

Nanopharmaceutics

Nanotechnology is now a part of our everyday life with or without our knowledge. Then, why can pharmaceuticals not conceive this technology for its betterment? Yes, the same has been done for many years in the past in pharmaceuticals and now nanopharmaceutics can be considered as one of the subdivisions of pharmaceuticals. Although the term “nanopharmaceutics” is not being started to be used widely, I feel that it would be more suitable when we discuss the application of nanotechnology to drug delivery systems. “Nanopharmaceutics” can be defined as the science that deals with the application of the principles of nanotechnology in pharmaceuticals. These delivery systems, because of their size effect, are capable of altering the properties of a drug, including their bioavailability, biodistribution and pharmacokinetics. Nanosizing of the drug itself is also another well-accepted and established technique for altering its properties.

At present, we have a plethora of nanostructured delivery devices for a variety of applications. I am not discussing them here as there are already a large number of publications describing their basics.^[1-3] The thrust on nanopharmaceutics in research is evident from the increased number of publications, patents and events in this area. Various funding agencies are also keen to support research based on nanotechnology. Some agencies even have a separate fund for promoting nanotechnology research. This has been proved to be a real boost for nanopharmaceutics. At present, a good number of journals solely dedicated to disseminate topics on nanotechnology are available and, generally, it is a concept that manuscripts on nanotechnology get an edge in publication compared with that on other topics. This also has been a motivating factor for more research in the area of nanotechnology and nanopharmaceutics.

Nanopharmaceutics form a part of nanomedicine, and engineered nanostructures are gaining attraction. Surface modifications of nanostructure are also under spotlight. Nanopharmaceutics is widening its frontier, with some recent and promising approaches being drug delivery using carbon nanotubes, metallic nanoparticles and use of quantum dots. Targeted delivery is one of the highlights of nanopharmaceutics. An increase in the publications related to targeted delivery of bioactives using nanopharmaceutics is a signal of exploration in this area.

Despite the fact that nanopharmaceuticals are having many advantages, some toxicity studies warrant that the use of these should be on good judgment of the benefit to risk ratio. But, this

does not mean that everything resulting from nanopharmaceutics is toxic. However, some may be of deep concern. The extent of commercial utility is another concern about the techniques involved in nanopharmaceutics. This is imperative because, ultimately, the technique should be cost-effective and profitable for being commercialized. Stability issues of these drug delivery systems are also causing unease up to some extent.

Although we are publishing manuscripts related to nanopharmaceutics in all issues possible, it is in our interest for an issue of IJPI on nanopharmaceutics as a part of our endeavor to encourage nanotechnology research in pharmaceuticals. I hope that it would be a motivation for the researchers in the field of nanopharmaceutics. Also, it would serve as a source for comprehensive up-to-date information on nanopharmaceutics. I welcome suggestions from the editorial board, reviewers, authors and readers of IJPI for their inputs of ideas and topics that would be appropriate for the issue.

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