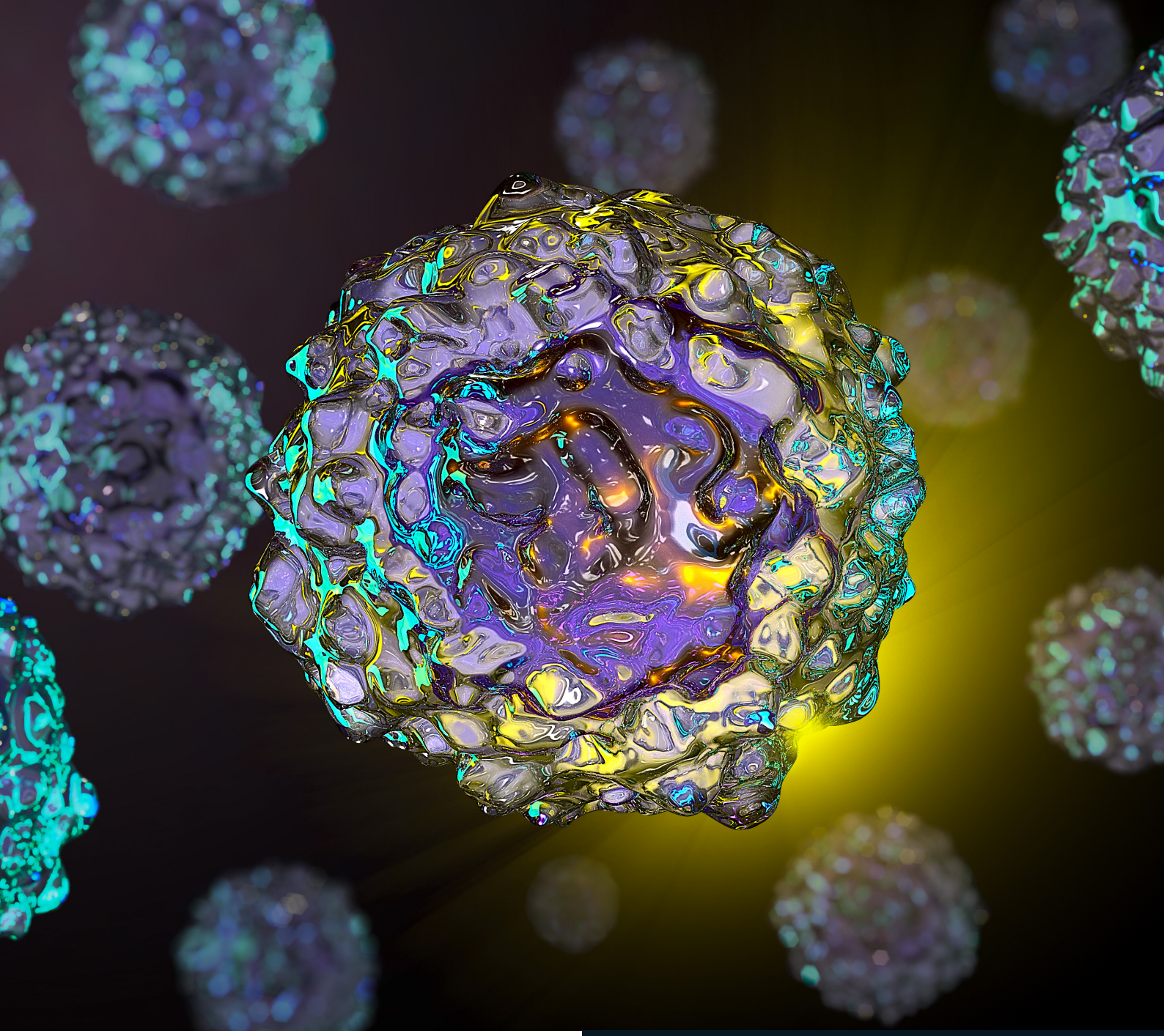


Innovative Solutions for Next-Generation Cell Therapies

Simplifying Progress

SARTORIUS

Solutions for Lab-Scale Cell Therapy Research and Development

Time

Achieve more breakthroughs in less time. Extensively screen and discover novel targets and high-affinity CAR constructs.

