

# Neonatal procedural pain

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## **Neonatal Procedural Pain**

### **Role of Descending Serotonergic Projections**

door Rose de Kort

1. Descending serotonergic projections provide an excellent read-out of neonatal injury-induced plasticity in higher cortical areas involved in processing of both pain and anxiety – *this thesis (chapters 3 and 4)*
2. Neonatal procedural pain differentially affects distinct types of anxiety in later life in rodents – *this thesis (chapter 2)*
3. The anatomy of the descending serotonergic system in the rostral ventral medulla and spinal dorsal horn is altered after tactile or noxious procedures in early life in the rat. – *this thesis (chapter 4)*
4. Pharmacological targeting of the serotonin 5-HT<sub>1a</sub> or 5-HT<sub>3</sub> receptor in a rat model of neonatal procedural pain can be used to minimize acute as well as long-term effects on mechanical sensitivity thresholds – *this thesis (chapter 5)*
5. A better understanding of descending serotonergic modulation and its role in later-life pain perception contributes to characterize those individuals most at risk for long-term effects following NICU admittance – *this thesis (chapter 3)*
6. Pain management based on the understanding of the molecular mechanisms underlying the developing nociceptive system will result in a more targeted treatment of neonatal procedural pain – *this thesis (impact)*
7. It is important to move beyond the effect of early life pain itself and focus upon the peripheral and central mechanisms underlying injury-induced plasticity in developing pain pathways – *Schwaller & Fitzgerald (2014)*
8. We cannot learn without pain – *Aristoteles*
9. Any man could, if he were so inclined, be the sculptor of his own brain – *Santiago Ramón y Cajal*
10. In scientific research, there are no unsuccessful experiments: every experiment contains a lesson – *Alexander Graham Bell*
11. You must do the things you think you cannot do – *Eleanor Roosevelt*