**Design and Fabrication of Multifunctional Nanomaterials and Their Application in Nanomedicine**

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**Introduction**

Nanomaterials have attracted enormous attention in over the past few years due to their critical role in biotechnology and medicine technology. In this study, an explained in detail of the different types of new designed nanomaterials and their applications is researched. The diverse applications of variety nanomaterials in hemostatic effect, treatment of disease. Thus, this studies show that different types of nanomaterials as well as the diverse applications in the biomedical field.

**Aims**

Research the use of solution blow spinning tofabricate potential nanofiber expeditious control material on massivehemorrhage area, utilizing only a commercial airbrush and aircompressor. The demonstrates the synthesis of surface modifiedCZNPs that into the mitochondria and inhibit hepatocyte death in aliver disease model.

**Methods**

Fabricated nanofibers were indicated in vitro bloodinteraction was evaluated with FE-SEM (Field-emission ScanningElectron Microscopy). And for the ROS scavenger nanoparticles effect about the liver cirrhosis, at a concentration of 10 ug/ml significantly decreased the high glucose induced ROS formation, ER stress marker and fibrosis markers.

**Results**

For function of hemorrhage control blow spunnanofiber feasibility testing in a mouse model study was then used todemonstrate some of the possible surgical applications including use asa surgical hemostatic, an immediate nanofiber for control on massivehemorrhage. And show that, these findings, in vivo ROS-scavenging properties of ceria zirconia-biotin NPs were examined by Western blot analysis.

**Discussion**

The qualitative evaluation of blood interaction with nanofiber membranewas completed using SEM. After an hour incubation andwashing with PBS there was significant platelet and erythrocyteadsorption onto the nanofiber matrix. And we expected, the level of the oxidative in the liver cirrhosis in vitro model that of the wild-type counterparts. Consistent with the in vitro data, administration of ceria zirconia-biotin NPs decreases the level of TAA, implying ceria zirconia-biotin NPs can effectively reduce oxidative stress signaling in liver cirrhosis model.

**Conclusion**

We focused on the nanofibers formation for biomedical purposes, like tissue engineering or regenerative medicine. Thesefactors limit both the commercial applicability of electrospun fibers andthe capability of rapidly applying fibers for an immediate in situindication. And CZ-biotin NPs are biocompatible and can scavenge mitochondrial ROS efficiently to reduce oxidative stress in vitro. Our research a novel strategy for the development of mitochondrial therapeutics against various liver disease for the treatment of fatty liver disease and cirrhosis, and hepatic insufficiency.

**References**

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