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(54) Title: IONIZABLE LIPIDS AND METHODS OF MANUFACTURE AND USE THEREOF

Figure 1: A comprehensive approach to improve mRNA LNP potency

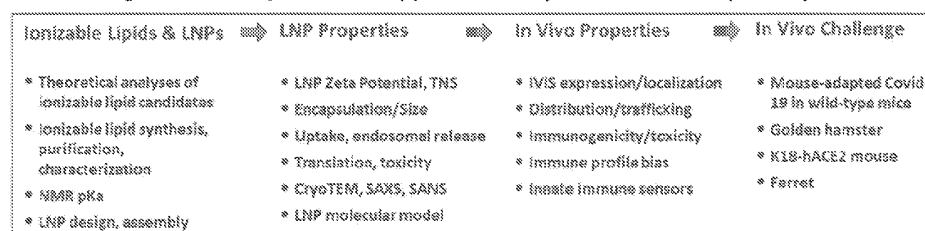


FIGURE 1

(57) Abstract: The invention encompasses novel ionizable lipids compounds and their use in lipid nanoparticles delivery systems that are useful in the delivery of nucleic acids to a mammalian subject that can be included for use, for example, as cancer vaccines, gene editing therapeutics, delivery of nucleic acid (e.g., mRNA) encoding antibodies, vaccines for infectious disease, and protein replacement therapeutics. Additionally, the invention encompasses compositions and therapeutics comprising the ionizable lipids in the lipid nanoparticles and the use of the composition and therapeutics for the preparation of a pharmaceutical composition, especially a vaccine, (e.g., for use in the prophylaxis or treatment of infectious diseases, tumor or cancer diseases, rare diseases, allergies, or autoimmune diseases). The invention encompasses methods of treatment or prophylaxis of the aforementioned diseases.

[Continued on next page]

SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

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