

Curriculum Vitae



Dr. rer. nat. Patrick Mester

Date of birth: 10th June 1983

Place of birth: Hannover, Germany

Nationality: German

ORCID ID: 0000-0002-3193-4987

Education

08/2008-10/2011

University of Veterinary Medicine, Vienna

Graduated „Doctor rerum naturalium“

Thesis: „ Application of ionic liquids for pre-sample treatment methods with subsequent molecular biological detection methods“

10/2002-07/2008

Universität Bremen

Graduated „Diplom-Biologe“ (Advanced Degree in Biology) with majors in:

- Microbiology
- Molecular Biology

Thesis: „Anwendung von mit ionischen Flüssigkeiten im Probenvorbereitungssystem Matrix Lysis“

10/2002-10/2004

Universität Bremen

Intermediate diploma in Biology

2002

College preparatory high school

Professional experience

- 04/2020 – present **Institute of Food Safety, Food Technology and Veterinary Public Health, Unit of Food Microbiology, University of Veterinary Medicine, Vienna**
Position: Postdoctoral Research Associate
- 11/2013 – 03/2020 **Christian Doppler Laboratory for Monitoring of Microbial Contaminants, University of Veterinary Medicine, Vienna**
Position: Postdoctoral Research Associate
- 11/2011 – 10/2013 **Christian Doppler Laboratory for Molecular biological Food Analytics, University of Veterinary Medicine, Vienna**
Position: Postdoctoral Research Associate
- 04/2007 – 08/2007 **Merck KGaA, Department: Performance & Life Science Chemicals, Research and Development, Chromatography & Bioseparation**
Position: Research Assistant
- 11/2006 – 02/2007 **Centre for Applied Sensor Technology, University Bremen**
Position: Research Assistant
- 02/2005 – 08/2005 **European Molecular Biology Laboratory (Outstation Hamburg), Protein X-ray crystallography, Wilmans Group**
Position: Research Assistant

7.2 Publication list

Peer reviewed Publications

- Gundolf, T; Kalb, R; Rossmanith, P; **Mester, P** (2022): Bacterial Resistance Toward Antimicrobial Ionic Liquids Mediated by Multidrug Efflux Pumps. *Front Microbiol.* 2022; 13:883931
- Fleischmann, S; Robben, C; Alter, T; Rossmanith, P; **Mester, P** (2021): How to Evaluate Non Growing Cells-Current Strategies for Determining Antimicrobial Resistance of VBNC Bacteria. *Antibiotics (Basel).* 2021; 10(2):115; DOI: 10.3390/antibiotics10020115
- Sommer, J; Bobal, M; Bromberger, B; **Mester, PJ**; Rossmanith, P (2021): A new long-term sampling approach to viruses on surfaces. *Sci Rep.* 2021; 11(1):17545; DOI: 10.1038/s41598-021-96873-9
- Sommer, J; Bromberger, B; Kalb, R; Rossmanith, P; **Mester, P**; (2021): Liquid-Liquid Extraction of Viral Particles with Ionic Liquids. *Sep Purif Technol.* 2021; 254, 117591; DOI: 10.1016/j.seppur.2020.117591
- Witte, AK; Bromberger, B; **Mester, P**; Robben, C; Schoder, D; Streit, E; Rossmanith, P; (2020): Implementation of the DEP-pooling approach for *L. monocytogenes* detection over 25-months by two diagnostic laboratories of an Austrian dairy company. *Food Control* 2020; 118: 107385; DOI: 10.1016/j.foodcont.2020.107385
- Bromberger, B; Sommer, J; Trautner, C; Kalb, R; Rossmanith, P; **Mester, P**; (2020): Evaluation of the antimicrobial activity of pyrithione-based ionic liquids. *Sep Purif Technol.* 2020; 251 (15): 17309; DOI: 10.1016/j.seppur.2020.117309
- Robben, C; Witte, AK; Schoder, D; Rossmanith, P; **Mester, P** (2019); A fast and easy ATP-based approach enables MIC testing for non-resuscitating VBNC pathogens. *Front Microbiol.* 2019; 10:1365; DOI: 10.3389/fmicb.2019.01365
- Gundolf, T; Weyhing-Zerrer, N; Sommer, J; Kalb, R; Schoder, D; Rossmanith, P; **Mester, P** (2019); The biological impact of ionic liquids based on sustainable fatty acid anions examined with a tripartite test system. *ACS Sus. Chem. & Eng.* 2019; 7(19), pp. 15865-15873; DOI: 10.1021/acssuschemeng.8b06201

