

BIOINTEGRATION STUDY OF A PVA-HEC SCAFFOLD FOR THE REGENERATION OF ADIPOSE TISSUE OF MASTECTOMIZED WOMEN

Rosa A. Saucedo^{1,2}, Genaro F. Tamayo³, Juan C. Cuevas¹, Judith V. Ríos¹, and Naum Lobo¹

¹Instituto de Ciencias Biomédicas-UACJ. Anillo Pronaf y Estocolmo s/n, C.P. 32300, Cd. Juárez, Chih.

²Grupo Evelsa. Hermanos Escobar 6150-2. Parque Industrial Omega CP 32415 Cd. Juárez, Chih.

³Hospital Ángeles de Ciudad Juárez. Av. Campos Eliseos 9371, Campos Eliseos, 32420 Cd Juárez, Chih.

Corresponding author: rosasaucedoacuna@gmail.com

ABSTRAC

Tissue engineering provides numerous biomaterials as structural materials to improve or replace biological functions, in this case improving quality of life of cancer patients of breast. Today, reconstructive surgery offers only fat rotation and use of silicone/saline implants to solve the problem. For these, the necessity of a new alternative for breast cancer patients is evident. This tissue regeneration commonly involve seeding pre-adipocyte cells on polymer scaffolds as PLLA, PLGA, collagen, HyaluHA, or PEG. A material for this proposal should be biocompatible, absorbable, and its surface should interact with cells and tissues to facilitate large volume soft tissue regeneration, and promote its vascularization. In this way, we obtained a scaffold based in a hydrogel of PVA-HEC that exhibit all these characteristics. The scaffold developed was adequate to promote the regeneration of adipose tissue in a thoracic area of female BalbC mice with excellent results. Optical images showed the formation of a monolayer of cells at 24 h of culture and SEM images exhibited the adhesion of adipocytes in the scaffold. Histological images showed stable fat formation since the first month without adverse reaction or necrosis. By other hand, these images showed the total adsorption of the scaffold in four months without evidence of rejection of the implant. These results proved the capability of this scaffold to promote the formation of new adipose tissue and the formation of new blood vessel in the tissue.