

# Dennis Claessen, PhD



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**Research keywords:** cell wall-deficiency, morphogenesis, development, actinomycetes, antibiotics, amyloids, extracellular matrix, antimicrobial resistance, evolution, synthetic biology, bacterial cell biology

## CURRENT POSITION

2020 – present **Professor of Molecular Microbiology**  
Department of Microbial Biotechnology, Institute of Biology, Faculty of Science,  
Leiden University, Leiden. The Netherlands (full-time, tenured)

## PREVIOUS POSITIONS

2015 – 2020 **Associate Professor**  
Department of Microbial Biotechnology, Institute of Biology, Faculty of Science,  
Leiden University, Leiden. The Netherlands (full-time, tenured)

2010 – 2015 **Assistant Professor (Tenure Track)**  
Department of Microbial Biotechnology, Institute of Biology, Faculty of Science,  
Leiden University, Leiden. The Netherlands)

2008 – 2010 **Post-doctoral Research Fellow (Marie Curie Reintegration Fellow)**  
Department of Microbial Physiology, Groningen Biomolecular Sciences and  
Biotechnology Institute (GBB), University of Groningen, Groningen, the Netherlands  
Mathematics and Natural Sciences

2006 – 2007 **Post-doctoral Research Fellow (Marie Curie Long Term Research Fellow)**  
in the laboratory of Prof. Jeff Errington (FRS) at the Institute of Molecular Biosciences,  
Newcastle University, Newcastle-upon-Tyne, United Kingdom

2005 – 2006 **Post-doctoral Research Fellow (EMBO Long Term Research Fellow)**  
in the laboratory of Prof. Jeff Errington (FRS) at the Sir William Dunn School of  
Pathology, University of Oxford, Oxford, United Kingdom

## EDUCATION

1999 – 2004 **PhD in Mathematics and Natural Sciences (*cum laude*, *highest distinction*)**  
University of Groningen, Groningen, the Netherlands.  
*Dissertation title:* "Structural proteins involved in morphological differentiation in  
streptomycetes"  
*Advisors:* Prof. L. Dijkhuizen and Prof. H.A.B. Wösten

1995 – 2004 **Combined BSc/MSc in Molecular Microbiology (*cum laude*, *highest distinction*)**  
University of Groningen, Groningen, the Netherlands.  
Topics: microbiology, mathematics, molecular biology, genetics, statistics,  
(bio)chemistry, electron microscopy

## GRANTS, FELLOWSHIPS AND AWARDS

|             |  |
|-------------|--|
| 2020        | <b>ENW Vici:</b> "From stress to success: how actinobacteria exploit life without a wall" (€1.5M)  |
| 2019        | <b>ENW Klein:</b> "Mycobacterial cell wall-deficiency and its role in the persistence of tuberculosis" (€297K)   |
| 2017        | <b>NWO ALW Open Programme</b> (co-applicant): "Experimental evolution of complex cells" (€340K)  |
| 2017        | <b>NWO-STW Biotechnology and Safety Programme</b> (co-applicant): "Transmission of antimicrobial resistance genes and engineered DNA from transgenic biosystems in nature" (€750K) |
| 2014        | <b>Award for Best Teacher of the Faculty of Science</b> (Leiden University, €2,500)  |
| 2014        | <b>NWO-ALW Wetenschappelijke Bijeenkomsten:</b> "Bacterial Cell Envelope Forum 2015" (€5,000)  |
| 2013        | <b>NWO Medium</b> (co-applicant): "A national facility for high-throughput flow cytometry of large-size particles, tissues and model organisms" (€500K)                            |
| 2013        | <b>VIDI (NWO-STW)</b> Research Grant (5 years): "Less is more: reduced mycelial heterogeneity for improved production of enzymes and antibiotics" (€800K)                          |
| 2011        | <b>Academische Jaarprijs:</b> "Antibiotica Gezocht!" (€100K)   |
| 2011        | <b>TTI Groene Genetica</b> (co-applicant): "Agrobacterium-mediated protein therapy: a non-GMO approach for creating crop diversity". (€500K)                                       |
| 2009        | <b>Partnership Programme in Science</b> (United Kingdom – The Netherlands): "Contradiction in terminis: gene regulation by structural proteins?" (€1,750)                          |
| 2008        | <b>Marie Curie Reintegration Grant:</b> "Cellulose: a key component essential for development and attachment of <i>Streptomyces coelicolor</i> ?" (€45K)                           |
| 2006 – 2007 | <b>Marie Curie Intra-European Fellowship</b> (2 years): "Basic cohesion: molecular basis for chromosome cohesion in sporulating cells of <i>Bacillus subtilis</i> " (€150K)        |
| 2005 – 2006 | <b>EMBO Long Term Fellowship</b> (2 years): "Basic cohesion: molecular basis for chromosome cohesion in sporulating cells of <i>Bacillus subtilis</i> " (€50K)                     |
| 2005        | <b>NWO ALW Open Programme</b> (co-applicant): "Constructing a bacterial skyscraper: from gene regulation to cell wall proteins" (€250K)  |
| 2005        | <b>VAAM</b> (German Society for Microbiology) <b>Thesis Award</b> (€1,600)   |
| 2003        | <b>Prof. Marion Mordarski Poster Award</b> in Biotechnology (International Symposium on the Biology of Actinomycetes, Melbourne, Australia)  |
| 1999        | <b>Unilever Research Award.</b> (€2,500)   |

