



Universiteit
Leiden
The Netherlands

Sleep and circadian rhythms: the effects of ketamine, caffeine and anthracyclines

Wang, Y.

Citation

Wang, Y. (2023, October 18). *Sleep and circadian rhythms: the effects of ketamine, caffeine and anthracyclines*. Retrieved from <https://hdl.handle.net/1887/3644001>

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/1887/3644001>

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

Sleep and circadian rhythms

The effects of ketamine, caffeine and anthracyclines

Yumeng Wang

The research described in this thesis was performed at the department of Cell and Chemical Biology, Leiden University Medical Center, the Netherlands.

Yumeng Wang was supported by the China Scholarship Council.

ISBN: 978-94-6483-351-5

Lay-out: Yumeng Wang

Cover design: Yumeng Wang

Thesis printing: Ridderprint

Copyright © 2023 by Yumeng Wang. All rights reserved. Nothing from this thesis may be reproduced or transmitted in any form or by any means without written and explicit permission from the author.

Sleep and circadian rhythms

The effects of ketamine, caffeine and anthracyclines

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 18 oktober 2023

klokke 13:45 uur

door

Yumeng Wang

geboren te Jixi, China

in 1993

Promotor:

Prof. Dr. J.H. Meijer

Co-promotor:

Dr. T. de Boer

Promotiecommissie:

Prof. Dr. A.M. Aartsma-Rus

Prof. Dr. J.J.C. Neefjes

Dr. P. Meerlo

(Groningen Institute for Evolutionary Life Sciences of the University of Groningen)

Prof. Dr. C.S. Colwell

(Department of Psychiatry & Biobehavioral Sciences, University of California Los Angeles)

Contents

| | |
|--|------------|
| Chapter 1 General introduction | 7 |
| Chapter 2 Long - Term Effect of a Single Dose of Caffeine on Sleep, the Sleep EEG and Neuronal Activity in the Peduncular Part of the Lateral Hypothalamus under Constant Dark Conditions | 35 |
| Chapter 3 Comparison of sleep deprivation and a low dose of ketamine on sleep and the electroencephalogram of Brown Norway rats | 63 |
| Chapter 4 Induction of Fatigue by Specific Anthracycline Cancer Drugs through Disruption of the Circadian Pacemaker | 91 |
| Chapter 5 An animal model of chemotherapy related fatigue shows misalignment of behavioral and SCN electrical activity | 119 |
| Chapter 6 General discussion | 153 |
| Appendix | 171 |
| Summary | |
| Samenvatting | |
| 总结 | |
| Acknowledgments | |
| List of publications | |
| Curriculum Vitae | |

