

# PDE4 gene inhibition

Citation for published version (APA):

Schepers, M. (2023). *PDE4 gene inhibition: a novel approach to treat demyelinating disorders*. [Doctoral Thesis, Maastricht University, tUL-Universiteit Hasselt (UHasselt)]. Maastricht University. <https://doi.org/10.26481/dis.20230522ms>

## Document status and date:

Published: 01/01/2023

## DOI:

[10.26481/dis.20230522ms](https://doi.org/10.26481/dis.20230522ms)

## Document Version:

Publisher's PDF, also known as Version of record

## Please check the document version of this publication:

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Statements belonging to the thesis

## **PDE4 GENE INHIBITION**

### **A novel approach to treat demyelinating disorders**

1. PDE4D inhibition stimulates myelin regeneration, while PDE4B inhibition accounts for the anti-inflammatory effects of full PDE4 inhibition – *This dissertation*
2. Disentangling the cell type-specific PDE isoform expression fingerprint can offer an additional therapeutic strategy for modifying key processes in immunomodulation and neuroreparative processes - *This dissertation*
3. Elucidating the underlying nanodomain signaling unit activated upon PDE4B or PDE4D inhibition can hold the key for bridging the knowledge gap and identifying new downstream druggable targets - *This dissertation*
4. The choice of using PDE4B or PDE4D inhibitors highly depends on the specific disease pathogenesis, and careful consideration of the type and timing of PDE4 subtype inhibition is crucial - *This dissertation*
5. The findings from this dissertation paved the way towards patents on both the use of selective PDE4D inhibitors against demyelinating diseases and the composition of matter for the development of such selective PDE4D inhibitors, which are underlying the setup of a drug platform for PDE4D inhibitors as spin off finality - *Impact of the research*
6. “It is the subcellular compartmentalization of cyclic nucleotide signaling that enables a single cell to respond discretely to multiple extracellular and intracellular signals.” – *Baillie et al., Nat Rev Drug Discov., 2020*
7. “Classifying neuroinflammatory and neuroimmune reactions as beneficial or detrimental is an oversimplification. There is a myriad of interactions between diverse brain cell types and the triggered signaling cascades in different disorders.” – *Kölliker-Frers et al., Mediators Inflamm., 2021*
8. “Oligodendrocytes have come a long way from the original description as ‘Nervenkitt’ to their central importance as the myelinating cells of the CNS.” – *Kuhn et al., Cells, 2019*
9. “Science 4 patients” – *Prof. Tim Vanmierlo*
10. “The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them” – *William Lawrence Bragg*
11. “Success is not final, failure is not fatal: it is the courage to continue that counts” – *Winston Churchill*

*Melissa Schepers, 22 mei 2023*