

University of Groningen

Cerebral Metabolic Patterns In Neurodegeneration

Meles, Sanne

DOI:
[10.33612/diss.118683600](https://doi.org/10.33612/diss.118683600)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2020

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Meles, S. (2020). *Cerebral Metabolic Patterns In Neurodegeneration*. Rijksuniversiteit Groningen.
<https://doi.org/10.33612/diss.118683600>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Cerebral Metabolic Patterns In Neurodegeneration

Sanne Katherina Meles

ISBN (e-book): 978-94-034-2396-8
ISBN (printed book): 978-94-034-2397-5
Cover artwork: Marrit Boonstra
Layout: rikkertveltman.com
Printed by Ipskamp Printing

© Sanne Meles. All rights reserved. No part of this publication may be reproduced, stored in, or introduced into a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without prior permission from the author.

This research was financially supported by Stichting ParkinsonFonds.
Publication of this thesis was financially supported by the University Medical Center Groningen (UMCG) and the University of Groningen.
Conference attendances were financially supported by the Research School of Behavioral and Cognitive Neurosciences (BCN).





rijksuniversiteit
 groningen

Cerebral Metabolic Patterns In Neurodegeneration

Proefschrift

ter verkrijging van de graad van doctor aan de
Rijksuniversiteit Groningen
op gezag van de
rector magnificus prof. dr. C. Wijmenga
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op
woensdag 2 september 2020 om 16.15 uur

Sanne Katherina Meles

geboren op 25 november 1988
te Arnhem

Promotores

Prof. dr. K.L. Leenders

Prof. dr. R.A.J.O. Dierckx

Co-promotor

Dr. R.J. Renken

Beoordelingscommissie

Prof. dr. B.R. Bloem

Prof. dr. J. Arbizu

Prof. dr. M. Biehl

Paranimfen:

M.B. Boonstra

J.M. Gelauff

About the cover

This artwork was inspired by ^{18}F -FDG PET studies in patients with REM sleep behavior disorder. The red circle strikes the eye: a setting sun, time to fall asleep. The circle encloses the head of the sleeping figure, symbolizing the PET camera, which is the technique used to visualize cerebral neuronal systems. PET measures positron emission. Positrons are depicted in this artwork as small floating triangles, rectangles, circles, and diamonds. The colors used in this drawing correspond to the visual representation of ^{18}F -FDG PET patterns in this thesis. The sun, dipping in the layers at the base of the drawing, represent the process of conducting research, shining light on unexplored areas.

Marrit B. Boonstra

Contents

1. General Introduction	11
2. From Positron to Pattern <i>(Book contribution to: 'PET and SPECT in Neurology', 2nd edition, Springer 2020)</i>	15
3. Metabolic Imaging in Parkinson's Disease <i>(J Nucl Med. 2017 Jan 58(1):23-28)</i>	47
4. Abnormal Pattern of Brain Glucose Metabolism in Parkinson's Disease: Replication in Three European Cohorts <i>(Eur J Nucl Med Mol Imaging. 2019)</i>	59
5. Abnormal Metabolic Pattern Associated With Cognitive Impairment in Parkinson's Disease: A Validation Study <i>(J Cereb Blood Flow Metab. 2015 Sep 35(9):1478-84)</i>	87
6. Brain Imaging of REM Sleep Behavior Disorder <i>(Book contribution to: 'Rapid-Eye-Movement Sleep Behavior Disorder' Editor: Carlos H. Schenck, Elsevier 2019)</i>	105
7. FDG PET, Dopamine Transporter SPECT, and Olfaction: Combining Biomarkers in REM Sleep Behavior Disorder <i>(Mov Disord. 2017 Oct 32(10):1482-1486)</i>	127
8. The Metabolic Pattern of Idiopathic REM Sleep Behavior Disorder Reflects Early-Stage Parkinson's Disease <i>(J Nucl Med. 2018 Sep 59(9):1437-1444)</i>	139
9. The Alzheimer's Disease Metabolic Brain Pattern in Mild Cognitive Impairment <i>(J Cereb Blood Flow Metab. 2017 Dec 37(12):3643-3648)</i>	159
10. The Cerebral Metabolic Topography of Spinocerebellar Ataxia Type 3 <i>(Neuroimage Clin. 2018 Mar 29 19:90-97)</i>	171
11. General Discussion and Future Perspectives	191
References	203
Summary in Dutch	231
Acknowledgements	237
List of Publications	241
Curriculum Vitae	245

