Construction of ELP-conjugated liposomes for releasing a drug to the target cell

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Currently, polyethylene glycol-modified (PEGylated) liposomes have been studied as a drug delivery system due to their long circulation time. Elastin-like polypeptides (ELPs) are a class of polypeptides, inspired by the amino acid sequence of natural elastin, which are composed of oligomeric repeats of the pentapeptide sequence Val-Pro-Gly-Xaa-Gly (VPGXG) (Xaa is any amino acid except Pro). They undergo phase transition at the transition temperature, and the transition temperature can be controlled by alteration of amino acid sequence, molecular weight, ELP concentration, ionic strength, and pH. In this study, a drug (rhodamine B) was encapsulated in the ELP-conjugated liposomes and the release pattern of a drug was investigated by the liposome disruption due to the aggregation of ELPs, which were conjugated to the liposome surface. DSPE-PEG- NHS was used for conjugated with ELPs. The amount of released rhodamine B was measured by UV spectrophotometer. These results suggest that more effective drug treatment would be possible when ELP-conjugated liposome was used as a drug carrier.