FAST AND ACCURATE PREDICTION OF OPTIMAL CAR T-CELL FUNCTION USING Z-MOVI® CELL AVIDITY ANALYZER

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Background Affinity between himeric antigen receptors (CARs) to their target has shown to be a poor predictor of functional capacity of T cells. Recent studies have revealed that the overall binding strength (or avidity) between T cells and tumor cells represents a crucial parameter for identifying and developing potent cancer immunotherapies. Compared with affinity, cell avidity provides a more complete and physiologically relevant picture that reflects the bona fide interaction between T cells and tumor cells. Therefore, this interaction could better predict cellular responses in vitro, drive better, more informed decisions and potentially improve clinical outcome. However, one of the main obstacles in the process of measuring avidity is the lack of fast, specific, and accurate technologies to assess cellular avidity.

Methods The z-Movi® Cell Avidity Analyzer is a novel and unique instrument for direct measurement of cell–cell interaction strength using acoustic forces. This new technology provides predictive, reproducible, and fast high-throughput results at a single-cell level.

Results In this poster we will demonstrate that data obtained with the z-Movi Cell Avidity Analyzer correlates strongly with standard in vitro assays, such as cytokine release and cytotoxicity measurements. We will review the simple principles behind the z-Movi, the workflow to set up an experiment consisting of multiple runs, and how the intuitive software package will assist in getting precise cell avidity information of hundreds of cells simultaneously. Finally, we will demonstrate the great potential of the z-Movi for accelerating the development of CAR T immunotherapy against cancer.

Conclusions Finally, we will demonstrate the great potential of the z-Movi for accelerating the development of CAR T immunotherapy against cancer.

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