Reproducibility

Control of variability for consistency and comparability of results.

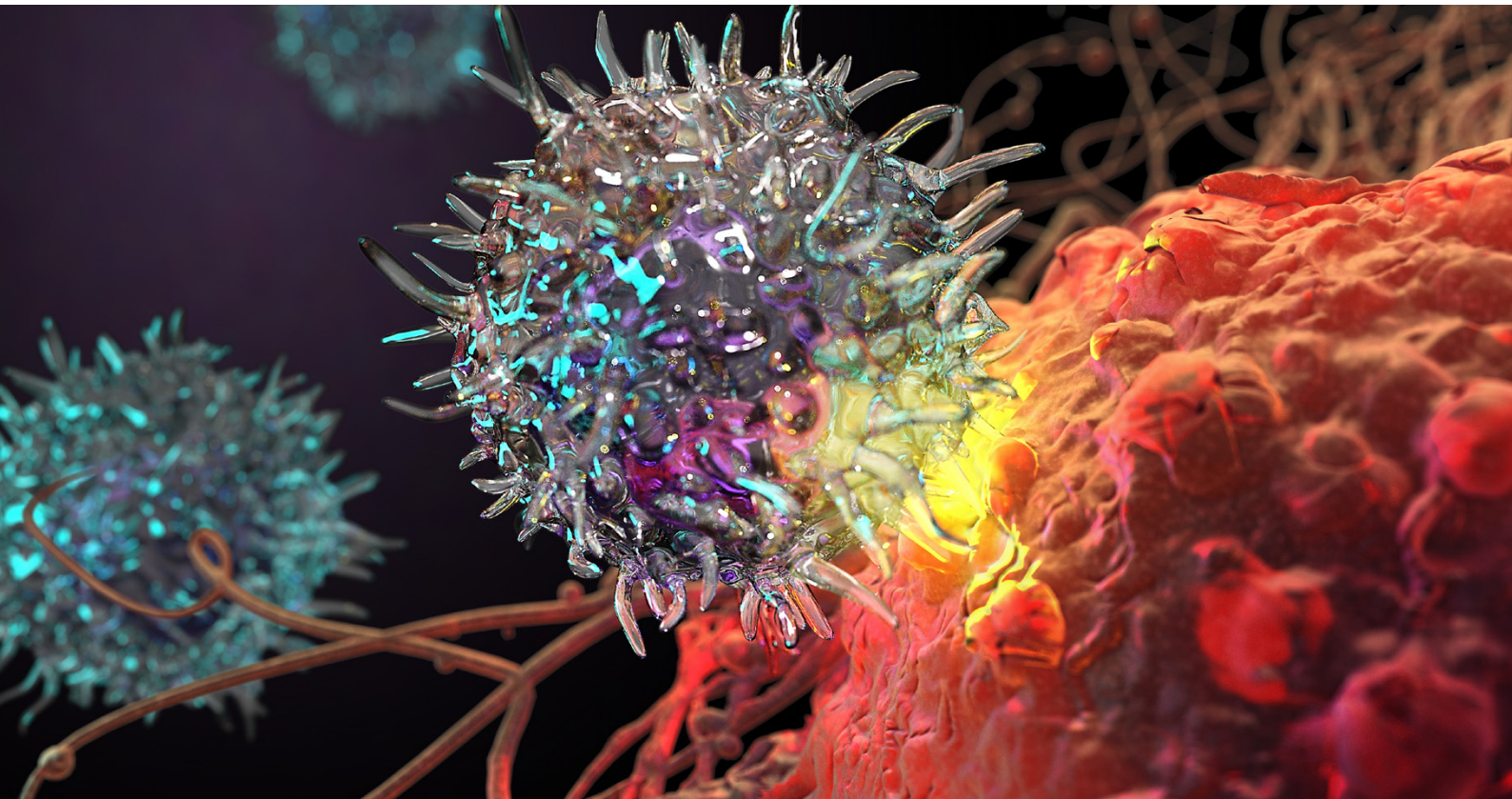
Insight

Obtain multidimensional data sets, describing CAR and target.through kinetic, phenotypic, and functional characterization.

