LymphoVista

Europe's first validated ctDNA-MRD Platform for Lymphomas

LoD 6.69 × 10^{-6} · Sensitivity 93.86% · Specificity 99.99%

LIQOMICS provides highly sensitive in-house IVD tests for genotyping and monitoring minimal residual disease (MRD).

LymphoVista is a liquid biopsy platform that uses next-generation sequencing of circulating tumour DNA (ctDNA) from blood samples to detect and quantify MRD in lymphoma patients. Based on disease-specific gene panels and duplex barcoding to suppress errors, the platform enables both tumour genotyping and longitudinal ctDNA-MRD monitoring with a limit of detection in the range of 10^{-6}.

The platform comprises two clinically validated assays: **LymphoVista** for B-cell lymphomas (LBCL, FL, MCL, Burkitt lymphoma, mantle cell lymphoma, central nervous system (CNS) lymphomas, and others), and **LymphoVista HL**, which is specifically optimised for Hodgkin lymphoma. This technology originated from translational research at the University Hospital Cologne and the German Hodgkin Study Group (GHSG). Key studies have been published in the Journal of Clinical Oncology, Blood, and Med, and presented at ASH-, EHA-meetings and ISHL.

Which patients benefit from LymphoVista ctDNA-MRD Testing?

Any patient who:

- is undergoing cancer treatment,
- is in remission/has survived cancer and needs to be monitored,
- has been diagnosed with cancer, as a supplement to conventional biopsies and imaging procedures.

Clinical Use Scenarios

Indication / Setting	Clinical Role of LymphoVista
LBCL / End of treatment (EOT)	Identifying ctDNA-MRD positivity helps determine which patients are at high risk of relapse, supporting decisions on whether to escalate treatment or continue surveillance.
LBCL / PET-positive EOT	MRD negativity may lead to an observation strategy rather than invasive diagnostics and further treatment, thereby preventing overtreatment. (NCCN Version 1.2025; December 2024). LymphoVista complies with the NCCN guidelines.
Aggressive lymphomas including HL / Interim	ctDNA-MRD negativity predicts favourable outcomes and supports personalised therapy (de-escalation or escalation).
Hodgkin lymphoma / EOT	ctDNA-MRD clarifies ambiguous PET-positive results and helps to inform decisions about radiotherapy.
CNS Lymphoma	ctDNA-MRD can clarify ambiguous MRI findings and assist in decision-making regarding radiation therapy when a repeat biopsy is not possible. Post-induction MRD can identify patients at very high risk of relapse, as opposed to those who are likely to respond well to treatment. This supports the personalisation of treatment based on MRD.

NCCN Guidelines (Version 1.2025; December 2024): LBCL
If the PET scan is positive at the end of initial treatment, a repeat biopsy should be considered. Instead of an invasive biopsy, a ctDNA-MRD test may be considered. If the result is negative, treatment can proceed as in the case of a negative PET scan, without the need for an invasive biopsy.

ctDNA-MRD Test Principle

Genotyping (Initial Test)

A blood or tissue sample, taken either before or at the start of treatment, is used to identify tumour mutations specific to the patient. This establishes an individualised molecular fingerprint that is used as the reference for all subsequent MRD measurements.

MRD Monitoring

Follow-up blood samples are analysed to quantify residual disease levels by identifying previously detected mutations. Serial measurements allow treatment response to be tracked over time.

Test Procedure

Phase 1 – Baseline Profiling

1. Sample collection
A primary blood sample or, alternatively, tissue taken before or at the start of treatment is dispatched to LIQOMICS.

2. Next Generation Sequencing (NGS)
DNA extraction and duplex NGS of germline (gDNA) and cell-free (cfDNA) DNA.

3. LIQOMICS Bioinformatics
- Exclusion of clonal haematopoiesis of indeterminate potential (CHIP).
- Identification of tumour-derived somatic variants.

4. Baseline report
Delivery of a patient-specific genomic tumour profile, actionable molecular targets and ctDNA load, plus an individual medical interpretation of relevant variants.

Phase 2 – Longitudinal Monitoring

1. Follow-up sample
Serial blood samples collected at scheduled clinical intervals; dispatched to LIQOMICS.

2. cfDNA analysis by NGS
DNA extraction and duplex NGS of cfDNA to track the identified patient-specific tumour signature.

3. LIQOMICS Bioinformatics
- Calculation of MRD value from persistence of baseline tumour variants
- Genomic profiling of tumour

4. Monitoring Report
Quantitative MRD results are delivered for tracking treatment response, tumour progression or the early detection of molecular relapse, plus an individual medical interpretation of relevant variants.

