

Curriculum vitae

Personal data:

Prof Dr Elisabeth Grohmann
Meiningenallee 17
14052 Berlin
Germany

Education:

- June 1982: High-school diploma, BG Stift Rein, Rein, Austria
- March 1990: Degree in Technical Chemistry at the Technical University Graz, Austria, focus on biochemistry and food chemistry/food technology, including courses in Molecular Genetics, Biotechnology, and Immunology
- November 1994: PhD in Molecular Microbiology at the Technical University Graz, Austria. Supervisor: Professor Dr Helmut Schwab; Thesis: Overexpression and characterization of proteins encoded by the *parCBA* operon of the partitioning region (*par*) of plasmid RP4 and functional studies of the influence of *par* components on stabilization of plasmids: “summa cum laude”
- December 2003: Habilitation (*Venia legendi*) at the Faculty of Process Sciences/Department of Environmental Engineering, Technical University Berlin, Germany “Studies on plasmid mobilization and conjugative plasmid transfer in Gram-positive bacteria”
- March 2004: *Venia docendi* for Molecular Biology

Positions held:

- November 1991-July 1994: University Assistant at the Technical University Graz, Austria, Institute for Biotechnology
- December 1994-December 1997: Postdoctoral fellow at the Centro de Investigaciones Biológicas, CSIC, Madrid, Spain (Professor Dr Manuel Espinosa); Holder of a Schrödinger research fellowship

- February 1998-February 2004: Assistant Professor (C1) and Head of Research Group in Molecular Microbiology at the Technical University Berlin, Germany
- February 2004-February 2010: Head of Research Group (C2) at the Technical University Berlin, Germany
- Since February 2010: Head of Research Group “Antibiotic Resistance Transfer” at the University Medical Centre Freiburg, Germany
- Since August 2011: Apl. Professor of Molecular Microbiology at the University Medical Centre Freiburg, Germany
- From October 2012-July 2014: Full Professor of Microbiology at the School of Biology, Albert-Ludwigs-University Freiburg, Germany
- Since March 2015: Professor of Microbiology at the School of Life Sciences and Technology, Beuth University of Applied Sciences Berlin, Germany
- Since April 2018: Head of Microbiology Department at the School of Life Sciences and Technology, Beuth University of Applied Sciences Berlin, Germany (since 10/2021 Berlin University of Applied Sciences)

Research Visits:

- April 2011-December 2011: Ikerbasque visiting researcher at the University of the Basque Country (UPV/EHU: Universidad del País Vasco), Campus Leioa, Spain
- January 2012-July 2012: Visiting researcher at Biophysics Foundation Bizkaia, Bilbao, University of the Basque Country (UPV/EHU: Universidad del País Vasco), Campus Leioa, Spain

Leadership:

- February 1998- February 2004: Head of Research Group and Assistant Professor in Molecular Microbiology at Technical University Berlin, Germany
- February 2004-February 2010: Head of Molecular Microbiology Research Group at Technical University Berlin, Germany
- Since February 2010: Head of Research Group “Antibiotic Resistance Transfer” at University Medical Centre Freiburg, Germany
- From October 2012-July 2014: Professor of Microbiology at the School of Biology, Albert-Ludwigs-University Freiburg, Germany

Since March 2015: Professor of Microbiology at the School of Life Sciences and Technology, Beuth University of Applied Sciences, Berlin, Germany

Since April 2018: Head of Microbiology Department at the School of Life Sciences and Technology, Beuth University of Applied Sciences, Berlin, Germany (since 10/2021 Berlin University of Applied Sciences)

Administration:

Evaluation of research and education

External reviewer for the scientific journals:

Molecular Microbiology, Journal of Bacteriology, PLOS ONE, PLOS Genetics, FEBS Letters, Applied and Environmental Microbiology, Molecular and Microbiology Reviews, Nature Communications, Journal of Clinical Microbiology, Antimicrobial Agents and Chemotherapy, Cellular and Molecular Life Science, Trends in Microbiology, Frontiers in Microbiology, European Journal of Clinical Microbiology & Infectious Diseases, BBA Biomembranes, Microbiology, FEMS Microbiology Letters, FEMS Microbiology Ecology, Microbial Drug Resistance, Meta Gene, Materials Science and Engineering C, Journal of Applied Microbiology, Nucleic Acids Research, Water Research, Archives of Microbiology, Letters in Applied Microbiology, Astrobiology, Water Science and Technology, Research in Microbiology, Plasmid, BioTechniques, Journal of Membrane Biology, Central European Journal of Biology, BMC Biotechnology, BMC Molecular Biology, BMC Microbiology, Science of the Total Environment, Applied Microbiology and Biotechnology, Journal of Basic Microbiology, Environmental Monitoring and Assessment, Environmental Pollution, Current Biotechnology, Future Microbiology, Future Medicine, International Research Journal of Agricultural Science, Journal of Agricultural Science and Technology, Bulletin of Environmental Contamination and Toxicology, Global Research Journal of Microbiology, British Journal of Medicine and Medical Research, Acta Biochimica et Biophysica Sinica, Advances in Microbiology, Expert Review of Anti-infective Therapy

Editor/Editorial board member of scientific journals:

Frontiers in Microbiology, Microorganisms, Plasmid, PeerJ-Life and Environment

External reviewer for research grants:

DFG, European Commission in the 7th Framework Programme (Antimicrobial Resistance), NSF (National Science Foundation), USA, the Leibniz-Gemeinschaft, Germany, the Fonds de la Recherche Scientifique (FNRS), Belgium, the National Research Foundation, South Africa, German-Israeli Foundation for Scientific Research and Development (GIF), the Cyprus Research Promotion Foundation (RPF) and "Concerted Research Actions (CRA)" of the Research Council of the Académie universitaire 'Louvain' (AuL), State of Wisconsin Groundwater Research and Monitoring Proposals, ERA-NET Biodiversity Call 2016 (BiodivERSA3) of the European Commission, Agence Nationale de la Recherche (ANR - French National Research Agency) Evaluation Panel CE35 Health/environment — emerging

and re-emerging diseases, 2017, ANR (Agence Nationale de la Recherche France: Call on Proposals on Antimicrobial Resistance “Understand, Innovate, Act”), 2020-2021, ANR, Evaluation of Proposals on Antimicrobial Resistance, 2022, Evaluation of individual research proposals on Type IV Secretion Systems, 2023, Evaluation of individual research grants submitted to the Belgian National Reference Centers for Human Microbiology, 2024

External reviewer of scientific contributions to congresses:

7th IWA Biennial World Water Congress in Montreal 2010, 2nd IWA Development Congress and Exhibition, November 2011, Kuala Lumpur, Malaysia, Conference on Type IV Secretion in Gram-negative and Gram-positive Bacteria, December 2016, Schloss Hirschberg, Germany

Membership in Professional Societies:

American Society for Microbiology (ASM)
 International Society for Plasmid Biology (ISPB)
 Gesellschaft für Biochemie und Molekularbiologie (GBM)
 Österreichische Gesellschaft für Molekulare Biowissenschaften und Biotechnologie (ÖGMBT)
 Deutscher Hochschulverband (DHV)
 Biotechnologieverbund Berlin-Brandenburg (bbb)
 Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM)
 Alumni TU Graz

Honours and Awards:

1994 PhD summa cum laude
 1994-1996 Erwin-Schrödinger postdoctoral fellowship
 October 2006-July 2007 Host of an Alexander von Humboldt Foundation scholar
 April 2011-December 2011 Ikerbasque visiting fellowship
 January 2012-July 2012 Visiting scientist at Biophysics Foundation Bizkaia, Bilbao, Spain

Teaching:

>25 years of teaching experience in Microbiology, Molecular Biology, Environmental Microbiology, Molecular Biology Methods, and Genetics

Diploma/Bachelor/Master, State Examination and Project Theses under my supervision:

1. **Benzner, S.** 2001. Expressionsstudien der Transfergene des Plasmids pIP501 anhand des Reportergens *gfp* sowie GFP-Detektion mittels Epifluoreszenzmikroskopie in *Streptococcus pneumoniae* und *Bacillus subtilis*. State Examination Thesis.

