

## Nanogel For Breast Cancer Treatment

**Masood F**

Comsats University, Pakistan



### Abstract

Breast cancer is the most common malignancy in women globally and is a main reason of mortality, thus requiring more therapeutic advancements. The epirubicin (EPI) is an anthracycline. However, the dose-related cardiotoxicity, neurotoxicity and myelosuppression are main problem associated with the use of available formulation of EPI. The poly-3-hydroxybutyrate-co-3-hydroxyvalerate (PHBV) is considered as an ideal drug carrier due to its non-toxic, biodegradable and biocompatible nature. The blank and EPI loaded PHBV nanoparticles decorated with folic acid and polyethylene glycol were prepared by nanoprecipitation method. Temperature sensitive hydrogel was prepared by addition of  $\beta$ -glycerophosphate disodium salt ( $\beta$ -GP) solution to chitosan (CS) solution. The CS/GP hydrogel demonstrated a rapid sol-to-gel transition at 37°C. The addition of folate grafted blank and drug loaded nanoparticles did not alter the gelation time of the resulting nanogels. The drug loading efficiency of EPI/FA-PEG-PHBV/CS nanogel was found to be 45.23%. About 60% of total encapsulated drug was released at pH 4 from EPI/FA-PEG-PHBV/CS nanogel during in-vitro release study. Blank FA-PEG-PHBV/CS nanogel did not affect the % viability of MCF7 breast cancer cell line, thus demonstrating their non-toxicity and biocompatibility. The EPI/FA-PEG-PHBV/CS nanogel significantly inhibited the viability and proliferation of cancer cells in comparison to equivalent amount of free drug.

### Biography

Masood F has completed her PhD at the age of 29 years from quaid-i-azam university, Pakistan. She is the assistant professor of comsats university, Pakistan. She has over 19 publications that have been cited over 482 times, and his/her publication H-index is 9.



World Congress on Biopolymers and Bioplastics | August 27-28, 2020

**Abstract Citation:** Masood F, Nanogel for breast cancer treatment, Biopolymer Congress 2020, World Congress on Biopolymers and Bioplastics, August 27-28, 2020 | Webinar, 03