

# QIAseq Targeted DNA Pro Panels

## Human Comprehensive Cancer Research

Cat. nos. 333661 PHS-3000Z-12 and 333665 PHS-3000Z-96

**For ultrasensitive targeted next-generation sequencing (NGS) of DNA**

The QIAseq Targeted DNA Pro Human Comprehensive Cancer Research Panel permits the targeted next generation sequencing analysis of the whole coding region of 284 oncogenes and tumor suppressor genes relevant to cancer, covering 997,783 bases with 12,264 primers. The panel also targets actionable and interpretable cancer-related somatic variants relevant for tumor classification of brain cancers, breast cancers, colorectal cancers, lung cancers, myeloid neoplasms, ovarian cancers, pancreatic cancers, prostate cancers, and other cancers. Targeted actionable and interpretable genes and variants were collected from 1) clinical practice guidelines recommended by multiple organizations, including the American College of Medical Genetics (ACMG), the American Society Of Hematology (ASH), the Association for Molecular Pathology (AMP), the American Society of Clinical Oncology (ASCO), the College of American Pathologists (CAP), the European Society for Medical Oncology (ESMO), and the National Comprehensive Cancer Network (NCCN); 2) the NIH NCBI ClinVar and Online Mendelian Inheritance in Man (OMIM) resources that compile variants with known associations to cancers cited by peer-reviewed publications, 3) clinical trial documents from resources such as Cancer.gov, ClinicalTrials.gov, and the UMIN Clinical Trials Registry; 4) requests and suggestions from QIAGEN KOLs and SMEs; and 5) other peer-reviewed publications. As a result, this primer pool gives researchers a comprehensive insight into cancer genomics with the detection of SNP/indels in a focused panel of relevant genes using digital DNA sequencing.

For further details, consult the *QIAseq Targeted DNA Pro Panels Handbook*.

### Shipping and storage

The QIAseq Targeted DNA Pro Kits (except QIAseq Beads and QIAseq Bead Binding Buffer) are shipped on dry ice and should be stored at  $-30^{\circ}\text{C}$  to  $-15^{\circ}\text{C}$  in a constant-temperature freezer upon arrival. The QIAseq Beads and QIAseq Bead Binding Buffer are shipped on cold packs and should be stored at  $2-8^{\circ}\text{C}$  upon arrival. The QIAseq Targeted DNA Pro Index Kits are shipped on dry ice and should be stored at  $-30^{\circ}\text{C}$  to  $-15^{\circ}\text{C}$  upon arrival. When stored correctly, the QIAseq Targeted DNA Pro Kits are good until the expiration date printed on the kit label.

**Note:** Open the package and store the products appropriately immediately upon receipt.



## Panel Contents

| QIAseq Targeted DNA Pro Catalog Number           | 333661    | 333665     |
|--------------------------------------------------|-----------|------------|
| No. of samples                                   | 12        | 96         |
| One pool of region-specific primers              | 90 µL     | 700 µL     |
| FFPE repair reagent                              | 15 µL     | 80 µL      |
| FFPE repair enzyme                               | 17 µL     | 120 µL     |
| FX Buffer, 10x                                   | 23 µL     | 170 µL     |
| 5X WGS FX Mix                                    | 42 µL     | 330 µL     |
| FG Solution                                      | 170 µL    | 170 µL     |
| UPH Ligation Buffer, 2.5x                        | 288 µL    | 1152 µL    |
| DNA Ligase                                       | 75 µL     | 330 µL     |
| Ligation Cleanup Reagent                         | 30 µL     | 240 µL     |
| TEPCR Buffer, 5x                                 | 3 x 60 µL | 3 x 500 µL |
| TEPCR modifier                                   | 30 µL     | 230 µL     |
| TEPCR Cleanup Reagent                            | 80 µL     | 600 µL     |
| UPCR Buffer, 5x                                  | 500 µL    | 4 x 500 µL |
| QN Taq Polymerase                                | 2 x 60 µL | 2 x 450 µL |
| Nuclease-free water                              | 1.5 mL    | 10 mL      |
| One bottle containing QIAseq Bead Binding Buffer | 10.2 mL   | 10.2 mL    |
| One bottle containing QIAseq Beads               | 10 mL     | 10 mL      |