- Bobal, M; Witte, AK; **Mester, P**; Fister, S; Schoder, D; Rossmannith, P (2019): A novel method for sampling and long-term monitoring of microbes using stickers of plain paper. *Appl Environ Microbiol.* 2019; 85(14); DOI: 10.1128/AEM.00766-19
- Fister, S; Witte, AK; Schoder, D; Sommer, J ; **Mester, P**; Rossmannith, P (2019): Part of the Problem or the Solution? Indiscriminate Use of Bacteriophages in the Food Industry Can Reduce their Potential and Impair Growth-based Detection Methods. *Trends in Food Science and Technology* 2019; 90: 170-174; DOI: 10.1016/j.tifs.2019.02.031
- **Mester, P**; Robben, C; Witte, AK; Ehling-Schulz, M; Kalb, R; Rossmannith, P; Grunert, T (2019): FTIR spectroscopy suggests a revised mode of action for the cationic side-chain effect of ionic liquids. *ACS Comb Sci.* 2019; 21(2):90-97; DOI: 10.1021/acscombsci.8b00141
- Witte, AK; Sickha, R; **Mester, P**; Fister, S; Schoder, D; Rossmannith, P (2018): Essential role of polymerases for assay performance – impact of polymerase replacement in a well-established assay. *Biomol Detect Quantif.* 2018; 16:12-20; DOI: 10.1016/j.bdq.2018.10.002
- **Mester, P**; Wagner, M; Rossmannith, P (2018): Molecular Enrichment for Qualitative Molecular Pathogen Detection in Food. *Food Anal. Met.* 2018; 11: 1251-1256.; DOI: 10.1007/s12161-017-1103-z
- Witte, AK; Leeb, C; Pinior, B; **Mester, P**; Fister, S; Bobal, M; Schoder, D; Rossmannith, P (2018): Influence of sampling and DNA extraction on 16S rRNA gene amplicon sequencing - Comparison of the bacterial community between two food processing plants. *LWT - Food Science and Technology.* 2018; 90: 186-192; DOI: 10.1016/j.lwt.2017.12.027
- Robben, C; Fister, S; Witte, AK; Schoder, D; Rossmannith, P; **Mester, P** (2018): Induction of the viable but non-culturable state in bacterial pathogens by household cleaners and inorganic salts. *Sci Rep.* 2018; 8(1):15132; DOI: 10.1038/s41598-018-33595-5
- Gundolf, T; Rauch, B; Kalb, R; Rossmannith, P; **Mester, P** (2018): Influence of bacterial lipopolysaccharide modifications on the efficacy of antimicrobial ionic liquids. *Journal of Molecular Liquids.* 2018; 271: 220-227; DOI: 10.1016/j.molliq.2018.08.134
- Sommer, J; Fister, S; Gundolf, T; Bromberger, B; **Mester, P**; Witte, AK; Kalb, R; Rossmannith, P (2018): Virucidal or Not Virucidal? That Is the Question- Predictability of Ionic Liquid's Virucidal Potential in Biological Test Systems. *Int J Mol Sci.* 2018; 19(3); DOI: 10.3390/ijms19030790

