

Stellingen

The Extracellular Matrix for Bone Regeneration: Interplay between mesenchymal stromal cells and the bone microenvironment

1. Osteoblast-derived extracellular matrix (ECM) obtained *in vitro* by freeze/thaw cycles as devitalization treatment shares more than 50% of the protein composition with the human bone proteome. (*this thesis*)
2. Osteoblast-derived ECM enhances the adhesion, proliferation and osteogenic potential of mesenchymal stromal cells (MSCs) *in vitro*. (*this thesis*)
3. Modulating culture conditions makes MSCs secrete ECMs with different protein composition and opposite phenotypes with respect to mineralization. (*this thesis*)
4. Two-day-treatment with Activin-A regulates osteoblast gene expression in a two-wave fashion over time and reduces matrix mineralization. (*this thesis*)
5. MSCs in adhesion to osteoblast-derived ECM and titanium exhibit overlapping kinomic signatures. (*this thesis*)
6. The abundant evidence that ECM provides much more than mechanical support and a locus for cell adhesion and migration should be incorporated into our thinking about the potential role of ECM in basement membrane, stem cell niche and tumors. (*Hynes R, Science. 2009 Nov 27; 326(5957): 1216-1219*)
7. The potential of stem cells in regenerative medicine relies upon removing them from their natural habitat, propagating them in culture, and placing them into a foreign tissue environment. (*Fuchs E, Cell. 2004 Mar 19; 116(6): 769-778*)
8. MSCs are truly the newcomers to the club or are perhaps the founders of a new one. Give them time and serious effort. (*Bianco P, Nat. Med. 2013 Jan; 19(1): 35-42*)
9. Regulatory agencies and governments should ensure stem cell therapies to be safe and effective for patients, rather than be influenced by media, that sometimes lack the authority or the knowledge to make statements on such matters.
10. I am always doing what I cannot do yet, in order to learn how to do it. (*Vincent van Gogh*)
11. There is a driving force more powerful than steam, electricity and nuclear power: the will. (*Albert Einstein*)