

Figure S1: Analysis of P-AKT, P-PRAS, P-S6 and P-4EBP1 expression in 3 LAR PDX (HBCx-2, HBCx-31, HBCx-154), LAR cell line (MDA-MB-453) and 3 non LAR PDX (HBCx-8, HBCx-11, HBCx-12A). Graphs represent protein expression (phospho-protein/total protein) determined by western blot analyzed.

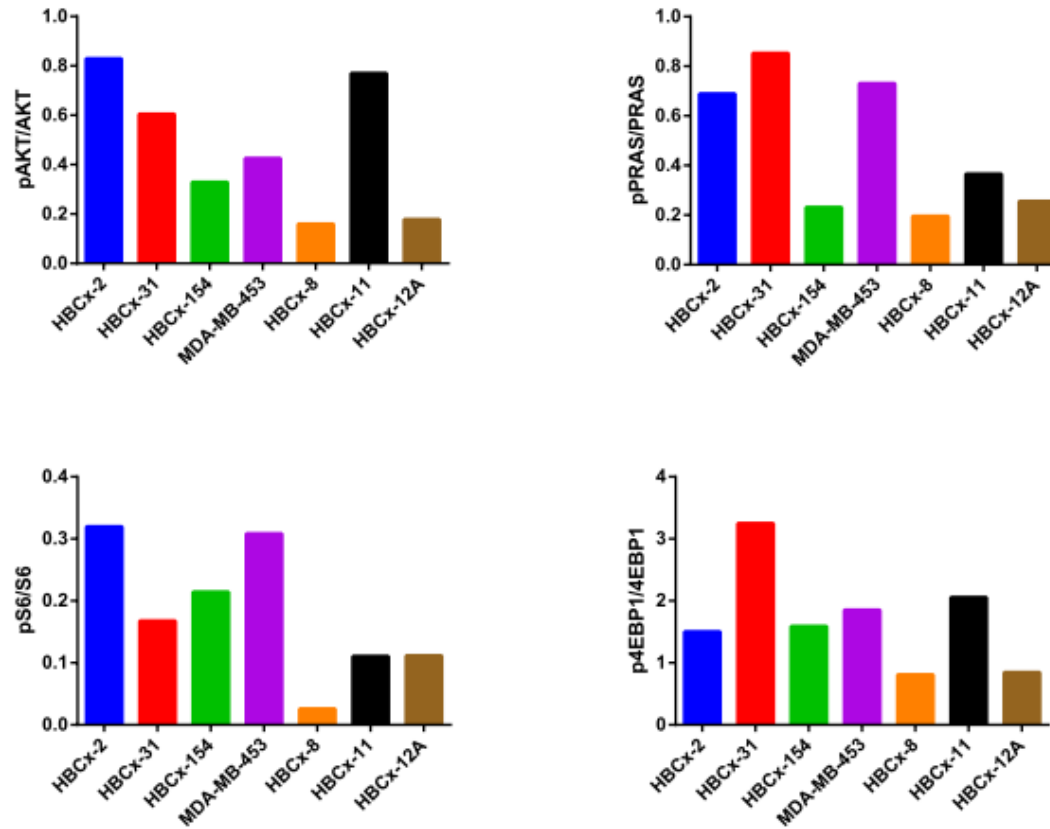


Figure S2: RT-PCR analysis of the expression of AR-related genes (*AR*, *FOXA1*, *PIP*, *TFAP2B*), AR-inducible genes (*FN1*, *SERPINE5*, *S100P*) before (CRL) and after treatment with enzalutamide. Data are normalized by Log2 transformation