Technical Specifications

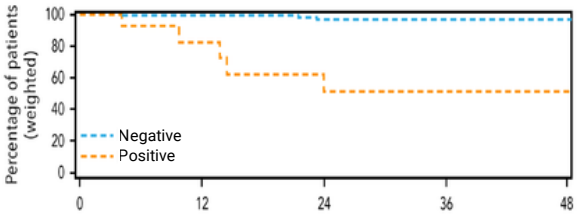
Parameter	LymphoVista	LymphoVista HL
Indication	B-cell lymphomas (LBCL, FL, MCL, MZL, Burkitt, CNSL, and others)	Hodgkin lymphoma
Sensitivity of variant detection (≥0.5% mAF)	93.86%	91.27%
Specificity of variant detection	99.99%	99.99%
MRD limit of detection	6.69×10^{-6}	6.54×10^{-6}
Sample material	20 mL blood in cfDNA tubes	
Turnaround time	10–15 working days after sample reception	

Clinical Evidence

The LymphoVista platform has been evaluated in multiple clinical studies involving various types of lymphoma. The following sections summarise the key findings that demonstrate the clinical benefits of using LymphoVista for ctDNA-based MRD assessment.

1. Hodgkin Lymphoma – LymphoVista HL

In patients treated with BrECADD, LymphoVista HL was able to differentiate between responders and non-responders with notable accuracy after just two cycles of treatment. Approximately 97 out of 100 patients with a negative MRD result remained free of disease progression at four years. In contrast, the majority of MRD-2-positive patients experienced relapse despite receiving the most effective available regimen. These patients may benefit from an early switch to alternative treatment strategies. ctDNA-based MRD assessment can thus help identify patients who remain at elevated risk of relapse despite receiving optimal standard-of-care therapy.



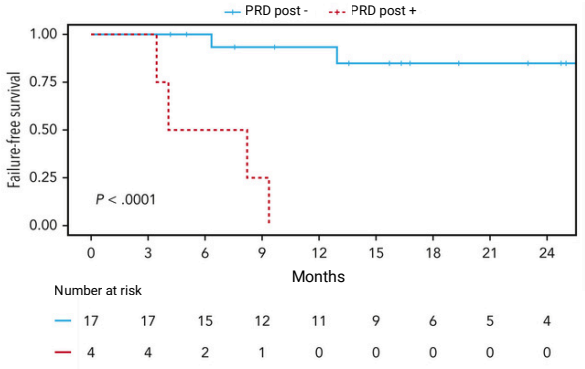
4-year PFS: 97.4% vs. 52.0 %, HR 25.4 (95% CI 12.5-51.7), p < 0.0001

Study: Clinical validation in 62 patients from the GHSG HD21 trial (BrECADD vs. eBEACOPP in advanced-stage HL). Case-cohort design; median follow-up 50 months [1;5;9].

Key Findings (BrECADD subgroup, n = 32, weighted analysis): In patients treated with BrECADD, 4-year PFS was 97.4% for MRD-2-negative patients compared with 52.0% for MRD-2-positive patients (HR: 25.4; 95% CI: 12.5–51.7). The prognostic effect was numerically more pronounced in the BrECADD subgroup than in the eBEACOPP subgroup. These data suggest that MRD-2-positive patients receiving BrECADD are insufficiently responding despite the use of the most effective regimen, and may be candidates for early incorporation of alternative treatment strategies.

2. CNS Lymphoma, Peripheral Residual Disease (PRD)– LymphoVista

CNS lymphomas are located in the brain, where repeated biopsies are difficult and conventional imaging (MRI) often fails to distinguish clearly between active tumour and treatment-related changes. LymphoVista can detect tumour-derived DNA in the bloodstream and identify patients who still have residual disease after treatment. All patients with residual disease experienced relapse, whereas those who cleared the disease from their blood had a substantially better prognosis.

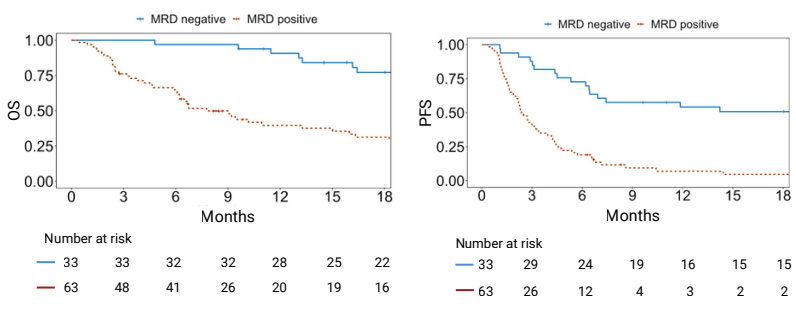


Study: 67 patients with primary or secondary CNS lymphoma. Development and independent validation of the Molecular Prognostic Index for CNSL (MOP-C) [3].

