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(57) Abstract: The present invention relates to the field of lipid nanoparticles (LNP); more specifically comprising an ionizable lipid, a phospholipid, a sterol, a PEG lipid and one or more nucleic acids. The LNP's of the present invention are characterized in having an ionizable lipid content of above 55 mol% and a ratio of cholesterol to phospholipid of 1 : 1 or less, such as about 1 : 2 or less. The present invention provides use of the LNP's for extrahepatic delivery of nucleic acid molecules, specifically mRNA; thereby making them highly suitable for use in the treatment of cancer, autoimmune diseases, genetic disorders, hematological disorders, aging, fibrosis, neurological disorders, cardiovascular diseases or infectious diseases.



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