nanomake-L™

Microfluidic platform for nanoformulations

AmAr™ BIOSYSTEMS

APPLICATIONS

nanomake-L™ has a wide range of applications in

- Polymeric nanoparticles
- mRNA lipid nanoparticles
- Drug loaded nanoparticles
- Emulsions

FEATURES

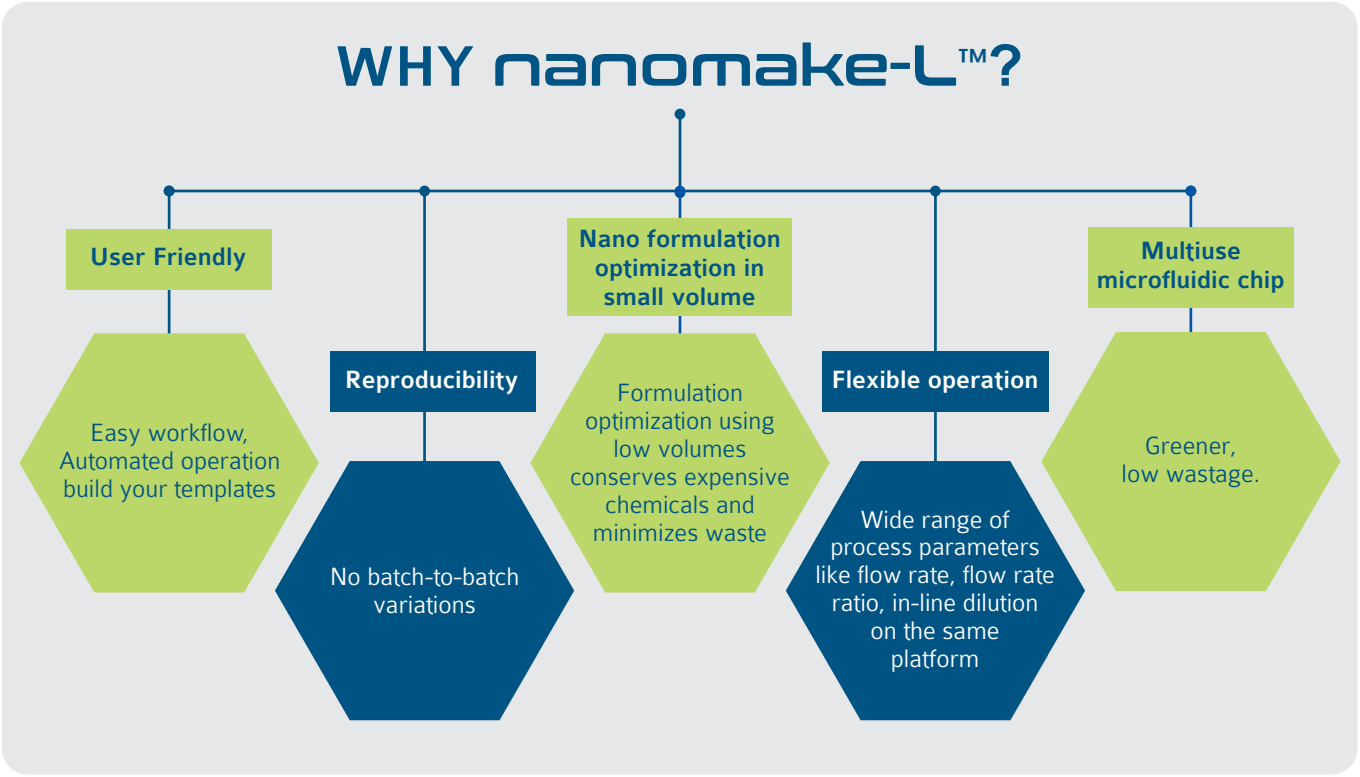
- Fully automated operation
- Multi-use microfluidic chip
- Wide range of flow rates on single platform
- Configurable 3 precursor pumps
- Built in washing program
- Interchangeable microfluidic chips
- Easily replaceable 2mL, 15mL and 50 mL sample collection attachments

