HEVA pro

Hereditary and somatic variants profiling in Breast and Ovary

4bases

When Precision Matters

HEVA PRO

4bases HEVA pro is a CE-IVD kit for the identification of mutations in genes involved in **Breast and Ovary cancer**, familial adenomatous polyposis **(FAP)**, and hereditary nonpolyposis colorectal cancer **(HNPCC)**. **HEVA pro** allows to detect variants linked to a defect in homologous recombination deficiency **(HRD)** mechanism. Consequences of HRD defects causes error-prone DNA repair pathways, resulting in increased genomic instability which may be responsible for susceptibility to poly-(ADP)-ribose polymerase **(PARPis)** inhibitors. **HEVA pro** is a kit for the analysis of **50 genes** (Table 1) using **Oxford Nanopore Technologies**' Next Generation Sequencing (NGS) platforms. The kit is validated for germline and somatic analysis (SNVs, CNVs) of DNA extracted from blood samples and cancer tissues (fresh, frozen or FFPE).

TECHNOLOGY

HEVA pro kit contains all reagents needed to target and capture 50 genes (Table 1), allowing for library multiplexing and NGS sequencing using **Oxford Nanopore Technologies**' platforms (Table 2).

WORKFLOW

The **HEVA pro** kit is part of a capture-based family solution of 4bases molecular technologies. Its accuracy and specificity in detecting genetic variants (i.e. SNVs, CNVs), with **one of the shortest capture-based protocols available** on the market (36 hours protocol, **<3 hours hands-on-time**), are the key to its reliability.Thanks to **4bases proprietary analysis platform, 4eVAR**, the clinical results are easily and efficiently accessible through a validated internal workflow.

SOFTWARE ANALYSIS

The data analysis on **4eVAR** is designed based on the characteristics and technologies of the kit used, to increase accuracy of results, and to have the complete control on the entire process. A **complete report** including **SNVs and CNVs with ACMG classification** for variant interpretation is given per each sample. Specific links for wider yet **complete classification of detected variants are also provided**, together with **quality metrics per each sample in the run**.

VALIDATION

The **HEVA pro** kit has been validated both internally and in clinical laboratories, and the whole protocol was tested on DNA standards and on clinical samples.

Table 1: List of genes in included in **HEVA pro** kit.

List of genes of HEVA pro kit				
ATM	MSH2	RAD51C	XRCC2	KRAS
APC	XPC	RAD51D	NF1	ERBB2
BARD1	SMAD4	STK11	SPRED1	ALK
BRCA1	MSH6	TP53	MEN1	EGFR
BRCA2	MUTYH	WRN	RET	RB1
BRIP1	NBN	HRAS	SMARCB1	CDKN2A
CDH1	PALB2	FAM175A	NF2	CDK4
CHEK2	PMS2	MRE11	PTCH1	FLCN
EPCAM	PTEN	PIK3CA	LZTR1	RUNX1
MLH1	RAD50	PMS2CL	CTNNB1	CDKN1C

Table 2: **HEVA pro** samples per sequencing run on Oxford Nanopore Technologies' sequencers.

Flow Cell	Samples per Flow Cell		Oxford Nanopore sequencer	Flow Cells per sequencer *
	Coverage 100x	Coverage 1000x		
FLO-FLG114	4	-	Flongle	1
FLO-MIN114	48	4	MinION	1
			GridION	Up to 5
FLO-PRO114M	240	24	PromethION 2/P2 Solo	Up to 2
			PromethION 24	Up to 24
			PromethION 48	Up to 48

*Multiple Flow Cells can be used during the same run session (GridION, PromethION), either with different libraries or with the same library to increase sequencing depth.

PLEASE NOTE: The volumes of the reagents in the kit are calculated to allow the subdivision into multiples of 8 samples per analysis session. Dividing the kit differently will decrease the total number of tests that can be performed. For different settings, please contact us at support@4bases.ch.

PLEASE NOTE: The number of multiplexable samples and coverage depend on starting gDNA degradation, presence of contaminants, external factors, library loading procedure.

ORDERING INFORMATION **

	Product	REF
LIBRARY AMPLIFICATION REAGENTS	**HEVA pro**	**DC3040-16X** (16 test)
	HEVA pro	**DC3040-96X** (96 test)
MULTIPLEXING REAGENTS	**UDI Primers Set C**	**7003** (96 test)
	UDI Primers Set 16	**7005** (16 test)
OXFORD NANOPORE ADAPTERS	**NANO ADAPTER**	**M1050-6** (6 sequencing run)
		M1050-24 (24 sequencing run)

**UDI are always included in CEIVD kit.
The reagents required for sequencing on Oxford Nanopore Technologies' platforms have to be purchased separately: contact 4bases for further information.

PLEASE NOTE: Should you need to run more than/multiple of 96 samples in the same library, please contact us.

- For more detailed information regarding validated solutions for automatic library preparation, please contact us at **info@4bases.ch**
- For the target regions of *HEVA pro* kit (.bed file), please contact us at **support@4bases.ch**