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# Recent Advances in the Application of Biomaterials in Drug Delivery and Regenerative Medicines

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# **Message from the Guest Editors**

Biomaterial advances have allowed significant progress in biology and medicine, with biomaterials becoming increasingly important for drug delivery, tissue engineering, and new clinical treatments. However, that materials be designed that support and guide cells during healing and remodeling processes in regenerative medicine. A number of advanced tissue engineering systems work in conjunction with bioactive agents to enhance tissue regeneration by modulating the cellular environment. Bioactive agents include, for example, small molecules, bioactive ions, genes, cells, and growth factors applied either singly or simultaneously to a target. In many cases, bioactive agents must act intracellularly at the molecular level due to their sensitivity to the surrounding environment. It is therefore required to provide a suitable carrier, such as hydrogels, bioceramics, electrospun fibers, nano/microparticles, or genetically modified cells, in order for these agents to be effective. It is also important to emphasize that such local or site-specific smart drug delivery systems are highly successful because they combine active biomaterials, agents, cells. and nanotechnologies efficiently.













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