2. **Grothe, D.** 2001. Bestimmung des Transkriptionsstarts der *tra* mRNA des konjugativen Plasmids pIP501 sowie DNA-Sequenzbestimmung eines weiteren Transfersgens. State Examination Thesis.
3. **Mägdefrau, M.** 2002. Untersuchungen der Regulation des konjugativen Transfers in pathogenen Mikroorganismen mit hygienischer Bedeutung für Lebensmittel am Beispiel des Plasmids pIP501. Diploma Thesis.
4. **Andreas, K.** 2005. [A] Bindungsstudien der TraA-Relaxase und der N-terminalen Domäne TraAN246 am *oriT* des Plasmids pIP501 anhand von footprint Analysen. [B] Klonierung und Expression der TraA-Relaxase und der beiden N-terminalen TraAN246- und TraAN269-Domänen des Plasmids pIP501. Project Thesis.
5. **Arends, K.** 2005. Klonierung, Expression und Charakterisierung der von *orf7* des konjugativen Plasmids pIP501 codierten putativen lytischen Transglykosylase. Diploma Thesis.
6. **Burzynski, M.** 2005. Protein-protein interaction studies of the pIP501 transfer genes *orf1*, *orf8* and *orf15* with the yeast two-hybrid system. Project Thesis.
7. **Chmielinska, K.** 2005. In vitro Studien der Protein-Protein-Interaktionen der Transferproteine Orf5 und Orf7 des konjugativen Plasmids pIP501 aus *Streptococcus agalactiae*. Diploma Thesis.
8. **Döring, M.** 2005. Klonierung und Expression der putativen Gentransferproteine ORF8 und ORF15 des Multiresistenzplasmids pIP501 in den His tag Vektor pQTEV mit anschließender Reinigung der Fusionsproteine durch Affinitätschromatographie. Diploma Thesis.
9. **Dunkelberg, E.** 2005. Isolierung und Charakterisierung von wachsabbaudenden Mikroorganismen zur Reduktion der Hydrophobie von Böden. Project Thesis.
10. **Kirchner, D.** 2005. Einfluss von Biofilmen hydrophober und hydrophiler Bakterienisolaten urbaner Standorte auf die Benetzbarkeit von Bodenproben. Diploma Thesis.
11. **Puttrich, M.** 2005. Einfluss von Wasserstress auf die bakterielle Gemeinschaft eines urbanen Bodens. Bachelor Thesis.
12. **Ryden, A.-M.** 2005. Studies on protein-protein interactions of *Enterococcus faecalis* virulence proteins with human proteins by the yeast two-hybrid system. Diploma Thesis.
13. **Tientcheu Mbieleu, C. A.** 2005. Klonierung und Expression des vom konjugativen Plasmid pIP501 kodierte Transferproteins ORF5 in *Escherichia coli*. Project Thesis.
14. **Söllü, C.** 2006. Untersuchung des Gentransfers in Gram-positiven Bakterien anhand des konjugativen Antibiotikaresistenzplasmids pIP501: Nachweis der lytischen Transglykosylase Aktivität des Orf7 Proteins mit radioaktiv und Fluoreszenz markiertem Peptidoglykan. Diploma Thesis.
15. **Celik, E.-K.** 2006. Klonierung, Expression, Reinigung und enzymatische Charakterisierung der Proteindomänen der lytischen Transglykosylase ORF7 des Antibiotikaresistenzplasmids pIP501 aus *Streptococcus agalactiae*. Diploma Thesis.
16. **Malek, S.** 2007. Klonierung, Expression, Reinigung und enzymatische Charakterisierung des Transferproteins ORF10 aus dem Plasmid pIP501. Diploma Thesis.
17. **Neumann, A.** 2007. Studien zur bakteriellen Diversität und zu Antibiotika-Resistenzen in Wasser- und Vogelkotproben aus hochgelegenen andinen Feuchtgebieten. Project Thesis.
18. **Ott, S.** 2007. In situ Studien der Protein-Protein-Interaktionen der zwei Domänen CHAP und SLT des Transferproteins Orf7 mit den Transferproteinen Orf5, Orf7, Orf10 und Orf14 des konjugativen Plasmids pIP501 aus *Streptococcus agalactiae*. Diploma Thesis.

19. **Rolle, F.** 2007. Neue Protein-Protein-Interaktionen zwischen Virulenzfaktoren von *Enterococcus faecalis* V583 und humanen Proteinen. Project Thesis.
20. **Kalle, M.** 2007. Yeast Two-Hybrid-basierte Detektion von Protein-Protein-Interaktionen zwischen Virulenzfaktoren von *Enterococcus faecalis* V583 und humanen Proteinen. Project Thesis.
21. **Alhaj, A.** 2008. Klonierung des Replikationssystems des konjugativen Plasmids pIP501 in das Plasmid RP4 sowie Studien zur ATPase ORF10 und seiner ATPase Domäne. Master Thesis.
22. **Hahn, S.** 2008. Molekularbiologische Untersuchungen an bakteriellen Isolaten der Antarktisstation CONCORDIA und der Internationalen Raumstation ISS in Bezug auf Biofilmbildung, konjugativen Transfer und Plasmidmobilisierung. Diploma Thesis.
23. **Schernke, S. H. K.** 2008. Klonierung und Expression des pIP501-codierten DNA-Sekretionsproteins ORF9 und Lokalisierung des Proteins in *Enterococcus faecalis* mit Immunoblot. Diploma Thesis.
24. **Weiss, A.** 2008. Dispersion of culturable antibiotic resistant bacteria by flamingos in isolated and extreme environments of high altitude Andean wetlands. Project Thesis.
25. **Wibisono, C.** 2008. Intrazelluläre Lokalisierung des Transferproteins Orf7 des konjugativen Plasmids pIP501 in *Enterococcus faecalis* sowie molekulare Untersuchungen zu Antibiotikaresistenzen von Bakterienisolaten der internationalen Raumstation ISS. Diploma Thesis.
26. **Will, A.** 2008. Studien zum Gentransfer in Biofilmen mit *Staphylococcus*- und *Bacillus* Isolaten der Internationalen Raumstation (ISS) und der Antarktisforschungsstation CONCORDIA. Bachelor Thesis.
27. **Woloszyk, A.** 2008. Klonierung und Expression des pIP501-kodierten DNA-Sekretionsproteins Orf6 sowie immunologische Lokalisierung des Proteins in Zellkompartimenten von *Enterococcus faecalis* mittels Immunoblot. Project Thesis.
28. **Prescha, K.** 2009. Studien zur Antibiotikaresistenz und zum horizontalen Gentransfer von *Staphylococcus* Isolaten der Internationalen Raumstation (ISS) und der Antarktis Forschungsstation CONCORDIA. Diploma Thesis.
29. **Püngel, A.** 2009. Untersuchung der spezifischen DNA-Bindung des putativen coupling-Proteins Orf10 des konjugativen Plasmids pIP501 mittels Electrophoretic Mobility Shift Assay. Project Thesis.
30. **Rogowski, K. M.** 2009. Untersuchung von gram-positiven bakteriellen Isolaten der CONCORDIA Forschungsstation auf Antibiotika-Resistenzen und Transferegene mit PCR. Project Thesis.
31. **Weiss, A.** 2009. Development of a novel high throughput continuous bio-treatment process for dye wastewater. Diploma Thesis.
32. **Fürch, S.** 2010. Molekularbiologische Untersuchungen von pathogenen *Staphylococcus* - Isolaten in Bezug auf Antibiotikaresistenzen, mobile genetische Elemente (MGEs) und Biofilmbildung. Diploma Thesis.
33. **Knittel, I.** 2010. Identifizierung von Antibiotika resistenten Milchsäurebakterien aus fermentierten Milch- und Fleischprodukten sowie molekulare Charakterisierung bezüglich Plasmidtransfer und Antibiotikaresistenzen. Bachelor Thesis.
34. **Mende, L.** 2010. Biotechnological and molecular characterisation of antibiotic resistant lactic acid bacteria isolated from dairy products. Project Thesis.
35. **Püngel, A.** 2010. Untersuchung der spezifischen DNA-Bindung verschiedener Transferproteine des konjugativen Plasmids pIP501 mittels Electrophoretic Mobility Shift Assay. Bachelor Thesis.
36. **Rogowski, K. M.** 2010. Konjugativer Plasmidtransfer in Gram-positiven Bakterien: Studien zur DNA-Bindung und zum Plasmidtransfer zwischen Enterokokken und Staphylokokken. Bachelor Thesis.

