The handle http://hdl.handle.net/1887/33065 holds various files of this Leiden University dissertation

Author: Ramos, Y.F.M.
Title: Osteoarthritis, a degenerative disease of the articular joints : towards the implementation of functional genomics in OA
Issue Date: 2015-05-26
Osteoarthritis, a degenerative disease of the articular joints

Towards the implementation of functional genomics in OA

Yolande Francisca Maria Ramos
Financial support for the publication of this thesis was kindly provided by the Anna Foundation | NOREF and Artrose Zorg.

PhD thesis with summary in Dutch
ISBN: 978-94-6295-160-0

**Osteoarthritis, a degenerative disease of the articular joints © 2015 YFM Ramos**

All rights reserved. No part of this thesis may be reproduced, stored in a retrieval system or transmitted in any other form by any means, without permission of the author or when appropriate of the publisher of the published articles.

**Cover**
Immunohistochemistry of hip and knee joint sections

**Cover design and layout**
YFM Ramos

**Printed and published by**
Uitgeverij BOXPress, ‘s Hertogenbosch
Osteoarthritis, a degenerative disease of the articular joints
Towards the implementation of functional genomics in OA

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof. mr. C.J.J.M. Stolker,
volgens besluit van het College voor Promoties
te verdedigen op dinsdag 26 mei 2015
klokke 16:15 uur

door

Yolande Francisca Maria Ramos

geboren te Eindhoven in 1970
Promotiecommissie

Promotor Prof. dr. P. E. Slagboom

Co-promotor Dr. I. Meulenbelt

Commissieleden Prof. dr. J.V.M.G. Bovée

Prof. dr. M. Karperien
MIRA Institute for Biomedical Technology & Technical Medicine;
University of Twente

Dr. J.B.J. van Meurs
Department of Internal Medicine; Genetic Laboratory
Erasmus Medical Center
Contents

Chapter 1  Introduction  7
Chapter 2  Markers of the osteoarthritis process identified through genome wide expression analysis in articular cartilage; the RAAK study  25
Chapter 3  Genes expressed in blood link osteoarthritis with apoptotic pathways  49
Chapter 4  Meta-analysis identifies loci affecting levels of the potential OA biomarkers sCOMP and uCTX-II with genome wide significance  71
Chapter 5  Genome-wide association study: identifying new genes and pathways conferring risk to susceptibility of osteoarthritis at multiple joint locations as defined in the GARP study  103
Chapter 6  A gain of function mutation in TNFRSF11B causes osteoarthritis with chondrocalcinosis  121
Chapter 7  Underlying molecular mechanisms of DIO2 susceptibility in symptomatic osteoarthritis  147
Chapter 8  Discussion  177
Appendix  Summary  204
Summary in Dutch  208
Curriculum Vitae  213
List of Publications  214
Dankwoord  216