- Witte, AK; **Mester, P**; Fister, S; Süß, B; Wagner, M; Rossmannith, P (2018): PCR-Stop analysis as a new tool for qPCR assay validation. *Sci Rep.* 2018; 8(1):8275; DOI: 10.1038/s41598-018-26116-x
- Weyhing-Zerrer, N; Kalb, R; Oßmer, R; Rossmannith, P; **Mester, P** (2018): Evidence of a reverse side-chain effect of tris(pentafluoroethyl)trifluorophosphate [FAP]-based ionic liquids against pathogenic bacteria. *Ecotoxicol Environ Saf.* 2018; 148:467-472; DOI: 10.1016/j.ecoenv.2017.10.059
- Fister, S; **Mester, P**; Sommer, J; Witte, AK; Kalb, R; Wagner, M; Rossmannith, P (2017): Virucidal Influence of Ionic Liquids on Phages P100 and MS2. *Front Microbiol.* 2017; 8: 1608; DOI: 10.3389/fmicb.2017.01608
- Fuchs-Telka, S; Fister, S; **Mester, PJ**; Wagner, M; Rossmannith, P (2017): Hydrophobic ionic liquids for quantitative bacterial cell lysis with subsequent DNA quantification. *Anal Bioanal Chem.* 2017; 409(6):1503-1511; DOI: 10.1007/s00216-016-0112-x
- Leth, C; Varadharajan, A; **Mester, P**; Fischaleck, M; Rossmannith, P; Schmoll, F; Fink, M (2017): Matrixlysis, an improved sample preparation method for recovery of Mycobacteria from animal tissue material. *PLoS One.* 2017; 12(7):e0181157; DOI: 10.1371/journal.pone.0181157
- Weyhing-Zerrer, N; Gundolf, T; Kalb, R; Oßmer, R; Rossmannith, P; **Mester, P** (2017): Predictability of ionic liquid toxicity from a SAR study on different systematic levels of pathogenic bacteria. *Ecotoxicol Environ Saf.* 2017; 139:394-403; DOI: 10.1016/j.ecoenv.2017.01.055
- **Mester, P**; Witte, AK; Robben, C; Streit, E; Fister, S; Schoder, D; Rossmannith, P (2017): Optimization and evaluation of the qPCR-based pooling strategy DEP-pooling in dairy production for the detection of *Listeria monocytogenes*. *Food Control* 2017; 82: 298-304; DOI: 10.1016/j.foodcont.2017.06.039
- **Mester, P**; Jehle AK; Leeb C; Kalb R; Grunert T; Rossmannith P (2016): FTIR metabolomic fingerprint reveals different modes of action exerted by active pharmaceutical ingredient based ionic liquids (API-ILs) on: *Salmonella typhimurium*. *RSC Advances* 2016; 6: 32220-32227; DOI: 10.1039/c5ra24970h
- Witte, AK; Fister, S; **Mester, P**; Schoder, D; Rossmannith, P (2016): Evaluation of the performance of quantitative detection of the *Listeria monocytogenes* prfA locus with droplet digital PCR. *Anal Bioanal Chem.* 2016; 408(27):7583-7593; DOI: 10.1007/s00216-016-9861-9

