Supplementary Table 1. Registered ongoing clinical trials against cancers with inactivating mutations in BRCA1,BRCA2 or other HR-related genes

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| --- | --- | --- | --- | --- | --- |
| PARP  inhibitor | Cancer type | Mutated  genes | Co-treatment (Co-Target) | Phase | Register  number |
| Olaparib | Pt-sensitive relapsed OC | BRCA1,2 | NA | 3 | NCT01874353 |
| - | OC, BC, PC, PanC | - | - | 2 | NCT01078662 |
| - | OC, FTC, PPC | - | - | 1 | NCT03943173 |
| - | BC | - | - | 3 | NCT02000622 |
| - | BC | BRCA1,2 | NA (vs Pt) | 2 | NCT05629429 |
| - | BC | HR  (somatic vs germline) | NA | 2 | NCT03344965 |
| - | post-Pt BC | BRCA1,2 | - | 3 | NCT01844986 |
| - | Pt-sensitive PanC | BRCA1,2 | - | 2 | NCT02184195 |
| - | PanC | BRCA1,2, PALB2 | - | 2 | NCT04858334 |
| - | CRPC | BRCA1,2 | - | 4 | NCT05457257 |
| - | various | HR | - | 2 | NCT03967938 |
| - | various | - | - | 2 | NCT03967938 |
| - | biliary tract cancer | - | - | 2 | NCT0404283 |
| - | Melanoma | BRCA1,2 | - | 2 | NCT05482074 |
| Talazoparib | OC, FTC | BRCA1,2 | - | 1 | NCT04584255 |
| - | BC | - | - | 2 | NCT03990896 |
| - | BC | - | - | 1 | NCT03343054 |
| - | BC | HR | - | 2 | NCT02345265 |
| - | other than OC or BC | HR | - | 2 | NCT02286687 |
| - | TNBC | BRCA1,2 | - | 2 | NCT04755868 |
| Rucaparib | NSCLC | BRCA1,2 with LOH | - | 2 | NCT03845296 |
| - | Pt-resistant PanC | BRCA1,2, PALB2 | - | 2 | NCT03140670 |
| - | OC,FTC,PPC | BRCA1,2 | - | 3 | NCT02855944 |
| Niraparib | PC | HR | - | 2 | NCT04030559 |
| Pamiparib | CRPC | BRCA1,2 | - | 2 | NCT05327621 |
| Pamiparib | Pt-resistant OC | BRCA1,2 | - | 2 | NCT05044871 |
| none | BC, OC, PC, PanC | BRCA1,2, PALB2 | Pidnarulex | 2 | NCT04890613 |
| - | OC, BC | BRCA1,2, | Pembrolizumab | 2 | NCT03428802 |
| - | PanC | BRCA1,2 | Chlorambucil | 2 | NCT04692740 |
| - | prevention of BC | BRCA1 | Denosumab  (RANKL) | 3 | NCT04711109 |
| - | prevention of BC | BRCA1,2 | Metformin | 3 | NCT01905046 |
| - | prevention of BC, OC | BRCA1,2 | Letrozole | 3 | NCT00673335 |
| Olaparib | HER2‑ BC | BRCA1,2 | Atezolizumab  (PD-L1) | 2 | NCT02849496 |
| Talazoparib | locally advanced or metastatic solid tumors | BRCA1,2, vs ATM | Avelumab  (PD-L1) | 2 | NCT03565991 |
| Talazoparib | UC,OC,TNBC,NSCLC,CRPC | BRCA1,2,ATM | - | 1b/2 | NCT03330405 |
| Olaparib | serous OC, recurrent FTC | BRCA1,2 | Durvalumab (PD-L1)  Tremelimumab(CTLA4) | 2 | NCT02953457 |
| Fluzoparib | HER2‑ BC | BRCA1,2 | Camrelizumab  (PD-1) | 2 | NCT05576389 |
| Niraparib | BC, PanC, OC, FTC, PPC | BRCA1,2 | Dostarlimab  (PD-1) | 1 | NCT04673448 |