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# Gene Table

| Gene Symbol | Gene Symbol | Gene Symbol | Gene Symbol | Gene Symbol | Gene Symbol |
|-------------|-------------|-------------|-------------|-------------|-------------|
| ABL1        | ABL2        | ABRAXAS1    | ACVR1       | AKT1        | ALK         |
| ANKRD26     | APC         | AR          | ARHGAP26    | ARID1A      | ARID1B      |
| ASXL1       | ATM         | ATR         | ATRX        | AXIN2       | B2M         |
| BAP1        | BARD1       | BAX         | BCL10       | BCL2        | BCL6        |
| BCOR        | BCORL1      | BCR         | BIRC3       | BLM         | BMPR1A      |
| BRAF        | BRCA1       | BRCA2       | BRIP1       | BTK         | BUB1        |
| BUB1B       | CALR        | CARD11      | CASP10      | CBFB        | CBL         |
| CBLB        | CBLC        | CCND1       | CCND2       | CCNE1       | CCR4        |
| CD274       | CD38        | CD79A       | CD79B       | CDC25C      | CDH1        |
| CDK12       | CDK4        | CDK6        | CDKN1B      | CDKN2A      | CDKN2B      |
| CEBPA       | CFTR        | CHEK1       | CHEK2       | CIC         | CREBBP      |
| CRIF2       | CSF3R       | CTNNB1      | CUX1        | CXCR4       | CYP2D6      |
| DCC         | DCK         | DDR2        | DDX41       | DHX15       | DICER1      |
| DKC1        | DLC1        | DNMT3A      | DNMT3B      | DPYD        | EBF1        |
| EGFR        | ELANE       | EP300       | EPCAM       | EPHB2       | ERBB2       |
| ERBB3       | ERCC1       | ERG         | ESR1        | ETNK1       | ETV1        |
| ETV4        | ETV5        | ETV6        | EZH2        | FANCA       | FANCC       |
| FANCD2      | FANCE       | FANCF       | FANCG       | FANCI       | FANCL       |
| FANCM       | FBXW7       | FGFR1       | FGFR2       | FGFR3       | FLCN        |
| FLT3        | FOXA1       | FOXL2       | FO XO1      | FUBP1       | GATA1       |
| GATA2       | GATA3       | GEN1        | GLI2        | GNA13       | GNAS        |
| GNB1        | H1-4        | H3-3A       | H3C2        | HRAS        | IDH1        |
| IDH2        | IKZF1       | IKZF2       | IKZF3       | IL7R        | INO80       |
| IRF1        | JAK1        | JAK2        | JAK3        | KDM6A       | KIT         |
| KLF2        | KLF6        | KMT2A       | KMT2D       | KRAS        | LUC7L2      |
| MAD1L1      | MAP2K1      | MAP3K8      | MCC         | MDM2        | MED12       |
| MEF2B       | MET         | MLH1        | MLH3        | MPL         | MRE11       |
| MSH2        | MSH3        | MSH6        | MTOR        | MUTYH       | MXI1        |
| MYC         | MYCN        | MYD88       | NBN         | NF1         | NF2         |
| NOTCH1      | NOTCH2      | NPM1        | NRAS        | NTRK1       | NTRK3       |
| NUMA1       | NUP214      | OPCML       | PALB2       | PALLD       | PAX5        |
| PDGFRA      | PDGFRB      | PDGFRL      | PHF6        | PICALM      | PIGA        |
| PIK3CA      | PIK3R1      | PIK3R3      | PIM1        | PLCG2       | PMS1        |
| PMS2        | PMS2CL      | POLD1       | POLE        | PPM1D       | PPP2R1A     |
| PPP2R1B     | PPP2R2A     | PREX2       | PRKN        | PRPF8       | PRSS1       |
| PTCH1       | PTCH2       | PTEN        | PTPN11      | PTPN12      | PTPRJ       |
| RAD21       | RAD50       | RAD51       | RAD51B      | RAD51C      | RAD51D      |
| RAD52       | RAD54B      | RAD54L      | RAF1        | RARA        | RB1         |
| RB1CC1      | RBBP6       | RET         | RHOA        | RNF43       | ROBO2       |
| ROS1        | RPA1        | RPS14       | RUNX1       | SAMD9       | SAMD9L      |
| SETBP1      | SETD2       | SF3B1       | SH2B3       | SLC22A18    | SLC29A1     |
| SMAD4       | SMARCA4     | SMARCB1     | SMC1A       | SMC3        | SOC S1      |
| SOX9        | SPINK1      | SPOP        | SRC         | SRP72       | SRSF2       |
| STAG2       | STAT3       | STAT5B      | STAT6       | STK11       | SUFU        |
| TCF7L2      | TERC        | TERT        | TET1        | TET2        | TGFBR2      |
| TNFAIP3     | TNFRSF14    | TP53        | TPSAB1      | TSC2        | TYMS        |
| U2AF2       | UGT1A1      | WT1         | XPO1        | ZAP70       | ZEB2        |
| ZFHX3       | ZRSR2       |             |             |             |             |

## Functional Groupings

### Brain Cancers:

Anaplastic Glial Tumors: CDKN2A, CDKN2B, MDM2, PTEN, RB1, TP53.

