



Senti Biosciences Announces Publication in *Cell Systems* Demonstrating Advanced Logic-Gated CAR Design for Cell Therapies

SOUTH SAN FRANCISCO, Calif., April 01, 2026 (GLOBE NEWSWIRE) -- Senti Biosciences, Inc. (Nasdaq: SNTI) ("Senti Bio"), a clinical-stage biotechnology company developing next-generation cell and gene therapies using its proprietary Gene Circuit platform, today announced the publication of new peer-reviewed research in *Cell Systems* demonstrating its systematic framework for engineering NOT-gated chimeric antigen receptor (CAR) circuits in both T cells and natural killer (NK) cells. The study demonstrates how Logic-Gated receptor designs can significantly improve the efficacy, precision, and safety of cell therapies by enabling immune cells to selectively eliminate tumor cells while sparing healthy tissue. This foundational paper complements Senti's [recent announcements on positive clinical data](#) with its Logic-Gated SENTI-202 product in the treatment of relapsed/refractory Acute Myeloid Leukemia presented at the 2025 American Society for Hematology Annual Meeting.

The paper, titled "[NOT-gated Chimeric Antigen Receptor Circuits in T and NK Cells](#)," presents a comprehensive evaluation of dual-receptor CAR circuits that integrate an activating CAR (for cancer killing) with an inhibitory CAR (for healthy cell protection). By quantitatively analyzing more than 60 CAR circuit designs, the study defines core design principles that govern activation strength, inhibition dynamics, antigen dose response and functional durability across immune cell types.

"This study highlights the power of synthetic biology to introduce decision-making into living medicines," said Tim Lu, M.D., Ph.D., Chief Executive Officer and Co-Founder of Senti Biosciences. "By systematically dissecting the interaction between activating and inhibitory CARs, we provide a roadmap for building immune cells that are both effective and precise."

The study identifies inhibitory CARs based on the LIR1 receptor as particularly potent regulators of immune cell activity, outperforming several canonical immune checkpoint receptors. In T cells, optimized NOT-gated CAR circuits not only improved discrimination between tumor and healthy cells but also reduced markers of cellular exhaustion and preserved cytotoxic killing of cancer cells following repeated antigen exposure. These findings suggest that inhibitory CAR signaling can provide benefits beyond target specificity, potentially improving the durability of therapeutic responses.

"These results show that inhibitory CARs have very interesting and underappreciated properties that can improve the performance of immune cell therapies," said Wilson Wong, Ph.D., Professor of Biomedical Engineering at Boston University, and Scientific Co-Founder of Senti.

Importantly, the authors demonstrate that many NOT-gated CAR designs exhibited high performance in both T cells and NK cells. In an in vivo mixed-cell xenograft model, NOT-gated CAR T cells and CAR NK cells selectively eliminated tumor cells while sparing off-tumor cells expressing protective antigens. These results highlight the portability of logic-gated CAR circuits across ex vivo and in vivo CAR modalities, and their potential to treat cancers where clean tumor-specific targets are unavailable.

The findings further support the applicability of Senti Biosciences' Gene Circuit platform to cell and gene therapy, which is designed to program cells with logic-based control over therapeutic activities. NOT-gated CAR circuits represent a foundational approach for enhancing safety and expanding the therapeutic window of engineered immune cells in cancer and other diseases. A patent application has been filed covering aspects of the technology described in the study.

The full article is now available online in *Cell Systems*.

About Senti Bio

Senti Bio is a clinical stage biotechnology company developing a new generation of cell and gene therapies for patients living with incurable diseases. To achieve this, Senti Bio is leveraging its synthetic biology platform to engineer Gene Circuits into new medicines with enhanced precision and control. These Gene Circuits are designed to precisely kill cancer cells, to spare healthy cells, to increase specificity to target tissues, and/or to be controllable even after administration. The Company's wholly-owned pipeline comprises cell therapies engineered with Gene Circuits to target challenging liquid and solid tumor indications. Senti's Gene Circuits have been shown preclinically to work in both NK and T cells. Senti Bio has also preclinically demonstrated the potential breadth of Gene Circuits in other modalities and diseases outside of oncology, and continues to advance these capabilities through partnerships.

Availability of Other Information About Senti Biosciences, Inc.

For more information, please visit the Senti Bio website at www.sentibio.com or follow Senti Bio on [X](#) (@SentiBio) and [LinkedIn](#) (Senti Biosciences). Investors and others should note that we communicate with our investors and the public using our company website (www.sentibio.com), including, but not limited to, company disclosures, investor presentations and FAQs, Securities and Exchange Commission filings, press releases, public conference call transcripts and webcast transcripts, as well as on [X](#) and [LinkedIn](#). The information that we post on our website or on [X](#) or [LinkedIn](#) could be deemed to be material information. As a result, we encourage investors, the media and others interested to review the information that we post there on a regular basis. The contents of our website or social media shall not be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended.

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