

# Accepted Manuscript

Review

Surface-induced crystallization of pharmaceuticals and biopharmaceuticals: a review

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PII: S0378-5173(18)30383-1

DOI: <https://doi.org/10.1016/j.ijpharm.2018.05.069>

Reference: IJP 17540

To appear in: *International Journal of Pharmaceutics*

Received Date: 5 March 2018

Revised Date: 30 May 2018

Accepted Date: 30 May 2018

Please cite this article as: F. Artusio, R. Pisano, Surface-induced crystallization of pharmaceuticals and biopharmaceuticals: a review, *International Journal of Pharmaceutics* (2018), doi: <https://doi.org/10.1016/j.ijpharm.2018.05.069>

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# Surface-induced crystallization of pharmaceuticals and biopharmaceuticals: a review

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## **Abstract**

Despite crystallization wide occurrence in pharmaceutical industry, deep understanding and fine control of the process remain tricky issues. Nevertheless, the successful manufacturing of finished pharmaceutical products, as well as the structural determination of biopharmaceuticals, depend on crystal size, form, shape and purity. The nucleation ability of substrates with precise chemistry and topological features has been thoroughly assessed during the recent years. This paper reviews major advances and discoveries in controlling small molecule drug and protein crystallization by means of engineered surfaces. By designing superficial properties and morphology, it has been possible to tune polymorph outcome, shorten nucleation induction time, impose specific crystal shapes, control crystal dimensions and carry out crystallization at very low supersaturation levels. Such achievements underline the potential of surface-induced crystallization to provide an ideal platform for the study of nucleation phenomena and gain control over their stochastic nature.

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