Molecular Pathology

NGS - HRD Focus Panel

AmoyDx® HRD Focus Panel

Combined detection of mutations in *BRCA1/BRCA2* and determination of the HRD status

▸ Background Information

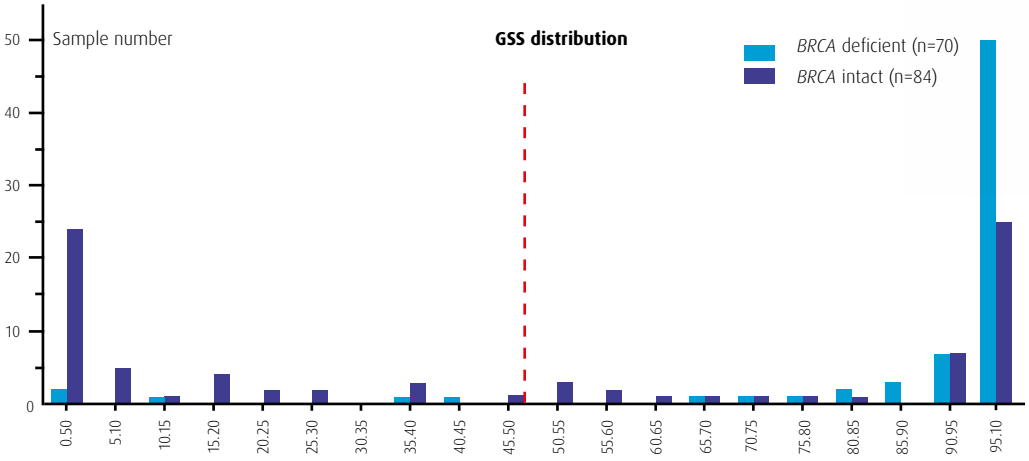
The HRR (homologous recombination repair) system plays an important role in the repair of double-stranded DNA breaks, which are a major cause of carcinogenesis. The loss of function of HRR genes such as *BRCA1* and *BRCA2* and the resulting inability of cells to perform DNA repair via homologous recombination (Homologous Recombination Deficiency, HRD) leads to a higher risk of tumor development in mutation carriers [1-5].

However, tumor patients with HRR mutations or HRD can benefit from a therapy with PARP inhibitors (PARPi) and platinum-based chemotherapy [6-7]. Stratification for PARPi therapy is performed by determining the HRD status and *BRCA1/BRCA2* mutation status.

▸ Intended Use of the Kit

The AmoyDx® HRD Focus Panel is an NGS panel for determining the HRD status of ovarian cancer patients. Thus, the Genomic Scar Score (GSS) and the *BRCA* status are evaluated. For *BRCA1/2* analysis, single nucleotide variants (SNVs) and insertions and deletions (InDels) in coding regions as well as exon/intron transitions are being sequenced. Isolated DNA from FFPE material can be used as the starting material.
The kit is intended for use by trained professionals in a laboratory setting.

© Amoy Diagnostics Co., Ltd.



Determination of the GSS of 154 ovarian and breast carcinomas with known *BRCA1/2* mutation or methylation status by the AmoyDx® HRD Focus Panel. The GSS shows high concordance with biallelic loss of *BRCA* (GSS High: ≥ 50; GSS Low: < 50).

154 samples		*BRCA1/2* mutation status	
		BRCA deficient	*BRCA* intact
GSS (Genomic Scar Score)	High (≥ 50)	65	42
	Low (< 50)	5	42
Total		70	84
Concordance (GSS High/*BRCA* deficient)		**92.86% (65/70)**	

Advantages of the AmoyDx® HRD Focus Panel

- Parallel determination of *BRCA1/2* mutation status and HRD status in a single analysis
- Flexible protocol with multiple stopping points: Library preparation within one to two days
- Local data analysis on the ANDAS (AmoyDx® NGS Data Analysis System)
- Successful in external quality proficiency tests

Molecular Pathology

NGS - HRD Focus Panel

ZYTOMED® SYSTEMS

Specifications of the AmoyDx® HRD Focus Panel

Regulatory status	CE/IVD
Covered genes/target regions	Coding regions and exon-intron transitions of the *BRCA1* and *BRCA2* genes and 24,000 SNPs
Genome coverage	~ 1.5 Mb
Suitable sequencing platforms	CE/IVD: Illumina NextSeq 550Dx®* RUO: Illumina NextSeq 500/550®, NovaSeq 6000®*
Sample material	DNA from FFPE tissue
DNA amount per sample	100 ng
Detected parameters/variants	HRD, *BRCA1/2*: SNVs, InDels
Sensitivity	5 % allele frequency
Data output per sample	4.0 Gb
Number of working days for library preparation	1
Technology	HANDLE
Data analysis	Local workstation with AmoyDx® Analysis Software (ANDAS)

* NextSeq 550Dx®, NextSeq 500®, NextSeq 550® and NovaSeq 6000® are registered trademarks of Illumina, Inc., 92122, San Diego, US

Product Information

Description	Amount	Format	Status	Order no.
HRD Focus Panel Detection of mutations in *BRCA1/BRCA2* and determination of a Genomic Scar Score (GSS) on DNA from FFPE tumor tissue to determine the HRD status	1 kit (20 tests)	Bulk	CE/IVD	ADX-HDNP03

Local Analysis of Sequencing Data and Determination of Genomic Scar Score (GSS) with the AmoyDx® NGS Data Analysis System (ANDAS)

Description	Status	Order no.
ANDAS (AmoyDx® NGS Data Analysis System) Package consisting of server (Dell OEM Ready PowerEdge Server with Linux CentOS operating system) and pre-installed ANDAS analysis software	CE/IVD	ANDAS-1

Literature

[1] Farmer H *et al.* Targeting the DNA repair defect in *BRCA* mutant cells as a therapeutic strategy. Nature 434:917-921, 2005

[2] Walsh CS. Two decades beyond BRCA1/2: Homologous recombination, hereditary cancer risk and a target for ovarian cancer therapy. Gynecol Oncol 137:343-350, 2015

[3] Lord CJ and Ashworth A. BRCAness revisited. Nat Rev Cancer 16:110-120, 2016

[4] Turner N *et al.* Hallmarks of 'BRCAness' in sporadic cancers. Nat Rev Cancer 4:814-819, 2014

[5] McCabe N *et al.* Deficiency in the repair of DNA damage by homologous recombination and sensitivity to poly(ADP-ribose) polymerase inhibition. Cancer Res 66:8109-8115, 2006

[6] Ray-Coquard I *et al.* Olaparib plus Bevacizumab as first-line maintenance in ovarian cancer. N Engl J Med 381:2416-2428, 2019

[7] Moore KM *et al.* QUADRA: A phase 2, open-label single-arm study to evaluate niraparib in patients with relapsed ovarian cancer in 4th or later line of therapy: results from the tBRCAmut subset. ESMO Congress 2519, 2018

Zytomed Systems GmbH | Anhaltinerstraße 16 | 14163 Berlin | Fon +49 30 804 984 990 | Fax +49 30 804 984 999 | info@zytomed-systems.de | www.zytomed-systems.de
Branch office Austria: Lagerstraße 1–5 | Bauteil 1/2. OG/Top 11 | 2103 Langenzersdorf | Fon +43 664 15 77 889 | info@zytomed-systems.de
ZytoMax Schweiz GmbH | Europaallee 41 | CH-8004 Zürich | Fon +41 79 965 68 67 | info@zytomax.ch | www.zytomax.ch