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Can the drug delivery systems match the pace?

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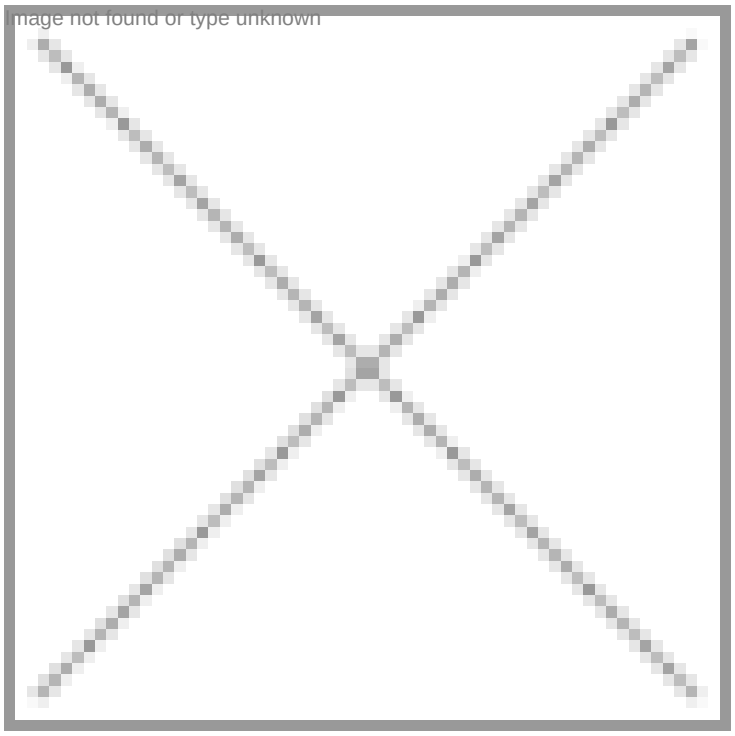

Nanditasingh

progress in biomedicine is dependent on the advances in the drug delivery systems.

Drug delivery innovations will be critical in driving the biomedicine industry. In fact, further

The market for biological drugs, which is already well over $100 billion, continues to grow at a fast clip, besides getting more complex in nature. Taking these biologic drugs to market and ensuring their quick adoption majorly depends on the delivery systems available. Precision delivery methodologies are required. The question is: can the drug delivery systems match the

pace and deliver it?

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Nandita Singh
The author is
Editor of BioSpectrum
nanditas@cybermedia.co.in

There are many companies working in the area. Applications of technological advances in nanoparticles, microencapsulation, and polymer technology are driving their initiatives. These advances are evolving the drug delivery system itself to work closely with the therapeutic being delivered in a targeted manner with pre-defined time lag release for high efficacy. Drug delivery

and the drugs are somewhat getting fused together. This brings forth exciting possibilities.

We already have been hearing about needle-free novel delivery mechanisms such as patches and edible vaccines. There are many high potential developments in the offing. In August, this year, South Korean scientists announced that they have developed a nanoparticle anti-cancer drug delivery system. This nanoparticle uses calcium phosphate as a cap to contain the drug, which dissolves only when it comes in contact with the high levels of acidity in cancer cells. Dr

Lee Sang-cheon of Kyunghee University led this research group.

In another development, a research team at MIT, led by Dr Ali Khademhosseini, associate professor in the MIT-Harvard Division of Health Sciences and Technology, and Robert Langer, the David H. Koch Institute professor, met the same challenge by building micromolds out of a

temperature-sensitive material that shrinks when heated.

By some rough estimates, the drug delivery systems market will most likely cross $10 billion, globally, by the end of this decade. And that is a huge window of opportunity. Challenges also

abound.

Science is always a challenge. However, that's not the only challenge. After science, the next big challenge that the companies need to contend with is synergizing these developments at the drug delivery technology companies and research institutes with the companies that need these technologies. And therein lies the next level of challenge in finding ways to collaborate for

successful outcomes at various levels.

It would be interesting to hear stories of such collaborations, challenges met and the consequent gains. So, I am opening a conversation on this page of BioSpectrum. I look forward to hearing from you.