

# SOLID TUMOR TESTS HISTOPATHOLOGY & GENETICS

Detect&Act

Combined  
testing solutions  
to enhance patient  
outcomes



**MEDICOVER**  
GENETICS

## WHAT IS **SOLID TUMOR TESTS Detect&Act?**

### **DETECT**

Close to 20 million new cancer cases and 10 million deaths have occurred annually in recent years. Solid tumors represent approximately 90% of adult cancers, and millions of histopathology slides are analyzed each year, providing crucial information for cancer diagnosis and staging. In up to 40% of patients, complex genomic alterations are identified, which can serve as biomarkers to predict response to specific therapies and/or prognosis. Histopathological examination and genetic testing can determine the tumor profile and guide management and treatment plans.

### **ACT**

Characterizing the cellular and molecular changes in a solid tumor is critical for determining the treatment strategy, as customized treatment depends on the type, severity (stage), and specific genetic alterations in the tumor tissue. Genotype-directed therapy or genotype-matched clinical trials can significantly improve patient care and survival.

## WHO COULD **BENEFIT FROM THIS TEST?**

Patients who are diagnosed with a solid tumor and require a pathological and/or genetic test analysis.

## OUR **SOLUTION**

We provide both histopathology and molecular genetic analyses, with the flexibility to select either service individually or to combine them for a more comprehensive approach to diagnosis and treatment planning.

### **HISTOPATHOLOGY**

Microscopic examination of the tumor sample provides specific information about the type and stage of the tumor, its location and size, and if it has spread to other healthy parts of the body.

### **GENETIC TESTS**

Based on the histopathological findings, genetic analysis may be recommended. Your physician can choose from individual targeted-therapy tests, gene panels, or a single comprehensive gene panel.

## DIAGNOSTIC PROCESS

### Step 1: Biopsy

The tissue fragment is removed from the patient during surgery and sent to the laboratory for microscopic examination to determine the diagnosis.

### Step 2: Gross examination

The tissue is examined macroscopically and relevant fragments are sampled.

### Step 3: Conventional and complementary stainings

Hematoxylin and eosin (H&E) staining: to visualize overall cellular structure

Special stains: to visualize cell morphology, detect and localize subcellular components

Immunohistochemistry: to detect specific protein markers that support tumor classification, assessment of prognostic and predictive factors, and identification of biomarkers for targeted therapy

### Step 4: HER2 evaluation for breast and gastric cancers

HER2 levels are evaluated using silver in situ hybridization (SISH).

### Step 5: Pathology report

A report is delivered to the ordering physician summarizing the pathology.

## RECOMMEND ADDITIONAL HEREDITARY CANCER PANEL TESTING

### Step 6: Molecular diagnostic analysis of the tumor tissue

Based on the pathology findings, specific sequencing analysis may be recommended.

### Step 7: Final report with pathology and sequencing results

A final report is delivered to the ordering physician with a summary of all findings, treatment recommendations, and relevant clinical trials.

## MEDICAL GENETIC COUNSELLING

Medical genetic counseling is a critical component of the genetic testing process, available both pre- and post-test. Our genetic counselors conduct comprehensive family history assessments, explain the chosen testing methodology, its benefits, risks, and limitations, and provide guidance on result interpretation, management strategies, and recurrence risk. Counseling supports physicians in delivering informed care and helps patients and families make well-informed medical decisions.

Availability of genetic counselling services may vary by country. Please contact us to check for more information on access in your region.

# COMBINED DIAGNOSTICS

## Histopathology & targeted genetic testing

### Comprehensive solid tumor panel

DNA-based gene analysis, RNA-based gene analysis for rearrangement detection and splicing events, microsatellite instability (MSI), tumor mutational burden (TMB), and homologous recombination deficiency (HRD)

#### Breast carcinoma

- *BRCA1, BRCA2, ERBB2, PIK3CA, PTEN*
- Fusion gene(s): *NTRK1/2/3, RET*
- MSI

#### Colon carcinoma

- *BRAF, KRAS, NRAS, POLE*
- Fusion gene(s): *NTRK1/2/3, RET*
- *MLH1* promotor methylation
- MSI