37. **Rosenlöcher, J.** 2010. Nachweis und Lokalisierung von konjugativen Transferfaktoren in Gram-positiven Bakterien. Project Thesis.
38. **Ravindrakumar, R.** 2010. Cloning, expression and purification of enterococcal proteins as possible vaccine targets from *Enterococcus faecium*. Master Thesis.
39. **Álvarez Rodríguez, I.** 2012. Cloning and expression of the chimaera coupling protein TMD_{R388}-Orf10_{pIP501}. Bachelor Thesis.
40. **Wingert, N.** 2013. Complementation of gene knock-outs of key type IV secretion genes from plasmid pIP501. Bachelor Thesis.
41. **Krodel, S.** 2013. Molecular analysis of metal stress in *Enterococcus faecalis*. Bachelor Thesis.
42. **Lehmann, M.** 2013. Effect of a novel biocidal substance on bacterial isolates from the International Space Station (ISS). Bachelor Thesis.
43. **Hämmerle, E.** 2013. Isolation and molecular characterization of bacteria from the International Space Station (ISS). Bachelor Thesis.
44. **Wullich, S.** 2013. Funktionelle Charakterisierung einer CapD-Mutante von *Enterococcus faecium*. Bachelor Thesis.
45. **Eckert, C.** 2013. Mikroskopische Analyse von Zytoskelett Proteinen aus *Bacillus subtilis*. Bachelor Thesis.
46. **Blasi, R.** 2013. Detection of antimicrobial resistance genes and pathogens in wastewater-irrigated soils. Master Thesis.
47. **Brenn, C.** 2013. Generation of gene knock-outs of key type IV secretion genes from plasmid pIP501. Master Thesis.
48. **Schmieder, W.** 2013. Untersuchungen zur Wirkung von neuartigen antimikrobiellen Substanzen unter Extrembedingungen (in geschlossenen Systemen unter Einfluss von Mikrogravitation). Master Project.
49. **Steck, C.** 2013. Generation of gene knock-outs of the *Enterococcus faecalis* pIP501-encoded type IV secretion system. Master Project.
50. **Fuchs, J.** 2014. Characterization of microorganisms of the International Space Station (ISS) regarding biofilm formation, antibiotic resistance and conjugative transfer. Bachelor Thesis.
51. **Hager, K.** 2014. Conjugative transfer in Corynebacteria. Bachelor Thesis.
52. **Falquez Medina, H.M.** 2014. Complementation of *traG*-gene knock-out in plasmid pIP501 from *Enterococcus faecalis*. Bachelor Thesis.
53. **Garcia Moreno, M.** 2014. Gene knockout of the coupling proteins in pIP501 and CloDF13 plasmids. Master Thesis.
54. **Clauß, E.** 2013-2014. Molecular studies of *Enterococcus faecalis* metal stress via RNA sequencing. Diploma Thesis.
55. **Burgstett, N.** 2014-2015. Cloning and heterologous expression of the pIP501 type IV secretion complex. Diploma Thesis.
56. **Schmieder, W.** 2014-2015. Development of silver resistance in *Staphylococcus aureus* as caused by long term contact with silver-based antimicrobial coatings. Master Thesis.
57. **Steck, C.** 2014. Generation and complementation of gene knock-outs of the *Enterococcus faecalis* pIP501-encoded type IV secretion system. Master Thesis.
58. **Gomez Juliao, V. L.** 2015. Construction of *traB*, *traC*, and *traD* deletion mutants in the pIP501 type IV secretion system of *Enterococcus faecalis*. Master Thesis
59. **Küchler, V.** 2015-2016. Optimization of silver-based antimicrobial surfaces and studies on its application against enterococci and MRSA. Bachelor Thesis
60. **Rogowski, K. M.** 2015-2016. Long term efficiency of antimicrobial surface coatings based on silver and ruthenium: Molecular characterization of microbial survivors aimed to improve the coatings. Master Thesis

61. **Dumsch, R.** 2016-2017. Plasmidisolierung und PCR Amplifikation von Transfergenen des Typ IV Sekretion Systems aus *Enterococcus faecalis*. Bachelor Project
62. **Dumsch, R.** 2017. Komplementation von einzelnen Gene Knock-outs des pIP501 Typ IV Sekretion Systems. Bachelor Thesis
63. **Schumacher, A.** 2016-2017. Einfluss der Ascorbinsäureschicht auf die antimikrobiellen Eigenschaften der AGXX-Oberfläche. Bachelor Project
64. **Schumacher, A.** 2017. Mikrobiologische und biochemische Untersuchungen zum Wirkmechanismus von verbesserten AGXX-Oberflächen. Bachelor Thesis
65. **Veluppilai, N.** 2017. Molecular characterization of microbial pathogens isolated from surfaces on the International Space Station (ISS). Bachelor Project
66. **Machava, M.** 2017. Isolierung und Charakterisierung von neuen Wirkstoffproduzenten aus Umweltproben. Bachelor Project
67. **Fuhrmann, J.** 2017. Komplementation von Transfergen Knock-outs des pIP501 Typ IV Sekretion Systems. Bachelor Project
68. **Benesch, C.** 2017. Elektrochemische und mikrobiologische Studien zum Wirkmechanismus der antimikrobiellen Oberflächenbeschichtung AGXX. Master Project
69. **Fuhrmann, J.** 2017. Molekulare Untersuchungen am Typ IV Sekretionssystem des Plasmids pIP501. Bachelor Thesis
70. **El-Said, K.** 2018. Molekulare und mikrobiologische Analysen von Kompost auf *Ascaris* und human pathogene Bakterien. Bachelor Thesis
71. **Machava, M.** 2017. Isolierung und Charakterisierung von neuen Wirkstoffen aus Umweltproben. Bachelor Thesis
72. **Oles, P.** 2018. Studien zu humanpathogenen Staphylokokken und Enterokokken auf der ISS. Bachelor Thesis
73. **Kaban, Z.** 2018. Studien zur Wachstumshemmung von pathogenen Bakterien durch antimikrobielle Oberflächen. Bachelor Thesis
74. **Mauermann, M.** 2018. Mikrobiologische Analyse einer MRSA hemmenden Substanz aus einem *Bacillus*-Isolat. Bachelor Thesis
75. **Sobisch, L.-Y.** 2018. Biofilm forming antibiotic resistant pathogens isolated from surfaces on the International Space Station. Master Thesis
76. **Burkhard, A. Y.** 2018. Analysing the activity of the antimicrobial compound AGXX on the pathogenic bacteria *Pseudomonas aeruginosa* and *Streptococcus pneumoniae*. Master Thesis
77. **Wöhrmann, M.** 2018. Kulturelle und molekulare Untersuchungen der mikrobiellen Gemeinschaft in Kompost basierend auf humanen Faeces. Master Thesis (ongoing)
78. **Cheibi, G.** 2018-2019. Kulturelle und molekulare Analysen der Wirkung von neuartigen antimikrobiellen Oberflächen auf Wachstum und Biofilmbildung von *Pseudomonas aeruginosa*. Bachelor Thesis
79. **Krüger, M.** 2018. Kulturelle und molekularbiologische Untersuchungen der Wirkung von antimikrobiellen Pulvern auf MRSA. Bachelor Thesis (ongoing)
80. **Cabello Aleman, L.** 2019. Analisis del crecimiento y de la expression genica de *Pseudomonas aeruginosa* en presencia del material antimicrobiano AGXX. Bachelor Thesis
81. **Younes, A.** 2018-2019. Untersuchung der Übertragung von Antibiotikaresistenzen zwischen pathogenen bakteriellen Isolaten von der Internationalen Raumstation (ISS). Bachelor Thesis
82. **Hermann, F.** 2019- Bachelor Project and Bachelor Thesis: Molekulare Analyse der auf neuartigen antimikrobiellen Oberflächen überlebenden Bakterien

83. **Lenk, A.** 2019-2021. Bachelor Project and Bachelor Thesis: Analyse von Polychloriden zur Keimfreiheit von Trinkwasser.
84. **Oruc, H.** 2019-2020 Bachelor Project and Bachelor Thesis: Molekulare Analyse der auf neuartigen antimikrobiellen Oberflächen überlebenden Bakterien
85. **El-Said, K.** 2019-2021 Master Project and Master Thesis: Molekulare Analyse der Bakteriengemeinschaften, die thermophile Kompostierung überleben.
86. **Schröder, V.** 2020-2021 Master Project and Master Thesis: Herstellung von markerlosen Gene-Knockouts im Typ IV Sekretionssystem des Enterokokken Plasmids pIP501
87. **Millberg, I.** 2020-2021. Bachelor Project and Bachelor Thesis: Untersuchungen zur Wirkung von antimikrobiellen Materialien auf das Wachstum von *Escherichia coli*
88. **Zaakane, Y.** 2020-2021. Bachelor Project and Bachelor Thesis: Molekulare Analyse der SIRIUS-Isolate auf Präsenz von Antibiotikaresistenzgenen und konjugativen Plasmiden
89. **Wöhrmann, M.** 2020-2021 Master Project and Master Thesis. Molekulare Analyse der Antibiotikaresistenzgene und des horizontalen Genpools in durch thermophile Kompostierung aus menschlichen Faeces hergestelltem Kompost
90. **Diederich, N.** 2021-2021 Bachelor-Thesis: Real-time PCR-basierte Quantifizierung der durch thermophile Kompostierung von humanen Faeces bedingten Reduktion von Antibiotikaresistenzgenen
91. **Pucher, S.** 2021-2022 Bachelor Project and Bachelor Thesis: Erstellung von Komplementationsplasmiden zur Komplementation von markerlosen Gene-Knockouts im Typ IV Sekretionssystem des Enterokokken Plasmids pIP501
92. **Holländer, M.-A.** 2021 Bachelor Project and Bachelor Thesis: Untersuchung der Wirkung von neuartigen antimikrobiellen Oberflächen auf das Keimverhalten von *Bacillus subtilis* Endosporen
93. **Niemeyer, H.** 2021-2022 Bachelor Project and Bachelor Thesis: Untersuchung der Wirkung von neuartigen antimikrobiellen Oberflächen auf das Keimverhalten von Endosporen einer *Bacillus subtilis* Mutante mit Defekt in der Sporenhülle
94. **Feyen, L.** 2021: Bachelor Project: Abundanz von Antibiotikaresistenzgenen in Proben einer thermophilen Kompostierungsanlage
95. **Feyen, L.** 2021-2022 Bachelor Thesis: Untersuchung der Wirkung von neuartigen antimikrobiellen Oberflächen auf das Keimverhalten von Endosporen einer *Bacillus subtilis* Mutante mit Defekt im Sporenmantel
96. **Ghulam Jailani, R.** 2021- 2022 Bachelor Project and Bachelor Thesis: Molekulare Studien zur Teilkomplementation von Gene-knockouts des konjugativen Typ IV Sekretionssystems des Enterokokken-Plasmids pIP501
97. **Morad, L.** 2021- Bachelor Project and Bachelor Thesis: Untersuchungen zur Wirkung von neuartigen antimikrobiellen Substanzen auf verschiedene Gram-positive Bakterien und den filamentösen Pilz *Aspergillus giganteus*
98. **Hadersbeck, R.** 2022-2023 Bachelor Project and Bachelor Thesis: Untersuchungen zur Wirkung von neuartigen antimikrobiellen Substanzen unter kontrollierter Luftfeuchte und Temperatur auf verschiedene Gram-positive Bakterien
99. **Schakowski, J.** 2022-2023 Master Project and Master Thesis: Primer und Sonden-Design sowie Analyse von Bodenproben, die mit unterschiedlicher Qualität von Abwasser bewässert wurden, auf die Präsenz von plasmidspezifischen Genen sowie Antibiotikaresistenzgenen mittels TaqMan PCR
100. **Vu, Q.V.** 2022-2024 Master Project and Master Thesis: Erstellung von Fluoreszenz-basierten Monitoring Tools zur Quantifizierung des konjugativen Transfers in Bodenproben, die unterschiedlichen Bewässerungsregimen ausgesetzt waren.

