

PROPOSITIONS

1. Pore and size of the collagen-based microspheres have an influence on the BMP-2 release profiles. (this thesis)
2. Collagen-based microspheres loaded with BMP-2 degrade fast and therefore are not an optimal BMP-2 slow release system for bone regeneration. (this thesis)
3. To induce bone formation, alginate with collagen-based microspheres is a better BMP-2 delivery material than thermoresponsive hyaluronic acid with collagen-based microspheres. (this thesis)
4. SLG type of alginate compared to SLM type results in enhanced ectopic bone formation when combined with BMP-2 loaded collagen-based microspheres. (this thesis)
5. A concentration of 50 µg/mL BMP-2 is effective to induce both ectopic and orthotopic bone formation when delivered with a composite hydrogel of alginate and collagen-based microspheres. (this thesis)
6. The degradation rate of a biomaterial, especially that of polymers, has a huge impact on cell viability, cell invasion, inflammation and angiogenesis. (Sung *et al.*, 2014)
7. We are far from understanding biological tissues due to the complexity in biology. However, organ-on a chip technology is improving nowadays and will help us to mimic the complexity of tissues and reduce animal experiments in the biomedical field in the future.
8. Artificial intelligence will be an indispensable tool in biomedical research in the coming years, especially for literature research.
9. Collaborative efforts can lead to great scientific achievements.
10. Humankind is greedy and this is a key in scientific and technological improvements. However, this characteristic of humanity sadly results in environmental pollution, economical imbalance *i.e.* poverty on earth despite of great resources and wealth, and wars.
11. "Intelligence is the ability to adapt to change." (Stephen Hawking)