Cell-based therapies hold great potential to revolutionize medicine and provide new therapeutic options for various diseases, including rare ailments and cancer. In regenerative medicine, cell therapies can harness the power of living cells to regenerate damaged or diseased tissues and organs.

Bringing a new treatment to market requires expertise and tools that accelerate progress from R&D to Process Development through Manufacturing. Some of the unique workflow challenges in cell therapy discovery involve the thorough characterization and quality control of cells for the desired stability, potency, purity, and functional attributes. Additionally, digital tools are needed to help turn complex datasets into actionable insights that inform clinical outcomes.

Simplify lab-scale cell therapy R&D workflows and advance effective therapies to the clinic with a full ensemble of state-of-the-art solutions, including high-throughput screening tools for cell and protein analysis, industry-recognized lab essentials, ancillary materials, and more.



iQue®3 High-Throughput Cytometry Platform

The iQue®3 is a high-throughput cell- and bead-based analysis platform for functional assays including pluripotency and viability assessment of induced pluripotent stem cell (iPSC) cultures, T-cell activation and cytokine profiling assays, and multiplexed phenotypic analysis.

Features and Benefits

- Miniaturized assay format reduces sample wastage, making more cells available for downstream analysis, expansion, and differentiation
- High-throughput sample acquisition (15 minutes for a full 96-well plate) reduces workflow time and facilitates enhanced replication, meaning more robust data
- Plate-level, real-time data visualization tools enable rapid comparison between cell lines, resulting in the fastest path to actionable results
- Multiplex assay readouts within one well, maximize data from every event
- Simultaneous quantification of secreted cytokine levels and immune cell function within the same sample

Applications

- Study complex 2D or 3D cell models
- Characterize CAR-T cell immunotherapies with translational assays for immune cell
- Detect T-cell response in 3D tumor spheroids using combined HT Cytometry and live-cell analysis platforms
- Assess immunomodulation and secreted cytokine status
- Assessment of pluripotency and differentiation markers
- Testing for derived cell function
- Viability of iPSC cultures
- Biologically-relevant analysis of cells and targets

Learn More

T-Cell Characterization

T-Cell Activation

T-Cell Proliferation

View Application Note

Discover iQue®

Incucyte® Live-Cell Analysis Platform

The Incucyte® Live-Cell Analysis Platform enables real-time, continuous, automated live-cell imaging and analysis of cell phenotype and function. Visualize and quantify cell-specific and time-dependent biological activity including CAR-T cell homing (chemotaxis), activation and function, pluripotency, confluency, and differentiation directly from the incubator.

Features and Benefits

- 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
- Enjoy walkaway convenience as images are automatically acquired and analyzed in microplate format (up to six in parallel)
- Get peace of mind - analysis happens directly inside the incubator

Applications

- Monitor growth and differentiation of iPSC lines
- Gain insight into cell morphology throughout the differentiation process
- Visually track phenotypic changes and loss of pluripotency over time
- Analyze the confluence of colonies using the integrated AI confluence algorithm
- Study complex immune cell interactions, synaptic activity in neuronal co-cultures, apoptosis, proliferation, and much more—with a single platform
- Phenotypic and functional characterization of CAR-T and other immune cells

