ELK4 fusion		AR: 43.02	KLK2: 1705.56	RB1: 13.09	PTEN: 0.09	TP53: 12.69	/
		203-A	12.4 months later	mCRPC	Leuprolide	/	Bone	Adenocarcinoma	/	PTEN DeepDel; TMRPSS2-ERG fusion; SLC45A3-ELK4 fusion		AR: 74.63	KLK2: 1346.95	RB1: 16.98	PTEN: 0.09	TP53: 16.61	/
	MDA PCa Pat-280/306	280-9	Day 0	Naive	/	/	Lymph Node	Adenocarcinoma	/	/		AR: 0.23	KLK2: 2.51	PTEN: 40.82	BRCA2: 7.71	ASXL2: 4.71	ZFH3X: 0.87
		306-14	12.4 months later	mCRPC	Degarelix + Leuprolide + Cabozantinib	/	Prostate	Adenocarcinoma	/	*PTEN transcript loss; BRCA2 DeepDel; ASXL2 DeepDel; ZFH3X DeepDel; TMRPSS2-ERG fusion; SLC45A3-ELK4 fusion		AR: 42.42	KLK2: 916.92	PTEN: 2.72	BRCA2: 0.07	ASXL2: 0.01	ZFH3X: 0.00
	MDA PCa Pat-342/355	342-B	Day 0	mCRPC	Cabozantinib	Leuprolide + Bicalutamide	Prostate	Sarcomatoid Carcinoma	APC E1552Rfs*13 AF 0.98; PTEN V317Dfs*4 AF 0.96; RB1 M546* AF 0.98; TP53 R273C AF 1.00	*RB1 transcript loss; CDKN1B DeepDel; CD209 Amp; PRKDC Amp		AR: 1.14	RB1: 1.08	CDKN1B: 0.08	/	/	/
		355-9	4.8 months later	mCRPC	Cabazitaxel + Carboplatin + Diethylstilbestrol	Abiraterone + Apalutamide	*Bladder	Sarcomatoid Carcinoma	APC E1552Rfs*13 AF 0.98; PTEN V317Dfs*4 AF 0.97; RB1 M546* AF 0.98; TP53 R273C AF 1.00	*RB1 transcript loss; CDKN1B DeepDel; CD209 Amp; PRKDC Amp		AR: 10.27	RB1: 0.64	CDKN1B: 0.08	/	/	/

mCRPC, metastatic castration-resistant prostate cancer; AF, allele frequency; DeepDel, Deep Deletion. Note: only CNVs on driver genes are presented in the Table; * transcript loss determined by manual inspection. TMRPSS2-ERG fusion in MDA PCa 144-13 was determined by identification of an interstitial loss between the genes in the copy number profile.