



Universiteit
Leiden
The Netherlands

Personalized drug repositioning using gene expression

Koudijs, K.K.M.

Citation

Koudijs, K. K. M. (2023, June 6). *Personalized drug repositioning using gene expression*. Retrieved from <https://hdl.handle.net/1887/3619741>

Version: 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/1887/3619741>

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

Personalized drug repositioning using gene expression

K.K.M. Koudijs

The research presented in this thesis was performed at the departments of Clinical Pharmacy & Toxicology and Biomedical Data Sciences of Leiden University Medical Center, Leiden, the Netherlands. Financial support for publication of this thesis was provided by Afdelingsfonds Clinical Pharmacy and Toxicology.

Cover design Michel Koudijs
Layout Renate Siebes | Proefschrift.nu
Printed by Proefschriftmaken.nl | De Bilt
ISBN 978-94-6469-334-8

© 2023 K.K.M. Koudijs

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage or retrieval, without permission in writing from the author.

Personalized drug repositioning using gene expression

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 dinsdag 6 juni 2023
klokke 13:45 uur

door

Karel Kees Michel Koudijs

geboren te Utrecht
in 1988

Promotor

prof. dr. H.J. Guchelaar

Copromotor

dr. S. Böhringer

Promotiecommissie

prof. dr. S.M. van der Maarel

prof. dr. G.J.P. van Westen

dr. R.S.N. Fehrmann, Rijksuniversiteit Groningen

dr. R. Tsonaka

CONTENTS

Chapter 1	General introduction	7
Chapter 2	Transcriptome signature reversion as a method to reposition drugs against cancer for precision oncology Published in: Cancer Journal, 2019 Mar/Apr;25(2):116-120	17
Chapter 3	Personalised drug repositioning for Clear Cell Renal Cell Carcinoma using gene expression Published in: Scientific Reports, 2018 Mar 27;8(1):5250	31
Chapter 4	The impact of estimated tumour purity on gene expression-based drug repositioning of Clear Cell Renal Cell Carcinoma samples Published in: Scientific Reports, 2019 Feb 21;9(1):2495	53
Chapter 5	Validation of transcriptome signature reversion for drug repurposing in oncology Published in: Briefings in Bioinformatics, 2022 Nov 29	79
Chapter 6	robustOffsets: an R package for RNA-seq normalization using a reference panel of low-variability genes	109
Chapter 7	Application of convolutional neural networks to gene expression data	149
Chapter 8	General discussion	167
Chapter 9	Summary	181
Chapter 10	Samenvatting NL	187
	Dankwoord	193
	About the author	197
	Portfolio	202