- 101. Tahmaseb, R.** 2022-2023 Bachelor Project and Bachelor Thesis: Untersuchungen des Einflusses der einzelnen Domänen des Typ IV Sekretionsproteins TraO auf den konjugativen Plasmidtransfer von pIP501
- 102. Pütz, D.** 2024-ongoing Master Project and Master Thesis: Evaluierung der antimikrobiellen Aktivität von AGXX auf *Legionella anisa* und *Pseudomonas aeruginosa*

Supervision of PhD and MD theses:

- 1. Kurenbach, Brigitta** (1999-2003, Technical University Berlin, Germany):
Thesis: “Conjugative DNA transfer between Gram-positive and Gram-negative species: transfer components of the multi resistance plasmid pIP501 from *Streptococcus agalactiae*”
- 2. Kopec, Jolanta** (2002-2006, Technical University Berlin, Germany):
Thesis: “Structure analysis of DNA relaxases, the key enzymes of bacterial conjugation: TraA and its N-terminal relaxase domain of the Gram-positive plasmid pIP501 show specific *oriT* binding and behave as dimers in solution”
- 3. Alexandrino Fernandes, Maria de Fátima Azevedo** (1999-2006, Technical University Berlin, Germany):
Thesis: “Studies on the processes of bacteria elimination in constructed wetlands”
- 4. Braun, Burga** (2004-2007, Technical University Berlin, Germany):
Thesis: “Microbiological and molecular analysis of bacterial communities of an urban soil”
- 5. Abajy, Mohammad Yaser** (2002-2007, Technical University Berlin, Germany)
Molecular and biochemical studies of the type IV secretion-like system (T4SLS) encoded by the conjugative antibiotic resistance plasmid pIP501 in *Enterococcus faecalis*
- 6. Arends, Karsten** (2006-2010, Technical University Berlin, Germany):
Thesis: „Development of *gfp*-based genetic tools to monitor horizontal gene transfer and studies on the Type IV Secretion-like System of the conjugative plasmid pIP501 from *Enterococcus faecalis*“
- 7. Schiwon, Katarzyna** (2006-2011, Technical University Berlin, Germany):
Thesis: “Evaluation of antibiotic resistance, biofilm formation and conjugative transfer of *Staphylococcus* and *Enterococcus* isolates from ISS and Antarctic base Concordia”
- 8. Çelik, Ertugrul-Kaan** (2007-2011, Karl-Franzens-University Graz, Austria):
Thesis: „Enzymatic characterization of the lytic transglycosylase Orf7 and two ATPases encoded in the pIP501 Type IV Secretion System “
- 9. Broszat, Melanie** (2010-2013, University Medical Centre Freiburg, Germany):
Thesis: „Development of molecular methods to quantify antibiotic resistance genes and human pathogenic bacteria in environmental samples“
- 10. Cattelan, Jessey** (2013, University Medical Centre Freiburg, Germany):
MD Thesis: „Immunological studies on surface proteins of the *Enterococcus faecalis* Type IV Secretion System“

- 11. Probst, Ines** (2012-2017, Albert-Ludwigs-University Freiburg, Germany): Thesis: „Molecular analysis of key genes of the Type IV Secretion System of *Enterococcus* plasmid pIP501“
- 12. Vaishampayan, Ankita** (2015-2020, Berlin University of Applied Sciences and Technical University Berlin, Germany): Thesis: “Metal stress in MRSA mediated by antimicrobial silver/ruthenium surfaces: gene expression analysis by RNAseq”
- 13. Werner, Katharina** (2018-2023, Berlin University of Applied Sciences and Technical University Berlin, Germany): Thesis: “Development of molecular tools to quantify parasites and bacterial pathogens in compost and compost-fertilized agricultural land”
- 14. Meinberg, Clara-Constanze** (2017-ongoing, Berlin University of Applied Sciences Berlin and Charité University Medicine Berlin, Germany): Medical Doctor Thesis: “Impact of the antimicrobial substance AGXX on the microbial load in water systems of dentist chairs”
- 15. Michaelis, Claudia** (2019-ongoing, Berlin University of Applied Sciences Berlin and TU Berlin, Germany): Markerless gene knock- outs of type IV secretion system genes of conjugative plasmid pIP501 and their impact on pIP501 transfer capability
- 16. Martin, Florian** (2024-ongoing), Berlin University of Applied Sciences Berlin and TU Berlin, Germany): Searching for, evaluation, expression and testing of novel targets for biofilm inhibitors

Co-Supervision/Member of national and international PhD Committees:

- 1. Van der Auwera, Geraldine** (2004-2007, UCL, Louvain-la-Neuve, Belgium): „pAW63: a molecular wanderer in the *Bacillus cereus* gene pool“
- 2. Teng, Sarah** (2005-2008, Monash University, Clayton, Victoria, Australia): “Functional characterization and localization of the TcpH conjugation protein from *Clostridium perfringens*”
- 3. Nettmann, Edith** (2006-2009, Technical University Berlin, Germany): „Monitoring of the methane generating microflora in biogas plants in rural areas“
- 4. Ansari, Ikram, Mohd** (2007-2010, Aligarh Muslim University, Aligarh, India): „Effect of industrial wastewater on soil microbiological characteristics and genotoxicity assessment of agricultural soils”
- 5. Timmerly, Sophie** (2007-2010, UCL, Louvain-la-Neuve, Belgium): „Study of genetic exchanges among bacteria from the *Bacillus* genus, in the context of confined environments”
- 6. Bergmann, Ingo** (2008-2011, Technical University Berlin, Germany): „Development of quantitative assays to assess the methane generating microflora in biogas plants in rural areas“
- 7. Beuls, Elise** (2008-2012, UCL, Louvain-la-Neuve, Belgium): „Conjugation in the *Bacillus cereus* group under stress conditions”

