RESEARCH SNAPSHOT

Direct Detection of Liver Injury (DILI)

Without PCR. On Standard Clinical Platforms.

Destina Genomica

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Based on the 2025 publication in the British Journal of Clinical Pharmacology:
"Dynamic chemical labelling allows the measurement of the paracetamol toxicity biomarker microRNA-122 in hospital clinical laboratories"
Alzeer et al., Br J Clin Pharmacol. 2025; 1–7.

The Breakthrough

Historically, measuring **miR-122**—the most specific biomarker for Drug-Induced Liver Injury (DILI)—required complex, time-consuming PCR workflows. This study validates a new approach: using **Destina's Dynamic Chemical Labelling (DCL)** to measure miR-122 directly on standard **Luminex® xMAP®** instruments.

The Result: Genomic-level sensitivity with the speed and simplicity of an immunoassay.

92.6%	89.4%	0.96
SENSITIVITY	**SPECIFICITY**	**AUC SCORE**
(95% CI: 76.6–98.7%)	(95% CI: 68.6–98.1%)	(Excellent Diagnostic Accuracy)

The Challenge: The "Blind Spot"

Paracetamol (acetaminophen) overdose is the leading cause of acute liver failure in the West.

- **Current Standard (ALT):** Rises too slowly. By the time ALT signals injury, significant damage may have already occurred.
- **The qPCR Barrier:** While miR-122 is a superior early marker, qPCR is expensive, slow, and requires specialized staff/equipment, making it unsuitable for rapid hospital triage.

The Solution: LiverAce™ Technology

Destina's platform-agnostic chemistry enables the **direct detection** of RNA.

- **PCR-Free:** No RNA extraction or enzymatic amplification required.
- **Hospital Ready:** Runs on existing Luminex instruments found in clinical labs globally.
- **Rapid Turnaround:** Potential for results in ~1 hour.

Clinical Validation Data

The study analyzed serum samples from 38 participants (19 confirmed DILI patients vs. 19 healthy controls).

Differentiation Power:
The assay clearly distinguished toxic liver injury from healthy baselines with high statistical significance ($p < 0.0001$).

- **DILI Patients Median:** 233.4 pg/mL
- **Healthy Control Median:** 15.2 pg/mL

Why This Matters for VCs & Pharma

This validation proves that high-value genomic biomarkers can be decentralized from specialized labs to standard hospital settings. This unlocks a massive market for **Point-of-Care (POC)** and rapid triage diagnostics, reducing drug development costs and improving patient safety.

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