Astrocytomas: ATRX, BRAF, CHEK2, FGFR1, IDH1, IDH2, KRAS, NOTCH1, PTPN11, RB1, TP53.

Ependymomas: CDKN2A, CDKN2B, H3-3A, NF2, NOTCH1.

Glioblastomas: ALK, APC, BCOR, BRAF, CDK4, CDK6, CDKN2A, CDKN2B, CREBBP, EGFR, ERBB2, FGFR3, H3-3A, H3C2, IDH1, IDH2, KIT, MDM2, MET, MLH1, MSH2, MTOR, MYC, NOTCH1, NRAS, PIK3CA, PMS2, PMS2CL, PTEN, RB1, STK11, TERT, TP53.

Gliomas: ACVR1, BRCA2, CHEK2, FGFR1, H3-3A, PDGFRA, PIK3CA, PTEN, TP53.

High-Grade Gliomas: ATRX, BRAF, CIC, EGFR, FUBP1, IDH1, IDH2.

Medulloblastomas: BRCA2, CDK4, CREBBP, CTNNB1, FGFR1, GLI2, IDH1, IDH2, MSH2, MYC, MYCN, NRAS, PIK3CA, PTCH2, SMARCA4, SMARCB1, SUFU, TP53.

Meningiomas: CDKN2A, CDKN2B, NF2, PTEN.

Oligodendrogliomas: IDH1, IDH2, MSH2, NOTCH1, TERT.

### Breast Cancers:

Carcinomas: ATM, BARD1, BRCA1, BRCA2, BRIP1, CDK12, CDK4, CHEK1, CHEK2, EGFR, ERBB2, ESR1, FANCL, KIT, KRAS, MET, MLH1, MLH3, MSH2, MSH3, MSH6, PALB2, PDGFRA, PIK3CA, PMS1, PMS2, PMS2CL, RAD51B, RAD51C, RAD51D, RAD54L.

Ductal Carcinomas: AR, CCND1, CDH1, CYP2D6, FANCD2, FBXW7, FGFR1, FGFR2, MRE11, MYC, NBN, NTRK3, PPM1D, PPP2R1A, RB1CC1, SF3B1, SLC22A18, STK11, TP53.

ER-Positive Carcinomas: CDH1, RB1CC1, SF3B1.

HER-Positive Carcinomas: AR, CCND1, FANCD2, NTRK3, PPM1D, RB1CC1.

Metastatic Breast Cancers: AKT1, BRCA1, BRCA2, ERBB2, ERBB3, ESR1, MDM2, NF1, PALB2, PIK3CA, PTEN.

Mismatch Repair (MMR) Genes: MLH1, MSH2, MSH6, PMS2, PMS2CL.

### Colorectal Cancers:

Adenocarcinomas: APC, ARID1A, ATM, AXIN2, BARD1, BAX, BMPR1A, BRAF, BRCA1, BRCA2, BRIP1, BUB1, BUB1B, CDK12, CDKN2A, CHEK1, CHEK2, CTNNB1, DCC, DLC1, EGFR, EP300, ERBB2, ERBB3, ESR1, FANCL, FBXW7, FGFR1, FGFR3, FLCN, GNAS, HRAS, KIT, KRAS, MAP2K1, MCC, MET, MLH1, MLH3, MSH2, MSH3, MSH6, MUTYH, MYC, NRAS, PALB2, PDGFRA, PDGFRL, PMS1, PMS2, PMS2CL, POLD1, POLE, PTEN, PTPN12, PTPRJ, RAD51B, RAD51C, RAD51D, RAD54B, RAD54L, RET, RNF43, SMAD4, SOX9, SRC, STK11, TCF7L2, TGFB2, TP53.

Metastatic Colorectal Cancers: AKT1, ATM, BRAF, ERBB2, KRAS, MET, NRAS, PIK3CA.

