

Chondrogenesis and cartilage tissue engineering: the longer road to technology development. Mahmoudifar N1, Doran PM. *Trends Biotechnol.* 2012 Mar;30(3):166-76.

Abstract

Joint injury and disease are painful and debilitating conditions affecting a substantial proportion of the population. The idea that damaged cartilage in articulating joints might be replaced seamlessly with tissue-engineered cartilage is of obvious commercial interest because the market for such treatments is large. Recently, a wealth of new information about the complex biology of chondrogenesis and cartilage has emerged from stem cell research, including increasing evidence of the role of physical stimuli in directing differentiation. The challenge for the next generation of tissue engineers is to identify the key elements in this new body of knowledge that can be applied to overcome current limitations affecting cartilage synthesis in vitro. Here we review the status of cartilage tissue engineering and examine the contribution of stem cell research to technology development for cartilage production.