Nanoparticles for diagnosis and therapy of atherosclerosis and myocardial infarction: Evolution toward prospective theranostic approaches

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© Ivyspring International Publisher. Cardiovascular diseases are the leading cause of death worldwide. Despite preventive efforts, early detection of atherosclerosis, the common pathophysiological mechanism underlying cardiovascular diseases remains elusive, and overt coronary artery disease or myocardial infarction is often the first clinical manifestation. Nanoparticles represent a novel strategy for prevention, diagnosis, and treatment of atherosclerosis, and new multifunctional nanoparticles with combined diagnostic and therapeutic capacities hold the promise for theranostic approaches to this disease. This review focuses on the development of nanosystems for therapy and diagnosis of subclinical atherosclerosis, coronary artery disease, and myocardial infarction and the evolution of nanosystems as theranostic tools. We also discuss the use of nanoparticles in noninvasive imaging, targeted drug delivery, photothermal therapies together with the challenges faced by nanosystems during