

## Dual Roles of Hyaluronic Acid in Multilayer Platforms for Drug Delivery

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In the present study, we developed novel hyaluronic acid (HA) multilayer films that can capture nanocarriers (NCs) for drug delivery. The electrostatic interaction between linear polyethylene imines and HA provided the driving force for the layer-by-layer assembly which induces multilayer formation. Since inter and intra hydrogen bonding and chain entanglements among HA chains in the HA multilayer film, NCs were easily captured in multilayer film. Altering the bilayer number of multilayers as well as the chain length and number density of HA chains, the amount of NCs captured in the multilayer film was controllable. Biocompatibility and drug delivery efficacy for regulating restenosis in vascular stents were tested with human dermal fibroblast and human aortic smooth muscle cells respectively. The results in the present study demonstrated that our HA multilayer film capturing NCs can be used for various biomedical applications related with therapeutic drug delivery field.