CORRECTED VERSION (19) World Intellectual Property Organization alPò International Bureau (43) International Publication Date 11 October 2007 (11.10.2007) WO 2007/115337 A2 (51) International Patent Classification: Kyriacos, A. [US/US]; 2110 MacArthur, Houston, TX C12N 5/08 (2006.01) (21) International Application Number: PCT/US2007/066092 (22) International Filing Date: 5 April 2007 (05.04.2007) Houston, TX 77072 (US). (25) Filing Language: English (26) Publication Language: English (30) Priority Data: (81) Designated States (unless otherwise indicated, for every 60/789,851 5 April 2006 (05.04.2006) US 60/789,853 5 April 2006 (05.04.2006) US 60/789,855 5 April 2006 (05.04.2006) US (71) Applicant (for all designated States except US): WILLIAM MARSH RICE UNIVERSITY [US/US]; Office Of Technology Transfer MS 705, P.O. Box 1892, Houston, TX 77152-1892 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): ATHANASIOU, (54) Title: TISSUE ENGINEERING WITH HUMAN EMBRYONIC STEM CELLS (57) Abstract: Provided are improved meth-Using human embryonic stem cells Α ods for tissue engineering. More particularly, methods for inducing differentiation of human for cartilage tissue engineering WO 2007/115337 A2 embryonic stem cells into chondrocytes for use in tissue engineering applications are 7 Articular cartilage Undifferentiated provided. One example of a method is a 1 markers are expressed hESCs method for inducing differentiation of human 3 Chondrogenic \_ \_ differentiation \_ embryonic stem cells into chondrocytes aggregating comprising undifferentiated human embryonic stem cells to form embryoid bodies; and cultaring the embryoid bodies in culture medium in the presence 8 Glycosaminoglycans of growth factors that induce chondrogenic Embryoid differentiation of the embryoid bodies. bodies Δ Collagen II Agarose 5 9 wells Self-assembly process Cartilage

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