INSTITUTE OF CHEMICAL TECHNOLOGY

THERAPEUTICS in FLOW

Microfluidic technologies have been employed to formulate nanomedicine with better controllable physical characteristics. We deploy our patented technology for formulating such nanoparticles with desirable features to solve the present issues associated with it. The nanomake-L™ technology is a simple to use microfluidic platform designed to enable rapid optimization and formulation of nanomedicine with optimal setup and training.

nanomake-L™ is a fully automated system, which utilizes both, single-use and multi-use microfluidic chips to enable reproducible scale-up of nano formulations, such as mRNA-lipid nanoparticles (LNPs), polymeric nanoparticles, liposomes, etc while preserving their critical quality attributes. This instrument, based on controlled microfluidic mixing technology, ensures the production of uniform and reproducible high-quality nanoparticles.



SPECIFICATIONS

- **Flow rates:** 100 µL/min to 50 mL/min
- **Temperature:** Ambient to 60°C (optional pre-heater)
- **No. of pumps (precursor):** 3
- **Syringe sizes:** 500 µL, 1, 2.5, 5, 10 mL
- **Microreactor:** Multi-use microreactor
- **Nanomaterial synthesis:** Lipid, Polymer, Emulsions
- **Controls:** Total flow rate, flow ratio, sample volume, in-line dilution

Robustness of nano-formulations prepared using nanomake-L

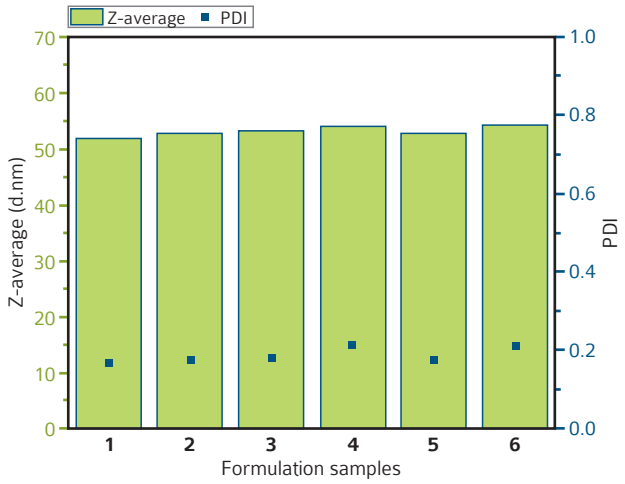


Fig 1. Depicts the robustness of nanomake-L in preparation of lipid nanoparticles (LNPs).

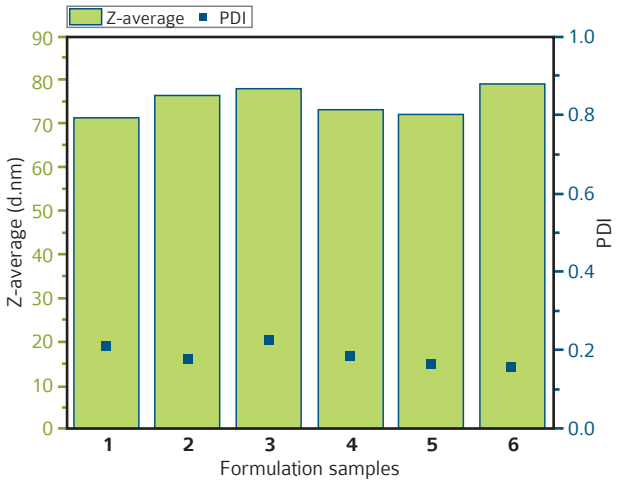


Fig 2. Depicts the robustness of nanomake-L in preparation of polymeric nanoparticles.

