

Magnetic Driven Drug Delivery Technology Market Detailed In New Research Report 2021 | Abbott Laboratories, Becton

Nanotechnology-based platforms are witnessing wider adoption in research and development activities.



industry, drivers, restrictions, opportunities. It gives an investigative view to settle on further choices in organizations. It covers comprehensive instructive information of various key players working over the globe.

Nanotechnology-based platforms are witnessing wider adoption in research and development activities as they provide numerous benefits in terms of bioavailability, drug stability, shelf-life, and dosage. There are different types of nano-carriers including magnetic particles, silica nanoparticle, liposomes, dendrimers, carbon nanoparticles, polymeric micelles, and drug-conjugate nanoparticles. These nano-carriers are used in various industries to fulfil specific requirements.

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A major issues with chemotherapy is that the currently available drugs are non-targeted. This

means, free-flowing drug particles can damage both healthy and cancerous cells. For enhanced efficiency, the anti-cancer drugs need to penetrate the tumor cells and reach the cytoplasm. With currently available techniques, this can be achieved by means of a direct injection into the tumor or administering a large dose of the drug which can lead to side effects, be painful and expensive. Therefore, researchers started exploring the magnetic particles to drive the drugs at the target location.

Researchers from Singapore have developed a new way to deliver cancer drugs in tumor cells that use small drug-coated bubbles. These micro-sized bubbles are coated with the drug particles and iron oxide nanoparticles. With the help of magnet, the bubbles surround the targeted tumor cell and using ultrasound device, bubbles vibrate directing the drug particles to move toward the target cell. Clinicians would be able to localize the anticancer drugs around a tumor and introduce the drug deep into the tumor issues. The study is estimated to enter the clinical trials in next eight to ten years.

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Developing safe and effective drug delivery is one of the major challenges for pharmaceutical and biotechnology companies. Currently, nanoparticle drug delivery technology is exhibiting promising signs with drugs overcoming the issue of multi-drug resistance in antibiotic and cancer therapies. Furthermore, technological advancements in R&D has allowed controlled and sustained drug release, in order to reduce the dosage and provide them long-term effect of the drug.

A number of studies are being carried out globally on magnetic driven drug delivery technology. However, strong results for the U.S. Food and Drug Administration (FDA) approval and high investments are required to commercialize this technology in the near future.

Research and development activities by major institutes to develop novel magnetic driven drug delivery technologies is expected to offer lucrative opportunities for market players. For instance, in August 2019, researchers from the Massachusetts Institute of Technology developed a nanomaterials-based technique known as remotely controlled chemomagnetic modulation that permits the pharmacological interrogation of targeted neural populations in freely moving subjects. The approach allows drugs to be released at precise times and in specific areas.

Similarly, in May 2019, researchers from Purdue University reported development of a minimally-

invasive automatic antidote delivery device that automatically delivers drug to reverse opioid. The wearable device contains a magnetic field generator that is activated when the sensor detects a low respiration rate. The magnetic field generator heats up a drug capsule in the body to release naloxone in 10 seconds.

Moreover, in September 2018, researchers from Sun YatSen University, China, developed a novel strategy for multimodal visualization of eccentric magnetic microcapsules (EMMs) for potential treatment of hepatocellular carcinoma.

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