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## Facts and evidences on the lyophilization of polymeric nanoparticles for drug delivery

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### Abstract

Lyophilization has been used to improve the long-term stability of polymeric nanoparticles for drug delivery applications, avoiding their instability in suspension. However, this dehydration process may induce stresses to nanoparticles, mitigated by the use of some excipients such as cryo- and lyoprotectants. Still, the lyophilization of polymeric nanoparticles is frequently based in empirical principles, without considering the physical-chemical properties of formulations and the engineering principles of lyophilization. Therefore, the optimization of formulations and the lyophilization cycle is crucial to obtain a good lyophilizate, and guarantee the preservation of nanoparticles

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