

Resources for Smarter
Solutions to Advance CAR-T
Therapy Research

Simplifying Progress

SARTORIUS

Introduction

The quest to extend the success of CAR-T therapy to other hematologic malignancies, and ultimately solid tumors, ideally with off-the-shelf CAR-T solutions, is of utmost significance. In order to achieve this, appropriate R&D *in vitro* methods are necessitated to rapidly identify novel tumor antigens and engineer effective, tumor-seeking T cells. Sartorius provides smarter *in vitro* assay solutions for the advancement of the discovery and development of next generation CAR-T therapies by enabling:

- Reduced complexity through deeper insights
- Streamlined workflows via the collapse of various assays
- Validation of results by complementary technologies
- Robust multiparametric software analysis

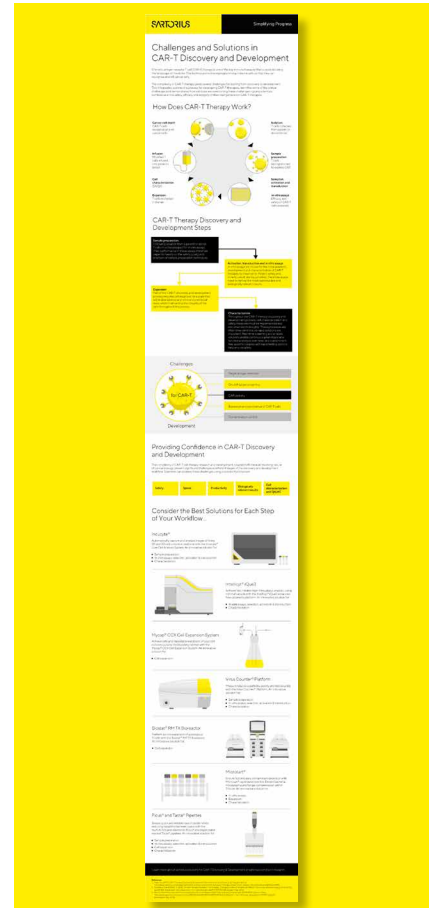
Browse through our resources to learn how our innovative solutions, including the iQue® advanced flow cytometry and Incucyte® automated, continuous live-cell analysis platforms, have aided researchers in optimizing their CAR-T discovery workflows.

Chapter 1: Challenges and Solutions in CAR-T Discovery and Development

The complexity of CAR-T therapy yields several challenges from discovery to development, however several solutions are emerging – giving scientists confidence in the safety, efficacy and integrity of these therapeutics. Download this infographic to learn about:

- How CAR-T therapy works
- CAR-T therapy discovery and development steps
- The challenges faced when developing CAR-T therapies
- How Sartorius solutions overcome challenges for CAR-T discovery and development

[Download the Infographic](#)



Chapter 2: From Boutique to Global: Chimeric Antigen Receptor T-Cells as a Model for Clinical Development and Commercialization

Listen to Professor in Cancer Gene Therapy, Dr. Bruce Levine discuss the science of CAR T-cells and their huge global impact. The road forward for wide patient access to these uniquely personal cellular therapies depends not only on scientific progress in targeting, gene modification and cellular manipulation, but also on meeting automation, engineering, and health policy changes. Watch this webinar to learn about:

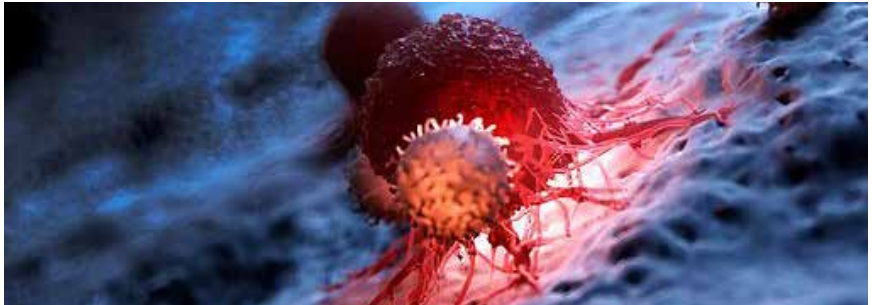
- The mechanism of action of CAR-T cells
- The clinical development from bench to bedside of a unique cell therapy
- The vein-to-vein complexities and healthcare challenges of developing a paradigm shift in therapies

