



Universiteit
Leiden
The Netherlands

Studies of the epigenetic disease mechanism in FSHD

Greef, J.C. de

Citation

Greef, J. C. de. (2009, November 19). *Studies of the epigenetic disease mechanism in FSHD*. Retrieved from <https://hdl.handle.net/1887/14369>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/14369>

Note: To cite this publication please use the final published version (if applicable).

**STUDIES OF
THE EPIGENETIC DISEASE MECHANISM
IN FSHD**

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van de Rector Magnificus Prof. mr. P.F. van der Heijden,
volgens besluit van het College voor Promoties
te verdedigen op donderdag 19 november 2009
klokke 15.00 uur

door

Jessica Christine de Greef

geboren te Rotterdam in 1981

Promotiecommissie

Promotores: Prof. Dr. RR Frants
Prof. Dr. Ir. SM van der Maarel

Overige leden: Prof. Dr. BGM van Engelen (Universiteit Nijmegen)
Prof. Dr. PE Slagboom
Prof. Dr. R Tawil (Universiteit van Rochester, VS)

The studies described in this thesis were performed at the department of Human Genetics, Leiden University Medical Center, Leiden, The Netherlands and were financially supported by grants from The Netherlands Organization for Scientific Research, the Muscular Dystrophy Association USA, the FSH Society, the National Institutes of Health, the Fields Center for FSHD & Neuromuscular Research and the Prinses Beatrix Fonds.

Publication of this thesis was financially supported by the FSH Society, the Fields Center for FSHD & Neuromuscular Research, the Stichting FSHD and the J.E. Jurriaanse Stichting.

Voor mijn ouders

colofon

Cover: Klaske Prins

Design: SA&R, Utrecht

Printing: Kerckebosch Grafische Communicatie b.v., Zeist

ISBN: 978-90-9024521-8

© 2009 JC de Greef

except (parts of):

Chapters 1, 5 and 6: Elsevier

Chapter 2: AAN Enterprises, Inc.

Chapter 4: Wiley InterScience

No part of this thesis may be reproduced in any form by print, photocopy, digital file, internet or any other means without written permission of the copyright owner.

Contents

<i>Chapter 1</i>	
General Introduction	7
<i>Chapter 2</i>	
Hypomethylation is restricted to the D4Z4 repeat array in phenotypic FSHD	29
<i>Chapter 3</i>	
Specific loss of histone H3 lysine 9 trimethylation and HP1 γ /cohesin binding at D4Z4 repeats is associated with facioscapulohumeral dystrophy (FSHD)	47
<i>Chapter 4</i>	
Common epigenetic changes of D4Z4 in contraction-dependent and contraction-independent FSHD	85
<i>Chapter 5</i>	
No effect of folic acid and methionine supplementation on D4Z4 methylation in patients with facioscapulohumeral muscular dystrophy	115
<i>Chapter 6</i>	
General Discussion	125
Summary	151
Samenvatting	157
Publications	163
Curriculum Vitae	164

