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## Nonribosomal peptide synthetases

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*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2018

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Zwahlen, R. D. (2018). *Nonribosomal peptide synthetases: Engineering, characterization and biotechnological potential*. University of Groningen.

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***NONRIBOSOMAL  
PEPTIDE SYNTHETASES:***

***ENGINEERING, CHARACTERIZATION  
AND BIOTECHNOLOGICAL POTENTIAL***

***RETO D. ZWAHLEN***

Nonribosomal peptide synthetases:  
Engineering, characterization and biotechnological potential

Academic Thesis, University of Groningen, the Netherlands

ISBN: 978-94-034-0674-9  
978-94-034-0673-2 (e-book)  
Printing: Eikon +  
Cover: Reto D. Zwahlen & Lovebird design.  
Layout:  Lovebird design.  
[www.lovebird-design.com](http://www.lovebird-design.com)

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university of  
 groningen

# **Nonribosomal peptide synthetases:**

Engineering, characterization and biotechnological potential

## **PhD thesis**

to obtain the degree of PhD at the  
University of Groningen  
on the authority of the  
Rector Magnificus Prof. E. Sterken  
and in accordance with  
the decision by the College of Deans.

This thesis will be defended in public on

The 18th of May 2018 at 14:30 hours

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*For you, my love, my other half,  
my Tonia.*



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