



Universiteit
Leiden
The Netherlands

Design and synthesis of metal-based chemotherapeutic agents for targeted DNA interactions or DNA repair pathway modulation

Griend, C.J. van de

Citation

Griend, C. J. van de. (2024, February 27). *Design and synthesis of metal-based chemotherapeutic agents for targeted DNA interactions or DNA repair pathway modulation*. Retrieved from <https://hdl.handle.net/1887/3720005>

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/1887/3720005>

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

**Design and synthesis of metal-based
chemotherapeutic agents for targeted DNA
interactions or DNA repair pathway modulation**

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 27 februari 2024
klokke 13:45 uur

door

Cornelis Johannes van de Griend

geboren te Cromstrijen, Nederland
in 1989

Promotores

Prof. dr. S.A. Bonnet
Prof. dr. R.T. Dame

Promotiecommissie

- Prof. dr. M. Ubbink
- Prof. dr. E. Bouwman
- Prof. dr. ir. S.J.T. van Noort
- Prof. dr. J. Müller (University of Münster)
- Prof. dr. M.J. Hannon (University of Birmingham)
- Dr. S.J. Wezenberg

Table of contents

| | |
|---|------------|
| Chapter 1 | 5 |
| Introduction | |
| Chapter 2 | 33 |
| pH dependence and structure-activity relationship for square planar Pt(II) and Pd(II) tetrapyridyl complexes interacting with DNA | |
| Chapter 3 | 79 |
| Metal-locked helical chirality: inversion barrier and ruthenium-specific asymmetric macrocycle formation | |
| Chapter 4 | 99 |
| Photocaging of RAD51 inhibitor by ruthenium | |
| Chapter 5 | 127 |
| Dual photoactivation of ruthenium-caged inhibitors | |
| Chapter 6 | 147 |
| Summary, Discussion, Conclusion and Outlook | |
| Appendix I: supporting information for chapter 2 | 158 |
| Appendix II: supporting information for chapter 3 | 180 |
| Appendix III: supporting information for chapter 4 | 182 |
| Appendix IV: supporting information for chapter 5 | 186 |
| Samenvatting | 190 |
| Acknowledgements | 194 |
| List of publications | 196 |
| Curriculum Vitae | 198 |