Learn More

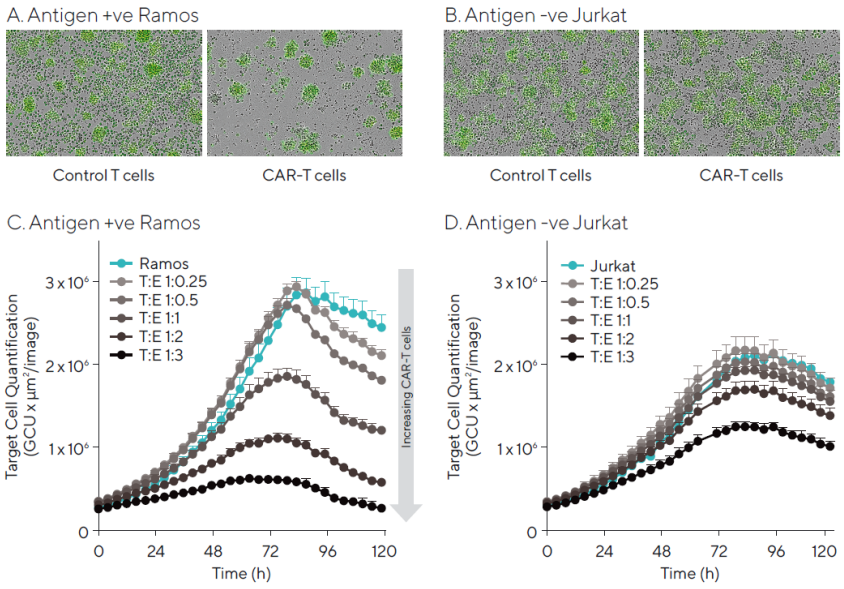
iPSC Application Note

Cell Morphology Webinar

White Paper: Live-Cell Analysis for Neuroscientists

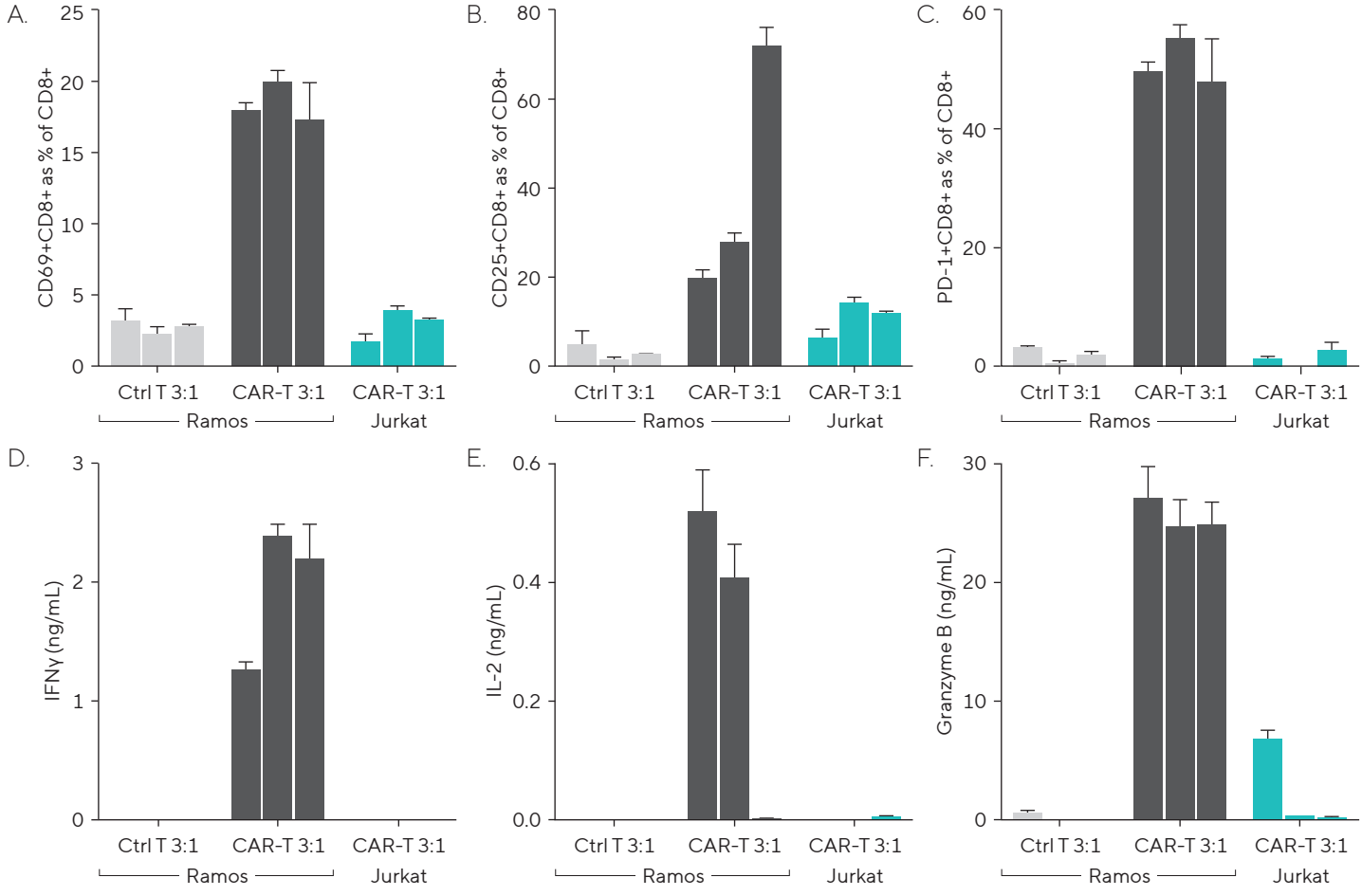
Discover Incucyte®

CD19-Targeted CAR-T Cell Killing of Antigen Positive Target Cells



Note. A co-culture of Incucyte® Nuclight Green labeled Ramos or Jurkat cells with either anti-CD19 CAR-T or control T cells was set up at various T:E ratios in a 96-well plate. Cultures were imaged in the Incucyte® every 4 hours over 4 days and quantified for green fluorescent area. Images taken at 72 hours (A) show a clear reduction in green area of Ramos cells in combination with CAR-T cells (1:2 T:E). Time course graphs (C and D) demonstrate increased killing of antigen positive Ramos cells compared to antigen negative Jurkat cells. Data shown as mean ± SEM of 3 wells.

Antigen Specific Activation of Anti-CD19 CAR-T



Note. Samples were quantified on Day 2, 4, and 7 for surface marker expression and secreted protein using either iQue® Human T Cell Activation Kit or iQue® Human T Cell Mediated Killing Kit with iQue® Human T Cell Companion Kit (for IL-2). Graphs (A-C) show expression levels in CD8+ T cells of CD69, CD25 or PD-1, and graphs (D-F) show levels of IFNγ, IL-2 or Granzyme B. Grey bars represent Ramos with mock transduced T cells, black bars are CD19 CAR-T with Ramos cells, and teal bars are CAR-Ts in combination with Jurkat cells. The 3 bars represent Day 2, 4, and 7, all data shown as mean ± SEM of 3 wells.

Octet® Label-Free Biomolecular Interaction Analysis

Octet® label-free detection based on Bio Layer Interferometry (BLI) or Surface Plasmon Resonance (SPR) uses optical biosensors to measure protein-protein interactions in parallel, without the use of detection agents. These robust tools enable fast characterization of expressed proteins in real time, even in complex and unpurified samples. Highly versatile tools can be utilized to evaluate binding interactions across a variety of analytes, ranging from small molecules, nucleic acids, proteins, and peptides to nanoparticles or viruses.