- Witte, AK; **Mester, P**; Fister, S; Witte, M; Schoder, D; Rossmannith, P (2016): A Systematic Investigation of Parameters Influencing Droplet Rain in the *Listeria monocytogenes* prfA Assay - Reduction of Ambiguous Results in ddPCR. *PLoS One*. 2016; 11(12):e0168179; DOI: 10.1371/journal.pone.0168179
- Fister, S; Fuchs, S; **Mester, P**; Kilpelainen, I; Wagner, M; Rossmannith, P (2015): The use of ionic liquids for cracking viruses for isolation of nucleic acids. *Sep Purif Technol*. 2015; 155: 38-44; DOI: 10.1016/j.seppur.2015.03.035
- **Mester, P**; Gundolf, T; Kalb, R; Wagner, M; Rossmannith, P (2015): Molecular mechanisms mediating tolerance to ionic liquids in *Listeria monocytogenes*. *Sep Purif Technol*. 2015; 155: 32-37; DOI: 10.1016/j.seppur.2015.01.017
- **Mester, P**; Wagner, M; Rossmannith, P (2015): Antimicrobial effects of short chained imidazolium-based ionic liquids—influence of anion chaotropicity. *Ecotoxicol Environ Saf*. 2015; 111:96-101; DOI: 10.1016/j.ecoenv.2014.08.032
- Mann, E; Pommer, K; **Mester, P**; Wagner, M; Rossmannith, P (2014): Quantification of Gram-positive bacteria: adaptation and evaluation of a preparation strategy using high amounts of clinical tissue. *BMC Vet Res*. 2014; 10:53; DOI: 10.1186/1746-6148-10-53
- Mann, E; Wagner, M; Schmol, F; Slaghuis, J; Schönenbrücher, H; **Mester, P** (2014): Rapid testing and quantification of *Salmonella* in ileocaecal lymph nodes of Austrian pigs slaughtered for consumption. *Res Vet Sci*. 2014; 97(2):187-190; DOI: 10.1016/j.rvsc.2014.06.016
- **Mester, P**; Schoder, D; Wagner, M; Rossmannith, P (2014): Rapid Sample Preparation for Molecular Biological Food Analysis Based on Magnesium Chloride. *Food Anal Method* (7), 4 926-934; DOI: 10.1007/s12161-013-9774-6
- Mann, E; Hein, I; **Mester, P**; Stessl, B; Rossmannith, P; Wagner, M; Dzieciol, M (2013): A Robust and Poisson Validated Quantitative 5' Nuclease TaqManA (R) Real-Time PCR Assay Targeting fimA for the Rapid Detection of *Salmonella spp.* in Food. *Food Anal Method* (6), 4 991-995; DOI: 10.1007/s12161-012-9534-z
- Frühwirth, K; Fuchs, S; **Mester, P**; Wagner, M; Rossmannith, P (2012): Cloning and Characterisation of a Delta-prfA *Listeria monocytogenes* Strain Containing an Artificial Single Copy Genomic Internal Amplification Control (IAC) for Use as Internal Sample Process Control (ISPC). *Food Anal Method* 2012; 5(1): 8-18; DOI: 10.1007/s12161-011-9212-6
- **Mester, P**; Wagner, M; Rossmannith, P (2012): Ionic liquids designed as chaotrope and surfactant for use in protein chemistry. 1st Conference on Ionic Liquids in Separation

and Purification Technology (ILSEPT), Sitges, SPAIN, SEP 04-07, 2011. *Sep Purif Technol* (97) 211-215; DOI: 10.1016/j.seppur.2011.12.034

- Rossmannith, P; **Mester, P**; Frühwirth, K; Fuchs, S; Wagner, M (2011): Proof of concept for recombinant cellular controls in quantitative molecular pathogen detection. *Appl Environ Microbiol.* 2011; 77(7):2531-2533; DOI: 10.1128/AEM.02601-10
- **Mester, P**; Wagner, M; Rossmannith, P (2010): Biased spectroscopic protein quantification in the presence of ionic liquids. *Anal Bioanal Chem.* 2010; 397(5):1763-1766; DOI: 10.1007/s00216-010-3755-z
- **Mester, P**; Wagner, M; Rossmannith, P (2010): Use of ionic liquid-based extraction for recovery of *Salmonella typhimurium* and *Listeria monocytogenes* from food matrices. *J Food Prot.* 2010; 73(4):680-687; DOI: 10.4315/0362-028X-73.4.680
- Rossmannith, P; **Mester, P**; Wagner, M; Schoder, D (2010): Demonstration of the effective performance of a combined enrichment/real-time PCR method targeting the *prfA* gene of *Listeria monocytogenes* by testing fresh naturally contaminated acid curd cheese. *Lett Appl Microbiol.* 2010; 51(4):480-484; DOI: 10.1111/j.1472-765X.2010.02925.x
- Kochzius, M; Seidel, C; Hauschild, J; Kirchhoff, S; **Mester, P**; Meyer-Wachsmuth, I; Nuryanto, A; Timm, J (2009): Genetic population structures of the blue starfish *Linckia laevigata* and its gastropod ectoparasite *Thyca crystallina*. *Mar Ecol-Progr Ser*; (396) 211-219; DOI: 10.3354/meps08281
- Mayrl, E; Roeder, B; **Mester, P**; Wagner, M; Rossmannith, P (2009): Broad range evaluation of the matrix solubilization (matrix lysis) strategy for direct enumeration of foodborne pathogens by nucleic acids technologies. *J Food Prot.* 2009; 72(6):1225-1233; DOI: 10.4315/0362-028X-72.6.1225