| Niraparib | HER2‑ BC | BRCA1,2, PALB2 | - | 1 | NCT04584255 |
| Niraparib | PanC | BRCA1,2, PALB2 | - | 2 | NCT04493060 |
| Olaparib | BC, OC, FTC, EndA, UCC | BRCA1,2 | Vistusertib (mTORC1/2) or Capivasertib (AKT) | 1b | NCT02208375 |
| Olaparib | OC,FTC,PPC | BRCA1,2 | Tremelimumab  (CTLA-4) | 2 | NCT02571725 |
| Talazoparib | TNBC | BRCA1,2 | Gedatolisib  (mTOR/PI3K) | 2 | NCT03911973 |
| Olaparib | BC | BRCA1,2 | Palbociclib (CDK4,6) + Fulvestrant (HR) | 1 | NCT03685331 |
| Niraparib | FTC,OC,EndA,PPC | BRCA1,2 | Copanlisib (PI3K) | 1 | NCT03586661 |
| Olaparib | TNBC | BRCA1,2 | Durvalumab  (PD-L1) | 2 | NCT05209529 |
| Olaparib | HER2‑ BC | BRCA1,2 | - | 2 | NCT05498155 |
| Olaparib | BC | BRCA1,2, HR | - | 2 | NCT05659914 |
| Olaparib | HER2‑ ER+ BC | HR | Durvalumab  (PD-L1)  Fulvestrant  (HR) | 2 | NCT04053322 |
| Rucaparib | BC and OC excluded | HR | Atezolizumab (PD-L1) | 2 | NCT04276376 |
| Olaparib | PanC | BRCA1,2,PALB2 vs other HR  vs non-HR  Pt-sensitive | Pembrolizumab  (PD-1) | 2 | NCT04666740 |
| - | Melanoma | HR | - | 2 | NCT04633902 |
| - | BC | HR | - | 2 | NCT03025035 |
| - | colorectal cancer | BRCA1,2 | - | 2 | NCT05201612 |
| - | TNBC | BRCA1,2 | - | 2 | NCT05485766 |
| Talazoparib | Melanoma | BRCA1,2 | Nivolumab  (PD-1) | 2 | NCT04187833 |
| Niraparib | rare tumors | BRCA1,2, | Sintilimab  (PD-1) | 2 | NCT04423185 |
| Olaparib | BC | BRCA1,2 | Cediranib (VEGFR) or Ceralasertib (ATR) | 2 | NCT04090567 |
| Fluzoparib | HER2‑ BC | BRCA1 | Apatinib (VEGFR) | 3 | NCT04296370 |
| Olaparib | OC,PPC,FTC | BRCA1,2 | Cediranib  (VEGFR) |  | NCT02345265 |
| Olaparib | OC | BRCA1,2 | - | 2 | NCT03117933 |
| Fluzoparib | relapsed OC | BRCA1,2 | Apatinib  (VEGFR) | 2 | NCT05479487 |
| Olaparib | OC, FTC, genital neoplasms | BRCA1,2 | Anlotinib (multiple RTK) | 1 | NCT04566952 |
| Olaparib | serous OC | HR | Ceralasertib (ATR) | 2 | NCT03462342 |
| Rucaparib | Mesothelioma | BRCA1, BAP1 | NA | 2 | NCT03654833 |
| Olaparib | recurrent Pt-resistant OC | BRCA1,2 | Abemaciclib (CDK4,6) | 1/1b | NCT04633239 |
| Olaparib | PC | BRCA1,2 | Leuprolide (LRHL) | 2 | NCT05498272 |
| Talazoparib | OC and other malignant | BRCA1,2 | ZEN-3694 (BET Bromodomain) | 2 | NCT05327010 |
| Olaparib | BC | BRCA1,2 | Carboplatin Paclitaxel | 2/3 | NCT03150576 |
| Niraparib | OC, FTC, peritoneal cancer | BRCA1,2 | Carboplatin, Paclitaxel, Bevacizumab | 3 | NCT05009082 |
| Niraparib | OC, FTC, genital neoplasms | BRCA1,2 | Bevacizumab (VEGF) | 2 | NCT04556071 |
