

JOINT EVENT

11th International Conference on**Tissue Engineering & Regenerative Medicine**

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4th International Conference on **Synthetic Biology and Tissue Engineering**

October 18-20, 2018 Rome, Italy

Combined jellyfish collagen type II, human stem cells and TGF- β 3 as a therapeutic implant for cartilage repair**Marion Pugliano**

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Background: The limitations associated to current therapies for articular cartilage repair led us to develop new strategies of applicable therapeutic materials. Human mesenchymal stem cells from bone marrow are promising relevant cell sources for cell therapy and regenerative medicine, in particular for cartilage repair. Recently, a new source of non-mammalian collagen type II emerged and represents a promising tool for cartilage tissue engineering.

Methods: To develop a new therapeutic implant for cartilage repair, we combined (i) jellyfish collagen type II as an implant; (ii) active nanoreservoirs of TGF- β 3 growth factors; (iii) adult human mesenchymal stem cells derived from bone marrow.

Results: Our results indicated clearly that (i) the jellyfish collagen type II implant leads to the chondrogenic differentiation of mesenchymal stem cells; (ii) the combined implant and active therapeutic TGF- β 3 as nanoreservoirs lead to chondrogenic gene expression and cartilage differentiation.

Conclusion: We reported here a new stem cell based therapeutic active implant for cartilage repair. This approach combines jellyfish collagen type II, human stem cells and TGF- β 3 as a therapeutic implant to improve cartilage differentiation and repair.

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