

SQZ Biotech Announces *PNAS* Publication Demonstrating Significant Advantages of Its Cell Squeezing Technology for the Development of Cell-Based Therapeutics

New Data Highlight the Superiority of the SQZ Platform in Preserving Cellular Functions for Cell Therapy Applications

WATERTOWN, Mass., November 1, 2018 — SQZ Biotechnologies (SQZ), a cell therapy company developing novel treatments for multiple therapeutic areas, today announced the peer-reviewed publication of data demonstrating key benefits of the SQZ cell therapy platform in a *Proceedings of the National Academy of Sciences (PNAS)* paper titled [“Cell engineering with microfluidic squeezing preserves functionality of primary immune cells *in vivo*.”](#)

“At SQZ, we believe in the enormous potential of cell-based therapies. The work put forth in this paper demonstrates that electroporation, the widely used technology behind many gene edited cell therapies, such as modified T cell treatments, can lead to unintended long-term biological consequences that could severely limit the therapeutic potential of engineered cells. Strikingly, the SQZ cell therapy platform does not lead to these negative functional changes,” said Armon Sharei, PhD, chief executive officer and founder of SQZ Biotech and the senior author on the paper. “These data deepen our conviction that the SQZ platform has unique potential to disrupt today’s engineered cell therapies and transform the lives of patients suffering from a range of debilitating diseases.”

In this work, researchers conducted a detailed analysis to determine the downstream functional consequences of electroporation as compared to the SQZ cell therapy platform, a microfluidic membrane deformation technique, termed squeezing. Cells modified using electroporation showed significant changes in gene expression that resulted in long-lasting functional deficiencies in normal cellular activity. In contrast, cells modified via squeezing exhibited minimal changes in gene expression and preserved key biological functions essential for maintaining therapeutic potential.

The differences in function were further confirmed in a therapeutic tumor model in which electroporated T cells edited for PD-1 had deficiencies in their biological activity whereas PD-1 edited squeezed cells maintained their therapeutic capacity.

“Safe, efficient, and scalable modification of cells is an essential prerequisite for the development of successful cell-based therapies,” said Robert Langer, DSc, Institute Professor at MIT, SQZ founder and board member. “SQZ has already demonstrated the ability to enable robust and scalable engineering of cell therapies. In this comparative study, detailed transcriptome, protein and functional profiling revealed that cell engineering via electroporation leads to significant changes across all three parameters but that cells engineered using the SQZ cell therapy platform showed few changes. I am encouraged to see further published evidence of the superiority of the SQZ platform in preserving underlying cellular functions essential for cell therapies.”

About SQZ Biotech

SQZ Biotechnologies is a Massachusetts-based, privately held company developing cellular therapies for multiple therapeutic areas using their proprietary cell therapy platform. SQZ enables robust, scalable delivery of materials to direct natural cell functions with minimal impact on cell health and is being used

to develop a new generation of therapies. The first applications for the company leverage SQZ's ability to generate target-specific immune responses, both in activation for the treatment of solid tumors, and immune suppression for the treatment of auto-immune diseases. For more information please visit www.sqzbiotech.com.

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