

A Distribution of endocrine therapy partners

| Endocrine therapy | Palbociclib-based setting N (%) | Abemaciclib / tucidinostat-setting N (%) |
|-------------------|------------------------------------|--|
| FUL | 76 (51.0) | 49 (32.9) |
| AI | 67 (45.0) | 69 (46.3) |
| TAM/TOR | 6 (4.0) | 13 (8.7) |
| Progesterone | 0 | 18 (12.1) |

B Transition of endocrine therapy partners

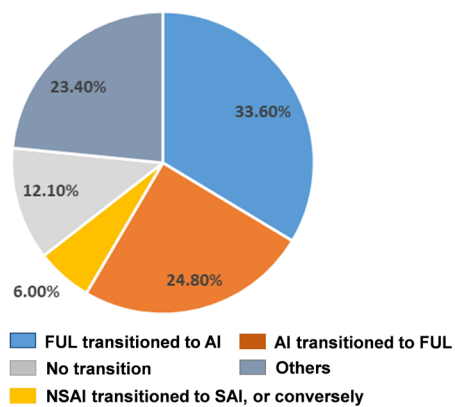


Figure S1 Endocrine partners. FUL, fulvestrant; AI, aromatase inhibitor; TAM, tamoxifen; TOR, toremifene; SAI, steroidal aromatase inhibitor; NSAI, non-steroidal aromatase inhibitor.

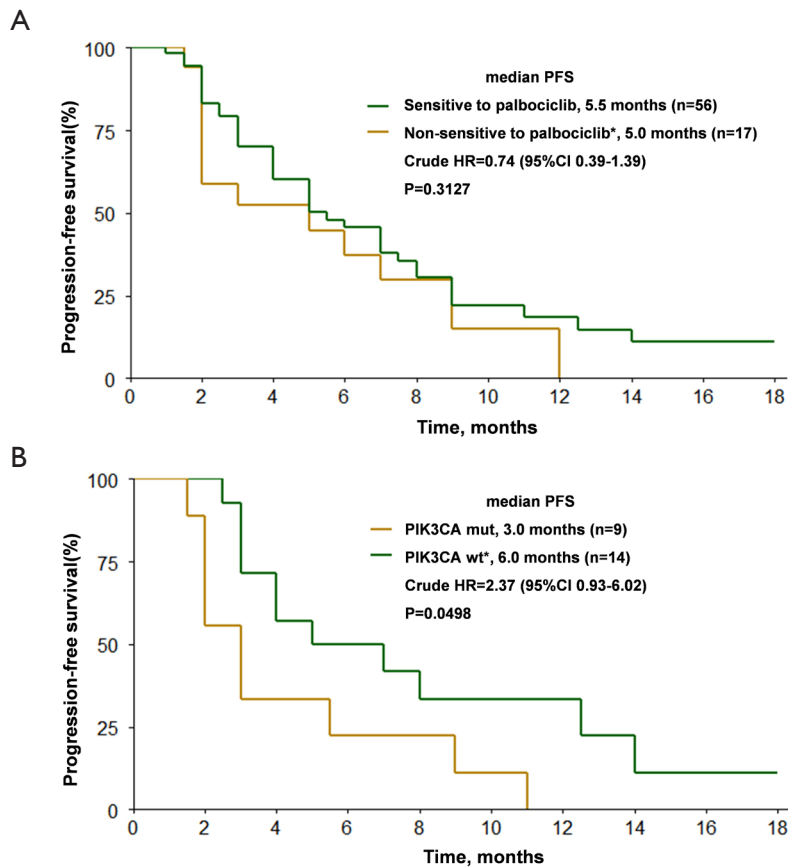


Figure S2 Progression-free survival of abemaciclib-based therapy by sensitivity to palbociclib and *PIK3CA* gene type. (A) Progression-free survival of abemaciclib-based therapy in patients sensitive and non-sensitive to palbociclib. (B) Progression-free survival of abemaciclib-based therapy in patients with wild type and mutant type *PIK3CA* gene. *, the reference group.

Table S1 Dose and reduction, discontinuation information

| Initial dose [†] | ET + abemaciclib (n=73) | | ET + tucidinostat (n=76) | |
|--|-------------------------|------------|--------------------------|------------|
| | 150 mg | 32 (43.8%) | 30 mg | 57 (75.0%) |
| 100 mg | 12 (16.4%) | 25 mg | 3 (3.9%) | |
| 50 mg | 1 (1.4%) | 20 mg | 14 (18.4%) | |
| Reduced dosage due to adverse reactions | 6 (8.2%) | | 8 (10.5%) | |
| Discontinuation of targeted drugs due to adverse reactions | 0 (0%) | | 1 (1.3%) | |

[†], 28 cases in abemaciclib group lost information, 2 cases in tucidinostat group lost information.