Features and Benefits

- Monitor native molecular states label-free and in real-time
- Recover samples after non-destructive measurement on the BLI platform
- Rapidly perform protein quantitation in crude samples
- Characterize a wide variety of biomolecular interactions in terms of binding kinetics and affinity

Applications

- Screen CAR constructs for affinity
- Evaluate CRISPR | Cas inhibitor proteins
- Determine CRISPR | Cas-induced gene activation and protein expression levels
- Quantify and screen CAR-vector potency and access to target binding
- Detect and quantitate cytokines

Learn More

Rapidly and Directly Quantitate AAV Capsids

Discover Octet®

CellCelector Automated Cell Imaging and Retrieval Platform

The CellCelector Flex Platform is a fully automated cell imaging and picking system developed for the screening, selection and isolation of single cells, clusters, spheroids, and organoids as well as single-cell clones and adherent colonies.

Features and Benefits

- Gentle picking technology, low shear stress; < 10 seconds in the capillary
- Low aspiration, dispensing, and buffer volumes (down to ~1 nl), no intrinsic dead volume
- Provides a sterile, temperature, CO_2, and humidity-regulated environment, supporting the cultivation of sensitive cells
- Precise isolation of single cells, clusters, single-cell clones, spheroids, small organoids, and embryoid bodies
- High cell integrity and outgrowth rates with > 95% viability
- Bubble-free sample deposition into 100% Matrigel domes
- Complete workflow documentation including unique ID for each detected and picked object

