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(71) Applicant: **ARCTURUS THERAPEUTICS, INC.** [US/US]; 10628 Science Center Drive, Suite 250, San Diego, CA 92121 (US).

(72) Inventors: **KARMALI, Priya**; 10628 Science Center Drive, Suite 250, San Diego, CA 92121 (US). **CHIVUKULA, Padmanabh**; 10628 Science Center Drive, Suite 250, San Diego, CA 92121 (US). **PAYNE, Joseph, E.**; 10628 Science Center Drive, Suite 250, San Diego, CA 92121 (US). **BAO, Yanjie**; 10628 Science Center Drive, Suite 250, San Diego, CA 92121 (US).

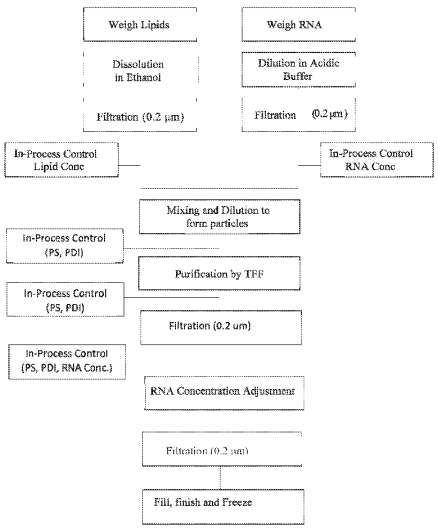
(74) Agent: **SHERIN, Mridula, P.** et al.; Mintz Levin Cohn Ferris Glovsky and Popeo, P.C., One Financial Center, Boston, MA 02111 (US).

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(54) Title: METHOD OF MAKING LIPID-ENCAPSULATED RNA NANOPARTICLES

FIG. 1



(57) Abstract: A method of producing a lipid-encapsulated RNA nanoparticle, comprising the steps a) flowing an aqueous solution comprising an RNA through a 1st tube having an inner diameter (ID) of between about 0.1" and 0.132"; b) flowing an ethanol solution comprising lipids through a 2nd tube having an ID of between about 0.005" and 0.02" at one third the flow rate of the aqueous solution through the 1st tube, wherein the lipids comprise a cationic lipid; and c) mixing the ethanol solution with the aqueous solution by flowing the ethanol solution and the aqueous solution into a mixing module consisting of the 2nd tube perpendicularly joined to the 1st tube; wherein the mixing produces an output solution flowing in the 1st tube comprising a turbulent flow of the RNA and the lipids in between about 10% to 75% ethanol v/v, and wherein the lipid-encapsulated RNA nanoparticles have a bilayer structure.

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