## SUPERVISION OF TECHNICIANS, PHD STUDENTS AND POST-DOCS

|                |   |
|----------------|---|
| 2022 – present | <b>Supervisor</b> of Post-doc Dr. Xiaobo Zhong (China)  |
| 2021 – present | <b>Supervisor</b> of PhD student Marjolein Crooijmans (NL)  |
| 2021 – present | <b>Supervisor</b> of PhD student Maarten Lubbers (NL)   |
| 2021 – present | <b>Supervisor</b> of PhD student Veronique Ongenae (NL)   |
| 2020 – present | <b>Supervisor</b> of Post-doc Dr. Shraddha Shitut (India)   |
| 2020 – present | <b>Supervisor</b> of PhD student Marjolein Crooijmans (NL)  |
| 2019 – present | <b>Supervisor</b> of PhD student Noortje Dannenberg (NL)  |
| 2019 – 2020    | <b>Supervisor</b> of Technician Marjolein Crooijmans (NL)   |
| 2019           | <b>Supervisor</b> of Technician Noortje Dannenberg (NL)   |
| 2018 – present | <b>Supervisor</b> of PhD student Thomas van Dijk (NL)   |
| 2018 – present | <b>Supervisor</b> of PhD student Renee Kapteijn (NL)  |
| 2018 – present | <b>Co-supervisor</b> (with Prof. G.P. van Wezel) of Post-doc Dr. Le Zhang (China)                         |
| 2018 – 2020    | <b>Co-supervisor</b> (with Prof. A. Kros and Dr. D.E. Rozen) of Post-doc Dr. Shraddha Shitut (India)      |
| 2017 – 2022    | <b>Supervisor</b> of PhD student Xiaobo Zhang (China)   |
| 2016 – 2020    | <b>Supervisor</b> of PhD student Eveline Ultee (NL)   |
| 2015 – 2020    | <b>Supervisor</b> of PhD student Zheren Zhong (China)   |
| 2014 – 2015    | <b>Supervisor</b> of Post-doc Dr. Joost Willemse (NL)   |
| 2013 – 2019    | <b>Supervisor</b> of PhD student/Post-doc Karina Ramijan (Costa Rica)                                     |
| 2013 – 2018    | <b>Supervisor</b> of PhD student Boris Zacchetti (Italy)  |
| 2011 – 2016    | <b>Supervisor</b> of PhD student Marloes Petrus (NL)  |
| 2006 – 2007    | <b>Supervisor</b> of Technician Suzanne Tran (UK)   |
| 2005 – 2010    | <b>Co-supervisor</b> (with Prof. H.A.B Wösten and Prof. L. Dijkhuizen) of PhD student Wouter de Jong (NL) |

## TEACHING EXPERIENCE

- 2021 – present **Teacher** Advanced Cell Biology (lectures and assignments, MSc level, 3 ECTS)  
2020 – present **Chair** of the biology programme committee at Leiden University  
2018 – 2021 **Figurehead** of the Honours program Beta and Life Science (Leiden University)  
2017 – present **Teacher** Advanced Genetics and Biotechnology (lectures and assignments, MSc level, 3 ECTS)  
2017 – present **Coordinator** of the Master programme “Molecular Genetics and Biotechnology” (MSc level, 120 ECTS, Leiden University)  
2016 – present **Principal Investigator** and **Coordinator** of the iGEM Leiden teams (18 ECTS)  
**Winner Giant Jamboree 2020 (Overgrad Competition)**  
2014 **Award for Best Teacher of the Faculty of Science** (Leiden University)  
2014 **BKO Certificate** (Higher Education Teaching Qualification)  
2014 – 2020 **Teacher** Junior Science Lab (lectures for children)  
2014 – 2020 **Member of the exam committees** for the MSc specialisations Science Based Business and Science Communication & Society (Leiden University)  
2012 – 2017 **Teacher** 2<sup>nd</sup> years course Microbial Ecology and Evolution (practicals, BSc level, 6 ECTS)  
2012 – 2019 **Teacher** Global Regulatory Networks in Bacteria (lectures and assignments, MSc level, 6 ECTS)  
2012 – 2020 **Coordinator** of the minor programme “Molecular Biotechnology” (BSc level, 30 ECTS)  
2012 – present **Teacher** Exploitation of Natural Products (lectures, BSc level, 6 ECTS)  
2012 – present **Teacher** Biotechnology: from Gene to Bio-based Product (lectures, BSc level, 6 ECTS)  
2012 – present **Coordinator and Teacher** Molecular Design: Biotechnology-oriented Engineering of Life (lectures and practicals, BSc level, 12 ECTS)  
2011 – 2016 **Guest lecturer** Molecular Genetics and Genomics (lectures, BSc level, 5 ECTS, University of Groningen)  
1999 – present **Supervisor** of >75 bachelor and master students in Groningen, Oxford, Newcastle and Leiden  
1995 – 1999 **Teaching assistant** in more than 10 (under)graduate courses (biostatistics, microbiology, bioinformatics)

## COMMISSIONS OF TRUST

- 2021 – present **Member** of the organising committee for the KNVM/NVMM Scientific Spring Meeting  
2019 – present **Cluster leader** of Microbial Sciences at the Institute of Biology (Leiden University)  
2019 – present Mentor for PanaceaStars (Biotech Start-Up Companies; Oxford, UK)  
2018 – 2021 Member of the program committee for NWO-Life  
2018 – 2021 **Figurehead** of the Honours program Beta and Life Science (Leiden University)  
2018 Ad hoc reviewer for the Polish National Science Centre grant proposals  
2017 – present **Board member** of BioTechDelft (<http://biotechnologycourses.nl/about-biotechdelft/>)  
2017 – 2018 Committee member for NWO-Veni (DO) Grant Proposals  
2016 Committee work for NWO-STW Open Technology Program proposals  
2015 – 2019 **Section editor** for BMC Biotechnology  
2013 – present **Board member** of the Royal Dutch Society for Microbiology (KNVM)  
2008 Ad hoc reviewer for BBSRC grant proposals  
2004 – present Ad hoc reviewer for: *Nature Microbiology*, *mBio*, *Nature Communications*, *Molecular Microbiology*, *Frontiers in Microbiology*, *Scientific Reports*, *eLife*, *Microbiology (SGM)*, *FEMS Microbiology Reviews*, *Applied Microbiology and Biotechnology*, *Antonie van Leeuwenhoek*, *Applied and Environmental Microbiology*, *Studies in Mycology*, *PLOS One*, *Journal of Bacteriology*.

