



CELLOs

IRENA cell engineering operating system

Clone once. Bank once. Treat on demand.

The workcell, as built

Glass isolator, dual Cartesian gantry, NeXCell automated incubator with sliding plate stage, identity-safe plate nests, and a closed-room humanoid for kit presentation. Sterile path and assistant path do not mix. NVIDIA Spark-class compute stays on the rack.



Dual gantry line



Plate deck + humanoid



Incubator handoff



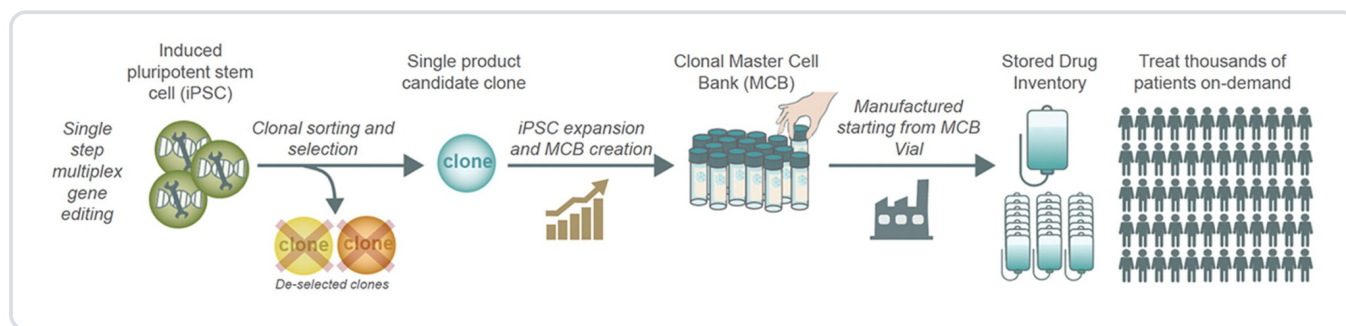
HEPA ceiling / CCTV

Modules on the rail: transport, pipette, timed detachment, spin, incubator load.

Sidecars by design: counter, magnets, vesicles, flow, laser. Not everything belongs on a gantry.

Clone once. Treat on demand.

Single-step multiplex editing → clonal sort → master cell bank → manufacture from a vial.



Connected systems

● NeXCell R incubator

Waken Tech NR-series. 37 °C ±0.5, NDIR CO₂ control, HEPA ISO 5, cassette hotel, sliding stage, RS-232 / Ethernet, optional O₂ and VHP.

● Gantry liquid handling

Identity-safe 6-well and 96-well moves, coating, feed, Versene / TrypLE, 200 × g spin with 0.2 mL residual.

● CELLos LAM

Programme → run → well. Interlocks, dual-arm laser, electronic batch record. Images never release a batch.

Safety posture

TRA-1-60 dyes mark residual undifferentiated cells. NANOG-iCasp9 is a property of the engineered bank. An enclosed laser is a later package with two-role authorisation. Allowed claim: no detectable residual iPSC above the validated assay limit. Forbidden claim: 100% teratoma-free. Camera is in-process only.

Specification

Site	IRENA BSL-3 · Masdar, Abu Dhabi
Enclosure	Glass isolator, HEPA supply, CCTV, humanoid outside sterile path
Handling	Dual gantry · 6-well, ULA 96, V-bottom 96, T25/T75
Incubator	NeXCell R · Pt100 37.0 °C ±0.5 · NDIR CO ₂ ±0.5% · ISO 5
Load / unload	≤ 25 s robotics cycle, sliding plate stage
Communications	RS-232 / RS-485, Ethernet, CELLos LAM
Identity	Barcode + electronic genealogy bank → run → well
First protocol	IRENA-BIO-SOP-001 SAT-7 feeder-free iPSC cycle
Product path	RDP-002 TumorDressed DC (qKO bank is an input)
Release posture	Research use. Not a clinical release system.

CELLos software

Command · Cell Builder · Runs · Imaging · Safety · Assays · Banks · Robot · Records.
 Compose a programme from a sentence. Dispatch to the deck. Dual-arm laser. Immutable-style batch export.
 Feynman App Store: Node 22, 0.0.0.0:\$PORT, GET /healthz, public path /apps/cellos/.

[Open CELLos](#) · [Command for SAT-7](#) · [Guide for the first shift](#) · [Brochure for the room](#)

Technical documentation (Word) and this brochure ship inside the app.