



Universiteit  
Leiden  
The Netherlands

## Synthesis of cyclic peptides as bioconjugation platforms

Peterse, E.

### Citation

Peterse, E. (2021, June 29). *Synthesis of cyclic peptides as bioconjugation platforms*. Retrieved from <https://hdl.handle.net/1887/3192731>

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/1887/3192731>

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

Cover Page



Universiteit Leiden



The handle <https://hdl.handle.net/1887/3192731> holds various files of this Leiden University dissertation.

**Author:** Peterse, E.

**Title:** Synthesis of cyclic peptides as bioconjugation platforms

**Issue Date:** 2021-06-29

# Synthesis of cyclic peptides as bioconjugation platforms

## 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 29 juni 2021  
klokke 13.45 uur

door

Evert Peterse

geboren te Wageningen  
in 1991

## **Promotiecommissie**

**Promotor:** Prof. dr. H.S. Overkleeft

**Co-promotor:** Dr. D.V. Filippov

**Overige leden:** Prof. dr. G.A. van der Marel  
Prof. dr. M. van der Stelt  
Prof. dr. F.A. Ossendorp (Leiden UMC)  
Prof. dr. J. van Maarseveen (Universiteit van Amsterdam)  
Dr. S.I. van Kasteren  
Dr. A.L. Boyle

## Table of contents

|  |            |
|--|------------|
| <b>Chapter 1</b>   | <b>1</b>   |
| Synthesis and application of cyclic peptides   |            |
| <b>Chapter 2</b>   | <b>23</b>  |
| Protocol for side-chain anchoring of the ornithine $\delta$ -amine and the lysine $\epsilon$ -amine in the synthesis of macrocyclic peptides |            |
| <b>Chapter 3</b>   | <b>53</b>  |
| Design and synthesis of gramicidin S derivatives bearing chemoselective handles in different orientations                                    |            |
| <b>Chapter 4</b>   | <b>81</b>  |
| Design and synthesis of gramicidin S-based scaffolds having three orthogonal handles to append various TLR ligands                           |            |
| <b>Chapter 5</b>   | <b>111</b> |
| Towards the synthesis of a fusion protein <i>via</i> a synthetic chemical ligation approach  |            |
| <b>Chapter 6</b>   | <b>139</b> |
| Summary and future prospects   |            |
| Samenvatting   | <b>151</b> |
| About the author   | <b>155</b> |