| Niraparib | HER2‑ BC | BRCA1,2, PALB2, CHEK2 | Gemcitabine, Cisplatin | 2 | NCT04508803 |
| Veliparib | BC | BRCA1,2 | Temozolomide | 2 | NCT01009788 |
| Veliparib | OC | BRCA1,2 | Carboplatin, Paclitaxel | 3 | NCT02470585 |
| Veliparib | HER2‑ BC | BRCA1,2 | Carboplatin  Paclitaxel | 3 | NCT02163694 |
| Veliparib | adult solid tumors in HBOC | BRCA1,2 | Carboplatin,  Paclitaxel | 2 | NCT00535119 |
| Veliparib | BC | BRCA1,2 | Carboplatin | 2 | NCT01149083 |
| Veliparib | post-Pt relapsed OC, PPC | BRCA1,2 | Topotecan | 2 | NCT01012817 |
| Veliparib | BC with brain metastases | BRCA1,2 | Cisplatin | 2 | NCT02595905 |
|  | TNBC | BRCA1,2 | Atezolizumab +  Carboplatin/  Cyclophosphamideor Paclitaxel | 2 | NCT01898117 |
| Rucaparib | PanC, metastatic digestive system neoplasms | BRCA1,2, PALB2 | Fluorouracil, Irinotecan, Leucovorin | 1/2 | NCT03337087 |
| Rucaparib | CRPC | BRCA1,2, ATM | Docetaxel, Carboplatin | 2 | NCT03442556 |
| Olaparib | CRPC | HR | Carboplatin | 2 | NCT04038502 |
| Olaparib | BC | BRCA1,2 | Sapacitabine | 1 | NCT03641755 |
| Rucaparib | FTC,UC,OC (folate receptor alpha positive) | BRCA1,2 | Mirvetuximab  (folate receptor) | 1 | NCT03552471 |
| Olaparib | CRPC | BRCA1,2 | Abiraterone  Prednisone | 2 | NCT03012321 |
| Olaparib | OC | BRCA1,2 | NA | IIIb | R, №665 /  7339-002-00 |
| Olaparib | OC after Pt | HR | NA | II | R, №594 /  7339-002-00 |
| Talazoparib | BC | BRCA1,2 | NA | III | R, №3258 / 673-301 |
| Talazoparib | CRPC | DDR genes | Enzalutamide (AR) | III | R, №319 / C3441052 |
| Veliparib | HER2‑ BC | BRCA1,2 | Carboplatin Paclitaxel | III | R, №346 / M12-914 |
| Niraparib | hormone-sensitive PC | HR genes | Abiraterone  (CYP17A1, AR) | III | R, №16 / 67652000PCR300 |
| Niraparib | HER2‑ BC | BRCA1,2 | NA | III | R, №408 /  213831 |
| Rucaparib | recurrent OC, BC, FTC, PPC | BRCA1,2 | NA | III | R, №216 /  CO-338-043 |

AR –androgen receptor, BC – breast cancer, CRPC – castration resistant prostate cancer, EndA – endometrial adenocarcinoma, FTC – fallopian tube cancer, HBOC – hereditaory breast and ovarian cancer syndrome HR – homology recombination related deliterious mutation (typically one or more genes: BRCA1, BRCA2, ATM, CDK12, PALB2, ARID1A, ATRX, BLM, BARD1, BRIP1, CHEK1, CHEK2, FANCA, FANCF, FANCG, FANCI, FANCL, FANCM, MSH2, NBN, RAD50, RAD51C, RAD51D, WRN), OC – ovarian cancer, PanC – panceratic cancer, PC – prostate cancer, PPC – primary peritoneal cancer, Pt – platinum based chemotherapy, RTK – receptor tyrosine kinases, R – trials registered in Russia, TNBC – triple negative breast cancer, UCC – uterine corpus carcinoma.