

HRD pro

Variants profiling and HRD score in Breast, Ovary and Prostate Cancer

HRD pro

4bases HRD pro is the kit for the identification of mutations in genes related to the Homologous recombination and repair (HRR) pathway.

HRR deficiency (HRD) is involved in the tumorigenesis and progression of cancer : several studies demonstrated that HRD score is a biomarker of sensitivity to platinum chemotherapy drugs.

HRD pro is a kit for the analysis of 23 genes through a molecular protocol based on Next Generation Sequencing (NGS) technologies. The kit is validated for germline and somatic analysis (SNPs, indels, CNVs) of DNA extracted from blood or body tissues (fresh, frozen, FFPE, FNA) samples.

HRD pro kit contains all reagents required for the preparation of the capture of specifically designed probes and for the NGS analysis using ThermoFisher.

For the calculation of the HRD Score it is necessary to analyze two samples per patient: one germline and one somatic.

TECHNOLOGY

The HRD pro kit is part of a DNA-to-variant solution that offers streamlined content, easy-to-perform library preparation, push-button sequencing systems, and simplified data analysis.

WORKFLOW

Library preparation follows a straightforward, capture-based protocol that can be completed in as little as 36 hours, with < 3 hours hands-on time. Resulting libraries can be normalized, pooled, and then loaded on to a chip for sequencing. Prepared libraries are sequenced on any compatible ThermoFisher sequencers.

REFERENCES

- Kim SJ et al. Determining homologous recombination deficiency scores with whole exome sequencing and their association with responses to neoadjuvant chemotherapy in breast cancer. *Transl Oncol.* 2021
- Takaya H. et al. Homologous recombination deficiency status-based classification of high-grade serous ovarian carcinoma. *Sci Rep* 2020.

Table 1: List of genes in HRD pro

| | | |
|--------|--------|--------|
| ATM | BRIP1 | RAD51B |
| BRCA1 | BARD1 | PTEN |
| BRCA2 | CDK12 | MLH1 |
| RAD54L | CHEK1 | MSH2 |
| RAD50 | CHEK2 | MSH6 |
| RAD51C | MRE11A | TP53 |
| RAD51D | NBN | FANCL |
| RAD50 | PALB2 | |

SAMPLE PER RUN

| Instrument | Samples per run* | |
|-----------------------------|------------------|---------|
| | Germline | Somatic |
| Ion 316™ Chip/Ion 510™ Chip | 16 | 0 |
| Ion 318™ Chip/Ion 520™ Chip | 32 | 0 |
| Ion 530™ Chip | 96 | 8 |
| Ion PI™ Chip/Ion 540™ Chip | 320 | 16 |
| Ion 550™ Chip | 960 | 32 |

**the estimated maximum number of samples per chip assumes a reading depth of 300x for the germline and 5000x for the somatic. The optimal number of samples can be empirically estimated on the local setup.*

The volume present in the kit is calculated to allow the subdivision into multiples of 8 analysis sessions. Dividing the kit in different ways decrease the total number of tests that can be performed.

ORDERING INFORMATION

| Product | REF |
|-----------|----------------------|
| HRD pro | RC3080Y-16 (16 test) |
| HRD pro | RC3080Y-96 (96 test) |
| Adapter | |
| Y ADAPTER | R9001-16 (16 test) |
| Y ADAPTER | R9001-96 (96 test) |