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DEVELOPMENT OF A NOVEL DRUG-­‐ELUTING STENT (DES) PLATFORM FOR THE DELIVERY OF DRUG-­‐LOADED MAGNETIC NANOPARTICLES (MNPS) By (Name)
Course:
Instructor:
Institution:
Location:
Date of Submission:
Cardiovascular diseases affect the operation of the heart and blood vessels. One of the major cause s of cardiovascular diseases comes because of vascular smooth muscle accumulation inside a blood vessel. Consequently, there is restricted blood flow due to medial intimal thickening (IMT). Some of the notable strategies for the condition include angioplasty and drug-eluting stents. Even though stenting improves the condition, in-stent restenosis can reoccur because vascular stem cell can transition to vSMC. The best option is thus to use a drug-eluting stent.
The drugs functionality is based on the principle of inhibiting the hedgehog pathway in stem cells. It works by removing the stenosis or corrosion in the coronary artery. In essence, the development procedure aims at evaluating methodologies that controls the behavior of vascular stem cells. The effectiveness of the project is evaluated by observing the modulation behavior of vascular smooth muscle cells (vSMC) under magnetic vs. non-magnetic environment. Magnetic targeting and nanoparticles formulation helps to reduce the effect vascular stem cells from the source. This way drugs such as cyclopamine and HPI-4 will effectively help to treat cardiovascular diseases.