# Table of Content

About the cover ................................................................. 6

Chapter 1: Introduction .......................................................... 7 - 34

Chapter 2: Spine calcium transients induced by synaptically-evoked action potentials can predict synapse location and establish synaptic democracy .... 35 - 68

Chapter 3: Layer-specific dendritic action potential generation in the prefrontal cortex of awake rats ................................................................. 69 - 82

Chapter 4: Late postnatal development of CA1 pyramidal neurons: GABAergic synapse maturation is delayed compared to glutamatergic synapses ............ 83 – 98

Chapter 5: Spatially-controlled maturation of dendritic tonic GABAergic inhibition regulates excitability and plasticity in CA1 pyramidal neurons ....... 99 - 124

Chapter 6: General Discussion .................................................. 125 - 142

Chapter 7: Summary

Nederlandse Samenvatting ............................................... 143 - 146

English Summary .............................................................. 147 - 150

Chapter 8: Publication List and Curriculum Vitae ....................... 151 - 154

Chapter 9: Dankwoord .......................................................... 155 - 159
**Publication List**

**Publications**


chapter 2

*) indicate shared first authorship

Meijer RI, de Boer MP, **Groen MR**, Eringa EC, Rattigan S, Barrett EJ, Smulders YM, Serné EH (2012) *Insulin-induced microvascular recruitment in skin and muscle are related and both are associated with whole body glucose uptake.* Microcirculation, 19(6):494-500 outside the scope of this thesis

**Groen MR** (2011) *Two Modes of GABAB: Specific Localised Inhibition and Global Network Inhibition.* J Neuroscience 31(23): 8327-8328 outside the scope of this thesis

Meredith RM, **Groen MR** (2010) *Inhibition of action potential backpropagation during postnatal development of the hippocampus J Neurophysiology 103(4):2313 chapter 6

**Submitted Manuscripts**


Chapters 4 and 5


Chapter 3