Applications

- Single-cell cloning and secretion assay for monoclonal iPSC line development
- Single plasma B-cell screening for antibody discovery
- Single- and rare-cell isolation (CTCs, fetal cells, sperm cells)
- Single-cell isolation from fresh, frozen, or fixed tissue
- Adherent colony isolation in 2D
- Clonal isolation from semi-solid media
- 3D structure isolation (organoids, spheroids, and embryoid bodies)
- Clonal passaging of stem cells and stem cell colonies, isolation specific parts of a stem cell colony

Learn More

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View Application Note

View Application Note

Discover CellCelector Flex

Lab Essentials and Ancillary Materials to Safeguard and Simplify Cell Therapy Research and Development

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

Provides fast and accurate contaminant detection during CAR-T and other cell-based therapy, discovery and development for increased safety.

Learn More

- Rapid mycoplasma and sterility testing
- Results in 3 hours: prior to treatment
- Specific TaqMan® probes reduce false-positives
- Non-infectious validation standards
- Included controls reduce pipetting steps
- Compliant with international guidelines

View Application Note

Discover Microsart®

Plate Seeding with Picus® 2 Electronic Pipettes

Picus® 2 electronic pipettes ensure accurate results with an unbeatable ergonomic design. Connect Picus® 2 to your mobile device to smoothly run sample preparation workflows and adjust settings automatically, taking your productivity to the next level.

Learn More

- Achieve highly reproducible, reliable results
- Ergonomic design ensures comfortable handling
- Use with Sartorius Pipetting app for sample preparation protocols
- Reduced variance compared to more traditional pipettes

Discover Picus® 2

NexaGel® 3D Cell Culture Matrices

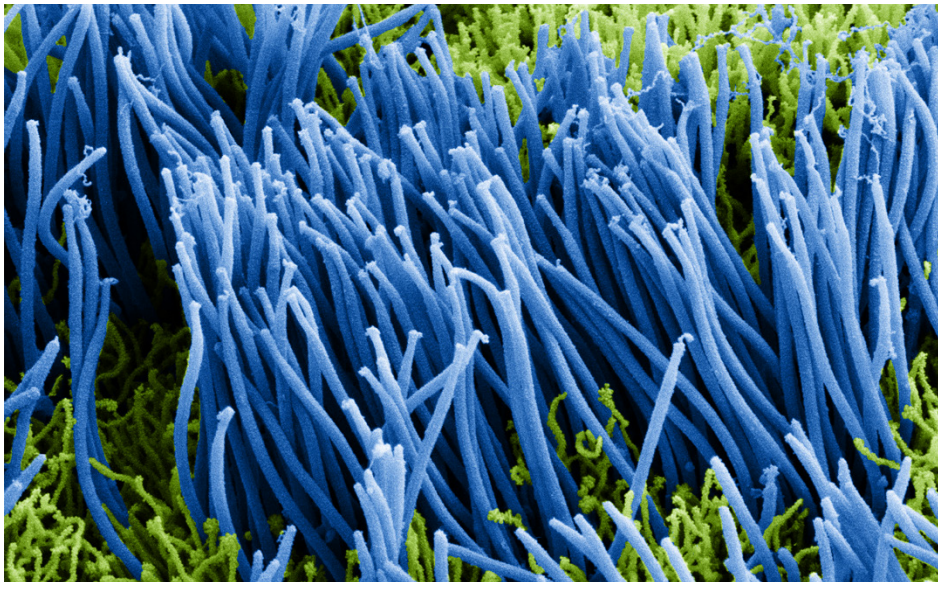
*NexaGel® hydrogel is a ready-to-use, versatile synthetic matrix system that closely replicates the human microenvironment, making it ideal for research involving a wide range of cell types. NexaGel® hydrogels feature optimized multi-functional ligands and concentration formulations, suitable for various applications, including 3D cell models, stem cell spheroids, and organoids.

Learn More

Discover NexaGel® Hydrogels

Microtissue Technologies, Primary Cells, Cultureware, and Testing Services

Explore ready-to-use 3D human-derived microtissue models, human primary cells, high-quality glass bottom cell culture dishes and plates for superior imaging, as well as toxicology testing services for industries such as cosmetics, pharmaceutical, chemical, and other regulated industries.



Learn More

Discover Microtissue Technologies

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