## PhD EXAMINATION AND/OR READING COMMITTEE

|                |  |
|----------------|--|
| June 2022      | Ewout Knibbe, TU Delft                                       |
| May 2022       | Philipp Weber, University of Vienna (Austria)                |
| January 2022   | Jamie Depelteau, Leiden University                           |
| November 2021  | Xudong Ouyang, Leiden University                             |
| September 2021 | Maroeska Burggraaf, VU Amsterdam                             |
| July 2021      | Thomas Perli, TU Delft                                       |
| May 2021       | Ilse Boekhoud, Leiden University Medical Center              |
| April 2021     | Emily Alcock, University of East Anglia (UK)                 |
| March 2021     | Astri Kusumawardhani, Leiden University                      |
| January 2021   | Sanne Westhoff, Leiden University                            |
| December 2020  | Chao Du, Leiden University                                   |
| December 2020  | <b>Zheren Zhang, Leiden University (promotor)</b>            |
| December 2020  | <b>Eveline Ultee, Leiden University (promotor)</b>           |
| November 2020  | Wen Yang, Leiden University                                  |
| September 2020 | Anne van der Meij, Leiden University                         |
| June 2020      | Dimitris Poulcharidis, Leiden University                     |
| March 2020     | Nick Brouwers, TU Delft                                      |
| November 2019  | Yongqiang Gao, University of Amsterdam                       |
| September 2019 | <b>Karina Ramijan, Leiden University (promotor)</b>          |
| June 2019      | Markus Fröjd, Lund University (Sweden)                       |
| March 2019     | Helena Shomar, TU Delft                                      |
| March 2019     | Lizah van der Aart, Leiden University                        |
| November 2018  | <b>Boris Zacchetti, Leiden University (promotor)</b>         |
| September 2018 | Peter Raus, Leiden University                                |
| December 2016  | Dino van Dissel, Leiden University                           |
| February 2016  | <b>Marloes Petrus, Leiden University (co-promotor)</b>       |
| Mei 2015       | Le Zhang, Leiden University                                  |
| June 2014      | Giulia Mangiameli, Leiden University                         |
| November 2013  | Martijn Rolloos, Leiden University                           |
| June 2013      | Jerre van Veluw, Utrecht University                          |
| November 2012  | Magdalena Anna Świątek, Leiden University                    |
| November 2011  | Esmeralda Jurado Jácome, Leiden University                   |
| September 2010 | <b>Wouter de Jong, University of Groningen (co-promotor)</b> |

## CONFERENCE ORGANIZATION

|                |   |
|----------------|---|
| 2022           | <b>Session chair</b> at the International Symposium on the Biology of Actinomycetes (Toronto, Canada)   |
| 2021 – present | <b>Member</b> of the organising committee for the KNVM/NVMM Scientific Spring Meeting   |
| 2020           | <b>Organiser and Chair</b> of the Bacterial Cell Envelope Platform Meeting (Leiden, The Netherlands)  |
| 2019           | <b>Co-organiser and Session Chair</b> at NWO Life   |
| 2018 – present | <b>Member</b> of the program committee for NWO-Life   |
| 2018           | <b>Session Chair</b> “General microbiology” at the KNVM Scientific Spring Meeting (Papendal, The Netherlands)   |
| 2016           | <b>Organiser</b> of the Fall Meeting of the KNVM Division “General and Molecular Microbiology” (Leiden, The Netherlands).                                     |
| 2015           | <b>Organiser and Chair</b> of the Bacterial Cell Envelope Platform Meeting (Leiden, The Netherlands)  |
| 2014           | <b>Organiser</b> of the masterclass at the KNAW Colloquium “50 years Fts: The A-Z of bacterial cell division” (Amsterdam, The Netherlands)                    |
| 2013           | <b>Organiser and Session Chair</b> “Bacterial growth” at the KNVM Scientific Spring Meeting (Papendal, The Netherlands)                                       |
| 2012           | <b>Organiser and Session Chair</b> “Differentiation in microbial multicellular communities” at the KNVM Scientific Spring Meeting (Papendal, The Netherlands) |
| 2011           | <b>Co-organiser and Session Chair</b> “Morphogenesis in bacteria” at the KNVM Scientific Spring Meeting (Papendal, The Netherlands)                           |
| 2009           | <b>Co-organizer</b> of the “Get Connected” Meeting (University of Groningen/UMCG).  |
| 2003           | <b>Member of the organising committee</b> for the International Meeting on the Biology of Bacteria producing Natural Compounds (Haren, The Netherlands).      |

## INVITED SEMINARS AND CONFERENCE PRESENTATIONS

|      |   |
|------|---|
| 2023 | Great Wall Symposium (Sintra, Portugal)   |
| 2022 | 19 <sup>th</sup> International Symposium on the Biology of Actinomycetes (Toronto, Canada)                  |
| 2021 | Center for Bacterial Cell Biology (Newcastle, UK)   |
| 2020 | John Innes Centre (Norwich, UK)   |
| 2020 | Max Planck Institute of Terrestrial Microbiology (Marburg, Germany)   |
| 2020 | Institut Pasteur (Paris, France)  |
| 2019 | 14 <sup>th</sup> International Symposium on the Genetics of Industrial Microorganisms (Pisa, Italy)         |
| 2019 | Cell Biology of Prokaryotes (Bad Staffelstein, Germany)   |
| 2018 | KNVM Fall Meeting of the Microbial Biotechnology Division (Delft, the Netherlands)                          |
| 2018 | KNVM Fall Meeting of the Mycology Division (Utrecht, the Netherlands)                                       |
| 2018 | Gordon Research Conference on Microbial Stress Responses (South Hadley USA)                                 |
| 2017 | Department of Biology, Lund University (Lund, Sweden)   |
| 2017 | AMZA Meeting (Amsterdam, the Netherlands)   |
| 2017 | Instituto de Tecnologia Química E Biológica António Xavier (Lisbon, Portugal)                               |
| 2017 | 5 <sup>th</sup> International Symposium of the SFB766 (Tübingen, Germany)                                   |
| 2017 | 18 <sup>th</sup> International Symposium on the Biology of Actinomycetes (Jeju, South-Korea)                |
| 2016 | Belgian Interdisciplinary Biofilm Research Group (Liege, Belgium)   |
| 2015 | KNVM Scientific Spring Meeting (Papendal, the Netherlands)  |
| 2014 | 17 <sup>th</sup> International Symposium on the Biology of Actinomycetes (Kusadasi, Turkey)                 |
| 2013 | Institut für Geowissenschaften (Jena, Germany)  |
| 2013 | MOSA Conference (Maastricht, the Netherlands)   |
| 2013 | 1 <sup>st</sup> China-Europe Symposium “The Biology of Actinomycete Antibiotic Production” (Beijing, China) |
| 2013 | SGM Spring Conference (Manchester, United Kingdom)  |
| 2012 | Gordon Research Conference on Bacterial Cell Surfaces (West Dover, USA)                                     |
| 2012 | 11 <sup>th</sup> European Conference of Fungal Genetics (Marburg, Germany)                                  |
| 2010 | John Innes Centre Research Visit (Norwich, UK)  |
| 2009 | Biology of Streptomycetes Meeting (Münster, Germany)  |
| 2009 | 15 <sup>th</sup> International Symposium on the Biology of Actinomycetes (Shanghai, China)                  |
| 2008 | VAAM Meeting (Berlin, Germany)  |
| 2008 | 162 <sup>nd</sup> SGM Spring Conference (Edinburgh, United Kingdom)   |
| 2007 | 14 <sup>th</sup> Conference on Functional Genomics of Gram-Positive Microorganisms (Pisa, Italy)            |
| 2005 | Thesis Award Lecture VAAM Meeting (Göttingen, Germany)  |
| 2005 | 2 <sup>nd</sup> ASM Conference on Prokaryotic Development (Vancouver, Canada)                               |