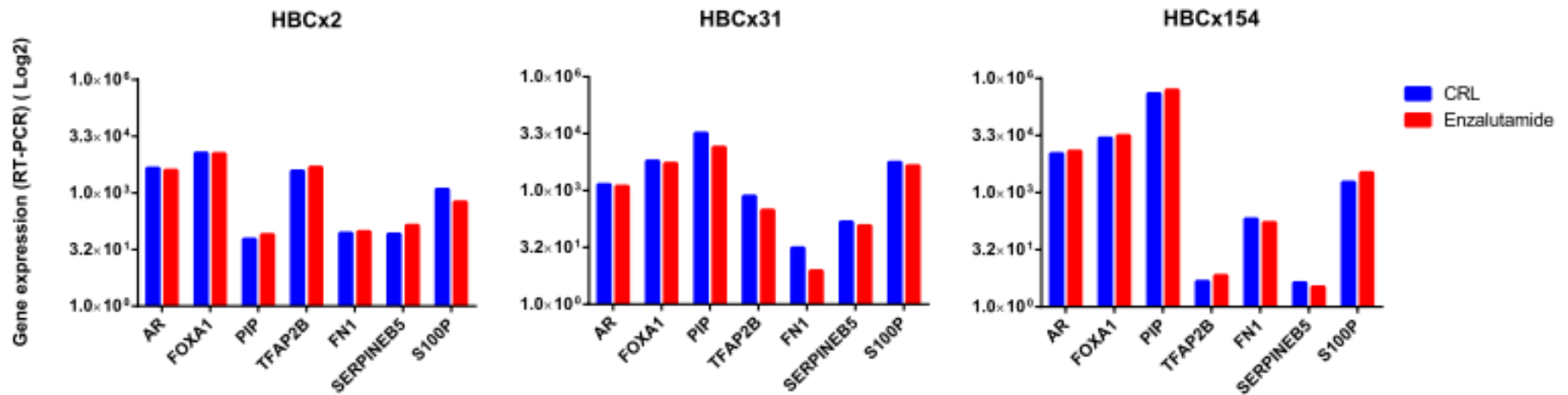
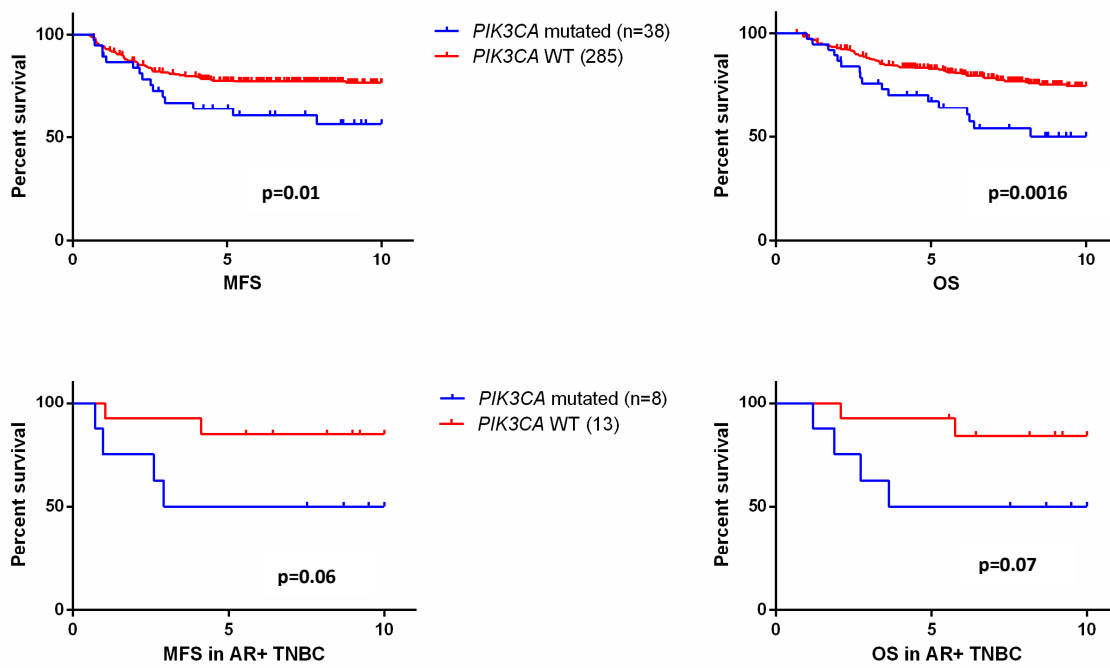