Table S2 Multigene sequencing results and methods

| No. of patients | Genomic alterations | Method | Platform |
|-----------------|--|--------|---|
| 1 | None | NGS | High-throughput sequencing platform (HiSeq) |
| 2 | BRCA2 | NGS | HiSeq |
| 3 | AKT1 p.E17K; HER2 p.R896G; FSL | NGS | HiSeq |
| 4 | ESR1 | NGS | HiSeq |
| 5 | PTEN | NGS | HiSeq |
| 6 | None | NGS | HiSeq |
| 7 | AKT1 | NGS | HiSeq |
| 8 | CDH1; IGF1R; PIK3CA (p.E5769Q,p.E726k); TP53 (c.67311_687delTTATCTCCT) | NGS | HiSeq |
| 9 | FGFR1 all exon; NF1 p.S1329* EX30; PIK3CA p.N345K EX5; TP53 p.T253Nfs*11 | NGS | HiSeq |
| 10 | None | NGS | HiSeq |
| 11 | None | NGS | HiSeq |
| 12 | PALB2 p.R131*fs*1; NF1 (p.E602*, p.E1667*); PIK3CA (p.E545K, p.E726K); TP53 p.E285K; APC p.D1186Y | NGS | HiSeq |
| 13 | PIK3CA (p.E542K); PTEN | NGS | HiSeq |
| 14 | PIK3CA (p.E545K); TP53 (c.T712C; p.C238R) | NGS | HiSeq |
| 15 | CCND1; ESR1 D538G | NGS | HiSeq |
| 16 | AKT1, c.49G>A (p.E17K); ESR1, c.1610A>C (p.Y537S); MAP2K4, (p.K198_V206delinsL*) | NGS | HiSeq |
| 17 | ESR1, c.1607T>C (p.L536P); FGFR1; RB1, c.1498+2T>C | NGS | HiSeq |
| 18 | CCND1; FGFR1; MYC; TP53, p.R158Afs*12 | NGS | HiSeq |
| 19 | AKT1, p.E17K; HER2, p.G776delinsV C; ESR1, (p.D538G; p.L536H); PIK3CA, (p.N1044K; p.E453Q; p.N345K) | NGS | HiSeq |
| 20 | ARID1A, c.4385_4401del, p.D1462Afs*23; c.6251T>G, p.V2084G; NTRK1 | NGS | HiSeq |
| 21 | ATR; PIK3CA, H1047R; TP53, Y163C | NGS | HiSeq |

Table S2 (continued)

Table S2 (continued)

| No. of patients | Genomic alterations | Method | Platform |
|-----------------|---|--------|----------|
| 22 | CCND1; FGFR1; PIK3CA, p.H 1047R | NGS | HiSeq |
| 23 | BRCA1; BRCA2, p.R18Lfs*12; HER2; MAP2K4, p.P232L; NTRK1; NTRK2; NTRK3; PIK3CA | NGS | HiSeq |
| 24 | CDH1, p.S851*, exon16; PIK3CA, p.H1047R, exon21; TP53, p.L257Q, exon7 | NGS | HiSeq |
| 25 | None | NGS | HiSeq |
| 26 | PIK3CA E545K; APC; TP53 splice site 782+1G>C | NGS | HiSeq |
| 27 | ARID1A, D1850Gfs*4; ARID2 R1769*; GATA3, P409Afs*99; MDM2 | NGS | HiSeq |
| 28 | BRCA2; ESR1; PIK3CA; TP53 | NGS | HiSeq |
| 29 | None | NGS | HiSeq |
| 30 | PIK3CA | NGS | HiSeq |
| 31 | PIK3CA | NGS | HiSeq |
| 32 | ESR1, p.D538G; PIK3CA, p.H1047L | NGS | HiSeq |
| 33 | ESR1; FGFR1; PTEN | NGS | HiSeq |
| 34 | PIK3CA p.N345K; APC p.N859S | NGS | HiSeq |
| 35 | ESR1; PIK3CA p.E545K | NGS | HiSeq |
| 36 | ESR1, p.D538G; PIK3CA, p.E545K | NGS | HiSeq |
| 37 | None | NGS | HiSeq |
| 38 | None | NGS | HiSeq |
| 39 | None | NGS | HiSeq |
| 40 | CCND1; CDKN2A; ESR1 (p.D538G, p.V187A) | NGS | HiSeq |
| 41 | AKT1; CDKN2B; FGFR1; TP53 | NGS | HiSeq |
| 42 | BRCA1; PIK3CA | NGS | HiSeq |
| 43 | BRCA1; PTEN | NGS | HiSeq |