

MicroRNAs in fracture healing and its treatment

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Propositions accompanying this dissertation

MicroRNAs in fracture healing and its treatment

by

Rald Victor Maria Groven

1. Trauma still constitutes a major cause of mortality and morbidity worldwide with increasing incidences, highlighting the need for greater collaboration between scientists and clinicians in the field of post-traumatic tissue regeneration. (Rald Groven)
2. Research into the exact role of miRNAs has only recently gained interest in the field of trauma surgery, but it is evident that they are of great importance in both healthy and impaired fracture healing. (this thesis)
3. Fracture healing is a complex process that, when impaired, requires a multifaceted treatment approach. Therefore, impaired fracture healing will not be 'cured' by one single miRNA. Instead, future therapeutic applications of miRNAs in the field of bone regeneration may consist of a combination of miRNAs, integrated with other (biologically) active compounds. (Rald Groven)
4. Large animal models remain of high clinical relevance in translational research and are necessary to facilitate the transfer of scientific knowledge from bench to bedside. (chapters 5-8)
5. Multiple trauma is more than the sum of the individual injuries and represents a complex, systemic disease. (Rald Groven)
6. Surgical treatment after trauma, and especially surgical invasiveness after trauma, strongly influences miRNA expression at the surgical site, but also in the systemic circulation and in end-organs. (chapter 5 and 6)
7. Although blood biomarkers have been around for a long time, much remains to be explored in the rapidly developing field of personalized medicine; miRNAs are promising biomarker candidates in this field. (chapters 5 and 7)
8. 'We must turn to nature itself, to the observations of the body in health and in disease to learn the truth.' (Hippocrates)
9. 'The art of medicine consists of amusing the patient while nature cures the disease.' (M. de Voltaire)
10. Science never sleeps and the sky is the limit! (Dr. T.J. Blokhuis)