CONTENTS

Chapter 1
General introduction 7

Part I Inflammatory Arthritis: PET imaging to detect disease activity

Chapter 2
Present role of positron emission tomography in the diagnosis and monitoring of peripheral Inflammatory Arthritis: a systematic review 17

Chapter 3
Bone formation rather than inflammation reflects Ankylosing Spondylitis activity on PET-CT: a pilot study 43

Chapter 4
Imaging macrophages in Rheumatoid Arthritis using two second-generation translocator protein PET tracers 61

Part II Inflammatory Arthritis: PET imaging for treatment monitoring

Chapter 5
B-cell imaging with zirconium-89 labeled rituximab PET-CT at baseline is associated with therapeutic response 24 weeks after initiation of rituximab treatment in Rheumatoid Arthritis patients 81

Chapter 6
Bone formation in Ankylosing Spondylitis during anti-tumour necrosis factor therapy imaged by $^{18}$FFluoride positron emission tomography 101

Chapter 7
Targeting of arthritic joints and in vivo biodistribution of F8-IL10, a new potential anti-rheumatic agent: a PET-guided translational approach 119

Chapter 8
Discussion & Future perspectives 141

Summary 151

Nederlandse samenvatting 157

List of publications 165

Dankwoord 167

Curriculum vitae 173