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Quality by design and particle engineering via spray drying

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Efforts to understand and control particle formation processes have been intensified in the last decade, coinciding with the development of pulmonary therapeutics that were traditionally given by injection triggering the development of diverse administration systems and particle engineering strategies. To date, the process that drives particle formation is not fully understood yet due to the interaction among many parameters. Therefore, the prediction of the final size, morphology and solid state is complicate requiring a deeper understanding. For this reason, the main aim of this project is to investigate which parameters play a key role in the particle formation process and how these properties (parameters) can be model in order to predict the final optimal particles with the desired characteristics. The potential use of this basic research could be applied to multiple disciplines, we are focus on getting the right particle to pulmonary drug delivery.The key of successful particle engineering is controlling the mechanisms that determine the solid state as well as the radial distribution of components during the drying process when more than two components are spray dried together. Several driving forces that may be responsible for separation of components have been suggested. Surface activity may lead to preferential adsorption of components on the droplet surface, causing a diffusional flux toward the surface.

Biography

Esther de Pablo is doing second year of PhD at the age of 25 years from the department of Pharmacy and Pharmaceutical technology in the School of Pharmacy in the Universidad Complutense de Madrid. I have publication just submited about pulmonary drug delivery systems getting by spray drying technique.

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