Mismatch Repair (MMR) Genes: EPCAM, MLH1, MSH2, MSH6, PMS2, PMS2CL.

Other Colorectal Cancer Genes: DPYD, ERCC1, TYMS, UGT1A1.

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## **Lung Cancers:**

Adenocarcinomas: ABL1, AKT1, ALK, ATM, BRAF, CCND1, CD274, CDK4, CDKN2A, CTNNB1, DDR2, EGFR, ERBB2, FGFR1, FGFR3, HRAS, KRAS, MAP2K1, MAP3K8, MET, MYC, MYCN, NRAS, NTRK1, PIK3CA, PPP2R1B, PRKN, PTEN, RET, ROS1, SLC22A18, STK11, TP53, TSC2.

Malignant Pleural Mesotheliomas: BAP1, NF2.

Non-Small Cell Lung Cancers (NSCLC): AKT1, ALK, ATM, BARD1, BRAF, BRCA1, BRCA2, BRIP1, CCND1, CDK12, CDK4, CDKN2A, CHEK1, CHEK2, CTNNB1, EGFR, ERBB2, FANCL, FGFR3, HRAS, IDH1, IRF1, KIT, KRAS, MAP2K1, MET, MLH1, MLH3, MSH2, MSH3, MSH6, MYC, NRAS, PALB2, PDGFRA, PIK3CA, PMS1, PMS2, PMS2CL, PTEN, RAD51B, RAD51C, RAD51D, RAD54L, RET, ROS1, TP53.

Small Cell Lung Cancers (SCLC): CD274, HRAS, MYC, MYCN, NTRK1, PIK3CA, PPP2R1B, PTEN, RB1, TP53.

Squamous Cell Carcinomas (SCC): BRAF, CD274, CDKN2A, DDR2, EGFR, FGFR1, FGFR3, HRAS, MAP3K8, MYC, MYCN, NTRK1, PIK3CA, PPP2R1B, PTEN, SLC22A18, TP53, TSC2.

## **Myeloid Neoplasms:**

Acute Lymphoblastic Leukemia (ALL): ABL1, ABL2, BIRC3, BRAF, BTK, CDKN2A, CDKN2B, CREBBP, CRLF2, EBF1, EP300, ETV6, FBXW7, FLT3, GATA3, HRAS, IKZF1, IL7R, JAK1, JAK2, JAK3, KDM6A, KMT2A, KRAS, MYC, NOTCH1, NRAS, PAX5, PDGFRB, PLCG2, PTEN, PTPN11, RUNX1, SF3B1, SH2B3, TP53.

Acute Myeloid Leukemia (AML): ANKRD26, ASXL1, ATRX, BRCA1, BRCA2, CBFβ, CBLB, CBL, CCND2, CDC25C, CEBPA, CUX1, DCK, DDX41, DHX15, DNMT3A, ELANE, ETV6, FLT3, GATA1, GATA2, GNAS, HRAS, IDH1, IDH2, IKZF1, IKZF2, IKZF3, JAK2, KDM6A, KIT, KMT2A, KRAS, LUC7L2, MTOR, NPM1, NRAS, NUP214, PDGFR, PICALM, PRPF8, PTPN11, RB1, RBBP6, RPS14, RUNX1, SF3B1, SLC29A1, SMC1A, TERT, TET1, TET2, TP53, U2AF2, WT1, ZEB2.

Acute Promyelocytic Leukemia (APML; APL): CEBPA, NPM1, NUMA1, RARA, RUNX1.

Atypical Chronic Myeloid Leukemia (aCML): ASXL1, CBL, CEBPA, EZH2, FLT3, JAK2, KRAS, NPM1, NRAS, RUNX1, SETBP1, SRSF2, TET2.

Chronic Lymphocytic Leukemia (CLL): ATRX, BCL2, BIRC3, BRAF, CBLB, CCND2, CD38, CUX1, GNAS, GNB1, LUC7L2, MYD88, NOTCH1, NRAS, PTPN11, SF3B1, TP53, U2AF2, XPO1, ZAP70.

Chronic Myeloid Leukemia (CML): ABL1, ASXL1, BCOR, BCR, BRAF, CBL, CREBBP, DNMT3A, DNMT3B, EZH2, IDH1, IDH2, IKZF1, JAK2, KRAS, NPM1, NRAS, RUNX1, TET1, TET2, TP53, WT1.