Watch Webinar

Chapter 3: CAR-T Cell Therapy: Overcoming Toxicities

Following the success of the first checkpoint inhibitors for treating cancer, many researchers are now turning their attention to chimeric antigen receptor (CAR) T cell therapy. This novel treatment makes use of a cancer patient's own T cells, which are removed and modified so that they can better recognize and attack cancer cells. These modified cells are then infused back into the patient's body. While this approach has shown some success for certain cancers, severe toxicities have limited its widespread application. Researchers are attempting different methods to overcome these toxic effects, including using gene-editing tools such as CRISPR to modify CAR T cell protein production and employing antibody therapy to potentially block toxicity-inducing proteins. Will CAR T cell therapy emerge as a game changer for cancer treatment? Or are the hurdles too high? Learn from our expert panel of scientists as they explore CAR T cell therapy research and gain insight into the next steps.

Watch Webinar



Chapter 4: Smarter Solutions for Next-Gen CAR-T Development

Recent advances in flow cytometry technology are transforming CAR-T discovery and development. These advances provide the speed and sensitivity to support high-throughput, cost effective analysis, and generate deeper, more biologically relevant insights to get you to actionable results faster. Download this application compendium to discover how advanced flow cytometry enables you to advance and accelerate CAR-T discovery with:


- Multiparameter data acquisition for multiple cell types
- Fast, high-throughput flow cytometry capabilities
- Powerful, built-in data analysis and visualization tools to streamline workflows
- Low sample requirements that preserve precious samples and reduce reagent costs

Chapter 5: Gaining Critical Characterization Insights for Development of CAR-T Therapies for Solid Tumors

Download the eBook featuring an Expert Roundtable discussion with leading CAR-T scientists as they share their valuable insights on the current status, existing challenges, and future advancements and state-of-the-art cell analysis technologies assisting CAR-T cell therapy discovery and development as it seeks to advance beyond haematological malignancies and into the solid tumor space. Experts from two of the foremost cell & gene therapy biotechs seeking to drive this transition, plus a leading academic and analytics tool provider, assemble to discuss progress to date and next steps in this vital endeavor.

Download the eBook

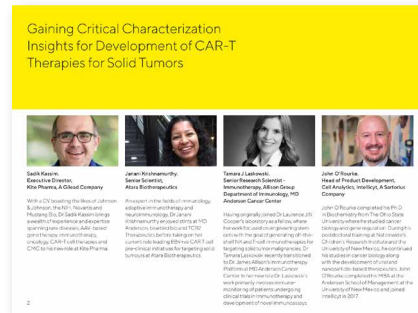
Download the eBook



SARTORIUS Expert Roundtable

Gaining Critical Characterization Insights for Development of CAR-T Therapies for Solid Tumors

EXPERT ROUNDTABLE



Gaining Critical Characterization Insights for Development of CAR-T Therapies for Solid Tumors

Guests:
Dr. Keith Mason, Director, Cell Analysis, AstraZeneca, a Global Company
Dr. Jennifer Kishinevsky, Senior Scientist, Astra Biotherapeutics
Tatiana J. Lachy, Senior Research Scientist, Immunotherapy, Allier Group, Department of Immunology, PhD, Allier Group
John D'Onofrio, Head of Product Development, Cell Analysis, Invivo, a Sartorius Company

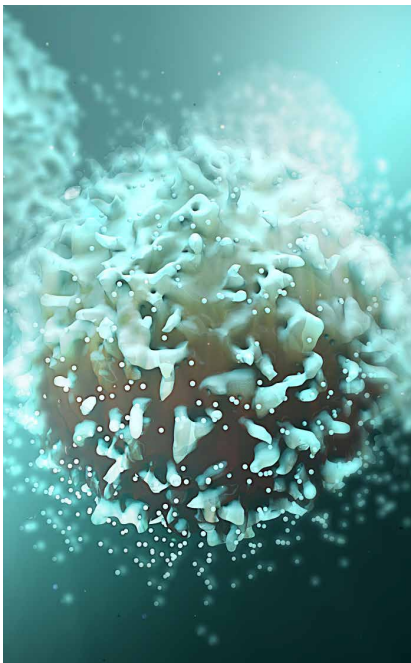
Host: Download this eBook to discover the latest in CAR-T cell analysis and how it is being used to advance the development of CAR-T cell therapy. This eBook features insights from leading experts in the field, including: how advanced flow cytometry is being used to accelerate CAR-T cell therapy discovery and development; how advanced flow cytometry is being used to accelerate CAR-T cell therapy discovery and development; how advanced flow cytometry is being used to accelerate CAR-T cell therapy discovery and development; how advanced flow cytometry is being used to accelerate CAR-T cell therapy discovery and development.

