

The aim of this study is to evaluate the permeability of PEG-conjugated salmon calcitonin (sCT) across monolayers of Caco-2 cells that represent a model of the intestinal barrier. Caco-2 cells were grown to confluency on a permeable polycarbonate membrane to permit transport through it. Permeability experiments were performed with native-sCT and PEG-conjugated sCT (PEG M.W. 2000) at various concentrations (5 $\mu$ M, 10 $\mu$ M, 25 $\mu$ M, 50 $\mu$ M, 100 $\mu$ M) in the apical to basolateral direction. The barrier properties were assessed by detecting transport of marker molecules (<sup>3</sup>H-mannitol) and by measuring transepithelial electrical resistance (TEER). The transported compounds were identified by MALDI-TOF Mass and were quantified by sCT RIA-kit and gamma counter. PEG-conjugated sCT as well as native sCT were transported through Caco-2 cell monolayers. The transfer of PEG-conjugated sCT from the apical to the basolateral compartment appeared quantitatively. This study suggest that the PEG-conjugated sCT is transported through Caco-2 cell monolayers and the transported amount can be assessed quantitatively.

[PE1-27] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

### **Biocompatible polymeric rods as implants for enhanced cartilage regeneration**

Yook Yeojoo<sup>o</sup>, Hwang Jeonghyo, Shim Inkyung, Lee Jueyeon, Lee Sangyoung, Ahn Hyunjeong, Lee Sanghoon, Lee Myungchul, Lee Seungjin

*College of Pharmacy, Ewha Womans University, Seoul National University Hospital*

With an aim of obtaining high efficacy in cartilage regeneration, implantable polymeric rods were fabricated. These rod-type matrices were anticipated to perform structural tissue supporting activity and enhance extracellular matrix (ECM) formation by releasing specific agent, DHEA-S, in controlled manner. It is expected that application for the drilling operation on the articular cartilage of OA patients as the implants may promote regeneration of their cartilage. Osteoarthritis (OA) is a degenerative joint disease characterized by progressive loss of articular cartilage, subchondral bone remodeling, spur formation, and synovial inflammation. In OA, the principal cause of joint morbidity results from the degradation of the articular ECM of articular cartilage, which results from the activation of various proteases and proinflammatory cytokines; IL-1 $\beta$  and TNF- $\alpha$ . IL-1 $\beta$  has been implicated in the transcriptional upregulation of various MMPs, including MMP-1 and MMP-3. The activity of MMPs is controlled by the tissue inhibitor of metalloproteinase (TIMP). It was investigated that dehydroepiandrosterone (DHEA) has an ability to modulate the imbalance between MMPs and TIMP-1 during OA at the transcriptional level, which suggests that DHEA has a protective role against articular cartilage loss. Its ester form is DHEA sulfate. Poly(D,L-lactide-co-glycolide) and Poly(L-lactide), which were proven to be biocompatible, have been chosen as materials for implant.

[PE1-28] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

### **Buccal Mucosal Ulcer Healing Effect of rhEGF by Using Mucoadhesive Formulations**

Park Jeongsook<sup>o</sup>, Kang Soohyun, Li Hong, Han Kun

*College of Pharmacy, Chungbuk National University*

Purpose : To develop the buccal delivery system of rhEGF for the treatment of buccal mucosal ulcer, polymer films and hydrogels were investigated. Methods : Hydrogels for thermosensitive sol/gel systems were prepared by the cold method (Schmolka, 1972). And mucoadhesive films were prepared by mixing sod. alginate/polycarbophil 974p. To find an optimum buccal mucosal adhesive gel or film, the gel strength of the poloxamer and sod. alginate/polycarbophil 974p hydrogels were determined by the Simple Rheology Method and their mucoadhesiveness were measured by the Instron<sup>®</sup> (M 4400, Instron Co., U.S.A.) method. To evaluate the ulcer healing effect of rhEGF, the buccal mucosal ulcer was induced in golden hamsters using acetic acid (Okabe and Pfeiffer, 1972). The ulcer area was measured and the ulcer healing effect of rhEGF was evaluated after administration of rhEGF by using this gel or film for 24hrs. Results : The gel strength and mucoadhesive force of sod. alginate/polycarbophil 974p hydrogels generally were higher than poloxamer sol/gel systems. On the other