

New: 4D-Nucleofector® LV Unit PRO



Efficient and scalable electroporation from research to GMP manufacturing

Experience the next generation 4D-Nucleofector® LV Unit PRO which comes with several new features and can be easily implemented into a GMP manufacturing process:

- Optimized cartridge design for improved performance for CRISPR-based knock-out/in or transposition
- Fixed volume cartridge with different filling volumes (0.5 mL, 1 mL, 1.5 mL and 2 mL) and new port for easy loading and clearing
- Flow-through cartridge with more robust sample processing
- Cartridge insertion support and visual acknowledgement

Transfection protocols can be established in smaller scale using the 4D-Nucleofector® X Unit and subsequently transferred to the LV Unit PRO with only a small re-optimization in 500 µL volume.

Benefit from

- Reliable, robust and efficient delivery of complex, clinically relevant cargos
- Easy scale up of the cell engineering process for up to 1 billion T cells
- Two vessel formats for closed transfection of medium or larger cell numbers
- Performance proven for resting and activated T cells
- Corresponding research-grade and GMP-grade consumables to transfer process development into GMP manufacturing
- 4D-Nucleofector® LogWare for operation under 21 CFR part11 compliant software
- Highly-skilled technical support
- Training support and IQOQ service

Find out more, visit:
lonza.com/transfection-scale-up

Robust scalability for different applications in activated T cells

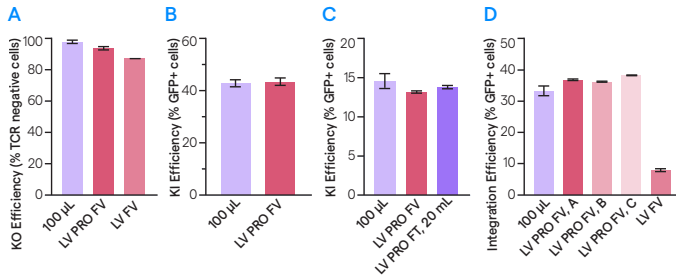


Figure 1. Comparable engineering efficiency for 100 µL Nucleocuvette® Vessel, fixed volume 2 mL Nucleocuvette® Cartridge PRO and flow-through LV Nucleocuvette® Cartridge PRO in activated T cells. (A) Knock-out of TRAC using Cas9 RNP (day 4, 2 donors, 4 technical replicates). (B) Knock-in of GFP into TRAC locus using Cas9 RNP and 3.5 kb dsDNA HDR template (day 4, 1 donor, 8 technical replicates). (C) Knock-in of GFP into RAB11A locus using Cas9 RNP and 3.5 kb dsDNA HDR template (day 4, 1 donor, 4 technical replicates). (D) Integration of GFP via piggyBac® transposase mRNA and transposon DNA with 3 different pulses (day 3, 1 donor, 4 technical replicates). The performance of the first-generation fixed volume 1 mL Nucleocuvette® Cartridge (LV FV) is included for comparison. Data are from representative donors. 100 µL = 100 µL Nucleocuvette® Vessel (100 µL), LV PRO FV = fixed volume 2 mL Nucleocuvette® Cartridge PRO; LV PRO FT = flow-through LV Nucleocuvette® Cartridge PRO. Days refer to post transfection.

Two vessel formats available in research or GMP quality



2 mL Nucleocuvette® Cartridge PRO

- Fixed volume samples of 0.5, 1, 1.5 or 2 mL
- Up to 2 × 10⁸ cells
- Manual filling via optimized sterile injection port



LV Nucleocuvette® Cartridge PRO

- Up to 20 mL processing volume
- Easily scalable to 1 × 10⁹ cells
- Automatic filling via 4D-Nucleofector® LV Reservoirs or bags
- Weldable tubing

Cat. no.	Description	Size
Instruments and accessories		
AAF-1003B	4D-Nucleofector® Core Unit	1 unit
AAF-1003X	4D-Nucleofector® X Unit	1 unit
AAF-1003L	4D-Nucleofector® LV Unit PRO Including 2 LV Reservoir Racks	1 unit
AAK-3001	4D-Nucleofector® LV Reservoir Rack	1 unit
SAAF-1002	4D-Nucleofector® LogWare (second generation)	1 unit
Research-grade consumables		
V4LP3-02250*	P3 Primary Cell Nucleofector® Solution LV Set	2.25 mL + 0.5 mL
V4LP3-22500*	P3 Primary Cell Nucleofector® Solution LV Set	22.5 mL + 5 mL
V4LN-8002	2 mL Nucleocuvette® Cartridge PRO	1 piece
V4LN-8020W	LV Nucleocuvette® Cartridge PRO, weldable tubing	1 piece
V4LR-1001W	4D-Nucleofector® LV Reservoirs, weldable tubing	2 pieces
GMP-grade consumables		
G4LP3-22500	TheraPEAK® P3 Nucleofector® Solution Set	22.5 mL + 5 mL
G4LP3-126000	TheraPEAK® P3 Nucleofector® Solution Set	126 mL + 28 mL
G4LN-8502	TheraPEAK® 2mL Nucleocuvette® Cartridge PRO - available end of 2025 -	5 pieces
G4LN-8520W	TheraPEAK® LV Nucleocuvette® Cartridge PRO, weldable tubing - available end of 2025 -	5 pieces
G4LR-1501W	TheraPEAK® 4D-Nucleofector® Reservoir, weldable tubing	5 pieces

* Corresponding SF Cell Line Solution Sets are available

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