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Chapter 6: Gene-modulation Technologies in the Development of Cell-based Therapies

Cell therapy, especially adoptive T-cell transfer, is an active area of cancer research and treatment. Although promising, many challenges from efficacy to safety remain. Horizon Discovery harnesses various gene-modulation technologies, such as CRISPR, rAAV, ZFN, siRNA, and shRNA, to successfully engineer primary cells and cancer cell lines. Whole-genome pooled and targeted arrayed functional genomic screens are performed that extend to primary human T cells. Such screens could be used to identify new targets that improve CAR T-cell survival in the immunosuppressive tumor microenvironment, increase migration and infiltration, or reduce immunogenicity. Potential targets identified from these screens may be validated with follow-up *in vitro* or *in vivo* studies. In this webinar, current data from primary immune cells will illustrate how CRISPR-Cas9 and RNAi can extend the use of adoptive T-cell transfer in the clinic.

Watch Webinar



Chapter 7: CAR T-cell Therapy and Bispecific Antibodies: Frontiers in Cancer Immunotherapy

Cancers are the most heterogeneous group of diseases affecting humans. Multiple compensating pathways work to promote disease progression. Various immunotherapies have shown anticancer promise, but their targeted nature limits the scope of their action and applicability. CAR T-cell therapy and bispecific antibodies are two approaches that have addressed the targeting of more than one epitope, the redirecting of T lymphocytes to kill tumor cells, and the improvement of efficacy in solid tumor types. For a closer look at the design, development, and success of CAR T-cell therapy and bispecific antibodies, a panel of experts come together to discuss their research and share insights into the potential these therapeutics hold in the fight against various tumor types.

Watch Webinar

Chapter 8: Unlocking the Potential of CAR-T Therapies for Solid Tumors

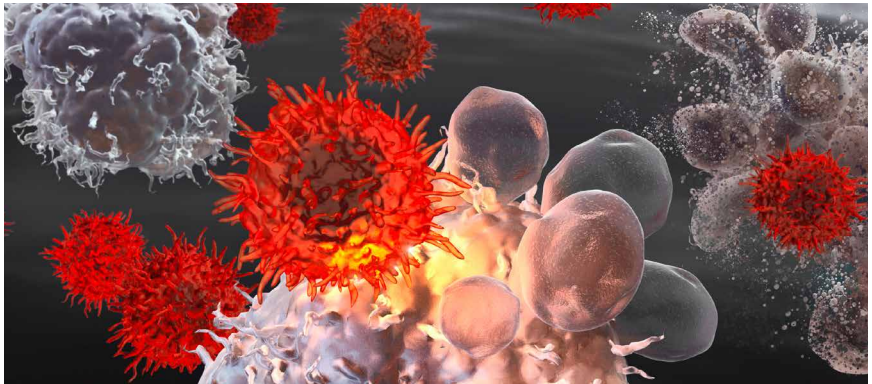
The recent FDA approval of the very first CAR-T therapy marks a significant milestone in the field of cell and gene therapy. However, this also hastens the need to streamline cell therapy workflows to make them more cost-effective, scalable, and safe, and to find solutions to replicate clinical success in solid tumors. Read the interview by Dr. Tamara Laskowski in which she describes the progress researchers at MD Anderson Cancer Center are making in developing off-the-shelf immunotherapies for the treatment of solid tumor malignancies and how the IncuCyte® Live-Cell Analysis System and iQue® Advanced Flow Cytometry technologies have been integral in advancing their research.

[Download the Article](#)

Chapter 9: Cell-Based Therapies: A New, Safer Era of ATMP

The combination of speed, accuracy and efficiency provided by the Microsart® ATMP Sterile Release kits means ATMP manufacturers can deliver QC results prior to treatment. In doing so, the industry stands to eliminate one of the outstanding risks to patients posed by ATMP, thereby setting the stage for the use of consistently safe lifesaving cell-based therapies. Download this infographic to learn more about groundbreaking rapid testing technologies driving a new, safer era of ATMP.

[Download the Infographic](#)



Sales and Service Contacts

For further information, visit:

- Sartorius Website: www.sartorius.com
- Sartorius Solutions to Advance CAR-T Therapies: www.sartorius.com/car-t-research

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