

## Manufacture of $\beta$ -glucan micro particles for drug delivery system

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$\beta$ -glucans are carbohydrate polymers which have structures that make up the cell walls of yeast, fungi, algae and some plants. They are also used as supplements in human nutrition and adjuvants in vaccine design because of their pathogen-associated molecular pattern. Previous studies of  $\beta$ -glucans showed this patterns are recognized by dectin-1's receptor on the surface of phagocytic macrophages. So  $\beta$ -glucans can be efficiently taken up by macrophages in vitro. Therefore, increasing the activity of macrophages would help in increasing the effectiveness of drug transfer and disease treatment .With these advantages of  $\beta$ -glucan we designed porous hollow  $\beta$ -glucan micro particles(YGP) and tried to load doxorubicin(DOX), anti-cancer drug in YGP by electrostatic vonding of alginate/chitosan(Mat). We confirmed the successful loading of the drugs in YGP through SEM, FT-IR, Uv/Vis spectrometer. In attion, we performed cytotoxicity and antitumor activity test on MDA-MB-231 breast cancer cell and Huvec cell. These results suggest that our Dox/Mat/YGP may be able to be utilized as a promising platform for drug delivery systems.