Key Findings: Patients with persistent peripheral residual disease (PRD) after induction treatment had a 2-year failure-free survival rate of 0%, compared to 84.9% for those who achieved PRD negativity ($p < 0.0001$). MOP-C (www.mop-c.com), a calculator that integrates clinical risk factors with ctDNA-derived molecular data, outperformed the established IELSG score as a prognostic tool (hazard ratio (HR) 6.60 vs. 2.64 per risk group; $p < 0.0001$). Tumour-agnostic genotyping from plasma was feasible in 83.6% of patients.

3. Relapsed/Refractory Large B-Cell Lymphoma — LymphoVista

In patients whose lymphoma returned after initial treatment, the blood test could distinguish between those responding to their new therapy and those who were not. Among patients with no detectable tumour DNA in their blood, around three out of four were still alive after 18 months, compared to one in three among those with detectable tumour DNA. The degree of tumour DNA reduction also provided additional information about how well the treatment was working.



18-months overall survival

18-months progression free survival

Study: 88 patients with relapsed or refractory large B-cell lymphoma (LBCL); 326 samples across 131 treatment lines. Serial ctDNA-MRD monitoring with LymphoVista (presented at EHA 2024) [4].

Key Findings: 18-months overall survival (OS) was 77% in MRD-negative patients versus 33% in MRD-positive patients (hazard ratio (HR): 4.61; 95% confidence interval (CI): 2.38–8.92; $p < 0.0001$). 18-month progression-free survival (PFS) was 51% in MRD-negative patients versus 5% in MRD-positive patients (HR: 4.32; 95% CI: 2.46–7.61; $p < 0.0001$). Quantitative MRD response (log-level reduction) enabled further differentiation of risk categories.

MRD-Driven Landmark Decisions In Lymphoma

Landmark	Clinical Role & Key Data	Decision Support
DIAGNOSIS	**Baseline Sample & Genotyping** Samples of blood or tumour tissue obtained before treatment enable the identification of tumour-specific mutations for longitudinal ctDNA-MRD tracking. Genotyping provides biological classification, risk stratification and a personalised molecular fingerprint.[1, 2]	Essential baseline for all lymphoma subtypes.
MID-THERAPY (INTERIM)	**Early Response Prediction** MRD negativity predicts favorable outcomes; enables therapy de-escalation. Persistent MRD-positivity predicts high failure risk. HL: 95% (MRD-negative) vs. 52.0% (MRD-positive); HR 25.4 (95% CI 12.5 - 51.7); p < 0.0001.[5]	MRD-positive: high risk; consider intensification. MRD-negative: favorable prognosis; consider de-escalation.
END OF TREATMENT	**Response Assessment & Relapse Risk Stratification** In LBCL, MRD positivity at EOT is a strong predictor of relapse. MRD negativity clarifies imaging if PET remains positive (NCCN Version 1.2025; December 2024).[4]. In HL: MRD clarifies ambiguous PET+ findings and is prognostic in PET-2+ patients.[2]. CNSL: ctDNA-based MRD monitoring clarifies ambiguous MRI results.[3]	MRD-positive at EOT: escalation or serial monitoring. MRD-negative at EOT: supports observation.
CONSOLIDATION / 2L THERAPY	**Selection Biomarker & Response Assessment** MRD identifies patients who might benefit from consolidation or second-line (2L) therapy, while ctDNA provides an early indication of efficacy in real time. r/r LBCL LymphoVista-based MRD: 18-month overall survival (OS) 77% vs. 33% (hazard ratio (HR) 4.61); 18-month progression-free survival (PFS) 51% vs. 5% (HR 4.32). [4] MRD negativity at any timepoint: OS HR 4.79; PFS HR 4.45 (both p<0.01). MRD can serve as a surrogate endpoint to enable faster evaluation of clinical trials.	All Lymphomas, Particularly r/r LBCL.
FOLLOW-UP / SURVEILLANCE	**Early Relapse Detection & Clonal Evolution Tracking** Serial ctDNA testing can detect relapse significantly earlier than imaging can, enabling intervention at a low disease burden. rrLBCL: Phylogenetic ctDNA analysis revealed diverse clonal and subclonal populations with distinct trajectories, identifying relapse-driving subclones. Integrating clonal dynamics could further enhance treatment strategies.[8]	MRD-positive: earlier intervention. Clonal tracking informs treatment strategy.

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About LIQOMICS

LIQOMICS GmbH is a diagnostics company based in Cologne that provides highly sensitive in-house IVD tests for genotyping and monitoring minimal residual disease (MRD). The company developed the first validated circulating tumour DNA (ctDNA)-MRD platform for lymphomas in Europe. This technology originated from translational research conducted at the University of Cologne.

Platforms: LymphoVista · CancerVista

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