شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

HOSSAM MAGHRABY

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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بالرسالة صفحات

لم ترد بالأصل

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CHONDROGENESIS

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بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

صدق الله العظيم

البقـــرة ٣٢

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TO MY FAMILY

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LIST OF ABBREVIATIONS

ACL : Anterior cruciate ligament.

BMP : Bone morphogenic protein.

CCA : Comprehensive cell adhesion.

CS : Chondriotin sulfate.

DMEM : Dulbecco's modified Eagle medium.

DMSO : Dimethyl sulfoxide.

ECM : Extracellular matrix.

GAG : Glucosaminoglycan.

KS : Keratin sulfate.

MSCs : Mesenchymal stem cells.

Osm : Osmolality.

PGA : Polyglicolic acid.

PLA : Polylactic acid.

RH : Recombinant human.

TGF-β : Tissue growth factor Beta.

INTRODUCTION

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Articular cartilage is a truly extraordinary tissue seemingly inert and homogeneous. It can tolerate huge amount of intensive and repetitive physical stress and frequently lasts a lifetime.

The function of articular cartilage within synovial joints is to enable smooth, pain free gliding of joints during skeletal motion. Articular cartilage is a hypocellular, avascular and alymphatic tissue with dense collagen and proteoglycan matrix that provides a low-friction, wear-resistant surface ***(Coutts et al., 1997).***

This articular cartilage endures extreme levels of mechanical stress over many decades and is a constant flux of skeletal morphogenesis, development and growth such that the anabolic and catabolic activities of the cartilage are balanced.

However, it can be damaged by a variety of mechanical, chemical and microbiological agents often with disabling symptoms of arthritis as the end result of the process. Which leads to irreversible damage.

As early as ***(1743). Hunter*** observed that (cartilage once destroyed, never heals) this concept has remained essentially unchanged for most of the intervening two and half centuries, and has been reinforced by numerous studies documenting the abortive and fruitless response of chondrocytes to injuries. This is because of the avascular nature of the articular cartilage and the fact that chondrocytes are trapped within their matrix and have low mitotic activity.