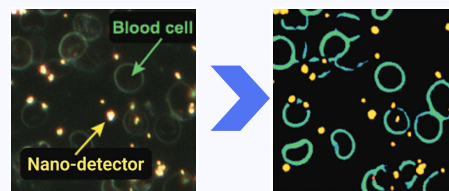


Software-defined digital immunoassays

Ilytica converts a simple homogeneous nanoparticle reaction into a high-information digital measurement—using imaging and end-to-end AI to quantify biomarkers while filtering the errors that make testing outside the lab unreliable.

THE IMAGE BECOMES THE READOUT



RAW WHOLE-BLOOD IMAGE

ML-ISOLATED REPORTERS

Full-image analysis preserves sample context while separating true signal from artifact.

Move complexity out of fluidics and sample handling—and into optics, data, and software.

A SIMPLE, SOFTWARE-DEFINED WORKFLOW

Microliter sample • single 30-minute incubation • no wash or separation demonstrated



Why Ilytica is different

- 1 Information-rich, not information-lossy.** Traditional assays compress a sample into a bulk average. Ilytica resolves individual reporters and spatial context, preserving signal that conventional readouts discard.
- 2 Error tolerance by design.** Models can discount dust, bubbles, blood cells, defocus, meniscus distortion, and other real-world variability that would otherwise be inseparable from signal.
- 3 End-to-end assay intelligence.** A modified ResNet maps raw images directly to concentration using a single label—the known analyte concentration—without hand-selected features or pixel-level annotation.
- 4 Tunable and extensible.** Sensitivity scales with particle count, monodispersity, and model discrimination toward the Poisson limit; the approach can extend across biomarkers and reporter classes.

Peer-reviewed proof points

5.2 ng/mL

DETECTION LIMIT

3.5 logs

DYNAMIC RANGE

30 min

MIX-TO-ANSWER

96.1 / 90.0%

SPECIFICITY / SENSITIVITY

Anti-SARS-CoV-2 IgG benchmark. Classification was evaluated in 56 clinical serum samples; the quantitative model used a separate titration dataset.

Whole-blood CRP: 5.03% inter-day CV and >30× wider range than bulk colorimetry.

ELISA quantitation, without the ELISA workflow

BENCHMARK	ILYTICA PoC	ELISA	LFA
Sensitivity (ng/mL)	5.2	0.3	48
Dynamic range (orders)	3.5	3.9	1.0
Whole-blood preprocessing	No	Yes	Yes
Time to answer	30 min	180~300 min	~30 min*

*LFA benchmark was quantified with a laboratory scanner.

PLATFORM ADVANTAGE One reader can support partner assay transfer, co-development, and selected Ilytica-owned tests across POC, home, field, and decentralized trials.

DEFENSIBILITY Global IP spanning assay digitization and error correction, dynamic-range enhancement, and ML strategies for diagnostic error tolerance.