

Sticky adeno-associated virus for patterned gene expression using chitosan-catechol

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Since gene delivery is a powerful tool to control the fate of cells, it has been widely used for stem cell research in terms of their proliferation and differentiation. Recent studies about gene delivery only focus on delivering gene vectors and their transgene expression. In the field of tissue engineering, the localized drug delivery system is required to mimic patterned natural tissue. In this study, our group employed novel patterning method called “gene-vector drawing”. With this approach, the patterning of gene-vectors can be easily achieved compared with other recent patterning methods. The “sticky” viruses were made by complexation of adeno associated viruses(AAV) and catecholamine polymer (chitosan-catechol; CHI-C) in order to achieve patterned gene expression. Then, the CHI-C & AAV vector can stably adhere onto surfaces due to the adhesive functional group of the catecholamine. The adhesive property enables patterned gene expression by our simple patterning technique.