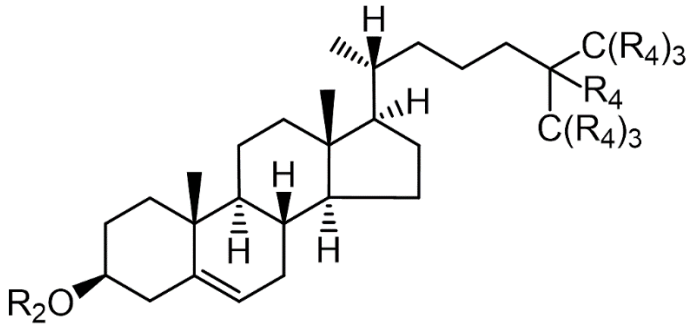
isotopically labeled H atoms. In preferred embodiments, the isotopically labeled H atom is deuterium (D).

In one embodiment, the cholesterol esters for inclusion in the ULQS are represented by the general formula III, or a pharmaceutically acceptable salt thereof:



III

wherein:

R_2 is a C9 to C29 saturated or unsaturated acyl chain; and

R_4 is independently H or an isotope of H, provided that at least one of R_4 is an isotope of H.

R_2 is a saturated or unsaturated acyl chain from 2 to 29 carbons in length. In one embodiment, R_2 is an acyl chain from 2 to 5 carbons in length, an acyl chain from 6 to 10 carbons in length, an acyl chain from 10 to 20 carbons in length, or an acyl chain from 21 to 29 carbons in length. In a particular aspect, R_2 is an acyl chain from 10 to 20 or 21 to 29 carbons in length. Such acyl chain, regardless of the length, includes both even and odd chain lengths and may be saturated or unsaturated. In a particular embodiment, the acyl chains of the cholesterol ester species are each selected such that the sum composition score of the acyl chain is an even number. In another embodiment, R_2 is an acyl chain of 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, or 29 carbons, which are saturated or unsaturated. In another embodiment, R_2 is an acyl chain of 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, or 24 carbons, which is saturated or unsaturated. In another embodiment, R_2 is an acyl chain of 14, 15, 16, 17, 18, 19, 20, 21, or 22 carbons, which are saturated or unsaturated.

In one embodiment, R_2 is a saturated acyl chain. In another embodiment, R_2 is an unsaturated acyl chain. When R_2 is an unsaturated acyl chain, the acyl chain may contain from 1 to 6, from 1 to 4 or from 1 to 3 double bonds. In one embodiment, R_2 is an unsaturated acyl chain; containing from 1 to 4, from 1 to 3 or from 1 to 2 double bonds. In certain embodiments, R_2 is contains 2 or more double bonds when the acyl chain length is over 18 or over 20 (containing from example from 2 to 4 double bonds). The double bonds in such unsaturated