Guide the path her cancer takes

Direct access to same-day-results
“We at Biocartis aim to provide direct access to personalized medicine for patients worldwide by developing fully integrated and broadly applicable molecular diagnostics. Our platform can be used in a wide variety of healthcare settings to enable rapid and high-quality care close to patients”

Rudi Pauwels, Founder Biocartis
The need for improved, standardized and fast diagnostics

Cancer can hit anyone at any time and treatment remains a real challenge. Because cancer doesn’t follow rules. It fights back against therapies. It adapts. It changes its path. It does whatever it can to stay ahead of us.

At the advanced edge of oncology, rapid access to accurate data about relevant cancer mutations and treatment resistance is vital and creates the opportunity for early disease interception, reducing the anxiety while waiting for results and the time before starting the best possible treatment.

Current technologies in molecular oncology are complex, require a lot of hands-on time and are often difficult to implement in the local laboratory. As a consequence, most laboratories do not perform molecular tests in-house, but send them out to specialized centers, where samples are batched in order to optimize costs.

This causes delay to the fast delivery of results, preventing rapid initiation of correct therapy. In the meantime the tumor grows, which is detrimental in case of aggressively growing cancers.

The need for a rapid treatment initiation response towards patients

Fast initiation of immunotherapy or targeted therapy as first-line treatment is crucial for cancer patients, as it increases overall survival rates. Timely detection of biomarkers therefore is very important.

Today, turnaround times of reference technologies are on average 18 days, with 14% of patients waiting longer than a month to be able to start treatment. Ninety-five percent of the patients have to wait more than a week in order to receive the biomarker results.

This means that precious time is lost whereas treatment initiation could have been started and unnecessary use of chemotherapy with its side effects could have been avoided.
Idylla™, the next level in disease interception

Idylla™, a fully automated, sample-to-result PCR based molecular diagnostics system, provides same-day results enabling physicians to make timely decisions on patients’ therapy.

Idylla™, with its compact scalable design and outstanding ease-of-use, overcomes the traditional barriers of molecular diagnostics, allowing it to be used in virtually any laboratory setting.

Idylla™, can be used with multiple sample types, including solid and liquid* biopsies. This flexibility allows use of the system for respectively diagnosis, and research or possibly future monitoring applications.

* Liquid biopsy currently available only for research applications
** e.g. deparaffinization for FFPE tissue samples
Idylla™ is the first and only molecular diagnostic system that combines

**FAST RESULTS**
- Less than 2 minutes hands-on time
- Short turnaround time - 40 to 150 minutes

**ACCURATE RESULTS**
- High sensitivity
- Highly standardized technology
- Contamination-controlled design

**SAMPLE VERSATILITY**
- For solid and liquid biopsy*

**MULTIPLEXING CAPABILITY**
- Detection of up to 51 relevant mutations in one cartridge
- Multiple genes and loci detection in one cartridge

**CONNECTIVITY**
- Remote assistance, monitoring and upgrading
- Bi-directional LIS

**EASE-OF-USE**
- Fully automated sample-to-result process
- Walk-away system (no need for any intervention during the automatic process)
- All reagents integrated in a single cartridge
- Only 1 manual step
- Storage and shipment at room temperature

**ACCESSIBLE**
- Access on demand - no need for pre-processing or batching

*Fully Automated Molecular Diagnostics
The revolutionary Idylla™ workflow

The Idylla™ system in combination with the Idylla™ Molecular Oncology Assays differs from other technologies in its outstanding ease-of-use, leading to an unsurpassed level of standardization, and its short turnaround time, allowing immediate access to therapy.

FFPE workflow

Sample loading

Automated processing & analysis

between 90 and 150 min

Pyrosequencing 90 - 150 min

Conventional PCR 1 Day

Pyrosequencing 2 Days

NGS 3-5 Days
Liquid biopsy* workflow

- Blood draw: 15 min
- Sample loading: between 85 and 130 min
- Automated processing & analysis

* Liquid biopsy currently available only for research applications

- Conventional PCR: 1 Day
- ddPCR: 1 Day
- Beaming: 3 Days
- NGS: 3-5 Days
## Instruments and consumables

### Other RT-PCR

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### Next generation sequencing

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### Pyrosequencing

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### Lab infrastructure

- **Other RT-PCR**: 1 room
- **Next generation sequencing**: 4 rooms
- **Pyrosequencing**: 4 rooms
Current oncology assays

**FFPE in - report out**

**Diagnostic products (CE IVD)**
- Idylla™ BRAF Mutation Test
- Idylla™ KRAS Mutation Test
- Idylla™ NRAS-BRAF Mutation Test
- Idylla™ NRAS Mutation Test
- Idylla™ EGFR Mutation Test

**Research products (RUO)**
- Idylla™ BRAF Mutation Assay
- Idylla™ KRAS Mutation Assay
- Idylla™ EGFR Mutation Assay
- Idylla™ NRAS-BRAF-EGFR S492R Mutation Assay

**Plasma in - report out**

**Research products (RUO)**
- Idylla™ ctBRAF Mutation Assay
- Idylla™ ctKRAS Mutation Assay
- Idylla™ ctNRAS-BRAF-EGFR S492R

Future oncology assay targets

**FFPE in - report out**
- MSI

**Plasma in - report out**
- ctNRAS-BRAF
- ctEGFR
Activating mutations in the \textit{BRAF} gene are observed in about 8\% of all cancers\textsuperscript{7} and have been associated with sensitivity and resistance to a number of targeted anti-cancer therapeutics.