Chronic Myelomonocytic Leukemia (CMML): ASXL1, BCOR, BCORL1, CBL, CEBPA, DNMT3A, EZH2, FLT3, IDH1, IDH2, JAK2, KIT, KRAS, MPL, NF1, NPM1, NRAS, PHF6, PTPN11, RUNX1, SETBP1, SF3B1, SRSF2, STAG2, TET2, TP53, ZRSR2.

Hairy Cell Leukemia: BRAF, CDKN1B, MAP2K1, TP53.

Juvenile Myelomonocytic Leukemia: ARHGAP26, CBL, KRAS, NRAS, PTPN11.

Acute Lymphocytic Lymphomas: BIRC3, BTK, CDKN2A, CDKN2B, MYC, NOTCH1, PLCG2, SF3B1, TP53.

B Cell Lymphomas: BCL6, BRAF, CD79A, CHEK2, EZH2, MAP2K1, MYD88, STAT6, TNFRSF14, TP53.

Burkitt Lymphomas: CBLB, GNA13, H1-4, MTOR, MYC.

Diffuse Large B Cell Lymphomas: B2M, BCL2, CBLB, GNA13, H1-4, KMT2D, MTOR, PIM1, PRPF8, SOCS1, TNFAIP3.

Follicular Lymphomas: ARID1A, BCL10, BCL2, CARD11, CREBBP, EP300, EZH2, FOXO1, KMT2D, MEF2B.

Mantle Cell Lymphomas: ATM, CCND1.

Marginal Zone Lymphomas: KLF2, MYD88, NOTCH2, TNFAIP3, TP53.

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Mucosa-Associated Lymphoid Tissue (MALT) Lymphomas: BCL10, TNFAIP3.

Non-Hodgkin Lymphomas: BRAF, CASP10, NRAS, PIK3CA, RAD54B, RAD54L, TP53.

Primary Cutaneous Lymphomas: CD79B, MYD88.

Small Lymphocytic Lymphomas: ATRX, BCL2, CBLB, CCND2, CUX1, GNAS, LUC7L2, U2AF2, XPO1.

T Cell Lymphomas: ARID1B, ATM, CBLB, CCR4, DNMT3A, IDH1, IDH2, INO80, JAK1, JAK3, RHOA, SETD2, STAT3, STAT5B, TET2.

Myelodysplastic Syndromes (MDS): ANKRD26, ASXL1, ATRX, BCOR, BCORL1, CALR, CBL, CEBPA, CSF3R, CUX1, DDX41, DKC1, DNMT3A, ETNK1, ETV6, EZH2, FLT3, GATA2, GNAS, GNB1, IDH1, IDH2, JAK2, JAK3, KIT, KRAS, MPL, NF1, NPM1, NRAS, PHF6, PIGA, PPM1D, PTPN11, RAD21, RUNX1, SAMD9, SAMD9L, SETBP1, SF3B1, SMC3, SRP72, SRSF2, STAG2, STAT3, TERC, TERT, TET2, TP53, WT1, ZRSR2.

Myeloproliferative Neoplasms (MPN): ASXL1, BCOR, CALR, CBL, CSF3R, DNMT3A, ETV6, EZH2, IDH1, IDH2, JAK2, KIT, MPL, NOTCH1, NRAS, PDGFRA, RUNX1, SETBP1, SF3B1, SH2B3, SRSF2, STAT3, STAT5B, TET2, TP53, ZRSR2.

Essential Thrombocythemia: ASXL1, CBL, IDH2, JAK2, MPL, SF3B1, TET2, TP53.

Multiple Myeloma: ATM, BARD1, BRAF, BRCA1, BRCA2, BRIP1, CHEK1, CHEK2, CXCR4, EGFR, ERBB2, FANCL, FGFR3, IDH1, IDH2, KIT, KRAS, MET, NRAS, PALB2, PDGFRA, RAD51B, RAD51C, RAD51D, RET, TP53.

Plasma Cell Myeloma: HRAS, MTOR, RB1, SLC29A1.

Polycythemia Vera: ASXL1, DNMT3A, EZH2, IDH1, JAK2, NRAS, TET2, TP53.

Primary Myelofibrosis: ASXL1, CBL, DNMT3A, EZH2, IDH1, IDH2, JAK2, MPL, NF1, NRAS, SETBP1, SF3B1, SRSF2, TET2, TP53.

