KDDF
Korea Drug Development Fund

Asset #14

Ramot At Tel Aviv University

Therapeutic Vaccine for the Treatment of Cancer

Therapeutic Area	Immunology, Oncology	**Indications**	Cancer
Modality	Cell Therapy	**Development Stage**	Target Identification/Validation

Overview

Background

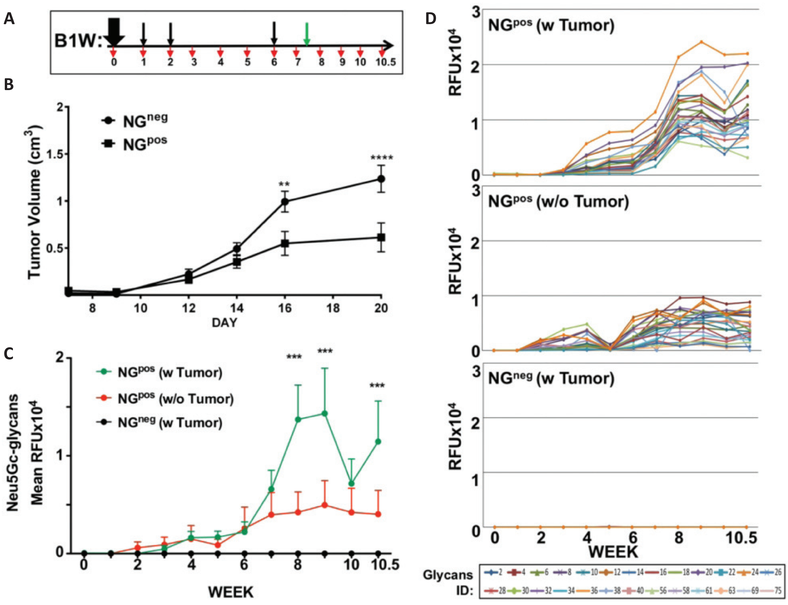
- While envisioned already in 1891, only a few cancer vaccines have been approved by the FDA thus far. The key barriers to their success are low antigenicity of targeting antigens, tumor heterogeneity, and low mutational burden with only few peptide neoantigens in some cancers. These limitations prompted the continued search for other potential antigens for vaccines. Tumor associated glycosylation changes generate carbohydrate–neoantigens that are excellent candidate targets for immunotherapy. In particular, Neu5Gc, the antigenic non-human dietary carbohydrate that accumulates on human carcinoma, generates a whole array of cancer neoantigens.

Technology Advantages

- Carbohydrate chains (glycans) are ubiquitously expressed on the surface of cells, where they are optimally located for recognition by antibodies and immune receptors, either for protection or for elimination.
- Combination therapy of this cancer vaccine together with checkpoint inhibitors therapy was even more effective than each of the individual treatments.

Key Data

Cancer vaccine inhibit tumor growth in vivo



(a) Schematic representation of experimental design. Cmah –/– mice were immunized intraperitoneally (i.p.) with NGneg or NGpos (n=10 per group) in the optimized B1W regimen. Mouse serum was sampled on day 0 then weekly (red arrows). On week 7.5, 0.5 × 106 MC38-GFP cells were inoculated subcutaneously (green arrow). (b) Tumor volumes were monitored every other day showing inhibition of tumor growth in the NGpos vaccine-treated group (c) Sera samples were then analyzed by sialoglycan microarrays containing diverse sialoglycans, detected with Cy3- labeled anti-mouse IgG. Each line represents the average response of 10 mice per group against all Neu5Gc-glycans. (d) Array response against the 24 individual Neu5Gc-glycans

IP Status & Publication(s)

Intellectual Property

Patent Number	Patent Family
-	-

Publication(s)

- Reuven, E. M. et al. Biomimetic Glyconanoparticle Vaccine for Cancer Immunotherapy. ACS Nano 2019, 13, 2936-2947