## Cohorts for Figure 1

Transcriptomic data – Primary breast cancers

Guy's SCAN-B METABRIC TCGA breast cancer

ICGC References [26-30] Samples:

Total primary breast cancer samples, n = 6173: Guy's: primary TNBC, n = 131; HER2+, n = 32; ER+, n = 14; SCAN-B: primary TNBC, n = 165; HER2+, n = 420; ER+, n = 2425; METABRIC: primary TNBC, n = 101; HER2+, n = 117; ER+, n = 347; TCGA: primary TNBC, n = 112; HER2+, n = 158; ER+, n = 426;

ICGC: primary TNBC. n = 73: HER2+. n = 4: ER+. n = 182

(Figure 1A, 1B; Supplementary Figure 1)

Transcriptomic data – Post-neoadjuvant chemotherapy–resistant residual TNBCs

Matched baseline-residual TNBC cohort

References [31]

Samples:

Total matched primary and residual TNBC samples, n = 27 of which: King's College London: (n = 8);

Royal Marsden Hospital (n = 9);

The Netherlands Cancer Institute (n = 10).

(Figure 1C)

## Cohorts for Figure 2

Single-cell RNA sequencing data:

scRNA-seq cohort

References [32]

Samples:

Total samples, n = 27 primary samples, 150290 cells, of which:

TNBC (n = 8 samples, 54819 cells); HER2+ (n = 6 samples, 31917 cells);

ER+ (n = 13 samples, 63554 cells).

(Figure 2A, 2B, 2C; Supplementary Figure 2A, 2B, 3A, 3B)

Spatial transcriptomic data:

Spatial transcriptomic cohort

References [33]

Samples:

TNBC samples, n = 22 patients, with 43 tumor sections of which: Primary (pre-treatment), n = 13 patients with 26 tumor sections; Residual (post-NAC), n = 9 patients with 17 tumor sections.

(Figure 2D)

## Cohort for Figure 3

Transcriptomic data - cell line: Cancer Cell Line Encyclopedia (CCLE)

(https://portals.broadinstitute.org/ccle)

Samples:

CCLE database was used to characterize mRNA expression of EGFR, cyclin A, cyclin E and CDK2 in human cell lines.

(Figure 3B)

**Supplementary Table 1.** Summary of transcriptomic datasets from different patient cohorts.