Systemic Mastocytosis: ASXL1, CBL, DNMT3A, ETV6, EZH2, IDH2, JAK2, KIT, KRAS, NPM1, NRAS, RUNX1, SETBP1, SF3B1, SRSF2, TET2, TPSAB1.

Waldenstrom Macroglobulinemia: CXCR4, MYD88.

## **Ovarian Cancers:**

Endometrioid Carcinomas: CDKN2A, CTNNB1, FANCF, POLE, PPP2R1A.

Epithelial Carcinomas: ABRAXAS1, ARID1A, ATM, BARD1, BRAF, BRCA1, BRCA2, BRIP1, CCNE1, CDK12, CHEK1, CHEK2, ERBB2, ERCC1, KRAS, MRE11, NBN, NF1, PALB2, PIK3CA, PTEN, RAD51B, RAD51C, RAD51D, RB1, TP53, WT1.

Granulosa Cell Tumors: AKT1, FOXL2.

Mixed Adenosquamous Carcinomas: AKT1, ATR, ATRX, BLM, CCND1, CCND2, CCNE1, CDH1, DICER1, ERBB3, FANCA, FANCC, FANCD2, FANCE, FANCF, FANCI, FANCL, FANCM, FBXW7, FGFR1, FGFR2, FGFR3, KIT, MYC, OPCML, PDGFRA, PIK3R1, POLE, PRKN, RAD50, RAD51, RAD52, RAD54L, RB1, RPA1, SMARCA4, STK11.

Mucinous Carcinomas: ATRX, CDKN2A, ERBB3, PDGFRA.

Serous Carcinomas: ATR, ATRX, BLM, CCND1, CCND2, CCNE1, CDH1, CDKN2A, DICER1, ERBB3, FANCA, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, FBXW7, FGFR1, FGFR2, FGFR3, KIT, MYC, PPP2R1A, RAD50, RAD51, RAD52, RAD54L, RB1, RPA1, SMARCA4.

Mismatch Repair (MMR) Genes: MLH1, MSH2, MSH6, PMS2, PMS2CL.

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### **Pancreatic Cancers:**

Adenocarcinomas: ATM, CDKN2A, CFTR, FANCC, FANCG, MLH1, MSH2, MSH6, PALB2, PALLD, PMS2, PMS2CL, PRSS1, SMAD4, SPINK1, STK11, TP53.

Advanced Ductal Adenocarcinomas: BRAF, BRCA1, BRCA2, ERBB2, KRAS, MDM2, PIK3CA.

Ductal Carcinomas: APC, ARID1A, CDK6, CTNNB1, ERBB3, FBXW7, FGFR1, GNAS, KDM6A, KRAS, MET, MYC, NRAS, PIK3R3, POLE, PREX2, PTCH1, PTEN, RNF43, ROBO2, SLC29A1, SOX9, TCF7L2.

Mismatch Repair (MMR) Genes: MLH1, MSH2, MSH6, PMS2, PMS2CL.

### **Prostate Cancers:**

Adenocarcinomas: ABRAXAS1, APC, AR, ATR, BARD1, BRAF, BRIP1, CDK12, CHEK1, CHEK2, EPHB2, ERG, ETV1, ETV4, ETV5, FANCA, FANCL, FGFR1, FOXA1, GEN1, HRAS, IDH1, KDM6A, KLF6, KMT2D, KRAS, MAD1L1, MED12, MRE11, MXI1, MYC, NBN, PIK3R1, PPP2R2A, PTEN, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RB1, SPOP, TP53, ZFHX3.

Advanced Prostate Cancers: AKT1, ATM, BRCA1, BRCA2, PALB2, PIK3CA, PTEN.

Ductal Carcinomas: CTNNB1.

Mismatch Repair (MMR) Genes: MLH1, MSH2, MSH6, PMS2, PMS2CL.

**Microsatellite Instability (MSI) Loci:** BAT25, BAT26, BAT34C4, BAT40, D10S196, D13S175, D17S250, D17S588, D17S787, D18S35, D18S55, D18S61, D18S64, D18S69, D20S100, D2S123, D3S1029, D5S107, D5S346, D7S519, D8S87, HSP110-T17, MONO-27, NR21, NR22.