## OUTREACH ACTIVITIES/MEDIA ATTENTION

|      |  |
|------|--|
| 2020 | Interview and Press release by Leiden University following my appointment as Professor of Molecular Microbiology ( <a href="https://www.universiteitleiden.nl/en/news/2020/12/its-all-about-the-cell-wall-for-brand-new-professor-dennis-claessen">https://www.universiteitleiden.nl/en/news/2020/12/its-all-about-the-cell-wall-for-brand-new-professor-dennis-claessen</a> ) |
| 2020 | Press release by Leiden University about the award winning iGEM 2020 Team ( <a href="https://www.universiteitleiden.nl/en/news/2020/11/leiden-students-win-grand-prize-at-igem-international-biology-competition">https://www.universiteitleiden.nl/en/news/2020/11/leiden-students-win-grand-prize-at-igem-international-biology-competition</a> )                            |
| 2020 | Interview and Press release by Leiden University accompanying our <i>Science Advances</i> paper on altruism in bacteria ( <a href="https://www.universiteitleiden.nl/en/news/2020/01/altruism-in-bacteria-colonies-divide-the-work">https://www.universiteitleiden.nl/en/news/2020/01/altruism-in-bacteria-colonies-divide-the-work</a> )                                      |
| 2020 | Press release by Leiden University accompany my awarded ENW Vici grant ( <a href="https://www.universiteitleiden.nl/en/news/2020/02/from-stress-to-success-vici-grant-for-dennis-claessen">https://www.universiteitleiden.nl/en/news/2020/02/from-stress-to-success-vici-grant-for-dennis-claessen</a> )   |
| 2019 | Press release by Leiden University accompanying my awarded ENW Klein grant ( <a href="https://www.universiteitleiden.nl/nieuws/2019/07/quantumdeeltjes-en-bacterien-zonder-celwand-enw-klein-beurs-voor-beenakker-en-claessen">https://www.universiteitleiden.nl/nieuws/2019/07/quantumdeeltjes-en-bacterien-zonder-celwand-enw-klein-beurs-voor-beenakker-en-claessen</a> )   |
| 2019 | Interview with the Mare for the anticipated follow-up of our iGEM 2016 project ( <a href="https://www.mareonline.nl/wetenschap/let-op-giftige-grond/">https://www.mareonline.nl/wetenschap/let-op-giftige-grond/</a> )   |
| 2019 | Video interview for KNCV Eye-openers (Autumn 2019)   |
| 2019 | Coordinator of the Leiden iGEM Team 2019   |
| 2019 | Blog about our <i>Nature Communications</i> paper by Roberto Kolter for “Small Things Considered” ( <a href="https://schaechter.asmblog.org/schaechter/2019/02/escape-from-the-wall.html">https://schaechter.asmblog.org/schaechter/2019/02/escape-from-the-wall.html</a> )  |

- 2019 Interview and Press release by Leiden University accompanying our *Nature Communications* paper on cell wall-deficient cells (<https://www.universiteitleiden.nl/en/news/2018/12/bacteria-under-stress-can-live-without-cell-wall>)
- 2018 Invited Blog on the Nature Research Microbiology Community: <https://naturemicrobiologycommunity.nature.com/channels/346-behind-the-paper/posts/41618-stress-induced-cell-wall-deficiency>
- 2018 Coordinator of the Leiden iGEM Team 2018 (<http://2018.igem.org/Team:Leiden>). Winner of the Therapeutics track at the iGEM Jamboree.
- 2016 Interview for the Life Science Magazine LABinsights concerning our participation in the iGEM competition (<https://www.labinsights.nl/artikel/2016/LB2016-5p30.pdf>)
- 2016 Coordinator of the 2016 Leiden iGEM Team (<http://2016.igem.org/Team:Leiden>)
- 2014 Award for Best Teacher of the Faculty of Science (Leiden University: <https://www.universiteitleiden.nl/en/news/2015/01/'discoverer-of-the-year'-best-dissertation-and-education-award-2014>)
- 2014 Interview for the Life Science Magazine "Lab Times"
- 2014 – present Teacher Junior Science Lab (lectures for children)
- 2012 Portrait in EC Publication "From face to face – Portraits of Marie Curie Fellows"
- 2012 Interview for WEET Magazine for our work related to the "Academische Jaarprijs".
- 2012 Interview for Quest (popular Dutch scientific journal).
- 2011 Winner Academische Jaarprijs
- 2011 Coordinator of "Team Leiden" for the Academische Jaarprijs (<http://antibioticagezocht.leidenuniv.nl/antibiotica-gezocht>)
- 2011 Radio interview (Q-Music) for our work related to the "Academische Jaarprijs".
- 2011 Interviews with newspapers for our work related to the "Academische Jaarprijs".
- 2003 Television interview for Adams Appel (TV Noord/TV Drenthe) for our discovery of functional amyloid-like proteins in *Streptomyces coelicolor* (available via <http://tinyurl.com/adamsappel>).
- 2003 International press release by Cold Spring Harbor Laboratory for our discovery of functional amyloid-like proteins in *Streptomyces coelicolor*
- 2003 Interview national radio (VPRO) for our discovery of functional amyloid-like proteins in *Streptomyces coelicolor*.

