Table of Contents

Chapter 1: General introduction 9

Chapter 2: The impact of type 1 diabetes on brain functioning and structure: what have we learned? 19

Chapter 3: Increased prevalence of brain microbleeds in adult type 1 diabetes patients with peripheral microangiopathy: relation with cerebral functioning 37

Chapter 4: Functional brain connectivity and neurocognitive functioning in patients with long-standing type 1 diabetes with and without microvascular complications: a magnetoencephalography study 55

Chapter 5: Resting-state brain networks in type 1 diabetes patients with and without microangiopathy and their relation with cognitive functions and disease variables 75

Chapter 6: Diffusion tensor imaging in type 1 diabetes: decreased white matter integrity relates to cognitive functions 93

Chapter 7: Differential impact of subclinical carotid artery disease on cerebral structure and functioning in type 1 diabetes patients with versus those without microangiopathy 107

Chapter 8: Apolipoprotein E ε4 genotype is related to cerebral function and structure in longstanding type 1 diabetes patients 125

Chapter 9: General Discussion 141

Appendix 1: Online supplement of chapter 4 165

References 177

Nederlandse samenvatting 187

List of publications 193

Dankwoord 197