Figure S3: Metastasis-free survival at 10 years (MFS) and overall survival at 10 years (OS) in the TNBC population ($n=323$) (upper panel) and in the AR+ TNBC population ($n=21$) (lower panel)



Mean age in years (range)		56 (28-91)
		<i>n</i> (%)
T (TNM)	1	115 (35.6)
	2	194 (60)
	3	14 (4.4)
N (TNM)	0	200 (62)
	1	79 (25)
	2	30 (9)
	3	12 (4)
SBR	1	5 (1.6)
	2	41 (13)
	3	270 (85.4)
Chemotherapy	Yes	246 (84.5)
	No	74 (25.5)
Radiotherapy	Yes	242 (83.2)
	No	49 (16.8)
Subtype	NST	220 (68.2)
	Medullary	36 (11.1)
	Rare	33 (10.2)
	Apocrine	21 (6.5)
	Metaplastic	13 (4)
PIK3CA status	WT	285 (88.2)
	Mutated	38 (11.8)
AKT1 status	WT	312 (96.6)
	Mutated	11 (3.4)

Table S1: Characteristics of the 323 TNBC patients

Table S2: Clinical and genomic characteristics of the LAR PDX models

PDX	Type of graft	Age at diagnosis	T	N	Breast surgery	Node surgery	Histologic type	LVI	Grade	SBR	RO	RP	HER2	Chemotherapy	RT	<i>PIK3CA</i> status*	<i>AKT</i> status*	Other genomic alterations*	MFS (months)	Distant relapse (0:no; 1:yes)	OS (months)	Status 0=alive;1=dead
HBCx-154	Primary breast cancer	83	1	1	Mastectomy	Lymphadenectomy	NST	-	3	-	-	-	-	No	No	M(p.N345K; p.IWT)		FGFR3 amplification	24	0	24	0
HBCx-31	Primary breast cancer	44	2	1	Mastectomy	Lymphadenectomy	Apocrine	+	3	-	-	-	-	(anthracycline)	Yes	WT	M (p.E17K)	TP53 (p.R175H)	8	0	8	0
HBCx-35	Primary breast cancer	63	2	1	Mastectomy	Lymphadenectomy	NST	-	3	-	-	-	-	No	No	M (p.H1047R)	WT	FGFR1 and DDR2 amplification	25	0	25	0
HBCx-2	Primary breast cancer	76	2	1	Mastectomy	Lymphadenectomy	NST	+	3	-	-	-	-	No	Yes	WT	M (p.E17K)	FGFR1 and PDGFRA amplification	11	1	15	1

NST No special type
RT Radiotherapy
LVI Lymphovascular invasion
* Genomic analysis of the PDX

Table S3: List of genes tested in NGS

PATHWAY	GENES	NM
Apoptosis	APAF1	181861.1
	CASP8	001228.4
Cell Cycle	CDK4	000075.3
	CDK6	001259.6
	CDKN2A	000077.4
	P27/CDKN1B	004064.4
	PPP2R1A	014225.5
	PTPN11	002834.3
	RB1	000321.2
	STAG2	006603.4
	TP53BP1	005657.2
	TP73	005427.3
TP53	000546.4	
Development	FBXW7	033632.3
	NOTCH1	017617.3
	NOTCH2	024408.3
	NOTCH4	004557.3
DNA repair	BRCA1	007294.3
	BRCA2	000059.3
	POLE	006231.2
Epigenetic	ARID1A	006015.4
	CHD4	001273.2
	CREBBP	004380.2
	CTCF	006565.3
	MLL/ KMT2A	005933.3
	MLL2/KMT2D	003482.3
	MLL3/ KMT2C	170606.2
	TBL1XR1	024665.4
ER pathway	AR	000044.3
	ESR1	000125.3
	FOXA1	004496.3
	GATA3	002051,2
	NCOR1	006311.3
	PGR	000926.4
MAPK pathway	ALK	004304.4
	BRAF	004333.4
	DDR2	006182.2
	FLT1	002019.4
	HRAS	005343.2
	NRAS	002524.4
	KRAS	004985.4
	MAP2K1	002755.3
	MAP2K4	003010.3
	MAP3K1	005921.1
	NF1	000267.3
	RAB40A	080879.2
ROS1	002944.2	