- 8. Bamtwal, Radhika** (2008-2012, Monash University, Clayton, Victoria, Australia): “Structural relationship of the conjugation protein TcpC from *Clostridium perfringens* to the type IV secretion system protein VirB8 from Gram-negative bacteria“
- 9. Rademacher, Antje** (2010-2013, Technical University Berlin, Germany): “Microbiology of phase-separated reactor systems for biomethanation at thermophilic to hyperthermophilic temperatures”
- 10. Gössweiner-Mohr, Nikolaus** (2009-2013, Karl-Franzens-University Graz, Austria): „Protein-Protein interactions and structure analysis of transporters encoded by the type IV secretion system of plasmid pIP501“
- 11. Hanreich, Angelika** (2009-2013, Technical University Berlin, Germany): “Phylogenetic and functional analysis of microbial, biogas-producing communities during the hydrolysis of lignocellulosic biomass”
- 12. Aguila Arcos, Sandra** (2010-2014, University of the Basque Country (UPV/EHU), Bilbao, Spain): „Study of staphylococcal biofilms: searching for new therapeutic targets”.
- 13. Garaizabal, Idoia** (2010-2014, University of the Basque Country): (UPV/EHU), Bilbao, Spain): „Behaviour of the bacterial community during the secondary treatment by activated sludge”.
- 14. Fernandez López, Cristina** (2011-2015, University Complutense, Madrid, Spain): “Relaxasas conjugativas de la familia Mobv”
- 15. Gonzalez Prieto, Coral** (2011-2015, University of Santander, Spain): “Evaluation of site-specific recombinase and integrase activity of conjugative relaxases in bacterial and human cells”
- 16. Garaiurrebaso, Olatz** (2012-2016, University of the Basque Country (UPV/EHU), Bilbao, Spain): „Molecular analysis of conjugative plasmids to develop tools to inhibit antibiotic resistance transfer between bacteria“.
- 17. Fiedler, Stefan** (2013-2020, Robert Koch Institute, Wernigerode, Germany and Technical University Berlin, Germany): “Regulation of tetracycline resistance in clinical isolates of *Enterococcus faecium*”
- 18. Ali Khan, Liaquat**, (2014-2016), Uniklinikum Freiburg, Germany: “Identification and functional characterization of the drug-resistant *Enterococcus faecium* polysaccharide gene cluster”
- 19. Lionel, Markart** (2015-2018, Université Catholique de Louvain, Belgium): “Deciphering transfer mechanisms of the conjugative plasmid pXO16”
- 20. Alvarez Rodriguez, Itxaso** (2015-2020, University of the Basque Country, Spain): “Study of the role of the transmembrane domain of type IV coupling proteins”
- 21. Hjertaker Grevskott, Didrik** (2017-2020, University of Bergen, Norway): “Bivalve mollusks as tools for monitoring antibiotic resistance in the marine environment”

- 22. Pauline Hinneken** (2018-2022, Université Catholique de Louvain, Belgium): “Deciphering the role of key transfer factors of the conjugative plasmid pXO16”.
- 23. Zarreena Siddiqui** (2019-2023, Aligarh Muslim University, Aligarh, India): “Molecular detection of plasmids involved in alkane hydrocarbon degradation by bio-surfactant producing bacteria from the Yamuna River sediments”.
- 24. Avneesh Chopra** (2019-2021, Charité University Medicine Berlin, Beuth University of Applied Sciences Berlin): “Identification of causative genetic risk variants of aggressive periodontitis in cigarette smoke inducible enhancers at ST8SIA1”
- 25. Tamara Berger** (2019- 2024), University Graz, Austria): „Structural and biochemical characterization of a Type IV Secretion System in Gram-positive bacteria”
- 26. Dolores Lucia Guzman Herrador** (2016-2021, Universidad de Santander, Spain): “Conjugative relaxases as drivers of protein and DNA translocation through Type IV Secretion Systems: biological and biotechnological implications”
- 27. Valentina Díaz Bruna** (2023- ongoing, Universidad Catolica de Valparaiso, Chile): “Efecto terapéutico del uso conjunto de aceite esencial de *Beta vulgaris* L. var *crassa* y un péptido producido por una cepa de *Bacillus pumilus*, en un modelo *in vitro* de dermatitis atópica humana”
- 28. Shirin Akhtar** (2023- ongoing, Aligarh Muslim University, Aligarh, India): “Characterization of antibiotic resistome and its dissemination potential in the riverine system”

Further Selected Professional Activities:

Organization/Co-Organization of International Workshops and Courses:

International Workshops INTERURBAN I and II on “Water and Organic Matter in Anthropogenic Soils: Dynamics and Processes” at Free University Berlin, Berlin, Germany in April 2003, and March 2006

International Course on “Biophysical Aspects of Type IV Secretion” at Biophysics Unit, University of the Basque Country, Campus Leioa, Spain, September 2012

Workshop on „Dissemination and accumulation of antibiotic pharmaceuticals, pathogens, and resistance determinants by wastewater irrigation: New risks emerging?” at the UNAM, Mexico City, Mexico, September 2013

International Conference on “Type IV Secretion in Gram-negative and Gram-positive Bacteria” at Schloss Hirschberg, Bavaria, Germany, December 2016

Co-organization of VAAM-Workshop (Space Microbiology) “Space Microbiology meets ~Omics” at University Duisburg-Essen, October 8, 2019

Co-organization of VAAM Symposium: „Enabling spaceflight – how applied space microbiology and bio-/nanotechnology contribute? Online Symposium”, March 18, 2021

Member of Scientific Committee, T4SS Conference Nancy, France, February 17-20, 2025

Speaker at International Summer Schools

Summer School on “Bacterial secretion systems and pathogenicity in fish, mammals and humans” at University of Concepción, Concepción, Chile, January 16-21, 2015

Chairperson at International Conferences and Workshops:

Annual Meeting of the VAAM (German Association of General and Applied Microbiology) in Göttingen (2002), Annual Meeting of the VAAM (German Association of General and Applied Microbiology) in Berlin (2003), Bouyoucos Conference on “The origin of Water Repellency in Soil”, Florida, USA (2007), DFG/CONACYT German-Mexican Workshop on „Pharmaceuticals in the Environment“ at UNAM, Mexico City, Mexico, September 2008, DFG/CONACYT German-Mexican Workshop on „Pharmaceuticals in the Environment“ at UNAM, Mexico City, Mexico, March 2011, International Course on “Biophysical Aspects of Type IV Secretion” at the University of the Basque Country, Spain, September 2012, Workshop on „Dissemination and accumulation of antibiotic pharmaceuticals, pathogens, and resistance determinants by wastewater irrigation: New risks emerging?” at the UNAM, Mexico City, Mexico, September 2013, 6th International Congress of Medicine in Space and Extreme Environments (ICMS) in Berlin, September 2014, VAAM Symposium: „Enabling spaceflight – how applied space microbiology and bio-/nanotechnology contribute? Online Symposium”, March 18, 2021, IC2AR 2022, Fifth International Caparica Conference on Antibiotic Resistance, Caparica, Portugal, September 2022

Project leader of more than 25 research projects of Risk Group 1 and 2 at Technical University Berlin, Germany (1998-2010), at Albert-Ludwigs-University Freiburg, Germany (2012-2015) and at Berlin University of Applied Sciences, Berlin, Germany (2015-ongoing)

Radioprotection Officer at Technical University Berlin (1998-2010)

Selected Collaborations:

In Germany:

Rolf Daniel (University Göttingen)
Kornelia Smalla (JKI Braunschweig)
Günther Muth (University Tübingen)
Steffen Backert (University Erlangen-Nuremberg)
Rainer Haag (FU Berlin)
Johannes Bader (Berlin University of Applied Sciences Berlin)
Wulf Amelung/Melanie Braun (University Bonn)
Jan Siemens/Ines Mulder/Stefanie Gläser (University Gießen)
Christiane Zarfl (University Tübingen)
Gabriele Bierbaum (University Medical Center Bonn)
Guido Werner (Robert-Koch-Institute Wernigerode)
Carsten Meyer, Olaf Wagner (Largentec GmbH, Berlin)
Ralf Möller (DLR, Cologne)

Simone Reber (MPI Infection Biology, Berlin)

Abroad:

Walter Keller/Günther Koraimann/Bernd Gesslbauer (Karl-Franzens-University Graz, Austria)

Jacques Mahillon/Annika Gillis (Université Catholique Louvain (UCL), Louvain-la-Neuve, Belgium)

Natalie Leys/Rob van Houdt (Nuclear Research Center (SCK·CEN), Mol, Belgium)

Manuel Espinosa (Centro de Investigaciones Biológicas/CSIC), Madrid, Spain)

Miquel Salgot de Marçay (Universidad de Barcelona, Barcelona, Spain)

Itziar Alkorta, Lucia Gallego (University of the Basque Country, Leioa, Spain)

Jan Kok (University Groningen, the Netherlands)

Caterina Levantesi (IRSA, Water Research Institute, Rome, Italy)

Peter J. Christie (UT Medical School at Houston, Texas, USA)

Gary Dunny (University of Minnesota Medical School, Minneapolis, Minnesota, USA)

Abdul Malik (Aligarh Muslim University, Aligarh, India)

Yolanda Lopéz-Vidal/Christina Siebe (UNAM, Mexico City, Mexico)

Carlos González (University of Concepción, Concepción, Chile)

Sergey Kharin (IBMP, Moscow, Russian Federation)

Leda Guzman Maluenda (Pontificia Universidad Católica de Valparaíso, Chile)

Wilfried Meijer (CBM, CSIC, Madrid, Spain)

ORAL PRESENTATIONS

Invited Talks:

