

講演会のご案内

グローバルCOEプログラム「構造・機能先進材料デザイン教育研究拠点」の教育研究プログラムの一環として、韓国でのバイオマテリアル開発の先導役である韓国KIMSのDr. S.-E. Kim博士をお招きし、以下のバイオマテリアルに関する講演会を開催いたします。よろしくご参集ください。特に博士後期課程学生、若手研究者の方の積極的な参加をお願いいたします。

特別講演会

(12/10(月) 14:00~15:00、材料開発物性記念館2F研修室にて)

「Fabrication and Characterization of 3D Scaffolds by Layer Manufacturing Process」

Dr. Seung Eon Kim

**Principal Researcher, Center for Future Technology, Korea Institute of
Materials Science (KIMS)**

Abstract : Tissue engineering requires porous scaffolds which provide cell in-growth space and tissue regeneration support. Particulate leaching, solvent casting, freeze drying and electrospinning have been so far employed to fabricate the porous bodies. However, those conventional processes have inherent limitations in reproducibility, reliability, standardization for commercialization. Moreover, insufficient interconnectivity of the pores in the scaffolds has often resulted in poor cell permeability. Layer manufacturing technology has recently been spotlighted as a promising candidate to overcome those roadblocks, owing to the computer aided three dimensional (3D) designing and shaping of pore structure. This study aims to fabricate 3D scaffolds for bone tissue engineering by a modified layer manufacturing process, so called paste extrusion deposition (PED), and to characterize in vitro and in vivo biocompatibilities of the 3D scaffolds. In this study, the effect of HA particle size in HA/PCL composite 3D scaffolds on the compressive modulus, proliferation of osteoblast-like MG63 cells, differentiation of hBMSC has been investigated. Further, fabrication and characterization of hierarchical 3D scaffolds using nanoporous technology have been studied as well. In vivo study was conducted by subcutaneous and bony implantation comparing 3D scaffolds with particle leaching ones.

主催：グローバルCOEプログラム「構造・機能先進材料デザイン教育研究拠点の形成」

Center of Excellence for Advanced **S**tructural and **F**unctional Materials **D**esign (**SFMD**)

拠点リーダー：大阪大学大学院工学研究科マテリアル生産科学専攻 掛下知行

E-mail: kakeshita@mat.eng.osaka-u.ac.jp

URL <http://www.mat.eng.osaka-u.ac.jp/g-coe/>

本企画問合せ先：大阪大学大学院工学研究科マテリアル生産科学専攻 中野貴由

Tel. & Fax : 06 - 6879 - 4124

E-mail: nakano@mat.eng.osaka-u.ac.jp