# 6WDELOL]DWLRQ RI SURWHLQ±GUXJV (*) 7*) %PS E\ SKRW

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Bioactive molecules such as EGF, TGF- , BMP-2, are very important and useful materials in medical eld; regenerative medicine and pharmacy. Immobilization method is one of current researching to overcome low stability and high cost of bioactive molecules. Chemical methods have been used widely for immobilization of bioactive molecules. However, there are some of drawbacks with this method. For example, chemical method may produce potential toxic by-product, and, in case of physical method, low e ciency of immobilized bioactive material is observed. To solve these problems, recently, the immobilization by photo-immobilization has been researched widely. e advantages of photo-immobilization are 1) high selectivity of chemical reactions or processes under mild conditions (ambient temperature of also much below), 2) typically no need for added catalysts or special solvents, 3) spatially addressable e ects (2D and 3D structuring possible) and 4) applicab to very small and (relatively) large scales. To use for photo-immobilization, various natural polymers, such as gelatin, chitosan hyaluronic acid reacted by irradiation to UV or visible light can be applied for medical area to increase biocompatibility and functionality, for example, coating agent for bioinert devices like stent and implant, anti-adhesive agent, wound dressing and bio-adhesive.

Figure: Immobilization of protein drugs

## Recent publications

1. Tae Il Son et al. (2010) Visible light-induced crosslinkable gelatin (2010) Acta Biomaterialia. 6 (10):4005-4010.
2. Kwang Il Kim et al. (2010) Preparation of photo-reactive azidophenyl chitosan derivative for immobilization of growth factors. Journal of Applied Chemical Science. 117(5):3029-3037
3. Ha Na Na et al. (2010) Synthesis of O-carboxylated low molecular chitosan with azido phenyl group: its application for adhesion prevention. Macromolecular research. (18):1001-1007.
4. Young Gi Lee (2008) ermally crosslinked anionic hydrogels composed of poly(vinyl alcohol)m and poly(c-glutamic acid): preparation, characterization, and drug permeation behavior. Journal of Applied Polymer Science. 109:(6):3768-3775.

## Biography

Tae-il Son was awarded the degree of PhD by Tokyo Institute of Technology, Japan in 1989. He is a Professor in the Department of Systems Biotechnology, Chung-$QJ 8QLYHUVLW\ DQG D 9LVLWLQJ 6FKRODU DW 5,.(1 +H KDV VHUYHG DV 3UHVLGHQW RI WKH .RU