

Pituitary disorders and their extra-pituitary implications : observations in patients with nonfunctioning pituitary macroadenoma and the IGSF1 deficiency syndrome

Joustra, S.D.

Citation

Joustra, S. D. (2016, September 27). *Pituitary disorders and their extra-pituitary implications : observations in patients with nonfunctioning pituitary macroadenoma and the IGSF1 deficiency syndrome*. Retrieved from https://hdl.handle.net/1887/43242

Version: Not Applicable (or Unknown)

License:

Downloaded from: https://hdl.handle.net/1887/43242

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

Cover Page



Universiteit Leiden



The handle http://hdl.handle.net/1887/43242 holds various files of this Leiden University dissertation

Author: Joustra, Sjoerd

Title: Pituitary disorders and their extra-pituitary implications: observations in patients

with nonfunctioning pituitary macroadenoma and the IGSF1 deficiency syndrome

Issue Date: 2016-09-27

Pituitary Disorders and their Extra-Pituitary Implications

Observations in patients with nonfunctioning pituitary macroadenoma and the IGSF1 deficiency syndrome

Sjoerd D. Joustra

The studies described in this thesis were performed at the Department of Pediatrics and the Department of Medicine, Division of Endocrinology, Center for Endocrine Tumors Leiden, of the Leiden University Medical Center, Leiden, the Netherlands

ISBN 978-94-6169-935-0

Author Sjoerd D. Joustra

Cover image iStock

Printed by Optima Grafische Communicatie, Rotterdam, the Netherlands

Copyright © 2016, Sjoerd Daniël Joustra, Leiden, the Netherlands

All rights reserved. No part of this thesis may be reproduced, stored in retrieval system of any nature, or transmitted in any form or by any means without prior permission of the author.

For publication of this thesis financial support of Pfizer B.V., Goodlife Healthcare, Ipsen Farmaceutica B.V., Sanofi-Aventis Netherlands B.V., Novo Nordisk B.V., Ferring B.V., Novartis Pharma B.V., and the Department of Pediatrics is gratefully acknowledged.

Pituitary Disorders and their Extra-Pituitary Implications

Observations in nonfunctioning pituitary macroadenoma and IGSF1 deficiency syndrome

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 27 september 2016
klokke 16:15 uur

door

Sjoerd Daniël Joustra

geboren te Amsterdam in 1987 **Promotores** Prof. dr. A.M. Pereira Arias

Prof. dr. J.M. Wit

Copromotores Dr. N.R. Biermasz

Dr. W. Oostdijk

Leden Promotiecommissie Prof. dr. A.J. Rabelink

Prof. dr. J.A. Romijn (AMC, Amsterdam)

Prof. dr. C. Noordam (*Radboud UMC, Nijmegen*)
Dr. E.L.T. van den Akker (*Erasmus MC, Rotterdam*)

TABLE OF CONTENTS

CHAPTER 1	General introduction and outline	7
	othalamic regulation of circadian rhythmicity in ning pituitary macroadenoma	
CHAPTER 2	High prevalence of metabolic syndrome features in patients previously treated for nonfunctioning pituitary macroadenoma	35
CHAPTER 3	Patients previously treated for nonfunctioning pituitary macroadenomas have disturbed sleep characteristics, circadian movement rhythm, and subjective sleep quality	51
CHAPTER 4	Alterations in diurnal rhythmicity in patients treated for nonfunctioning pituitary macroadenoma; a controlled study and literature review	71
CHAPTER 5	Determinants of altered sleep-wake rhythmicity in patients treated for nonfunctioning pituitary macroadenomas	95
Part B: Obs	ervations in the IGSF1 deficiency syndrome	
CHAPTER 6	The IGSF1 deficiency syndrome: characteristics of male and female patients	115
CHAPTER 7	IGSF1 deficiency: lessons from an extensive case series and recommendations for clinical management	137
CHAPTER 8	IGSF1 variants in boys with familial delayed puberty	171
CHAPTER 9	Mild deficits in attentional control in patients with the IGSF1 deficiency syndrome	181
CHAPTER 10	Pituitary hormone secretion profiles in IGSF1 deficiency syndrome	197
CHAPTER 11	Spatial and temporal expression of immunoglobulin superfamily member 1 (IGSF1) in the rat	215
CHAPTER 12	Summary & Nederlandse samenvatting	239
CHAPTER 13	General discussion and future perspectives	251

Abbreviations	271
List of publications	273
Curriculum vitae	275
Dankwoord	277
Appendices	279