581 MULTI-DIMENSIONAL SYNERGY OF COMBINATIONS (MUSYC) ALGORITHM OPTIMIZES COMBINATORIAL STING AND TLR ADJUVANT CANCER VACCINES

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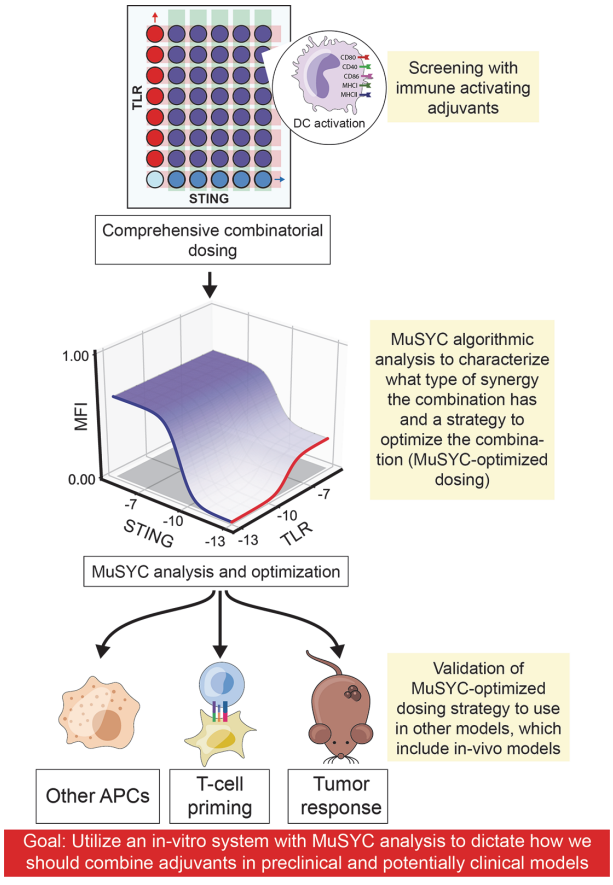
Background Optimized cancer vaccine's T cell priming potential can promote their translation in the current clinical climate of immune checkpoint inhibitor approval for many cancers.

Methods To rigorously optimize adjuvant combinations that would effectuate an improved in vivo anti-tumor response, we utilized a novel algorithm, the multi-dimensional synergy of combinations (MuSYC), to maximize efficacy and minimize dosing for various classes of adjuvant combinations (Figure 1).

Results In-vitro, the MuSYC algorithm characterized the combination of R848 (TLR7/8 adjuvant) and STING agonist as synergistically efficacious and potent in activating murine bone marrow-derived dendritic cells (mBMDCs) and human monocytic cell line THP-1. These two selected adjuvants were then used to generate a MuSYC-derived optimized combination strategy for optimal in vivo priming. Finally, using B16 melanoma and MOC1 head and neck models, MuSYC-optimized cancer vaccines had the best anti-tumor response associated with increased tumor-infiltrating lymphocytes and changes in myeloid infiltration.



Abstract 581 Figure 1

Conclusions Cumulatively, we believe our MuSYC-centered approach will optimize translatable adjuvant combinations to improve cancer immunotherapy.