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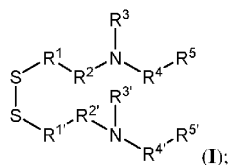
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(54) Title: NOVEL LIPIDS AND NANOPARTICLE COMPOSITIONS THEREOF



(57) Abstract: Provided herein are lipids having the Formula (I); and pharmaceutically acceptable salts thereof, wherein R^1 , R^1 , R^2 , R^2 , R^3 , R^3 , R^4 , R^4 , R^5 , and R^5 are as defined herein. Also provided herein are lipid nanoparticle (LNP) compositions comprising lipid having the Formula (I) and a capsid-free, non-viral vector (e.g., ceDNA). In one aspect, these LNPs can be used to deliver a capsid-free, non-viral DNA vector to a target site of interest (e.g., cell, tissue, organ, and the like).