



Use and therapeutic application of nanocarriers (smart drugs) to prevention and remediation of cardiovascular diseases

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Abstract

This work focuses on the potential of nanotechnology in nanomedicine, mainly cardiovascular pharmacology discipline, including the highlight rational approaches in design, manufacturing, development, and applications of nanodevices (smart drugs) containing nanoparticles that acts as nanocarriers to controlled and direct for site-specific targeted smart drug delivery into human body using artificial receptors, and unique nanoparticle systems for diagnostics, screening, medical imaging, prevention, and correction of cardiovascular pathologies therapy after administration routes. Our purpose is to offer the most efficient the development pathways for nanomedicine is to merge biomolecular and cellular techniques, tools and method with the nanotechnology knowledge base, as it specifically relates to the development of nanoparticles for enabling and improving targeted delivery of the therapeutic agents; developing novel and more effective diagnostic and screening techniques to extend the limits of molecular diagnostics providing point-of-care diagnosis and more personalized medicine.

A nanocarrier is nanomaterial being used as a transport module for an additional substance, like a drug. Normally used nanocarriers embody micelles, polymers, carbon-based materials, liposomes and alternative substances. Nanocarriers are presently being studied for his or her use in drug delivery and their distinctive characteristics demonstrate potential use in therapy. Nanocarriers vary from sizes of diameter 1–1000 nm, but thanks to the breadth of microcapillaries being two hundred nm, nanomedicine typically refers to devices <200 nm. attributable to their little size, nanocarriers will deliver medication to otherwise inaccessible sites round the body. Since nanocarriers are thus little, it's often troublesome to produce massive drug doses victimisation them. The emulsion techniques wont to build nanocarriers additionally typically lead to low drug loading and drug encapsulation, providing a

problem for the clinical use. Nanocarriers are helpful within the drug delivery method as a result of they'll deliver medication to site-specific targets, permitting medication to be delivered in sure organs or cells however not in others. Site-specificity could be a major therapeutic profit since it prevents medication from being delivered to the incorrect places. Nanocarriers show promise to be used in therapy as a result of they'll facilitate decrease the adverse, broader-scale toxicity of therapy on healthy, quick growing cells round the body. Since therapy medication may be very cyanogenetic to human cells, it's vital that they're delivered to the growth while not being discharged into alternative components of the body. Four ways within which nanocarriers will deliver medication embody passive targeting, active targeting, pH scale specificity, and temperature specificity. Most of analysis on nanocarriers is being applied to their potential use in drug delivery, particularly in therapy. Since nanocarriers may be wont to specifically target the tiny pores, lower pH's, and better temperatures of tumors, they need the potential to lower the toxicity of the many therapy medication.

Cardiovascular disease (CVD) could be a category of diseases that involve the guts or blood vessels. CVD includes arteria diseases (CAD) like angina and infarction (commonly called a heart attack). alternative CVDs embody stroke, heart disease, hypertensive heart condition, rheumatic heart condition, cardiopathy, abnormal heart rhythms, inherent heart condition, control heart condition, carditis, arterial blood vessel aneurysms, peripheral artery sickness, thromboembolic sickness, and thrombosis. The underlying mechanisms vary betting on the sickness. arteria sickness, stroke, and peripheral artery sickness involve coronary artery disease. this might be caused by high force per unit area, smoking, diabetes, lack of exercise, obesity, high blood cholesterol, poor diet, and excessive alcohol consumption, among others. High force per

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unit area is calculable to account for about thirteen of CVD deaths, whereas tobacco accounts for Sept. 11, polygenic disorder 6 June 1944, lack of exercise 6 June 1944 and fleshiness five-hitter. Rheumatic heart condition could follow untreated sore throat.

It is calculable that up to ninetieth of CVD is also preventable. bar of CVD involves rising risk factors through: healthy consumption, exercise, rejection of tobacco smoke and limiting alcohol intake. Treating risk factors, like high force per unit area, blood lipids and polygenic disorder is additionally helpful. Treating those who have sore throat with antibiotics will decrease the chance of rheumatic heart condition. the employment of acetylsalicylic acid in individuals, World Health Organization are otherwise healthy, is of unclear profit. There are several risk factors for heart diseases: age, sex, tobacco use, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, genetic predisposition and case history of disorder, raised force per unit area (hypertension), raised blood glucose (diabetes mellitus), raised blood cholesterin (hyperlipidemia), unknown disorder, psychosocial factors, financial condition and low instructional standing, and pollution.

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