

Nanomedicines: addressing the scientific and regulatory gap.

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Abstract

Nanomedicine is the application of nanotechnology to the discipline of medicine: the use of nanoscale materials for the diagnosis, monitoring, control, prevention, and treatment of disease. Nanomedicine holds tremendous promise to revolutionize medicine across disciplines and specialties, but this promise has yet to be fully realized. Beyond the typical complications associated with drug development, the fundamentally different and novel physical and chemical properties of some nanomaterials compared to materials on a larger scale (i.e., their bulk counterparts) can create a unique set of opportunities as well as safety concerns, which have only begun to be explored. As the research community continues to investigate nanomedicines, their efficacy, and the associated safety issues, it is critical to work to close the scientific and regulatory gaps to assure that nanomedicine drives the next generation of biomedical innovation.

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