A NOVEL APPROACH FOR INHIBITING PROGRESSION OF FLU VIRUS INFECTION AT EARLY STAGES OF THE DISEASE BY INHALATION OF $\alpha$-GAL/SA LIPOSOMES

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Ligand of HA on flu virus is sialic acid (SA) 
Ligand of anti-Gal antibody is $\alpha$-gal epitope
α-gal epitope synthesis

Anti-Gal antibody production

ANTI-GAL MEDIATED CHEMOTAXIS OF MACROPHAGES BY COMPLEMENT ACTIVATION AND PHAGOCYTOSIS BY Fc/Fc RECEPTOR INTERACTION

C5a, C3a

Fc

PHOTO: LERNHART NILSSON
α-gal/SA liposome
Interaction of flu virus and of anti-Gal antibody with α-gal/SA liposomes
α-GAL LIPOSOMES: LIPOSOMES PRESENTING MULTIPLE α-GAL EPITOPES

α-gal liposome
10(15) α-gal/mg
Recruitment of macrophages by α-gal liposomes (10mg) into PVA sponge discs implanted subcutaneously in GT-KO mice.

α-gal nanoparticles saline

Galili et al. BURNS 36: 239-251, 2010
Recruitment of macrophages within 24h by α-gal liposomes (10mg) injected intradermal in α1,3GT knockout mouse (GT-KO mice)

Hematoxylin & eosin

Anti-macrophage Ab (F4/80)
BINDING OF α-GAL LIPOSOMES TO MACROPHAGES VIA Fc/FcR INTERACTION WITH ANTI-GAL ON THE LIPOSOMES

UPTAKE OF α-GAL LIPOSOMES CONTAINING OVALBUMIN (OVA) INTO MACROPHAGES VIA Fc/FcR INTERACTION WITH ANTI-GAL ON THE LIPOSOMES
SIINFEKL SPECIFIC CD8+ T CELLS (ELISPOT) AND ANTI-OVA ANTIBODIES (ELISA) IN GT-KO MICE OR WILD TYPE (WT) MICE IMMUNIZED WITH OVA ENCAPSULATED IN α-GAL LIPOSOMES

UPTAKE OF Flu VIRUS (PR8) ENGINEERED TO EXPRESS α-GAL EPITOPES INTO MACROPHAGES VIA Fc/FcR INTERACTION WITH ANTI-GAL ON THE VIRUS
ANTI-FLU VIRUS ANTIBODY FORMATION AND PROTECTION AGAINST PR8 FLU VIRUS CHALLENGE FOLLOWING IMMUNIZATION WITH FLU (○) OR α-GAL FLU VIRUS (●)

ANTI-FLU VIRUS ANTIBODY (ELISA)  

SURVIVAL AFTER FLU CHALLENGE

Interaction of flu virus and of anti-Gal antibody with α-gal/SA liposomes
COLLABORATIONS

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