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Chitosan-lignosulfonatesono-chemically prepared nanoparticles: Characterisation and potential applications

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Biodegradable chitosan microspheres have been widely researched as a potential delivery system. In this work, nanoparticles comprising chitosane-lignosulfonate polyelectrolyte complex were newly developed for potential cosmetic or medical application, due to their recognized properties of biocompatibility, biodegradability and antioxidative properties. Various conditions for microspheres preparation were studied and thoroughly characterized by measuring particle size, zeta potential, polydispersity index. pH of chitosan solution and sonication time were determinant factors on the development of smaller particles with low polydispersity index(8minutes of sonication at pH 5) in the presence of proper surfactant, poloxamer 407 (particle size: >230 nm). A full characterization was performed in order to assess the beneficial effects of lignosulfonate onto chitosan microspheres.Lignosulfonates induced higher stability against lysosyme, an enzyme present in human body fluids, showing good resistance against enzymatic degradation. The morphology was evaluated, as well, by transmission electron microscopy. These particles were also shown to be able to incorporate a hydrophilic protein model, releasing of RNase Aagainst 0.5 g/L of lysosyme and presenting high rate of release in low concentration of lysosymemedium.

Biography

Suyeon Kim obtained her PhD degree in chemical textile department in Minho University in Portugal in 2009. She graduated in textile engineering in Youngnam University in Korea. Now she is working as researcher at Interdisciplinary Research Laboratory in PUCP and her main research area is the medical biotechnology and functional polymer synthesis from natural components. She published in around 15 international journals, book chapters and in area of biotechnology, polymer engineering and enzyme biotechnology. She also has patent in enzymatic processing in textile industry.

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Replacing chromosomes on a cell by cell basis throughout the body *in vivo*

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This session reports on the very important recent technological event and its significance to the human race: chromallocyte - a nanorobot that would be capable of replacing chromosomes on a cell by cell basis throughout the body in vivo. The significance of chromallocyte comes from its ability to painlessly reverse the effects of genetic disease and other accumulated damage to our genes thus preventing aging. It could reduce suffering, save lives and enhance human potential. By analogy to the successful effort to put man on the moon, we should aim at chromallocyte landing on the liver by 2039. The same strategic planning principle could be applied.

Biography

Renata G Bushko is Chair of the Future of Health Technology Institute, a health technology think-tank dedicated to defining the health technology agenda for the 21st century. She founded Future of Health Technology Institute in 1996 and has since chaired 11 Future of Health Technology Summits at MIT. Previously she served on national healthcare programs organized by Vice President Albert Gore, Dr. C. Everett Koop, and former secretary of Health and Human Services, Dr. L. Sullivan. She was an advisor on health technology investment issues in the US, UK, Puerto Rico, Australia, New Zealand, & Poland while representing US health standards organizations to Australia & Asia. She also worked as an analyst/writer for the International Data Corporation (IDC) defining future trends in technology and healthcare.

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