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| Study Reference | Study Design | N. of pts | Stage (%) | Biological Subtype  (%) | V/NV  (%) | N. of  metastatic  lesions | Pre/Ongoing  treatments |
| Chung25, 2017 | Prospective | 14 | IV  (≥ 90) | H+/HER2- (NA)  H+/HER2+ (NA) | NA | NA | 88 % prior CT;  88 % prior AI |
| Baselga32, 2017 | Prospective  randomized | 446 | IV + locally  advanced | H+/HER2- (100) | V (59)  NV (41) | NA | 73 % prior ≤ 1 line CT;  > 99 % prior AI;  buparlisib +fulvestrant vs  PBO + fulvestrant |
| Chae35, 2017 | Retrospective | 45 | I/II/III  (31)  IV  (69) | H+/HER2- (44,4)  H+/HER2+ (17,8)  H-/HER2+ (13,3)  H-/HER2- (24,4) | NA | NA | NA |
| Board34, 2010 | Prospective | 71 | I/II/III (42,3)  IV  (57,7) | Most H+ (NA) | NA | NA | NA |
| Dawson26, 2013 | Prospective | 30 | IV | H+/HER2- (60)  H+/HER2+(30)  H-/HER2+ (3,3)  H-/HER2- (6,7) | V (90)  NV (10) | NA | Prior treatments;  ET and/or CT  and/or biological therapies |
| Higgins19, 2012  (p) | Prospective | 51 | IV | H+ (65)  HER2+ (20)  H-/HER2- (6) | NA | NA | NA |
| Higgins19, 2012  (r) | Retrospective | 49 | IV | H+ (71,4)  H- (28,6) | NA | NA | NA |
| Rothe27, 2014 | Prospective | 17 | IV | H+/HER2- (70,6)  H+/HER2+(5,9)  H-/HER2+ (11,8)  H-/HER2- (11,8) | V (58,8)  NV (41,1) | Median = 2  (Range 1– 7) | Median = 3 prior lines of CT  (Range 0 - 7);  Median = 1 prior line of ET  (Range 0 - 6);  Median = 0 prior line of targeted therapy  (Range 0 – 2) |
| Garcia- Saenz31, 2017 | Prospective | 49 | IIb-IIIb  (34,7)  IV  (65,3) | H+/HER2-(83,7)  H+/HER2+ (16,3) | NA | Median = 3  Media =2,2 | Median = 2 prior lines |
| Shatsky38, 2019 | Retrospective | 38 | IV + locally  advanced | H+/HER2- (71)  H+/HER2+ (10)  H-/HER2+ (3)  H-/HER2-(16) | NA | NA | Median = 5 prior lines  (Range 0 – 14) |
| Spoerke28, 2015 | Retrospective  randomized | 142 | IV + locally  advanced | H+ (96,8)  HER2+(1,9) | V (52,6)  NV (47,4) | Most  n. 1-2 | 66 % prior CT and most > 3 lines;  100 % prior AI and most 1-2 lines;  pictilisib + fulvestrant vs  PBO + fulvestrant |
| Tzanikou20, 2018 | Prospective | 16 | Early  (56,3)  IV  (43,8) | Most H+/HER2-  (NA) | NA | NA | NA |
| Bianchini29, 2020 | Prospective  randomized | 144 | IV + locally  advanced | H+/HER2- (98,6)  NA (1,4) | V (41,7)  NV (58,3) | NA | 48,6 % prior AI;  51,4 % naïve;  ribociclib + letrozole vs  PBO + letrozole |
| Oliveira,30 2019 | Prospective | 22 | IV | H+/HER2- (72)  HER2+ (20)  H-/HER2- (8) | V (65)  NV (35) | 50% n. ≤ 3  50% n. > 3 | Prior treatments |
| Di Leo37, 2017 | Prospective  randomized | 256 | IV + locally  advanced | H+/HER2- (100) | V (73)  NV (27) | > 50% n. ≥ 3 | 100% prior mTORi;  most 1-2 lines of mTORi, ET, CT (≤ 1 line);  buparlisib + fulvestrant vs  PBO + fulvestrant |
| Blackwell39, 2015 | Prospective | 31 | IV + locally  advanced | H+/HER2- (100) | NA | NA | 100% prior AI;  ≤ 2 lines of CT;  pilaralisib +letrozole or  voxtalisib +letrozole |
| Moynahan36, 2017 | Prospective  randomized | 247 | IV | H+/HER2- (100) | V (55,6)  NV (44,4) | 27,8% n. 1  35,1% n. 2  36,9%n. ≥ 3 | 100% prior NSAI;  everolimus +exemestane vs  PBO +exemestane |
| Moreno40, 2019  (a)+(b) | Prospective | 76 | IV | Most H+/HER2  (NA)  H+/HER2+ (NA)  H-/HER2- (NA) | NA | NA | Most ≥ 2 prior lines |
| Takano41, 2018 | Prospective  randomized | 26 | IV + locally  advanced | HER2+ (100) | NA | NA | ≤ 2 prior lines of trastuzumab + taxanes;  trastuzumab + capecitabine vs  lapatinib + capecitabine |
| Slembrouck42, 2019 | Prospective | 20 | IV | H+/HER2- (70)  HER2+ (5)  H-/HER2-(25) | NA | NA | Prior treatments |
| Rudolph43, 2016  (cohort B) | Prospective | 50 | IV | NA | NA | NA | NA |
| Perkins22, 2012  (Breast cohort) | Prospective | 19 | IV | NA | NA | Median = 1 | NA |
| Ma23, 2017 | Prospective | 12 | IV | HER2+ (100) | V (81,6)  NV (18,4) | Median = 2 | 50% ≥ 3 prior lines of CT;  65,8% prior trastuzumab;  pyrotinib |
| Kim24, 2017 | Prospective  randomized | 72 | IV + locally  advanced | H-/HER2- (100) | NA | NA | 1st-line ipatasertib +paclitaxel vs PBO + paclitaxel |
| Beaver33, 2014 (e) | Prospective | 29 | I/II/III | H+/HER2- (93)  H-/HER2- (7) | NA | NA | NA |

V = visceral disease; NV = non-visceral disease; H = hormone receptor; NA = not available; CT = chemotherapy; PBO = placebo; (p) = prospective cohort; (r) = retrospective cohort; (e) = early; (a) = samples evaluated by Illumina technology NGS; (b) = samples evaluated by Ion Torrent technology NGS.