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## Ordering Information

| Product                              | Contents                                                                                                   | Cat. no. |
|--------------------------------------|------------------------------------------------------------------------------------------------------------|----------|
| QIAseq Targeted DNA Pro (12)         | All reagents (except indexes) for targeted DNA sequencing; fixed panel for 12 samples; less than 200 genes | 333651   |
| QIAseq Targeted DNA Pro (96)         | All reagents (except indexes) for targeted DNA sequencing; fixed panel for 96 samples; less than 200 genes | 333655   |
| QIAseq Targeted DNA Pro HC (12)      | All reagents (except indexes) for targeted DNA sequencing; fixed panel for 12 samples; more than 200 genes | 333661   |
| QIAseq Targeted DNA Pro HC (96)      | All reagents (except indexes) for targeted DNA sequencing; fixed panel for 96 samples; more than 200 genes | 333665   |
| QIAseq Targeted DNA Pro Custom (96)  | All reagents (except indexes) for targeted DNA sequencing; custom panel for 96 samples                     | 333675   |
| QIAseq Targeted DNA Pro Booster (96) | Pool of primers used in combination with either catalogued or custom panels                                | 333685   |

### QIAseq Targeted DNA Pro Unique Dual Indices

|                                        |                                                                                                                                                                                                                                                                             |        |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| QIAseq Targeted DNA Pro UDI Set A (96) | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set A (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 333455 |
| QIAseq Targeted DNA Pro UDI Set B (96) | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set B (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 333465 |
| QIAseq Targeted DNA Pro UDI Set C (96) | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set C (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 333475 |

| Product                                                          | Contents                                                                                                                                                                                                                                                                    | Cat. no. |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| QIAseq Targeted DNA Pro UDI Set D (96)                           | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set D (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 333485   |
| QIAseq Targeted DNA Pro UDI Set E (96)                           | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set E (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 334015   |
| QIAseq Targeted DNA Pro UDI Set F (96)                           | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set F (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 334025   |
| QIAseq Targeted DNA Pro UDI Set G (96)                           | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set G (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 334035   |
| QIAseq Targeted DNA Pro UDI Set H (96)                           | Box containing unique molecularly indexed adapters and primers, enough for a total of 96 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; Set H (of A, B, C, D, E, F, G, and H) required for multiplexing 768 samples in one run | 334045   |
| QIAseq Targeted DNA Pro UDI (12)                                 | Box containing unique molecularly-indexed adapters and primers, enough for a total of 12 samples, for indexing up to 12 samples for targeted panel sequencing on Illumina platforms                                                                                         | 333441   |
| <b>QIAseq Targeted DNA Pro Indices for Ion Torrent platforms</b> |                                                                                                                                                                                                                                                                             |          |
| QIAseq Targeted DNA Pro Index L (12)                             | Box containing molecularly-indexed adapters and primers, enough for a total of 12 samples – for indexing up to 12 samples for targeted panel sequencing on Ion Torrent platforms                                                                                            | 333491   |
| QIAseq Targeted DNA Pro Index L (24)                             | Box containing molecularly-indexed adapters and primers, enough for a total of 24 samples – for indexing up to 24 samples for targeted panel sequencing on Ion Torrent platforms                                                                                            | 333492   |

| Product                                  | Contents                                                                                                                                                           | Cat. no. |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Related products</b>                  |                                                                                                                                                                    |          |
| QIAseq Library Quant Assay Kit           | Reagents for quantification of libraries prepared for Illumina or Ion Torrent platforms; assay format                                                              | 333314   |
| QIAseq Universal Normalizer Kit (96)     | For 96 reactions: Reagents for the normalization of libraries using indexed library amplification primers.                                                         | 180615   |
| QIAseq Universal Normalizer Kit (24)     | For 24 reactions: Reagents for the normalization of libraries using indexed library amplification primers.                                                         | 180613   |
| QIAamp DNA Mini Kit (50)                 | For 50 DNA preps: 50 QIAamp Mini Spin Columns, QIAGEN Proteinase K, Collection Tubes (2 mL), reagents and buffers                                                  | 51304    |
| QIAamp Circulating Nucleic Acid Kit (50) | For 50 DNA preps: QIAamp Mini Columns, Tube Extenders (20 mL), QIAGEN Proteinase K, Carrier RNA, Buffers, VacConnectors, and Collection Tubes (1.5 mL and 2 mL)    | 55114    |
| QIAamp DNA FFPE Advanced UNG Kit (50)    | For 50 preps: Uracil-N-glycosylase, QIAamp UCP MinElute columns, collection tubes, Deparaffinization Solution, Proteinase K, RNase A, RNase-free water and buffers | 56704    |

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