Optimization of nano-formulations prepared using nanomake-L

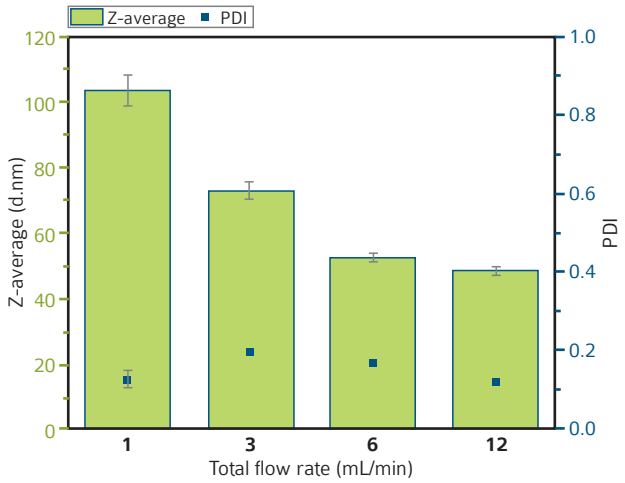


Fig 3. Shows the effect of varying total flow rates on the average diameter and PDI of the prepared nanoparticles

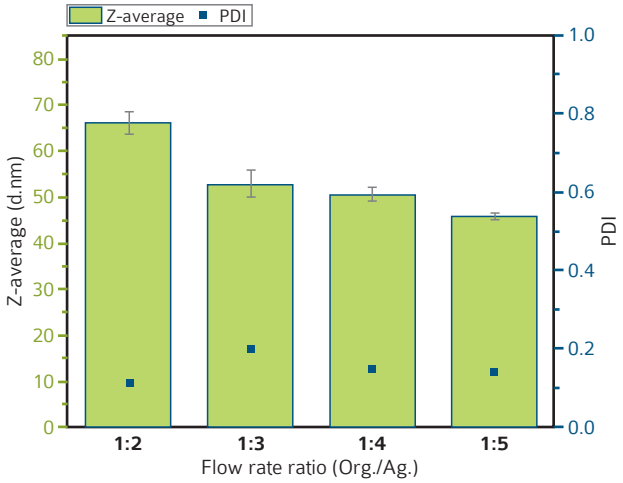


Fig 4. Shows the effect of varying flow rate ratios on the average diameter and PDI of the prepared nanoparticles

Encapsulation efficiency of nano-formulations prepared using nanomake-L

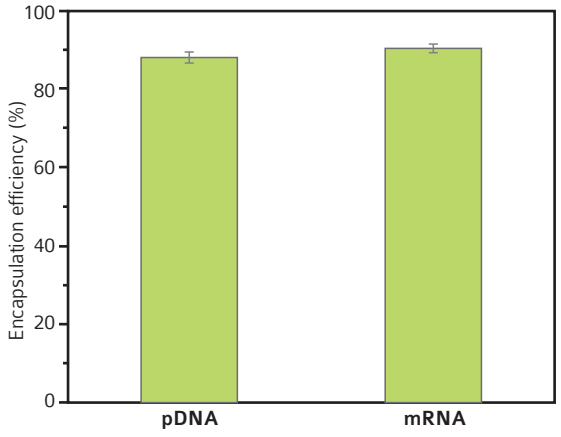


Fig 5. depicts the encapsulation efficiency of pDNA and mRNA in the lipid nanoparticles prepared using nanomake-L

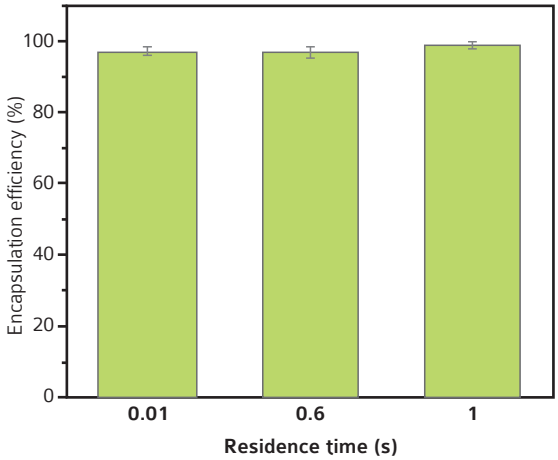


Fig 6. shows the effect of residence time on the encapsulation efficiency of the prepared polymeric nanoparticles using nanomake-L

AMAR BIOSYSTEMS PVT. LTD.

Valson Compound, LBS Road, Bhandup (W), Mumbai - 400078, INDIA.

+91-22- 6225 5000 www.amarbiosystems.com info@amarbiosystems.com