## PAST AND CURRENT COLLABORATIONS

|                                     |   |
|-------------------------------------|---|
| University of Leiden                | Prof. Dr. Ariane Briegel; cryoEM                            |
| University of Leiden                | Prof. Dr. Gilles P. van Wezel; actinobacterial biology      |
| University of Leiden                | Dr. D.E. Rozen; microbial ecology and evolution             |
| University of Leiden                | Prof. Dr. Alexander Kros; cell-cell fusion                  |
| University of Leiden                | Prof. Dr. Doris Heinrich; microfluidics                     |
| University of Leiden                | Dr. Erik Vijgenboom; surface-associated glycans             |
| University of Leiden                | Dr. Remus T. Dame; DNA organisation                         |
| University of Leiden                | Dr. Joost Willemse; imaging                                 |
| University of Leiden                | Dr. Arthur F.J. Ram; bacteria-fungi interactions            |
| SINTEF                              | Dr. Dino van Dissel; surface-associated glycans             |
| DuPont                              | Dr. Sharief Barends; fermentation improvement               |
| TU Delft                            | Prof. Dr. Marc van Loosdrecht; DNA transmission             |
| TU Delft                            | Dr. David Weissbrodty; DNA transmission                     |
| Newcastle University                | Prof. Dr. Jeff Errington; wall-deficient cells              |
| Scripps Institute                   | Prof. Paul Jensen; marine actinomycetes                     |
| DTU Bioengineering                  | Prof. Dr. Ákos T. Kovács; functional amyloid proteins       |
| J. Craig Venter Institute           | Prof. Dr. John Glass; DNA transplantation                   |
| VU Medical Centre Amsterdam         | Prof. Dr. Wilbert Bitter; <i>Mycobacterium</i> genetics     |
| Chinese Academy of Sciences Beijing | Prof. Dr. Sarah Perrett; functional amyloid proteins        |
| University of Melbourne             | Prof. Dr. Sally Gras; functional amyloid proteins           |
| University of Groningen             | Dr. Gert Oostergetel; cryoEM                                |
| University of Groningen             | Prof. Dr. Oscar P. Kuipers; multicellularity, persisters    |
| University of Groningen             | Prof. Dr. Lubbert Dijkhuizen; surface-associated glycans    |
| University of Essex                 | Dr. Jon A.R. Worrall; surface-associated glycans            |
| Utrecht University                  | Prof. Dr. Han A.B. Wösten; heterogeneity                    |
| University of Dundee                | Dr. David H. Edwards; <i>Bacillus subtilis</i> GpsB protein |
| MPI of Terrestrial Microbiology     | Prof. Dr. Lotte Søgaard-Andersen; multicellularity          |
| University of Oviedo                | Dr. Angel Manteca; programmed cell death                    |
| University of Surrey                | Prof. Dr. Colin P. Smith; microarrays                       |

## SELECTED PUBLICATIONS

1. X. Zhong, L. Zhang, G.P. van Wezel, E. Vijgenboom & D. Claessen (2022). Role for a lytic polysaccharide monooxygenase in cell wall remodeling in *Streptomyces coelicolor*. **mBio** (in press)
2. Z. Zhang, S.S. Shitut, B. Claushuis, D. Claessen<sup>1</sup> & D.E. Rozen (2022). Mutational meltdown of putative microbial altruists in *Streptomyces coelicolor* colonies. **Nature Communications** (in press)
3. L. Zhang, K. Ramijan, V.J. Carrion, L.T. van der Aart, J. Willemse, G.P. van Wezel and D. Claessen (2021). An alternative and conserved cell wall enzyme that can substitute for the Lipid II synthase MurG. **mBio** 12: e03381-20.
4. Z. Zhang, C. Du, F. de Barsey, M. Liem, A. Liakopoulos, G.P. van Wezel, Y.H. Choi, D. Claessen<sup>1</sup> and D.E. Rozen (2020). Antibiotic production in *Streptomyces* is organized by a division of labor through terminal genomic differentiation. **Science Advances** 6, eaay5718.
5. D. Claessen and J. Errington (2019). Cell wall-deficiency as a coping strategy for stress. **Trends in Microbiology** 27 (12), 1025-1033.
6. K. Ramijan, E. Ultee, J. Willemse, Z. Zhang, J.A.J. Wondergem, A. van der Meij, D. Heinrich, A. Briegel, G.P. van Wezel and D. Claessen (2018). Stress-induced formation of cell wall-deficient cells in filamentous actinomycetes. **Nature Communications** 9 (1), 5164.
7. B. Zacchetti, H.A.B. Wösten and D. Claessen (2018). Multiscale heterogeneity in filamentous microbes. **Biotechnology Advances** 36, 2138-2149.
8. M.L.C. Petrus, E. Vijgenboom, A.K. Chaplin, J.A.R. Worrall, G.P. van Wezel and D. Claessen (2016) The DyP-type peroxidase DtpA is a Tat-substrate required for GlxA maturation and morphogenesis in *Streptomyces*. **Open Biology** 6 (1), 150149.
9. D. Claessen, D.E. Rozen, O.P. Kuipers, L. Søgaard-Andersen and G.P. van Wezel (2014). Bacterial solutions to multicellularity: a tale of biofilms, filaments and fruiting bodies. **Nature Reviews in Microbiology** 12 (2), 115-124.
10. D. Claessen, R. Rink, W. de Jong, J. Siebring, P. de Vreugd, F.G.H. Boersma, L. Dijkhuizen and H.A.B. Wösten (2003). A novel class of secreted hydrophobic proteins is involved in aerial hyphae formation in *Streptomyces coelicolor* by forming amyloid-like fibrils. **Genes & Development** 17 (14), 1714-1728.

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<sup>1</sup> Co-senior author

