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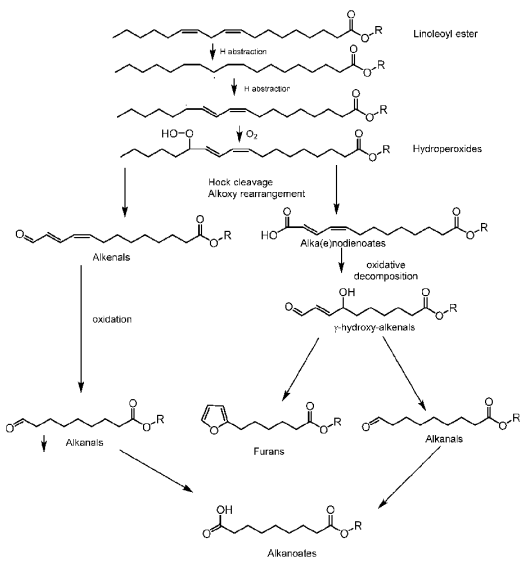
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(54) Title: LIPID NANOPARTICLES FOR DELIVERY OF NUCLEIC ACIDS AND METHODS OF USE THEREOF

FIG. 1



(57) Abstract: The present disclosure provides for improved compositions of ionizable lipid nanoparticles for the delivery of therapeutic nucleic acids to cells. Anionic phospholipids, including phosphatidyl serine and phosphatidylglycerol are included in the lipid nanoparticles to increase the transfection efficiency in human dendritic cells. The further incorporation of mono-unsaturated alkyl chain analogs in dimethylaminopropyl-di oxolane or heterocyclic ketal ionizable lipids in the formulation demonstrated high levels of transfection in human dendritic cells, compared to other ionizable lipids in the same family, and demonstrated good stability to oxidative damage. Finally, the use of an ammonium salt of phosphatidylserine allows for the efficient production of PS-targeted LNPs.

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