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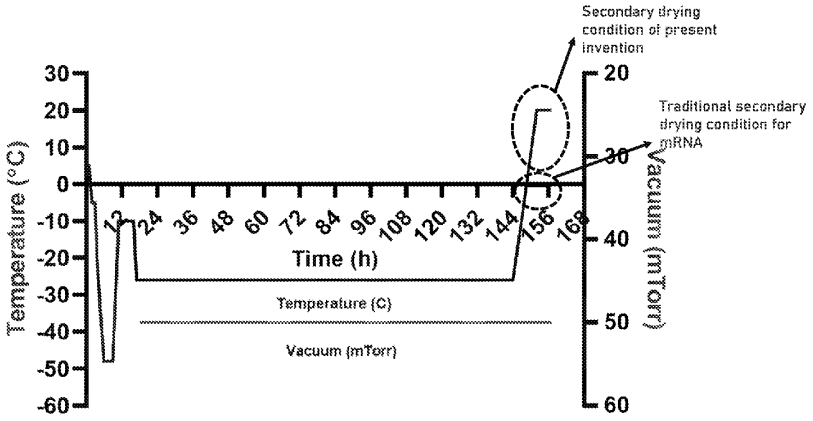


Figure 1

(57) Abstract: The present invention provides an improved process for preparing a stable lyophilized composition comprising lipid nanoparticles encapsulating mRNA, which results in high mRNA integrity suitable for both short- and long-term storage for therapeutic use. In some embodiments, the present invention provides a method of preparing a stable lyophilized composition comprising the steps of adding ascorbic acid to an aqueous solution comprising one or more lipid nanoparticles, freezing the aqueous solution to obtain a frozen solution, drying the frozen solution to obtain a lyophilized composition, and increasing and holding the temperature of the lyophilized composition to a temperature of between 15 °C to 30 °C.

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