## PUBLICATIONS (54)

1. X. Zhong, L. Zhang, G.P. van Wezel, E. Vijgenboom and D. Claessen (2022). Role for a lytic polysaccharide monoxygenase in cell wall remodeling in *Streptomyces coelicolor*. **mBio** (in press)
2. Z. Zhang, S.S. Shitut, B. Claushuis, D. Claessen<sup>2</sup> and D.E. Rozen (2022). Mutational meltdown of putative microbial altruists in *Streptomyces coelicolor* colonies. **Nature Communications** (in press)
3. V. Ongenae, A. Briegel and D. Claessen (2021). Cell wall deficiency as an escape mechanism from phae infection. **Open Biology** 11 (9), 210199.
4. L. Zhang, K. Ramijan, V.J. Carrión, L.T. van der Aart, J. Willemse, G.P. van Wezel and D. Claessen (2021). An alternative and conserved cell wall enzyme that can substitute for the Lipid II synthase MurG. **mBio** 12, e03381-20.
5. A.R. Muok, D. Claessen and A. Briegel (2021). Microbial hitchhiking: how *Streptomyces* spores are transported by motile soil bacteria. **ISME Journal** 15 (9), 2591-2600.
6. E. Ultee, X. Zhong, S. Shitut, A. Briegel and D. Claessen (2021). Formation of wall-less cells in *Kitasatospora viridifaciens* requires cytoskeletal protein FilP in oxygen-limiting conditions. **Molecular Microbiology** 115 (6), 1181-1190.
7. E. Ultee, L.T. van der Aart, D. van Dissel, C.A. Diebold, G.P. van Wezel, D. Claessen and A. Briegel (2020). Teichoic acids anchor distinct cell wall lamellae in an apically growing bacterium. **Communications Biology** 3 (1), 314.
8. Z. Zhang, C. Du, F. de Barys, M. Liem, A. Liakopoulos, G.P. van Wezel, Y.H. Choi, D. Claessen<sup>2</sup> and D.E. Rozen (2020). Antibiotic production in *Streptomyces* is organized by a division of labor through terminal genomic differentiation. **Science Advances** 6, eaay5718.
9. K. Ramijan, Z. Zhang, G.P. van Wezel and D. Claessen (2020). Genome rearrangements and megaplasmid loss in the filamentous bacterium *Kitasatospora viridifaciens* are associated with protoplast formation and regeneration. **Antonie van Leeuwenhoek** 113, 825-837.
10. S. Shitut, G. Özer Bergman, A. Kros, D.E. Rozen and D. Claessen (2020). Use of permanent wall-deficient cells as a system for the discovery of new-to-nature metabolites. **Microorganisms** 8, E1897.
11. D. Claessen and J. Errington (2019). Cell wall-deficiency as a coping strategy for stress. **Trends in Microbiology** 27 (12), 1025-1033.
12. E. Ultee, K. Ramijan, R.T. Dame, A. Briegel and D. Claessen (2019). Stress-induced adaptive morphogenesis in bacteria. **Advances in Microbial Physiology** 74, 97-141.
13. I. López-Goñi, J. Giner-Lamia, A. Álvarez-Ordóñez, A. Benítez-Páez, D. Claessen, M. Cortesao, M. de Toro, D. García-Ruano, E.T. Granato, Á.T. Kovács, J.L. Rommelde, T.G. Sana, M. Sánchez-Angulo, F.J. Sangari, W.K. Smits, T. Sturm, J.L. Thomassen, K.N.G. Valdehuesa and M. Zapotoczna (2019). #EUROMicroMOOC: using Twitter to share trends in Microbiology worldwide. **FEMS Microbiology Letters** 366, pii: fnz141.
14. K. Ramijan, E. Ultee, J. Willemse, Z. Zhang, J.A.J. Wondergem, A. van der Meij, D. Heinrich, A. Briegel, G.P. van Wezel and D. Claessen (2018). Stress-induced formation of cell wall-deficient cells in filamentous actinomycetes. **Nature Communications** 9 (1), 5164<sup>3</sup>.
15. B. Zacchetti, H.A.B. Wösten and D. Claessen (2018). Multiscale heterogeneity in filamentous microbes. **Biotechnology Advances** 36 (8), 2138-2149.
16. B. Zacchetti, A. Andrianos, D. van Dissel, E.M. de Ruyter, G.P. van Wezel and D. Claessen (2018). Micro-encapsulation extends mycelial viability of *Streptomyces lividans* 66 and increases enzyme production. **BMC Biotechnology** 18 (1), 13.
17. J. Willemse, F. Büke, D. van Dissel, S. Grevink, D. Claessen and G.P. van Wezel (2018). SParticle, an algorithm for the analysis of filamentous microorganisms in submerged cultures. **Antonie van Leeuwenhoek** 111 (2), 171-182.
18. B. Zacchetti, P. Smits and D. Claessen (2018). Dynamics of pellet fragmentation and aggregation in liquid-grown cultures of *Streptomyces lividans*. **Frontiers in Microbiology** 9, 943
19. D. van Dissel, J. Willemse, B. Zacchetti, D. Claessen, G.B. Pier and G.P. van Wezel (2018). Production of poly-β-1,6-N-acetylglucosamine by MatAB is required for hyphal aggregation and hydrophilic surface adhesion by *Streptomyces*. **Microbial Cell** 5 (6), 269-279.
20. A. Dragoš, A.T. Kovács and D. Claessen (2017). The role of functional amyloids in multicellular growth and development of Gram-positive bacteria. **Biomolecules** 7 (3), E60.
21. W. Yang, J. Willemse, E.B. Sawyer, F. Lou, W. Gong, H. Zhang, S.L. Gras, D. Claessen and S. Perrett (2017). The propensity of the bacterial rodlin protein RdIB to form amyloid fibrils determines its function in *Streptomyces coelicolor*. **Scientific Reports** 7, 42876.

<sup>2</sup> Co-senior author

<sup>3</sup> Highlighted by A. Du Toit (2019). Living without the cell wall. *Nature Reviews in Microbiology* 17, 65; Featured in the popular *Small Things Considered* blog in February 2019: "Escape from the wall" (Robert Kolter): <https://schaechter.asmblog.org/schaechter/2019/02/escape-from-the-wall.html>



