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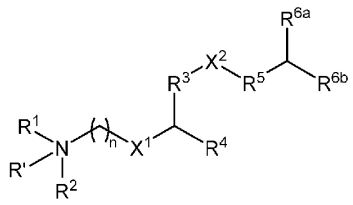
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(54) Title: CATIONIC LIPIDS AND COMPOSITIONS THEREOF



I or **Ia**

(57) Abstract: Provided herein are lipids having the Formula I or Formula Ia, and pharmaceutically acceptable salts thereof, wherein R', R^1, R^2, R^3, R^4, R^5, R^{6a}, R^{6b}, X^1, X^2, and n are as defined herein for Formula I and Formula Ia, respectively. Also provided herein are lipid nanoparticle (LNP) compositions comprising lipid having the Formula I or Ia and a capsid-free, non-viral vector (*e.g.*, ceDNA). In one aspect of any of the aspects or embodiments herein, 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).

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