#### Endometrial carcinoma

- *POLE, TP53*
- Fusion gene(s): *NTRK1/2/3*
- MSI

#### Gastrointestinal stromal tumors (GIST)

- *BRAF, KIT, NF1, PDGFRA, SDHA*
- Fusion gene(s): *FGFR1/2/3, NTRK1/2/3*
- MSI

#### Glioblastoma

- *IDH1, IDH2, TERT* promotor
- *MGMT* promotor methylation
- Fusion gene(s): *NTRK1/2/3*
- MSI

#### Melanoma

- *BRAF, KIT, NRAS*
- Fusion gene(s): *ALK, BRAF, NTRK1/2/3, RET, ROS1*
- MSI

#### Non-small cell lung carcinoma

- *BRAF, EGFR, ERBB2, KRAS*
- Fusion gene(s): *ALK, NTRK1/2/3, RET, ROS1*
- MSI

#### Ovarian carcinoma

- *BRAF, BRCA1, BRCA2*
- Fusion gene(s): *NTRK1/2/3, RET*
- MSI

#### Pancreatic carcinoma

- *BRAF, BRCA1, BRCA2, KRAS, PALB2*
- Fusion gene(s): *ALK, FGFR2, NTRK1/2/3, RET, ROS1*
- MSI

#### Prostate carcinoma

- *ATM, BRAF, BRCA1, BRCA2, CHEK2, FANCA, PALB2, RAD51D*
- Fusion gene(s): *NTRK1/2/3*
- MSI

#### Urothelial carcinoma

- *ERBB2, FGFR2, FGFR3, PIK3CA*
- Fusion gene(s): *NTRK1/2/3*
- MSI

#### Analysis of rearrangements

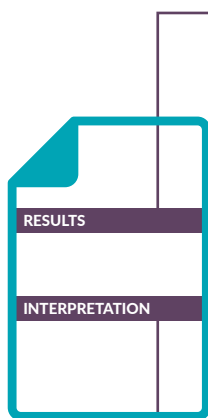
- Solid tumors in general
  - Sarcoma
- Please find the up-to-date list of fusion genes on [www.medicover-genetics.com](http://www.medicover-genetics.com).

## CHOOSING THE RIGHT TEST FOR YOUR PATIENT

We can discuss specific cases to help you differentiate between our tests and select the most appropriate one for your patient. We provide guidance during the entire diagnostic journey.

## WHAT ARE THE POSSIBLE OUTCOMES OF THE TEST?

A diagnostic report outlining the results of the histopathology and/or the sequencing results from genetic testing is provided.



### PATHOLOGY REPORT

Macroscopic and microscopic descriptions of the provided sample, results of all tests conducted, and conclusions based on the final histopathological diagnosis. Conclusions include classification of lesions, WHO disease code, and recommendations, with the suggestion to perform sequencing analyses included if necessary.

### SEQUENCING REPORT

Changes in DNA sequence (variants), including single nucleotide variants, copy number variants (only for comprehensive panel), and fusion genes, as well as tumor mutational burden and microsatellite instability, and the effect on carcinogenesis. Possible therapy options and clinical trials relevant to the patient's location will be listed.

### TARGETED-THERAPY ANALYSIS

Solid tumor panels and the comprehensive tumor panel are covered as part of the sequencing report where applicable.

**Targeted-therapy analysis** identifies specific genomic changes that are relevant to therapy with approved therapeutic products (targeted therapies).

**Solid tumor panels and comprehensive tumor panel** may identify additional genomic findings that are not prescriptive or conclusive for use of any targeted therapies. Use of these panels does not guarantee a patient will be matched to a treatment. A negative result does not rule out the presence of an alteration.

## TISSUE REQUIREMENTS

Tissue fragments from a biopsy:

- Stored in 10% formalin (stable for 24-72 hrs)
- Embedded in paraffin blocks (stored in dry and dark conditions)

## TURNAROUND TIMES

Histopathology analysis: 7-10 working days

Genetic analysis: 7-20 working days

## HOW TO ORDER?



Recommend Solid Tumor Testing to your patient



Collect the sample(s)



Send the sample(s) to **Medicover Genetics**



The sample(s) will be analyzed at **Medicover Genetics** laboratories



Results will be sent to you

## MORE QUESTIONS?

If you have additional questions or concerns, please contact us at [info.genetics@medicover.com](mailto:info.genetics@medicover.com)



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