22. K. Ramijan, G.P. van Wezel and D. Claessen (2017). Genome sequence of the filamentous actinomycete *Kitasatospora viridifaciens*. **Genome Announcements** 5 (6), e01560-16.
23. Z. Zhang, D. Claessen and D.E. Rozen (2016). Understanding microbial divisions of labour. **Frontiers in Microbiology** 7, 2070.
24. B. Zacchetti, J. Willemse, B. Recter, D. van Dissel, G.P. van Wezel, H.A.B. Wösten and D. Claessen (2016). Aggregation of germings is a major contributing factor towards mycelial heterogeneity of *Streptomyces*. **Scientific Reports** 6, 27045.
25. L. Zhang, J. Willemse, D. Claessen and G.P. van Wezel (2016). SepG coordinates sporulation-specific cell division and nucleoid organization in *Streptomyces coelicolor*. **Open Biology** 6 (4), 150164.
26. M.L.C. Petrus, E. Vijgenboom, A.K. Chaplin, J.A.R. Worrall, G.P. van Wezel and D. Claessen. (2016) The DyP-type peroxidase DtpA is a Tat-substrate required for GlxA maturation and morphogenesis in *Streptomyces*. **Open Biology** 6 (1), 150149.
27. C. Wu, B. Zacchetti, A.F.J. Ram, G.P. van Wezel, D. Claessen and Y.H. Choi. (2015) Expanding the chemical space for natural products by *Aspergillus-Streptomyces* co-cultivation and biotransformation. **Scientific Reports** 5, 10868.
28. D. van Dissel, D. Claessen, M. Roth and G.P. van Wezel. (2015) A novel locus for mycelial aggregation forms a gateway to improved *Streptomyces* cell factories. **Microbial Cell Factories** 14, 44.
29. A.K. Chaplin, M.L.C. Petrus, G. Mangiameli, M.A. Hough, D.A. Svistunenko, P. Nicholls, D. Claessen, E. Vijgenboom and J.A.R. Worrall. (2015) GlxA is a new structural member of the radical copper oxidase family and is required for glycan deposition at hyphal tips and morphogenesis of *Streptomyces lividans*. **Biochemical Journal** 469 (3), 433-444.
30. D. Claessen and G.P. van Wezel (2014). Off the wall. **eLife** 3, e05427.
31. M.D. van Dissel, D. Claessen<sup>4</sup> and G.P. van Wezel (2014). Morphogenesis of *Streptomyces* in submerged cultures. **Advances in Applied Microbiology** 89, 1-45.
32. G. Girard, J. Willemse, H. Zhu, D. Claessen, K. Bukarasam, M. Goodfellow and G.P. van Wezel (2014). Analysis of novel *kitasatosporae* reveals significant evolutionary changes in conserved developmental genes between *Kitasatospora* and *Streptomyces*. **Antonie van Leeuwenhoek** 106 (2), 365-380.
33. M.L.C. Petrus and D. Claessen (2014). Pivotal roles for *Streptomyces* cell surface polymers in morphological differentiation, attachment and mycelial architecture. **Antonie van Leeuwenhoek** 106 (1), 127-139.
34. D. Ekkers, D. Claessen<sup>5</sup>, F. Galli and E.T. Stamhuis (2014). Surface modifications using the *Streptomyces coelicolor* chaplin proteins. **Applied Microbiology and Biotechnology** 98 (10), 4491-4501.
35. M.L.C. Petrus, G.J. van Veluw, H.A.B. Wösten and D. Claessen (2014). Sorting of *Streptomyces* cell pellets using a complex object parametric analyzer and sorter. **Journal of Visualized Experiments** 84, e51178.
36. D. Claessen, D.E. Rozen, O.P. Kuipers, L. Søgaard-Andersen and G.P. van Wezel (2014). Bacterial solutions to multicellularity: a tale of biofilms, filaments and fruiting bodies. **Nature Reviews in Microbiology** 12 (2), 115-124.
37. K. Surdova, P. Gamba, D. Claessen, J. Errington and L.W. Hamoen (2013). The DNA-binding protein WhiA is involved in cell division in *Bacillus subtilis*. **Journal of Bacteriology** 195 (24), 5450-5460.
38. M. Bokhove, D. Claessen, W. de Jong, L. Dijkhuizen, E.J. Boekema and G.T. Oostergetel (2013). Chaplins of *Streptomyces coelicolor* self-assemble into two distinct functional amyloids. **Journal of Structural Biology** 184 (2), 301-309.
39. G.J. van Veluw, M.L.C. Petrus, J. Gubbens, R. de Graaf, I.P. de Jong, G.P. van Wezel, H.A.B. Wösten and D. Claessen (2012). Analysis of two distinct mycelial populations in liquid-grown *Streptomyces* cultures using a flow cytometry-based proteomics approach. **Applied Microbiology and Biotechnology** 96 (5), 1301-1312.
40. I.P. de Jong and D. Claessen (2012). A sandwich-culture technique for controlling antibiotic production and morphological development in *Streptomyces coelicolor*. **Journal of Microbiological Methods** 91 (2), 318-320.
41. E.B. Sawyer, D. Claessen, S.L. Gras and S. Perrett (2012). Exploiting amyloid: how and why bacteria use cross- $\beta$  fibrils. **Biochemical Society Transactions** 40 (4), 728-734.
42. W. de Jong, E. Vijgenboom, L. Dijkhuizen, H.A.B. Wösten and D. Claessen (2012). SapB and the rodlins are required for development of *Streptomyces coelicolor* in high osmolarity media. **FEMS Microbiology Letters** 329 (2), 154-159.
43. E.B. Sawyer, D. Claessen, M. Haas, B. Hurgobin and S.L. Gras (2011). The assembly of individual chaplin peptides from *Streptomyces coelicolor* into functional amyloid fibrils. **PLOS One** 6 (4), e18839.
44. W. de Jong, H.A.B. Wösten, L. Dijkhuizen and D. Claessen (2009). Attachment of *Streptomyces*

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<sup>4</sup> Co-senior author

<sup>5</sup> Shared first and corresponding author

- coelicolor* is mediated by amyloidal fimbriae that are anchored to the cell surface via cellulose. **Molecular Microbiology** 73 (6), 1128-1140.
45. W. de Jong, A. Manteca, J. Sanchez, G. Bucca, C.P. Smith, L. Dijkhuizen, D. Claessen<sup>6</sup> and H.A.B. Wösten (2009). NepA is a structural cell wall protein required for spore dormancy in *Streptomyces coelicolor*. **Molecular Microbiology** 71 (6), 1591-1603.
  46. D. Claessen, R. Emmins, L.W. Hamoen, R.A. Daniel, J. Errington and D.H. Edwards (2008). Control of the cell elongation-division cycle by shuttling of PBP1 protein in *Bacillus subtilis*. **Molecular Microbiology** 68 (4), 1029-1046.<sup>7</sup>
  47. A. Manteca, D. Claessen, C. Lopez-Iglesias and J. Sanchez (2007). Aerial hyphae in surface cultures of *Streptomyces lividans* and *Streptomyces coelicolor* originate from viable segments surviving an early programmed cell death event. **FEMS Microbiology Letters** 274 (1), 118-125.
  48. D. Claessen, W. de Jong, L. Dijkhuizen and H.A.B. Wösten (2006). Regulation of *Streptomyces* development: reach for the sky! **Trends in Microbiology** 14 (7), 313-319.
  49. M.F.B.G. Gebbink, D. Claessen, B. Bouma, L. Dijkhuizen and H.A.B. Wösten (2005). Amyloids: a functional coat for microorganisms. **Nature Reviews in Microbiology** 3 (4), 333-341.
  50. D. Claessen, I. Stokroos, H.J. Deelstra, N.A. Penninga, C. Bormann, J.A. Salas, L. Dijkhuizen and H.A.B. Wösten (2004). The formation of the rodlet layer of streptomycetes is the result of the interplay between rodlines and chaplins. **Molecular Microbiology** 53 (2), 433-443.
  51. D. Claessen, H.A.B. Wösten, L. Dijkhuizen and G. van Keulen (2004). *Streptomyces coelicolor* in an oxygen-limited liquid environment: adapt and escape. **Microbiology Australia** 25 (2), 22-23.
  52. D. Claessen, R. Rink, W. de Jong, J. Siebring, P. de Vreugd, F.G.H. Boersma, L. Dijkhuizen and H.A.B. Wösten (2003). A novel class of secreted hydrophobic proteins is involved in aerial hyphae formation in *Streptomyces coelicolor* by forming amyloid-like fibrils. **Genes & Development** 17 (14), 1714-1728.<sup>8</sup>
  53. G. van Keulen, H.M. Jonkers, D. Claessen, L. Dijkhuizen and H.A.B. Wösten (2003). Differentiation and anaerobiosis in standing liquid cultures of *Streptomyces coelicolor*. **Journal of Bacteriology** 185 (4), 1455-1458.
  54. D. Claessen, H.A.B. Wösten, G. Van Keulen, O.G. Faber, A.M.C.R. Alves, W.G. Meijer and L. Dijkhuizen (2002). Two novel homologous proteins of *Streptomyces coelicolor* and *Streptomyces lividans* are involved in the formation of the rodlet layer and mediate attachment to a hydrophobic surface. **Molecular Microbiology** 44 (6), 1483-1492.