Book chapters

- **Mester, P**; Witte, AK; Rossmannith, P; (2021): Sample preparation for qpcr detection of *Listeria* from food. *Methods in Molecular Biology* 2021,2220, pp. 31-40; DOI: 10.1007/978-1-0716-0982-8_3
- Witte, AK, **Mester P**; Rossmannith, P; (2021): Qpcr validation on the basis of the *Listeria monocytogenes* *prfA* assay. *Methods in Molecular Biology* 2021,2220, pp. 41-53; DOI: 10.1007/978-1-0716-0982-8_4

Patents and Patent Applications

- Slaghuis, J; Schönenbrücher, H; Rossmannith, P; Mester, P; Fuchs, S; Wagner, M 2018. “*Method for lysing mycobacteria*”
EP 3460043 B1
- Fuchs, S., Mester, P., Rossmannith, P., Slaghuis, J., Wagner, M. 2011. “*Method for lysing cells*”
EP 2702136 B1
- Mester, P., Rossmannith P., Wagner, M. 2010. “*Method for isolating cells*”
EP 2853587 B1
- Hühn, S., Mester, P., Rossmannith, P., Wagner, M. 2010. “*Method for isolating viruses*”
EP 2467471 B1
- Mester, P., Rossmannith, P., Witte, A., Bobal, M. 2019 “*A novel sampling method for Long-term Monitoring of microbes*”
EM128
- Mester, P., Rossmannith, P., Weyhing, N., Fister, S., Witte, A., Gundolf, T. 2018 “*Enrichment of Listeria*”
EP 18181827.9

Invited presentations at conferences

Mester, P (2021): The challenge of viable but nonculturable (VBNC) bacteria: Induction, Detection, and Control. SMi's 4th Annual Pharmaceutical Microbiology West Coast; Jun 17-18, 2021; San Diego, United States. 2021.

Awards

- “Inventor of the year 2010” Vetmeduni Vienna (2011)
- Austrian Hygiene Award (ÖGHMP) (2019)

Selected Memberships

2020	American Chemical Society (ACS)
2018	Österreichische Gesellschaft für Hygiene, Mikrobiologie und Präventivmedizin (ÖGHMP)
2016	Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM)
2013	Society for Applied Microbiology (SfAM)

Most important peer review activities

- Editorial Board Member of Frontiers in Veterinary Science
- Special issue editor for Antibiotics - Special Issue "Antimicrobial Resistance of Dormant Bacterial Cells"
- Have acted as peer reviewer for >20 different SCI journals, including ACS Sustainable Chemistry & Engineering, Ecotoxicology and Environmental Safety, Acta Biomaterialia, Environmental Science & Technology Letters.

Thesis Supervisor

- Koko Wurmböck-Kwisda (2012), Master
Method development for the molecular biological detection of food pathogens
- Tobias Gundolf (2015), Master
Tolerance of bacteria to QAC (Quaternary ammonium compounds): Ionic Liquids as Antibacterial substances.
- Filip Durco (2015), Master
Antibacterial properties of the non-ionic surfactant class Lutensols.
- Anna Müller (2017), Baccalaurean FH
Viable but culturable (VBNC) state induction and resuscitation in bacteria.
- Bernhard Rauch (2019), Master
(Intrinsic bacterial defence mechanisms against biocides in Gram-negative bacteria
- Tobias Gundolf (2019), PhD

Ionic liquids – Investigating the antimicrobial effects, cellular impact and application potential

- Christian Robben (2019), PhD
The viable but non-culturable state in food processing environments
- Isabella Krejci (2020), Master
Evaluation of the performance of four different selective enrichment broths for *Listeria monocytogenes*
- Julia Sommer (2020), PhD
Viruses & Ionic Liquids; The Innovative Potential Use of Ionic Liquids for Detection and Disinfection of Viral Particles