



Smarter Technologies  
for Advancing the  
Next Generation of  
CAR-T Therapies

Simplifying Progress

**SARTORIUS**

# Simplifying the Complex

For immunotherapy researchers, Sartorius *in vitro* assay solutions simplify complexity through the multiplexing of assays, streamlining of workflows for speed to answer, validation of results by complementary technologies, and robust multiparametric software analysis. The quest to extend the success of CD19 directed CAR-T therapy to other hematologic malignancies (e.g. CD123-specific ALL/AML), and ultimately solid tumors, requires the appropriate R&D *in vitro* methods to rapidly engineer effective CAR-T cells. The iQue® advanced flow cytometry and Incucyte® automated, continuous live-cell analysis platforms, in combination with rapid contamination testing and plate seeding solutions, form the optimal combination for your CAR-T research needs:

- Evaluation of various CAR delivery methods
- Continuous assessment of specificity, toxicity and activity
- Constant monitoring (e.g. mycoplasma) to ensure contaminant-free processing

## Faster, Smarter Screening for CAR-T: iQue® Advanced Flow Cytometry Platform

The iQue® advanced flow cytometry platform is suited for CAR-T cell analysis, T cell activation and cytokine profiling assays, and multiplexed phenotypic analysis.

- Speed—Fastest plate sampling, integrated analysis, multiplexed no-wash assays, and novel data reduction tools
- Miniaturization—Lowest assay volumes and sample volumes as little as a single microliter saves reagents and conserves precious cells
- Content—High content, multiplexed analysis of cells, beads and secreted proteins
- Usability—Simple, scalable, multi-user environment with walkaway automation, comprehensive analysis and visualization tools
- Insight—Forecyt® Software with dynamic visualization tools provides rapid identification of wells of interest, even if run on multiple plates acquired on different days



## Validate your CAR-T Hits: Incucyte® Live-Cell Analysis System

The Incucyte® Live-Cell Analysis System enables real-time, continuous, automated live-cell imaging and analysis of CAR-T cell homing (chemotaxis), activation and function, directly from the incubator.

- Real-time continuous analysis means you never miss a data point
- Profile cell-specific and time-dependent biological activity
- Visualize and validate results with images and movies
- Multiplex measurements in 96- and 384-well assay formats

# Smarter Technologies for Advancing the Next Generation of CAR-T Therapies

## CAR-T Application Highlights

### *In Vitro Assays*

Monitoring T Cell health and proliferation

T Cell Isolation  
from PBMCs

T Cell Activation  
(CD3 | CD28+IL2)

CAR Construct  
Delivery (+ 1 Day)

De-Beading  
(+ 4 Days)

iQue® platform



Incucyte®



## In Vivo Assays

T:E determination | plate seeding

Contamination monitoring

Target cell quantification

Target selectivity

Cytokine production

2D | 3D cytotoxicity assay

Transduction efficiency

Monitoring of CAR-T persistence | exhaustion

Small-Scale Expansion  
(+ 8-12 Days)

*In Vitro* Functional and  
Phenotypic Characterization

*In Vivo* Characterization  
Using Animal Model Systems

iQue® platform



Incucyte®



Microsart® kits



Picus® Nxt



# Smarter Laboratory Essential Solutions for CAR-T Research

## Rapid Testing

### Test and Monitor for Contamination: Microsart® ATMP Rapid Real-time PCR Mycoplasma/Fungal/Bacterial Detection Kits

Providing fast contaminant detection during CAR-T  
discovery and development for increased safety.

Rapid, highly specific and sensitive.

- Detect > 95% of all known bacteria in one test
- Results in 3 hours: prior to treatment
- Specific Taqman® probes reduce false-positives
- Non-infectious validation standards
- Less pipetting: controls already included



## Plate Seeding

### Plate Seeding: Picus® and Picus® NxT Electronic Pipettes

Your pipette can be an extension of your hand, and is one of the most used (and most personal) tools in your laboratory. Manual and electronic pipette options enable multiple plate setups to optimize CAR-T cell culture and analysis conditions, while maximizing comfort and minimizing strain injuries.

- Uniquely lightweight and compact design maximizes user convenience
- Superior technology ensures highly accurate and repeatable results
- Intuitive user interface in a choice of language options for total ease of use
- Advanced reliability and safety with Picus® NxT for highly regulated environments

# Sales and Service Contacts

For further contacts, visit  
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