



राष्ट्रीय औषधीय शिक्षा एवं अनुसंधान संस्थान

**NATIONAL INSTITUTE OF PHARMACEUTICAL  
EDUCATION AND RESEARCH (NIPER)**

(Ministry of Chemicals & Fertilizers Govt. of India)  
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Justification for Sponsoring the Nomination by the Nominator

Dr Abhay, Professor in the Department of Pharmaceutics, NIPER, SAS nagar is actively involved in the **“Development of Oral Drug Delivery Systems that Survive GIT Transit and Pass Over the Intestinal Barrier”**. Certainly! The development of oral drug delivery systems that effectively navigate the gastrointestinal tract (GIT) and overcome its barrier is a critical area of research. The major challenges in development of these systems are the physiological barriers presenting poor stability, poor solubility and low permeability to the drugs and delivery systems. Innovative pharmaceutical approaches include nanoparticle formulations, biomimetic drug formulations and microfabricated devices. Although these systems are viable, they are difficult to develop and non-affordable in the market.

Dr Abhay is working on supersaturated drug delivery systems that can survive the harsh GI environment and restrict the precipitation of drugs at variable pH conditions. Supersaturation lead to precipitation in vitro and in vivo but remains hard to predict in vivo precipitation from in vitro experiments. Dr Abhay has developed an innovative method of Microarray plate for estimation of precipitation kinetics in vitro (Mol Pharmaceutics 2018,15,6,2423-2436). Dr abhay has done value addition to the existing technology of amorphous solid dispersions (ASD) by conferring stability underlying the drug polymer interactions using precipitation assays. He has developed low dose aprepitant bioperformance through synergistic cellulosic amalgamation. He is instrumental in developing amorphous salt solid dispersion (ASSD), a extension to the pre-existing technology of ASD. ASSD improve the solubility, stability and bioperformance of several drugs. Recently, he has published his work in Nature-Communications Chemistry. Overall, Dr Abhay has published more than 100 papers in indexed journals with H-index of 28.

I am happy to sponsor Dr Abhay's nomination for Sun Pharma Science Foundation Research fellowship.

*James*  
*Director, July 10, 24.*  
*NIPER, SAS Nagar.*

Director (Acting Director)  
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