Parallel Fluidics × opentrons

Automated LNP Formulation on the Opentrons Flex

The LNP Screening Array formulates LNPs directly on the Opentrons Flex. Reagent handling, LNP formation, and sample collection run as one automated method, so the entire screen stays on deck.



50×
Faster than dedicated LNP instruments, with time per formulation reduced to seconds

100+
Formulations per hour, across more lipid and cargo candidates

<50 µL
Dead volume per micromixer to conserve scarce reagents

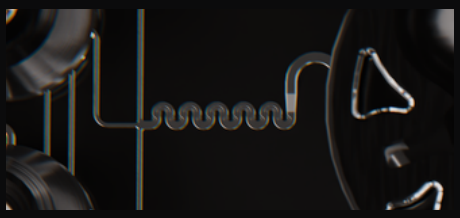
WORKFLOW

Formulate LNPs in three automated steps



1 Load

Pipette tips seal to the pipette interfaces and deliver the lipid and aqueous phases.



2 Formulate

Both phases combine in each micromixer at a 3:1 flow rate ratio.



3 Collect

Each formulation collects in its own anti-backflow reservoir on the LNP Screening Array.

PERFORMANCE

Get reproducible particle size across runs and days

55 nm
Mean Z-average diameter
Screening-ready LNPs formed on deck and collected for downstream processing

0.12
Mean PDI
Uniform LNPs give every candidate a consistent baseline for in vitro testing

1.9%
CV in particle size
Reproducible size, so differences between candidates reflect the formulation

SPECIFICATIONS

Format	SLAS microplate	Pipette	Flex 8-Channel Pipette (1–1000 µL)
Micromixers	8	Tips	Flex 1000 µL filtered tips
Output volume	100 to 1000 µL	Deck position	Any of 12 deck slots
Dead volume	<50 µL	Protocol	Opentrons Protocol Library

Start screening on your Flex

Evaluate with your own formulations. We help set up the protocol and support your first run on site.

Request an Evaluation →

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