

### Release of BSA-FITC incorporated in calcium phosphate microsphere

고일환<sup>1,2,\*</sup>, 이진형<sup>1</sup>, 장정호<sup>1</sup>

<sup>1</sup>Bio-IT Convergence Center, Korea Institute of Ceramic Engineering and Technology;

<sup>2</sup>Department of Chemical Engineering, Inha University

(daisezna@naver.com\*)

This work presents release of BSA-FITC incorporated in CaP microsphere depending on storage time by measuring absorbance of supernatants at 280nm or performing micro BCA protein assay. Calcium phosphate microspheres were prepared by emulsification (water-in-oil) and subsequent nucleation. The emulsification and nucleation were simulated by pH change due to enzyme reaction which makes pH vary from 4 to 7. In order to find optimum condition to form the microsphere, we varied ratio of enzyme to substrate. Obtained BSA-FITC incorporated calcium phosphate microspheres are shown the homogeneous particles sizes in the range of 200-300 $\mu$ m in SEM images. We conformed decomposition of urea by urease using FT-IR and incorporation of BSA-FITC into the microsphere using confocal fluorescent microscope. The BSA-FITC incorporated CaP microspheres were stored at 37 °C for one month. During the storage, we took 2 mL of supernatant each sampling time for analyzing release of BSA-FITC from the microsphere. We believe that these materials could be potentially applied to the biomedical fields as an injectable bone filler with the controlled drug release materials.