

# Cartilage and bone in concert

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Propositions accompanying the dissertation

## **Cartilage and bone in concert: biofunctional scaffolds for osteochondral regeneration**

by

*Ivo Anton Octave Beeren, 11<sup>th</sup> of September 2024, Maastricht*

1. The creation of a reinforced hybrid construct, with a cell-laden hydrogel in the cartilage domain, is required to ultimately induce full osteochondral regeneration. (*Chapter 2 & 8*)
2. When investigating osteochondral tissue formation in-vitro, the intrinsic effect of the material or scaffold on cell differentiation must also be studied in basal media. (*Chapter 4*)
3. The main interaction of a cell with the scaffold is with the material directly below itself. Hence, when designing any scaffold, the cell-material interface must be considered first. (*Chapter 5*)
4. Reversible chemistries enable spatiotemporal control over the degradation and bioactivity, unlocking a new tool to control cell localization and behavior. (*Chapter 7*)
5. Cell culture platforms are like pizzas for cell types, you can add many toppings (i.e. bioactive factors), but you cannot expect that all combinations will work. (*Ivo Beeren & the Italian people*)
6. For an osteochondral implant to eventually reach the patient, we need to be as simple as possible, yet as complex where needed. Overcomplicated solutions are not investable.
7. A good pivot is sometimes needed to make Ph.D. projects, a business, or your life work.
8. Being too busy simply means that you don't make choices. (*Lesson from the book 'Busy', Tony Crabbe*)
9. Numbers are generated by experiments set up by humans, and these same humans interpret those numbers. Scientists should not forget that when they communicate findings with the public.
10. 't kump goad. (*Opa Zef*)