Fabrication of Poly(Ethylene Oxide)/Chitosan/Indocyanine Green Nanoprobe by Co-Axial Electrospinning Method for Early Detection

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Abstract : Early detection of cancer could save human life and quality in insidious cases by advanced biomedical imaging techniques. Designing targeted detection system is necessary in order to protect of healthy cells. Electrospun nanofibers are efficient and targetable nanocarriers which have important properties such as nanometric diameter, mechanical properties, elasticity, porosity and surface area to volume ratio. In the present study, indocyanine green (ICG) organic dye was stabilized and encapsulated in polymer matrix which polyethylene oxide (PEO) and chitosan (CHI) multilayer nanofibers via co-axial electrospinning method at one step. The co-axial electrospun nanofibers were characterized as morphological (SEM), molecular (FT-IR), and entrapment efficiency of Indocyanine Green (ICG) (confocal imaging). Controlled release profile of PEO/CHI/ICG nanofiber was also evaluated up to 40 hours.

Keywords : chitosan, coaxial electrospinning, controlled releasing, drug delivery, indocyanine green, polyethylene oxide **Conference Title :** ICNMA 2018 : International Conference on Nanostructured Materials and Applications

Conference Location : Zurich, Switzerland

Conference Dates : September 13-14, 2018