Cancers in which \textit{BRAF} mutations are observed include: melanoma, colorectal cancer, thyroid cancer, lung cancer, hairy cell leukemia and ovarian cancer.

\textit{BRAF} testing is recommended in all patients with metastatic melanoma and metastatic colorectal cancer (mCRC). About 50\% of all metastatic melanoma patients harbor mutations in the \textit{BRAF} gene, making them eligible for \textit{BRAF} or \textit{BRAF}/MEK inhibitor therapy.\textsuperscript{8} In mCRC, \textit{BRAF} mutation status should be assessed alongside the assessment of tumor \textit{RAS} mutational status for prognostic assessment (the presence of a \textit{BRAF} mutation indicates poor prognosis). The prevalence of \textit{BRAF} in mCRC is about 8-15\%.\textsuperscript{9}

\begin{tabular}{l}
\textbf{DIAGNOSTIC PRODUCT}\\
\textit{Idylla™ BRAF Mutation Test (CE IVD)}\\
\textbf{BRAF}\\
\end{tabular}

\begin{itemize}
\item Diagnostic use
\item \textbf{Directly} on FFPE tissue sections (5-10µm) from \textbf{metastatic melanoma}
\item Qualitative genotype call
\item Mutation detection for \textbf{baseline treatment}
\end{itemize}

\begin{tabular}{l}
\textbf{RESEARCH PRODUCT}\\
\textit{Idylla™ ctBRAF Mutation Assay (RUO)}\\
\textbf{ctBRAF}\\
\end{tabular}

\begin{itemize}
\item Research Use Only, not for diagnostic use
\item \textbf{Directly} on 1 ml plasma
\item Semi-quantitative genotype call + \textbf{Cq} values
\item Applicable in multiple cancers harboring \textit{BRAF} mutations
\end{itemize}

\textit{Prof. B. Neyns, M.D., Ph.D}\\
Medical Oncology, UZ Brussels, Belgium

“The Idylla™ system has the potential to allow the start of targeted therapy within a time window of less than 24 hours following the diagnosis of metastasis, thereby saving precious time”
Idylla™ EGFR mutation detection on solid biopsy

Lung cancer is the most common cancer worldwide, contributing for 13% of all cancer types. 25 85% of lung cancers are non-small cell lung cancers (NSCLC), of which histologically adenocarcinoma is the most prevalent. 26

EGFR mutations are mainly observed in lung cancer.

EGFR mutation testing in exons 18-21 is recommended in all patients with advanced NSCLC of a non-squamous subtype. Activating mutations in the EGFR gene have been associated with sensitivity and resistance to a number of targeted anti-cancer therapeutics. 11, 17

Exon 19 deletion and exon 21 (L858R, L861), exon 18 (G719X), and exon 20 (S768I) mutations are associated with sensitivity to TKI’s. Exon 20 insertion mutation may predict resistance to TKI’s. EGFR T790M mutation is the main cause of acquired resistance to TKI therapy and has been reported in about 55% of patients with disease progression after initial response to 1st or 2nd generation TKI’s. 11, 17

The prevalence of EGFR mutations in NSCLC adenocarcinomas is 10-15% of Western and up to 50% of Asian patients. Sensitizing EGFR mutations are predictive for response to EGFR tyrosine kinase inhibitors. 11, 17, 21

Diagnostic use

Idylla™ EGFR Mutation Test (CE-IVD)

Diagnostic use

Diagnosis

51 EGFR mutations in exons 18, 19, 20, 21

Sample-to-result: approx. 150 min

Hands-on time: <2 min

Directly on 1 FFPE tissue section (5µm) from metastatic non-small-cell lung cancer

Qualitative genotype call + Cq values

Mutation detection for treatment assessment

Prof Giancarlo Troncone
University of Napoli Federico II, Naples

* Today, EGFR testing is a cumbersome process and it often takes several weeks before results are analyzed. This may lead to the administration of anti-EGFR therapy as second-line agents, which is less efficient than their use in first-line therapy. The Idylla™ EGFR Mutation assay technology has the potential to change that: it is a cost-effective solution, ensuring reliable and fast detection of all relevant mutations.*
Activating mutations in the RAS genes are observed in 9-30% of all cancers and have been associated with sensitivity and resistance to a number of targeted anti-cancer therapeutics.\textsuperscript{12} Cancers in which KRAS mutations are observed include: colorectal cancer, lung cancer and pancreatic cancer.