RTK pathway	IGF1R	000875.4
	EGFR	005228.3
	ERBB2	004448.3
	ERBB3	001982.3
	ERBB4	005235.2
	FGFR1	023110.2
	FGFR2	000141.4
	FGFR3	000142.4
	FGFR4	002011.4
	KIT	000222.2
	MET	000245.2
	RET	020975.4
	KDR	002253.2
PDGFRA	006206.4	
Matrice pathway	CDH1	004360.3
	LAMA2	000426.3
	LAMA4	002290.4
	THBS1	003246.2
PI3K-Akt-mTOR	AKT1	005163.2
	AKT2	001626.5
	AKT3	005465.4
	INPP4B	003866.2
	MTOR	004958.3
	PIK3CA	006218.2
	PIK3R1	181523.2
	PTEN	000314.4
	STK11	000455.4
	TSC1	000368.4
	TSC2	000548.3
Transcription	CBFB	001755.2
	HIST1H3B	003537.3
	MALAT1	NR_002819.2
	MED1	004774.3
	MYB	005375.2
	NFE2L2	006164.3
	RUNX1	001754.4
	SETD2	014159.6
	TBX3	016569.3
Others	AGTR2	000686.4
	APC	000038.5
	CTNNB1	001904.3
	KEAP1	012289.3
	LDLRAP1	015627.2
	MYH9	002473.4
	MYO3A	017433.4
	SF3B1	012433.2
	STMN2	007029.3
	VHL	000551.3

Table S4: Univariate and multivariate (log-rank tests) analysis of metastasis-free survival (MFS) and overall survival (OS) at 10 years in 323 triple-negative breast cancers

	Number of patients	Number of distant metastases (%)	Log-rank test (univariate) MFS	Log-rank test (multivariate) MFS	Number of Death (%)	Log-rank test (univariate) OS	Log-rank test (multivariate) OS
Years							
<50	117	28 (24%)			28 (24%)		
>50	206	53 (25%)	0.3	NR	57 (27.6%)	0.17	NR
T (TNM)							
T1	115	19 (16.5%)			20 (17.4%)		
T2	194	56 (28.8%)			59 (30.4%)		
T3	14	6 (4.2%)	0.0034	0.03	6 (42.8%)	0.0055	0.026
N (TNM)							
N0	200	33 (16.5%)			32 (16%)		
N1	79	25 (31.6%)			28 (35.4%)		
N2	30	14 (46.6%)			16 (53.3%)		
N3	12	9 (75%)	< 0.0001	< 0.0001	9 (75%)	< 0.0001	< 0.0001
Grade SBR							
SBR1	5	1 (20%)			1 (20%)		
SBR2	41	13 (31.7%)			14 (34.1%)		
SBR3	270	66 (24.4%)	0.9	NR	67 (24.8%)	0.7358	NR
Radiotherapy							
Yes	242	64 (26.5%)			65 (26.8%)		
No	49	15 (30%)	0.37	NR	14 (28.6%)	0.6424	NR
Chemotherapy							
Yes	246	56 (22.7%)			57 (23.1%)		
No	74	23 (31%)	0.07	NR	26 (35.1%)	0.0203	0.07
Subtype							
Apocrine	21	6 (28.5%)			6 (28.5%)		
Metaplastic	13	5 (38%)			5 (38.4%)		
Medullary	36	2 (5.5%)			5 (13.8%)		
NST	220	59 (26.8%)			57 (26%)		
Rare	33	9 (27%)	0.046	0.0023	12 (36.3%)	0.0493	0.012
PIK3Ca mutation							
PIK3CA mutated	38	15 (39.4%)			17 (44.7%)		
PIK3CA WT	285	66 (23.1%)	0.01	0.39	63 (22%)	0.0016	0.24

NR: not relevant