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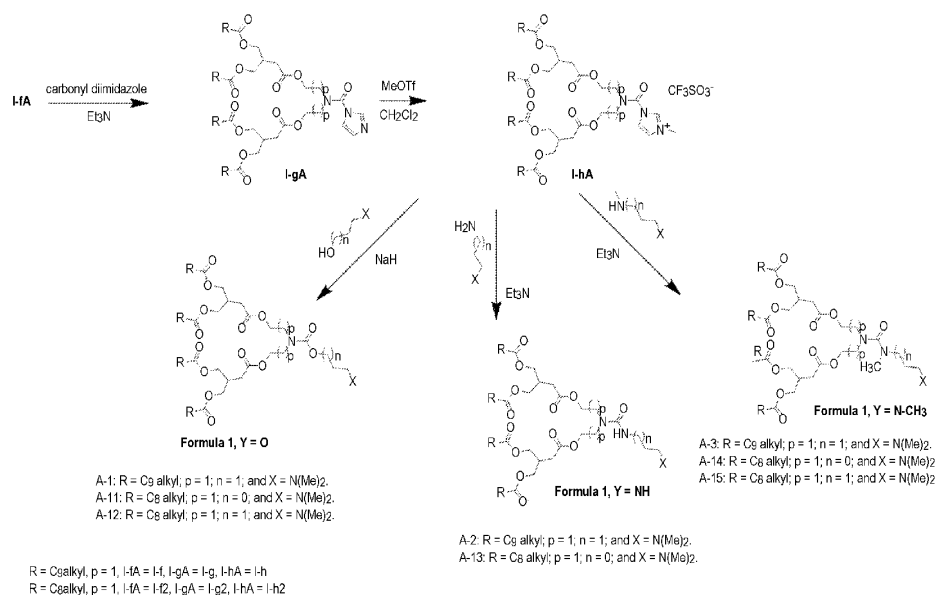
(54) **Title:** IONIZABLE CATIONIC LIPIDS AND LIPID NANOPARTICLES

FIG. 1B

(57) **Abstract:** Ionizable cationic lipids, methods for synthesizing them, as well as intermediates useful in synthesis of these lipids and methods of synthesizing the intermediates are disclosed. The ionizable cationic lipids are useful as a component of lipid nanoparticles (LNP), which in turn can be used for the delivery of nucleic acids into cells in vivo or ex vivo. LNP compositions are also disclosed, including LNP comprising a functionalized lipid to enable conjugation of a binding moiety, and targeted LNP (tLNP), that is a LNP in which a binding moiety has been conjugated to the functionalized lipid and can serve as a targeting moiety to direct the tLNP to a desired tissue or cell type.

[Continued on next page]

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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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