According to ESMO\textsuperscript{9}, NCCN\textsuperscript{14}, ASCO\textsuperscript{16} and CAP/AMP/ASCO guidelines\textsuperscript{15}, genotyping of clinically actionable mutations at a sensitivity of 5% in RAS genes exon 2 (codons 12 and 13), exon 3 (codons 59 and 61) and exon 4 (codons 117 and 146) is now mandatory on tumor tissue (either primary or metastasis) of all metastatic colorectal cancers, since the presence of these mutations correlate with the lack of response to certain anti-EGFR antibody therapies\textsuperscript{9}. About 46% of all metastatic colorectal tumors harbor mutations in exons 2, 3 and 4 of the KRAS gene.\textsuperscript{13}

Several studies are ongoing to define the predictive impact of KRAS mutations on therapy decision for non-small-cell lung cancer (NSCLC) patients\textsuperscript{18,19,20}. Currently there is evidence that KRAS in lung cancer has a prognostic value, indicating poor survival for patients with NSCLC, compared to the absence of KRAS mutations.\textsuperscript{11}

Using liquid biopsies for KRAS testing is minimally invasive, fast and easy to perform and provides an excellent solution to study the presence of KRAS mutations in different cancer types.
Activating mutations in the RAS genes are observed in 9-30% of all cancers and have been associated with sensitivity and resistance to a number of targeted anti-cancer therapeutics.12 Cancers in which NRAS mutations are observed include colorectal, lung, thyroid cancers and melanoma. According to ESMO9, NCCN14, ASCO16 and the CAP/AMP/ASCO guidelines15, genotyping of clinically actionable mutations at a sensitivity of 5% in RAS genes exon 2 (codons 12 and 13), exon 3 (codons 59 and 61) and exon 4 (codons 117 and 146) is now mandatory on tumor tissue (either primary or metastasis) of all metastatic colorectal cancers, since the presence of these mutations correlate with the lack of response to certain anti-EGFR antibody therapies9. About 5% of all metastatic colorectal tumors harbor mutations in exons 2, 3 and 4 of the NRAS gene.13

In metastatic colorectal cancer BRAF mutation status should be assessed alongside the assessment of tumor RAS mutational status for prognostic assessment (the presence of a BRAF mutation indicates poor prognosis). Using liquid biopsies for NRAS testing is minimally invasive, fast and easy to perform and provides an excellent solution to study these mutations in different cancer types and lesions. Recent research data23,24 suggest that in about 16% of patients, mutations may develop in codon 492 of the EGFR gene as a mechanism of resistance, to the anti-EGFR antibody therapies such as cetuximab.
Idylla™ Connect
Engage in the future

Advanced services to ensure continuity in your laboratory workflow

Automatic software updates
New releases of assay and console software are sent to your Idylla™ console and can be installed with a single touch on the screen.

Immediate and remote service and support
Idylla™ system parameters and error logs can be analyzed at anytime and anywhere to ensure swift actions and solutions.
More insight into your data with Idylla™ Explore

Get connected and enjoy the advantages of Idylla™ Explore, a web-based application that allows you to analyze your data by providing:

- Visualization of PCR curves from Idylla™ Test Results
- Cq values per target
- Direct Access to Console result reports

Idylla™ Explore can be accessed anywhere and anytime from your PC or tablet through the following link: https://idyllaexplore.biocartis.com

Subscribe today and join the Idylla™ Explore community by sending an email to explore@biocartis.com
Custom-made solutions
Biocartis offers personalized solutions that fit your individual needs

- Create a network between different Idylla™ User sites and share data and knowledge
- Direct access to your data for building your own solution
- Statistical analysis on your obtained data
- Monitoring: Follow-up of your data over time
- Disease surveillance or diagnostic grid: linking of real-time molecular diagnostic test data to geo-location and sample data
Join the investigation

There’s a clear need for improved, standardized and fast diagnostics that allow faster initiation of targeted therapy for cancer patients.

Idylla™, Biocartis’ fully automated molecular diagnostics system, is the first and only molecular diagnostic system that combines unsurpassed ease-of-use, speed and accuracy on multiple sample types. With its compact, scalable design and outstanding ease-of-use, Idylla™ overcomes the traditional barriers of molecular diagnostics, allowing it to be used in virtually any laboratory setting.

And by providing same-day-results, Idylla™ enables physicians to make timely decisions on patients’ therapy.

Idylla™, the next level in disease interception.
# Idylla™ order information

## Diagnostic Products (CE-IVD)

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REFERENCES

6. Accès aux tests moléculaires EGFR, RAS et BRAF /Résultats d’une enquête dans 5 régions françaises, appui à la décision, INCa, janvier 2016.
24. Newhall K., Frequency of S492R Mutations in the Epidermal Growth Factor Receptor: Analysis of plasma DNA from Metastatic Colorectal Cancer Patients Treated with Panitumumab or Cetuximab Monotherapy. 16th World Congress on Gastrointestinal Cancer, Barcelona, Spain 2014.
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Idylla™ NRAS Mutation Test, Idylla™ NRAS-BRAF Mutation Test, Idylla™ NRAS-BRAF-EGFR S492R Mutation Test and Idylla™

ctNRAS3 Mutation Assay

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IMPORTANT INFORMATION

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