



Universiteit
Leiden
The Netherlands

Is thyroid status a common denominator of age-related disease?

Vliet, N.A. van

Citation

Vliet, N. A. van. (2023, January 25). *Is thyroid status a common denominator of age-related disease?*. Retrieved from <https://hdl.handle.net/1887/3512954>

Version: Publisher's Version

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

License: <https://hdl.handle.net/1887/3512954>

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

Is thyroid status a common denominator of age-related disease?

Nicolet Alien van Vliet

Provided by thesis specialist Ridderprint, ridderprint.nl

Printing: Ridderprint

Layout and design: Birgit Vredenburg, persoonlijkproefschrift.nl

ISBN: 9789464588194

The research described in this thesis was funded by the European Commission project THYRAGE (Horizon 2020 research and innovation program, 666869).

Copyright © N.A. van Vliet, 2022, Leiden, the Netherlands

All rights reserved. No part of this thesis may be transformed, reproduced, stored, or transmitted in any form or by any means without prior permission of the author or, when appropriate, of the publisher of the journal in which it has been published.

Is thyroid status a common denominator of age-related disease?

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr.ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op woensdag 25 januari 2023
klokke 13.45 uur

door

Nicolet Alien van Vliet
geboren te Alphen aan den Rijn
in 1993

Promotor

Prof. dr. S.P. Mooijaart

Co-promotor

Dr. ir. D. van Heemst

Leden promotiecommissie

Prof. dr. B.T. Heijmans

Dr. M. Snel

Prof. dr. B. Demeneix (le Centre national de la recherche scientifique, Paris, France)

Prof. dr. R.P. Peeters (Erasmus MC)

TABLE OF CONTENTS

Chapter 1	General introduction and outline of the thesis	7
Chapter 2	Viewpoint on the role of tissue maintenance in ageing: focus on biomarkers of bone, cartilage, muscle, and brain tissue maintenance	19
Chapter 3	Thyroid status and mortality in nonagenarians from long-lived families and the general population	59
Chapter 4	Association of Thyroid Dysfunction with Cognitive Function: An Individual Participant Data Analysis	81
Chapter 5	Thyroid Stimulating Hormone and Bone Mineral Density: Evidence From a Two-Sample Mendelian Randomization Study and a Candidate Gene Association Study	121
Chapter 6	Thyroid Function and Risk of Anemia: A Multivariable-Adjusted and Mendelian Randomization Analysis in the UK Biobank	173
Chapter 7	Genetically Determined Higher TSH Is Associated With a Lower Risk of Diabetes Mellitus in Individuals With Low BMI	201
Chapter 8	Correspondence to "Thyroid Hormone Therapy for Older Adults with Subclinical Hypothyroidism"	221
Chapter 9	Higher thyrotropin leads to unfavorable lipid profile and somewhat higher cardiovascular disease risk: evidence from multi-cohort Mendelian randomization and metabolomic profiling	225
Chapter 10	General Discussion	293
Chapter 11	Appendices	305
	Nederlandse samenvatting	306
	List of publications	311
	PhD Portfolio	313
	Curriculum Vitae	315
	Dankwoord	316