1. **E. Grohmann.** Horizontal antimicrobial resistance transfer mechanisms in biofilms. IC²AR 2024 6th International Caparica Conference on Antibiotic Resistance 2024, Caparica, Portugal, September 8-12, 2024 |
2. **E. Grohmann.** Entwicklung von Tests zur vergleichenden Analyse von antimikrobiellen Oberflächen. Gravimeeting, University Erlangen, March 14-15, 2024
3. **Grohmann.** Antibiotic resistance transfer: mechanisms, hot spots, and countermeasures. Workshop One-Health and Antimicrobial Resistance: role of antibiotics, antimicrobial peptides and biocides, BAM Berlin, January 29-30, 2024
4. **E. Grohmann.** Formation and spread of multiresistant pathogens. 250th Session of the ZKBS (Central Committee of Biological Safety), Berlin, September 4, 2023
5. **E. Grohmann.** Firmicutes conjugative plasmid transfer. A wonderful mobilome journey in the land of *Bacillus cereus sensu lato*, Celebration of Jacques Mahillon's emeritus, UCL, Louvain-la-Neuve, Belgium, November 10, 2022
6. **E. Grohmann.** Type IV Secretion Key-Factors in Gram-positive Bacteria. Plasmid Biology, Toulouse, September 6-11, 2020 (postponed to September 18-24, 2022)
7. **E. Grohmann.** Thermophilic composting of human excreta: Microbial community shifts and decline of antimicrobial resistance. IC2AR 2022, Caparica, Portugal, September 4-8, 2022

8. **E. Grohmann.** Thermophilic composting shapes the microbial communities and their resistome. Indo-German Bilateral Workshop, Potsdam, June 20-22, 2022
9. **Grohmann, E.,** Wischer, D., Schneider, D., Poehlein, A., Wagner, O., Kharin, S., Haag, R., Daniel, R., Vaishampayan, A. AGXX inhibits growth of human-derived pathogens during the SIRIUS-2019 isolation and affects germinated spores of *Bacillus subtilis*. 11th IAASS Conference (Space Safety Conference) Managing Risk in Space, Rotterdam, the Netherlands (online), October 19-21, 2021
10. **E. Grohmann.** Unwanted Microbes Joining Us into Space: Current Status and Strategies to Prevent that Happen. Subtitle: Antimicrobial surface coatings inhibit growth of MDR biofilm-forming pathogens. ASM-FEMS World Microbe Forum (online), June 20-24, 2021
11. **E. Grohmann.** Versatility of Type IV Secretion Systems in Gram-positive Bacteria. ASM2021, Australian Society for Microbiology, Annual Scientific Meeting, Victoria Australia (online), May 31 – June 3, 2021
12. **E. Grohmann.** Von Mond, Mars und Mikroben. DLR-Kolloquium „Forschung unter Weltraumbedingungen“, May 20, 2021, Bonn Oberkassel (online)
13. **E. Grohmann.** Conjugative Type IV Secretion in Gram-positive bacteria. CIID VIRTUAL SEMINAR SERIES, Texas A & M Health, Institute of Biosciences and Technology, Center for Infectious and Inflammatory Diseases, University of Houston, Texas, May 17, 2021 (online)
14. **E. Grohmann.** Novel antimicrobial fleece inhibits growth of human-derived biofilm-forming Staphylococci during the SIRIUS-19 isolation. XXIII International Symposium Human in Space April 5-8, 2021, Moscow, Russia and online
15. **E. Grohmann.** Innovative antimicrobial surfaces reduce biofilm growth in the artificial space station SIRIUS-19. DLR Status Seminar, Bonn, March 4-6, 2020
16. **E. Grohmann.** Mechanisms of resistance transfer in bacteria. Microbiological Seminar, Uniklinikum Bonn, Bonn, October 24, 2019
17. **E. Grohmann.** „Catch and kill“: Innovative Zweikomponentenoberflächen zur Dekontamination von Oberflächen. DGHM-Fachgruppe "Diagnostische und Klinische Mikrobiologie" VAAM-Fachgruppe „Qualitätssicherung und Diagnostik“ Gemeinsames Fachgruppentreffen 2019, Universitätsklinikum Erlangen, September, 26-27, 2019
18. **E. Grohmann.** Fluorescence-based monitoring of resistance transfer among Gram-positive bacteria. Julius-Kühn-Institut Braunschweig, June 5, 2019
19. **E. Grohmann.** Novel strategies to prevent colonization and resistance spread by multi-resistant pathogens: transcriptomics, molecular and structural approaches. International Conference on Microbiome Research (ICRM 2018), Pune, India, November 19-22, 2018
20. **E. Grohmann.** TraN: A novel repressor of conjugative transfer in enterococci. Plasmid Biology 2018 Conference, Seattle, August 5-10, 2018
21. **E. Grohmann.** Novel bimetal antimicrobial surface technology for long term space missions. Workshop on “Antimicrobial Materials” at DLR, Cologne, Germany, June 25, 2018
22. **E. Grohmann.** Broad-host-range Gram-positive plasmids: a novel T4S repressor Consolider Excellence Network, BIO2015-69085-REDC. Scientific Meeting, El Puerto de Santa Maria, Cadiz, Spain, May 17-18, 2018
23. **E. Grohmann.** MDR Biofilm bildende Pathogene: Klinik, Kläranlage, Kompost, UBA-Expertenworkshop: „Erarbeitung anspruchsvoller Standards für die mittelfristige Fortführung der bodenbezogenen Verwertung von Klärschlämmen aus Abwasserbehandlungsanlagen mit kleiner Ausbaugröße“. Julius Kühn Institut Berlin, March 14, 2018

24. **E. Grohmann**, Molecular insights in conjugative resistance transfer among Gram-positive pathogens. 19th International Conference on Bacilli & Gram-Positive Bacteria, Berlin, June 11-15, 2017
25. **E. Grohmann, Probst, I., Kohler, V., Fercher, C., Goessweiner-Mohr, N., Guenther Koraimann, Walter Keller**. Molecular insights in antibiotic resistance transfer among Gram-positive pathogens. 2nd International Caparica Conference in Antibiotic Resistance. IC2AR 2017, Caparica, Portugal, June 12 –15, 2017
26. **E. Grohmann**. Conjugative transfer of Gram-positive broad-host range plasmids. T4SS216 Conference, Type IV Secretion in Gram-negative and Gram-positive Bacteria, Schloss Hirschberg, December 8-11, 2016
27. **E. Grohmann, I. Probst, C. Fercher, N. Goessweiner-Mohr, V. Kohler and W. Keller**. Key players of an *Enterococcus* Type IV Secretion System (Plenary Talk). 8th ÖGMBT Annual Meeting, University Graz, Austria, September 12-14, 2016
28. **E. Grohmann, Clauß-Lenzian, E., Rogowski, K. M., Vaishampayan, A., de Jong, A., Kok, J.** Krankheitserreger im Griff: Neue antimikrobielle Oberflächenbeschichtung auf der ISS. Deutsche Gesellschaft für Luft- und Raumfahrtmedizin e.V. 54. Jahrestagung, Bückeburg bei Hannover, September, 23-24, 2016
29. **E. Grohmann**. Invited talk on “Molecular dynamics of plasmids of Gram-positive bacteria” and participant of Round Table Discussion on “Molecular and Cellular Mechanisms of the Bacterial Resistome”, XXIII Congreso Latinoamericano de Microbiologia, Rosario, Argentina, September 26-30, 2016
30. **E. Grohmann**. Key players of a Gram-positive type IV secretion system. Workshop on Type IV Secretion Systems: ICEs and Plasmids, INRA Nancy and University of Lorraine, Nancy, France, December 18, 2015
31. Clauß-Lenzian, E., Vaishampayan, A., Kok, J., de Jong, A., Meyer, C., Landau U., and **Grohmann, E.** Untersuchungen zur Langzeitwirkung einer neuen antimikrobiellen Oberflächenbeschichtung auf der ISS. Nationales Symposium „Forschung unter Weltraumbedingungen“ LVR Landesmuseum Bonn, Germany, October 28-30, 2015
32. **Grohmann, E.** Increased abundance of resistance genes and mobile genetic elements in Mexican soil irrigated with wastewater. EDAR3, 3rd International Meeting on antibiotic resistance, the environmental dimension, Wernigerode, Germany, May 17-21, 2015
33. **Grohmann, E.** Wastewater irrigation-mediated spread of antibiotic resistance genes in the environment. Water Research Intitute, IRSA, Rome, Italy, February, 26, 2015
34. **Grohmann, E.** Wastewater irrigation-mediated spread of antimicrobial resistance: resistance gene monitoring by qPCR. First International Caparica Conference on Antibiotic Resistance, Caparica, Portugal, January 26-28, 2015
35. **Grohmann, E.** A novel antimicrobial coating inhibiting biofilm formation of clinical and waterborne pathogens. BTU Cottbus – Senftenberg, Campus Senftenberg, January 6, 2015
36. **Grohmann, E.** pIP501 encodes a broad-host-range Type IV Secretion System (T4SS). Annual REDEEX Meeting, CSIC/CIB Madrid, Spain, December 3-4, 2014
37. **Grohmann, E.** pIP501 encodes a broad-host-range type IV secretion system. International Society of Plasmid Biology Scientific Meeting 2014, Palm Cove, Queensland, Australia, October 27 - November 1, 2014
38. **Grohmann, E.** Structural analysis of the pIP501 Type IV Conjugation System. 4th International ASM Conference on Enterococci, Session "Structure, function and evolution of extrachromosomal elements", Cartagena, Colombia, March 5-7, 2014

