

RECENT DEVELOPMENT OF MICROCARRIER FOR CELL CULTURE ENGINEERING

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Chapter 4

The Effect of Hydroxyapatite Addition on Biocompatibility of Porous Alumina Micocarriers for Vero Cell Culture

Ahmad Fadli, Iis Sopyan, Maizirwan Mel

1. Introduction

Implantation of bone using autograft, allograft and xenograft are known standard strategies for treatment of large bone defects (Sopyan et al., 2007). Compared to autograph and allograph procedures, use of synthetic materials eliminates problems of donor scarcity, supply limitations, pathogen transfer, and immunity rejection. Thus, the development of artificial bone substitution materials made from metal, polymers and ceramics is a great importance. The ceramics can be used inside the body without rejection due to their biocompatibility, low density, chemical stability and high wear resistance (Abdurrahim and Sopyan, 2008).

Consideration of biomaterials such as porous alumina scaffolds for short- or long-term applications that bring them in contact with body fluids, tissues and organs is not complete without evaluation of their biocompatibility. Cell culture techniques have provided an exceptionally versatile and useful for evaluating aspects of biocompatibility of materials. For bone regeneration and bone tissue engineering applications, an ideal biomaterial scaffold should