

Table S1. Patients and clinical information

Patient ID	Patient #	CTCs found	Histology	Progressing bone metastases	Metastasis Biopsy available
Brx-107/BrTR-01	-	No	ductal	Yes	No
Brx-53/BrTR-02	18	Yes	lobular	Yes	Yes (soft-tissue)
Brx-09/BrTR-03	9	Yes	ductal	No	No
Brx-29/BrTR-04	-	No	lobular	Yes	No
Brx-50/BrTR-05	1	Yes	ductal	No	Yes (visceral)
BR29/BrTR-06	10	Yes	not known	Yes	No
Brx-66/BrTR-07	6	Yes	ductal	No	No
Brx-67/BrTR-08	14	Yes	ductal	Yes	No
Brx-52/BrTR-09	16	Yes	ductal	Yes	Yes (bone)
Brx-26/BrTR-10	-	No	ductal	Yes	No
Brx-68/BrTR-11	19	Yes	ductal	Yes	Yes (bone)
Brx-69/BrTR-12	13	Yes	ductal	Yes	Yes (bone)
Brx-70/BrTR-13	-	No	ductal	No	No
Brx-71/BrTR-14	2	Yes	ductal	No	No
Brx-72/BrTR-15	11	Yes	ductal	Yes	No
Brx-73/BrTR-16	3	Yes	lobular	No	Yes (soft-tissue)
Brx-74/BrTR-17	4	Yes	ductal and lo	No	No
Brx-61/BrTR-18	8	Yes	ductal	No	Yes (bone)
Brx-10/BrTR-19	5	Yes	ductal	No	No
Brx-75/BrTR-20	-	No	ductal	Yes	No
Brx-78/BrTR-21	7	Yes	lobular	No	Yes (visceral)
Brx-77/BrTR-22	-	No	ductal	Yes	No
Brx-79/BrTR-23	-	No	ductal	Yes	No
Brx-82/BrTR-24	15	Yes	lobular	Yes	Yes (bone)
Brx-83/BrTR-25	12	Yes	ductal	Yes	No
BR21/BrTR-26	17	Yes	ductal	Yes	Yes (bone)
Brx-87/BrTR-27	21	Yes	ductal and lo	Yes	No
Brx-89/BrTR-28	-	No	ductal	Yes	No
Brx-93/BrTR-29	-	No	ductal and lo	Yes	No
Brx-97/BrTR-30	20	Yes	ductal	Yes	Yes (soft-tissue)
Brx-98/BrTR-31	22	Yes	lobular	Yes	No
Brx-99/BrTR-32	-	No	lobular	No	No

Table S2. Genes used to determine the AR signature. The table shows all genes that are present in at least three of the six AR-related signatures considered. In red are shown those genes that are present in at least four of the six AR-related signatures and that were chosen as the AR signature to test AR activation in CTC samples.

	PID AR PATHWAY	HALLMARK ANDROGEN RESPONSE	SCHAEFFER PROSTATE DEVELOPMENT 12HR	GO ANDROGEN RECEPTOR SIGNALING PATHWAY	NELSON RESPONSE TO ANDROGEN	HieronymusAR
NKX3-1	1	1	0	1	1	1
PIAS1	1	1	0	1	1	0
KLK3	1	1	0	0	1	1
KLK2	1	1	0	0	1	1
TMPRSS2	1	1	0	0	1	1
MAF	0	1	1	0	1	1
FKBP5	0	1	1	0	1	1
NCOA4	1	1	0	1	0	0
ALDH1A3	0	1	1	0	1	0
PMEPA1	0	1	0	1	1	0
PLPP1	0	1	0	1	1	0
ACSL3	0	1	0	0	1	1
ZBTB10	0	1	0	0	1	1
ABCC4	0	1	0	0	1	1
HERC3	0	1	0	0	1	1
ELL2	0	1	0	0	1	1