#### PREPRINTS AND INVITED PAPERS (4)

1. R. Kapteijn, S.S. Shitut, D. Ashmann, L. Zhang, M. de Beer, D. Daviran, R. Roverts, A. Akiva, G.P. van Wezel, A. Kros and D. Claessen (2022). DNA uptake by cell wall-deficient bacteria reveals a putative ancient macromolecule uptake mechanism. bioRxiv 478057.
2. V. Ongenae, A. Sidi Mabrouk, M. Crooijmans, D.E. Rozen, A. Briegel and D. Claessen (2021). Reversible bacteriophage resistance by shedding of the bacterial cell wall. bioRxiv 468999.
3. S.S. Shitut, M.J. Shen, B. Claushuis, R.J.E. Derks, M. Giera, D.E. Rozen, D. Claessen & Ak. Kros (2021). Generating heterokaryotic cells via bacterial cell-cell fusion. bioRxiv 458600.
4. M. van den Brink, S.T. Tandar, T.A.P. van den Akker, S. Jovikj, V. Defourt, T.G.B. Langelaar, T.O. Delzenne, K. van Strien, A.W. Schonk, A.J.A.M. Beers, E. Golov, L.J. Chong, G. Özer Bergman, J.J.W.D. Meijdam, M.E. Crooijmans, D. Claessen<sup>9</sup> and J.H. de Winde (2020). Rapidemic, a versatile and label-free DNAzyme-based platform for visual nucleic acid detection. bioRxiv 337808.

#### BOOKS, OR CONTRIBUTION TO BOOKS (3)

1. S.L. Gras and D. Claessen (2014). Functional amyloid fibrils: lessons from microbes. Book chapter in "Natural products analysis: instrumentation, methods, and applications" (Wiley). Editors: Havlicek and Spizek. p. 573-600. ISBN 9781118466612
2. D. Claessen and L. Dijkhuizen (2011). Streptomyceten – van antibiotica tot Alzheimer. Book chapter in "De microcanon". ISBN 9789085713272
3. D. Claessen (2004). Structural proteins involved in morphological differentiation of streptomycetes. PhD Thesis, University of Groningen. ISBN 9036721342

<sup>6</sup> Corresponding author

<sup>7</sup> Highlighted by S. Molley (2008). All aboard the cell wall shuttle. *Nature Reviews in Microbiology* 6, 414-415

<sup>8</sup> This cover story paper has been **cited more than 300 times** (Google Scholar, February 2019)

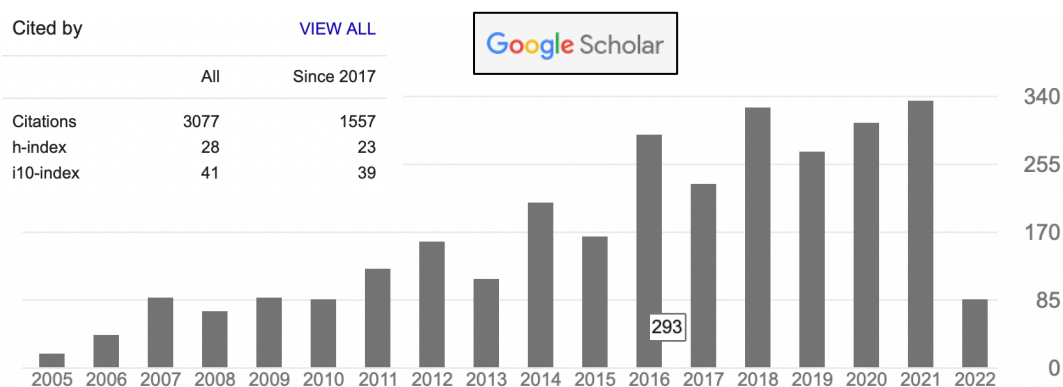
<sup>9</sup> Co-senior author

## PATENTS AND PATENT APPLICATIONS (1)

1. H.A.B. Wösten, **D. Claessen**, O.G. Faber, W.G. Meijer and L. Dijkhuizen (2001). Protein capable of self-assembly at a hydrophobic-hydrophilic interface, method of coating a surface, method of stabilizing a dispersion, method of stabilizing a protein containing solution and a method of purifying a protein. WO 01/74864.

## IMPACT AND CITATION ANALYSIS

Prof. Claessen is an NWO Vici Laureate (ENW) with a strong expertise in the role of the cell wall in bacterial growth and development, and he recently expanded this research theme to the biology of cell wall-deficient cells. All microbial cell biology expertise groups in Leiden, including that of the applicant, are organized in the Centre for Microbial Cell Biology, which includes the labs of Prof. Gilles van Wezel (cell division and antibiotics discovery in actinomycetes), Prof. Ariane Briegel (chemotaxis and electron cryotomography), Dr. Wiep Klaas Smits (*Clostridium* pathogenicity), and Prof. Remus Dame (chromosome structure). This Centre provides optimal resonance between the groups and maximal exploitation of the available infrastructure to develop innovative cross-boundary technology platforms. The majority of funding in the Claessen lab is obtained from the Netherlands Organisation for Scientific Research (NWO, Domain of Applied and Engineering Sciences). Most notably, Claessen received the prestigious **Vici grant** for studying consequences and regulation of cell wall deficiency. Previously, Claessen was awarded a Vidi grant from NWO (TTW) and prestigious fellowships from EMBO and Marie Curie (2005-2007, 2009). In total, Claessen attracted more than 5 ME. The most important output indicators in his field are articles in peer-reviewed journals as a first or corresponding/last author. Claessen has over 50 publications in peer-reviewed journals, including Nature Communications (2x), Nature Reviews in Microbiology (2x), mBio (2x), Genes & Development, Open Biology (2x), Trends in Microbiology (2x), Molecular Microbiology (5x), Scientific Reports (3x), Frontiers in Microbiology and eLife.



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