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TITLE

Formulation design and process optimization for preparing nanoparticles using top down approach to improve the bioavailability of poorly soluble drug

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Nanomilling process which reduces the particle size of active pharmaceutical ingredient (API) down to the sub-micron range is a popular technique in the pharmaceutical field for the delivery of poorly water soluble drugs. This is a potential technique to achieve better in vitro dissolution and high in vivo exposure1. This presentation will highlight:

a) Basic principles of Nanomilling technology

b) Selection criteria of this technology during preclinical stage

c) Formulation design during Clinical development

d) Design of process parameters using Factorial design and MVDA approach2.

e) Techniques for improving the stability of the system

f) Analytical characterization methods

g) Case studies showing improvement of Bioavailability using Nanoparticulate formulation.

References:

1. Indrajit Ghosh*, Sonali Bose, Radha Vippagunta, Ferris Harmon, Nanosuspension for improving the bioavailability of a poorly soluble drug and screening of stabilizing agents to inhibit crystal growth, International Journal of Pharmaceutics 409 (2011) 260–268.

2. Indrajit Ghosh*, Daniel Schenck, Sonali Bose, Michael Motto, Studying the effect of nanomilling process parameters by varying the drug-carrier ratio on the production of successful nanoparticles using Factorial design approach, AAPS Annual Symposium, Nov., 2011.

Biography

Indrajit Ghosh is a Principal Scientist at Novartis Pharmaceutical Corporation for the last 7 years. He has more than 11 years of industrial experience with preformulation, formulation and scale-up of different pharmaceutical products especially from cardiovascular and oncology compounds. He has developed several technologies like solid dispersion, melt extrusion, nanotechnology, etc. for poorly soluble compounds and commercialized to market. He has also several patents and publications in these areas.