Glyco Liver Profile

The next generation in non-invasive liver diagnostics

INFLAMMATION • FIBROSIS • CIRRHOSIS • HCC
The Glyco Liver Profile is a unique, non-invasive test that provides the clinician with a full picture of liver health regardless of aetiology — all from a single blood sample.

Streamline and reduce costs
A single kit and serum sample allows you to consolidate screening — reducing time, life costs and complexity for your clinic, laboratory and patients.

Stratify patient care
Our intuitive four-index results allows you to easily identify and manage patients early with a sensitive, specific and comprehensive profile.

Predict and save lives
A proven and accurate prognostic method that provides automated, long-term patient assessment for a more complete and consistent picture of disease progression.

Complete picture of chronic liver disease progression

Classifying liver disease
The Glyco Liver Profile enables the stratification of patients according to a full range of hepatic categories.

Inflammation
Able to detect hepatic inflammation which drives fibrosis and cirrhosis. Can help the hepatologist differentiate between steatosis and steatohepatitis.

Fibrosis
Clearly defines the level of liver fibrosis. The Fibrosis Index provides results in a METAVIR stage score (F1-F4).

Cirrhosis
The Cirrhosis Index can detect the absence or presence of cirrhosis, discriminating between compensated and decompensated forms.

Hepatocellular carcinoma (HCC)
The Glyco Liver Profile is able to detect patients with chronic liver disease who are at high risk of developing HCC within 5 years.
**Clinical glycomics offers a direct, measurable insight into liver health**

Glycomics is the study of glycans – polysaccharide structures found on secreted and membrane bound glycoproteins. Their main roles include the maintenance of cell structure, molecular signalling, protein folding and cell recognition as well as a host of other functions. Serum glycoproteins are predominantly manufactured within hepatocytes, so changes to the expression of specific circulating N-glycans can provide a complete picture of liver health.

**Glycan biomarkers provide four clear, accurate results**

The Glyco Liver Profile builds a comprehensive picture of liver damage by selecting and measuring the four specific N-glycans shown above, and calculating ratios between them to produce four results:

- **Inflammation Index**
  - Detects hepatic inflammation, the key driver of hepatocyte damage
- **Fibrosis Index**
  - Detects and measures fibrotic change (METAVIR F1-F4)
- **Cirrhosis Index**
  - Detects and discriminates between compensated and decompensated cirrhosis
- **Prognostic (HCC) Index**
  - Defines the risk of HCC development within five years

**Provides a complete patient monitoring tool**

A single venous blood test offering a cost-effective alternative to expensive biopsy

- Normal range cutoff available for simple screening
- Rule out patients without inflammation
- Detect inflammation
- No interference from coexisting fibrosis
- Discriminate between NAFLD and NASH
- Determine and stage the levels of fibrosis
- Monitor patient progression
- Provides a holistic image of liver fibrosis

**Clinical findings**

- **Normal Liver**
  - Results show normal liver pathophysiology. Hepatocytes are uniform in size and distributed evenly. Lipid content is less than 10%. No external drivers of hepatic inflammation are present, and no direct damage is apparent.

- **Inflammation**
  - Excess uptake of lipids into hepatocyte vacuoles is typical in NAFLD, driving steatohepatitis. Galactosylation of immunoglobulin bound glycans is inhibited. When correlated to hepatocyte regeneration, inflammation can be identified.

- **Fibrosis**
  - Inflammation facilitates hepatocyte death. Collagen replaces tissue that is unable to regenerate, resulting in fibrosis around hepatocellular nodules. Regenerating hepatocytes have altered enzymic activity resulting in modified glycan metabolism.

- **Cirrhosis**
  - In this example extensive fibrosis has occurred, altering the structure of the liver and impairing function. Vascular occlusion and bile duct blockage are common occurrences resulting in oesophageal varices and jaundice.

- **HCC**
  - Progression to fibrosis and cirrhosis can be directly linked to the five year risk of developing hepatocellular carcinoma. Patients can be split into high and low risk groups by correlating the cirrhotic N-glycan markers, NA2FB and NA3.
A complete patient assessment tool on one screen

**Sample preparation**
Proteins are denatured and treated allowing enzymes to reach glycosylation sites. Specific enzymes release glycans for analysis, which are then labelled allowing visualisation.

**Capillary electrophoresis**
Samples are loaded onto the fully automated V8 Nexus for separation. CZE is a powerful analytic technique separating sample components based upon the difference in their mass to charge ratio.

**Sample results**
Resulting electropherograms focus specifically on four key N-glycans. All information is detected, measured and compared automatically using Platinum 5 software.

**Monitoring**
This non-invasive test allows for the patient to be assessed at regular intervals in order to monitor the disease in conjunction with treatment strategies.

Patient results can be displayed in a simple, user-friendly grid view for an at-a-glance overview of the patient’s progression and response to treatment.

**Liver profile indices**
- **Inflammation**
  Provides a linear correlation to the progression of disease and can distinguish between NAFLD and NASH.
- **Fibrosis**
  The Fibrosis Index provides details on the level of fibrosis and correlates to staging scores defined by the METAVIR system.
- **Cirrhosis**
  Results will determine the presence of cirrhosis and differentiates between compensated and decompensated forms.
- **HCC Risk**
  The software will additionally provide a prognostic risk indication for the development of hepatocellular carcinoma.

**Complementary information**
The software uses existing data and demographics from within its database together with additional data from the laboratory’s information management systems to calculate scores such as NAFLD, BARD and FIB-4.

**Demographics**
Connects to your laboratory LIS for a fully integrated workflow.
Glycomics-based biomarkers are a new tool for clinicians. The Glyco Liver Profile provides a reliable marker for early diagnosis of cirrhosis and for risk stratification of hepatocellular carcinoma development. These are essential tools for the development of personalised medicine.

Doctor Xavier Verhelst, Hepatologist at UZ Ghent

The Glyco Liver Profile is available at hundreds of labs worldwide.

V8 NEXUS: a versatile, multi-analyte platform

Glyco Liver Profile is the newest addition to Helena Biosciences’ V8 NEXUS analytical portfolio. With a widely established global install base, V8 NEXUS provides clinicians with a broad menu of clinical tests for blood sciences laboratories.

High-throughput non-invasive liver test

V8 NEXUS delivers the high performance automation required for a dedicated liver testing laboratory. With intuitive touchscreen software and simple connectivity to laboratory systems, it is the ideal platform for a low-cost, efficient workflow.

Learn more about clinical glycomics

Our Glyco Liver Profile website is continually updated with new information and educational material relating to clinical glycomics, including videos, research papers and more.