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(54) Title: CALIXARENE-BASED DELIVERY SYSTEM AND METHOD OF USE

(57) Abstract: The current invention relates to a delivery system to deliver one or more cargo to one or more cells, wherein the cargo delivery system comprises at least a calixarene, a phospholipid, an additional lipid such as sterol. The invention further relates to a method of delivering cargo to a subject using the delivery system and a pharmaceutical composition comprising the delivery system. The invention also relates to the use of a calixarene in an immunogenic composition, wherein said composition comprises an immunogenic component encapsulated in a lipid nanoparticle (LNP) comprising said calixarene and wherein said LNP has an adjuvant effect in said immunogenic composition. The invention also relates to a vaccine, wherein said vaccine comprises an immunogenic component encapsulated in a lipid nanoparticle, wherein said lipid nanoparticle comprises at least one calixarene molecule and said lipid nanoparticle acts as an adjuvant in said vaccine. The invention also relates to a method of preparing an immunogenic composition and a composition comprising a lipid nanoparticle (LNP) adjuvant comprising calixarene.

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