39. **Grohmann, E.** Conjugative plasmid transfer in Gram-positive bacteria. Invitation of Prof. Pierre Leblond, Université de Lorraine, UMR INRA Dynamique des Génomes et Adaptation Microbienne (DynAMic), Nancy, France, November 18, 2013
40. **Grohmann, E.** The type IV secretion protein key players in *Enterococcus*: Annual Meeting of REDEEX (Spanish Network on Mobile Genetic Elements), Almagro, Spain, November 7-9, 2013
41. **Grohmann, E.** Type IV Secretion in *Enterococcus*: Molecular insights in DNA Transport. Invitation of Prof. Steffen Backert, Universität Erlangen-Nürnberg, Infektiologisches Kolloquium, October, 18, 2013
42. **Grohmann, E.** Reduction of pathogens and antibiotic resistance genes by Soil Aquifer Treatment in the Mezquital Valley. Invited talk at the International Workshop on Dissemination and accumulation of antibiotic pharmaceuticals, pathogens, and resistance determinants by wastewater irrigation: New risks emerging? Mezquital Valley, Mexico, September 23-27, 2013
43. **Grohmann, E., Schiwon, K., Arends, K., Sakinc, T.** Comparison of antibiotic resistance, biofilm formation and conjugative transfer of *Staphylococcus* and *Enterococcus* isolates from International Space Station and Antarctic Research Station CONCORDIA. ISLSWG Microbial Workshop Osaka University Icho Kaikan 3F, Osaka, Japan, May 20-21, 2013
44. **Grohmann, E.** Molecular tools to quantify plasmid transfer between Gram-positive and Gram-negative bacteria. Invitation of Prof. Nathalie Leblond-Bourget UMR UHP/INRA Génétique & Microbiologie, Nancy, France, February 15, 2013
45. **Grohmann, E.** Peculiarities of Gram-positive Type IV Secretion Systems: the model pIP501. Advanced Courses on Biophysics “Biophysical Aspects of Type IV Secretion”, Unit of Biophysics, UPV/EHU, Bilbao, Spain, September 17-22, 2012
46. **Grohmann, E.** Biofilme aus ISS und CONCORDIA. Radiation Biology/Astrobiology Status Seminar, GSI Helmholtz Centre for Heavy Ion Research, Darmstadt, Germany, November 15-17, 2011
47. **Grohmann, E.** Soil Aquifer Treatment (SAT) in the Mezquital Valley, Mexico: Hygienic evaluation of the reclaimed water by quantitative real-time PCR. Invitation of Prof. Dr. Spangenberg, Hochschule Offenburg, Conference on „Environmental Best Practices“. Offenburg, Germany, September 13 to 16, 2011
48. **Grohmann, E.** Molecular approach to evaluate resistance transfer in extreme environments. Invitation of Prof. Dr. Matxalen Llosa, University of Santander, Spain, September 12, 2011
49. **Grohmann, E.** Enzyme modulation of conjugative coupling proteins from Gram-positive bacteria. Invitation of Prof. Dr. Walter Keller, Structure Biology, Institute of Molecular Life Science, Karl-Franzens-University Graz, Austria, July 29, 2011
50. **Grohmann, E.** Type IV Secretion Systems in Gram-positive Bacteria. Invitation of Prof. Dr. Yolanda Lopez-Vidal, Programa de Inmunología Molecular Microbiana, Departamento de Microbiología y Parasitología, Facultad de Medicina, National Autonomous University of Mexico City (UNAM), Mexico, March, 18, 2011
51. **Grohmann, E.** Molekularer Nachweis von Antibiotikaresistenzgenen in Wasser- und Bodenproben. Invitation of Prof. Dr. Daniel Jonas, in the series of lectures „INFO“, Department of Environmental Health Sciences, University Medical Centre Freiburg, February, 1, 2011
52. **Grohmann, E.** Type IV Secretion System of broad-host-range plasmid pIP501: protein key players and conjugative transfer in biofilms. International Plasmid Biology Conference 2010, Bariloche, Argentina, November 6-12, 2010

53. **Grohmann, E.** Aktuelle Erkenntnisse zum Gefährdungspotenzial unzureichender Abwasseranlagen. Invited introductory talk at the Congress Exhibition “ABWASSER.PRAXIS” at Congress Center Offenburg, Germany, October 14-15, 2010
54. **Grohmann, E.** Conjugative plasmid transfer in Gram-positive bacteria: mechanisms and assessment of plasmid transfer frequencies in the environment. Invitation of Prof. Dr. Peter Graumann, Symposium on DNA Repair, Gene Transfer and Biofilms, Institute of Microbiology, University Freiburg, October 11, 2010
55. **Grohmann, E.** Type IV Secretion Systems in Gram-positive Bacteria: The model plasmid pIP501. Invitation of Prof. Dr. Itziar Alkorta, Conference “Bioforo”, University of the Basque Country (UPV/EHU), Leioa, Bilbao, Spain, June 9, 2010
56. **Grohmann, E.** Konjugativer Plasmidtransfer und Typ 4 Sekretionssysteme in Gram-positiven Bakterien, Einladung von PD Dr Guido Werner, FG 13 Nosokomiale Infektionen, Robert Koch Institut Wernigerode, Germany, March, 10, 2010
57. **Grohmann, E.** Bacterial conjugation in Gram-positive pathogens: molecular clues and monitoring tools. Annual Meeting of the Association of Microbiologists of India in Pune, India, December 15-18, 2009
58. **Grohmann, E.** Methods in modern molecular microbiology. Invitation of Professor Dr Johannes Hübner, University Clinic, Freiburg, Germany, September, 22, 2009
59. **Grohmann, E.** Type IV secretion protein complexes required for antibiotic resistance transfer in human pathogens. BIT Life Sciences` 2nd Annual Protein & Peptide Conference, Seoul, South Korea, April 2-4, 2009
60. **Grohmann, E.** Antibiotic resistance spread: Formation and abundance of resistant environmental and pathogenic bacteria. Invitation of Professor Dr Abdul Malik, Chair of Department of Agricultural Microbiology, University of Aligarh, India, March 16, 2009
61. **Grohmann, E.** Bacterial conjugation in Gram-positive pathogens: Molecular clues and monitoring tools. Invitation of Professor Singh, Dean of Faculty of Environmental Microbiology, University of Lucknow, Lucknow, India, March 18, 2009
62. **Grohmann, E.** Antibiotic resistance gene pool: formation and abundance of resistant environmental and pathogenic bacteria. Invitation of Professor Zerrin Erginkaya, Cukurova University, Adana, Turkey, November 26, 2008
63. **Grohmann, E.** Antibiotic resistance gene pool: formation and persistence of resistant environmental and pathogenic bacteria. DFG Mexican-German workshop on “Scale-dependency of the formation of resistances and their transfer to human pathogens during wastewater reuse”, Mexico City, Mexico, September 22-24, 2008
64. **Grohmann, E.** Bacterial conjugation in Gram-positive pathogens: molecular clues and monitoring tools. Plasmid Biology 2008 Conference, Gdansk, Poland, August 30-September 5, 2008
65. **Grohmann, E.** Characterization of the mobile gene pool of bacterial isolates of the International Space Station (ISS): Resistance transfer between pathogenic bacteria in biofilms. Radiobiology/Astrobiology Status Seminar of the German Aerospace Center (DLR), Kiel, Germany, June 12-13, 2008
66. **Grohmann, E.** A Type IV-secretion-like system is essential for conjugative DNA and protein transport among Gram-positive bacteria. Invitation of Professor J. Mahillon, Faculté d’ingenierie biologique, agronomique et environnementale, Université Catholique de Louvain, Louvain-la-Neuve, Belgium, May 9, 2008

67. **Grohmann, E.** Real-time PCR monitoring of pathogens and antibiotic resistance genes: from the environmental sample to the gene copy number - a practical approach. Workshop on Aquifer Recharge, Instituto de Ingeniería de la UNAM, Mexico City, Mexico, April, 17-18, 2008
68. **Grohmann, E.** The role of pathogens and antibiotic resistance genes in water reclamation. 1st Joint Workshop Reclaim Water Artificial Recharge, Experiences in The Americas, Mexico City, Mexico, April 14-16, 2008
69. **Grohmann, E.** Molecular biology of conjugation in Gram-positive bacteria. Foundation Day Symposium on Recent Trends in Biotechnology, Interdisciplinary Biotechnology Unit, Aligarh Muslim University, Aligarh, India, January 16, 2008
70. **Grohmann, E.** Bacterial conjugation in Gram-positive pathogens: molecular clues and monitoring tools. Invitation of Professor Abdul Malik, Department of Agricultural Microbiology, University of Aligarh, India, January 15, 2008
71. **Grohmann, E.** A Type IV-secretion-like system is required for conjugative DNA transport of plasmids with broad host range in Gram-positive bacteria. Microbiology Colloquium of the Friedrich-Schiller-University Jena, Department of General Microbiology and Microbial Genetics, Jena, June 6, 2007
72. **Grohmann, E., Braun, B., Böckelmann, U., and Szewzyk, U.** Effects of water repellency on bacterial communities of urban soils. Bouyoucos Conference on the origin of water repellency in soil, Sanibel Island, Florida, USA, April 29-May 3, 2007
73. **Grohmann, E.** Detection of pathogenic bacteria in reclaimed water by different techniques. 1st Joint Workshop RECLAIM WATER-GABARDINE in Sabadell / Barcelona, Spain, March 21-23, 2007
74. **Grohmann, E.** A Type IV-secretion-like system (T4SLS) is required for conjugative DNA transport of plasmid pIP501 with broad host range in Gram-positive bacteria. University of Sydney, Australia, February 1, 2007
75. **Grohmann, E.** A Type IV-secretion-like system (T4SLS) is required for conjugative DNA transport of plasmid pIP501 with broad host range in Gram-positive bacteria. ARC Centre of Excellence in Structural and Functional Microbial Genomics of Monash University, Melbourne, Australia, January 30, 2007
76. **Grohmann, E., Böckelmann, U., Szewzyk, U.** Quantitative detection of pathogenic bacteria and antibiotic resistance genes by Real Time PCR in water reclamation systems. University of Barcelona, Faculty of Pharmacy, Barcelona, Spain, January 24, 2007
77. **Grohmann, E.** Model for a type IV secretion-like system in Gram-positive pathogens and biochemical characterization of key proteins. International Symposium on Plasmid Biology at Fallen Leaf Lake, South Lake Tahoe, California, USA, September 23-27, 2006
78. **Grohmann, E.** The pIP501 mating apparatus. Session: "Plasmid Biology in Enterococci and Streptococci: Co-evolution of bacterial hosts and mobile genetic elements". 106th General ASM Meeting, Orlando, USA, May 21-25, 2006
79. **Grohmann, E.** Model for a type IV secretion-like system in Gram-positive pathogens and characterization of protein key players. ASM-FEMS Conference on Protein Traffic in Prokaryotes, Heraklion, Crete, Greece, May 6-10, 2006
80. **Grohmann, E.** Model for a type IV secretion-like system in Gram-positive pathogens and characterization of protein key players. Workshop on Horizontal Gene Transfer at the Department of Medical Biology, University of Tromsø, Norway, April 20-21, 2006
81. **Grohmann, E.** A new type IV secretion-like system encoded by the broad-host-range enterococcal plasmid pIP501. Invitation of Dr Erich Lanka, MPI for

- Molecular Genetics in Berlin, Workshop on Plasmids and Phages. Harnack Haus Berlin, Germany, October 21-23, 2005
82. **Grohmann, E.** Typ IV-Secretion in Gram-positive Bacteria: Molecular Mechanisms and Impact on the Environment. Invitation of the Federal Biological Institute for Agriculture and Forestry (BBA), Institute of Plant Virology, Microbiology and Biological Safety Braunschweig, Germany, November 30, 2004
 83. **Grohmann, E.** Conjugative plasmid transfer in Gram-positive bacteria: a new type IV secretion-like mechanism? Invitation of the Department of Biology at University Konstanz, Germany, May 17, 2004
 84. **Grohmann, E.** Conjugative plasmid transfer in Gram-positive bacteria. EURESCO CONFERENCES. EuroConference on the Mechanisms and Applications in Biotechnology. Biology of Type IV Secretion Processes. Giens, France, September 12-17, 2003
 85. **Grohmann, E.** Conjugative Transfer in Gram-positive Bacteria – open questions. Invitation of ÖGGGT and ÖBG. Lecture at Institute of Biochemistry, Molecular Biology and Microbiology of Karl-Franzens-University, Graz, Austria, December 17, 2001

Further Talks:

86. **E. Grohmann.** Überlebenskünstler im Weltraum. Der Kampf der Mikroben gegen AGXX. Science Slam im So36, Berlin, February 3, 2020
87. **E. Grohmann, Probst, I., Kohler, V., Fercher, C., Goessweiner-Mohr, N., Guenther Koraimann, Walter Keller.** Molecular insights in antibiotic resistance transfer among Gram-positive pathogens. 19th International Conference on Bacilli & Gram -Positive Bacteria, Berlin, June 11–15, June 2017
88. **E. Grohmann, I. Probst, C. Fercher, N. Goessweiner-Mohr, V. Kohler and W. Keller.** Key players of an *Enterococcus* Type IV Secretion System. Plasmid Biology Conference 2016, Clare College, Cambridge, UK, September 18-23, 2016
89. **Grohmann, E.** A new antimicrobial coating killing antibiotic resistant pathogens on the International Space Station. 6th International Congress of Medicine in Space and Extreme Environments, Berlin, September 16–19, 2014
90. **Grohmann, E.** Peculiarities of Gram-positive Type IV Secretion Systems: the model pIP501. International Plasmid Biology Conference 2012, Santander, Spain, September 12-16, 2012
91. **Grohmann, E., Broszat, M., and Huebner, J.** Reduction of pathogens and antibiotic resistance genes by Soil Aquifer Treatment (SAT) in the Mezquital Valley, Mexico. 6th SETAC World Congress 2012, SETAC Europe 22nd Annual Meeting Securing a sustainable future - Integrating Science, Policy and People Berlin, May 20-24, 2012
92. **Grohmann, E.** Conjugative plasmid transfer in Gram-positive bacteria: molecular clues and monitoring tools. 5th International Conference on Gram-positive Microorganisms, San Diego, California, June 14-18, 2009
93. **Grohmann, E.** *Helicobacter pylori*, *Yersinia enterocolitica* and *Mycobacterium avium* subsp. *paratuberculosis*: pathogen risk assessment in artificial groundwater recharge by quantitative real-time PCR. IWA World Water Congress and Exhibition, Vienna, Austria, September 7-12, 2008
94. **Grohmann, E.** A type IV-secretion-like system (T4SLS) is required for conjugative DNA/protein transport of plasmids with broad host range in Gram-positive bacteria. 4th Conference on Functional Genomics of Gram-positive Microorganisms, Tirrenia/Pisa, Italy, June 24-28, 2007

95. **Grohmann, E.**, Braun, B., Böckelmann, U., and Szewzyk, U. Role of biofilm-producing bacteria in urban soils. INTERURBAN II "Workshop on Water and Organic Matter in Anthropogenic Soils: Dynamics and Processes", Freie Universität Berlin, Germany, March 29-31, 2006
96. Braun, B., Böckelmann, U., **Grohmann, E.**, and Szewzyk, U. Influence of water repellency on structure and function of bacterial communities in urban soil. DBG (German Society of Soil Science) Annual Meeting 2005, Marburg an der Lahn, Germany, September 3-11, 2005
97. **Grohmann, E.**, Abajy, M.Y., Kopec, J., Keller, W. and Kurenbach, B. A new type IV secretion-like system encoded by the broad-host-range enterococcal plasmid pIP501. 2nd ASM-FEMS Conference on Enterococci, in Helsingor, Denmark, August 28–31, 2005
98. **Grohmann, E.** Interactions between human proteins and proteins of bacterial pathogens, Biotechnology-Center TU Berlin, Minisymposium 2004, Berlin, Germany, July 9-10, 2004
99. **Grohmann, E.** Studies on protein-protein interactions between *Enterococcus faecalis* virulence proteins and human proteins. Project Coordination Meeting for the EU 6 th Framework Program at the Institute of Biology, Leiden University, Leiden, Holland, September 26-28, 2003
100. Kurenbach, B., Mägdefrau, M., Szewzyk, U., and **Grohmann, E.** A type IV secretion-like mechanism in conjugative plasmid transfer in Gram-positive bacteria. VAAM Annual Meeting 2003, Berlin, Germany, March 23-26, 2003
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102. **Grohmann, E.** Conjugative transfer of broad-host-range plasmids in Gram-positive pathogens. VAAM Annual Meeting 2002, Göttingen, Germany, March 24-27, 2002
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4. **Grohmann, E.** (2023). Special Issue “Multidrug-Resistant Bacteria in the Environment, Their Resistance and Transfer Mechanisms. *Microorganisms* 11, 981. doi.org/10.3390/microorganisms11040981
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120. Berger, T., Stallinger, A., Michaelis, C., Kohler, V., Lammer, A., Fercher, C., Probst, I., Pavkov-Keller, T., **Grohmann, E.**, Keller, W. Structure and role of the type IV secretion factor TraF in conjugative plasmid transfer of pathogenic Firmicutes (in preparation)

121. Wischer, D., Hadersbeck, R., Morad, L., **Grohmann, E.** Unveiling the potent antibacterial activity of AGXX surfaces: A quantitative evaluation using a modified JIS Z 2801 assay (in preparation)

Patents:

1. Neuartiges Antigen von Enterokokkenpathogenen und ihre Verwendung als Impfstoffkomponenten für Therapie und/oder Prophylaxe EP20100190167. Novel antigen of enterococcal pathogens and use thereof as vaccine component for therapy and/or prophylaxis EP 2450053 B1 (granted)