

Publications Ziebuhr (selected)

Original articles

Soundararajan M, Marincola G, Liong O, Marciniak T, Wencker FDR, Hofmann F, Schollenbruch H, Kobusch I, Linnemann S, Wolf SA, Helal M, Semmler T, Walther B, Schoen C, Nyasinga J, Revathi G, Boelhauve M, **Ziebuhr W** (2023)

Farming Practice Influences Antimicrobial Resistance Burden of Non-Aureus Staphylococci in Pig Husbandries

Microorganisms 11: 31

Kirchner L, Marciniak T, **Ziebuhr W**, Scherf-Clavel O, Holzgrabe U (2023)

*Development, validation and application of a selective and sensitive LC-MS/MS method for the quantification of daptomycin in a suspension of *Mammaliococcus sciuri* in Mueller-Hinton broth*

Journal of Pharmaceutical and Biomedical Analysis 227: 115293

Ocloo R, Nyasinga J, Munshi Z, Hamdy A, Marciniak T, Soundararajan M, Newton-Foot M, **Ziebuhr W**, Shittu A, Revathi G, Abouelfetouh A, Whitelaw A (2022)

*Epidemiology and antimicrobial resistance of staphylococci other than *Staphylococcus aureus* from domestic animals and livestock in Africa: a systematic review*

Frontiers in Veterinary Science 9: 1059054

Huber C, Wolf SA, **Ziebuhr W**, Holmes MA, Assmann J, Lubke-Becker A, Thurmer A, Semmler T, Brombach J, Bethe A, Bischoff M, Wieler LH, Epping L, Walther B (2022)

How to survive pig farming: Mechanism of SCCmec element deletion and metabolic stress adaptation in livestock-associated MRSA

Frontiers in Microbiology 13: 969961

Wencker FDR, Marincola G, Schoenfelder SMK, Maass S, Becher D, **Ziebuhr W** (2021)

*Another layer of complexity in *Staphylococcus aureus* methionine biosynthesis control: unusual RNase III-driven T-box riboswitch cleavage determines met operon mRNA stability and decay*

Nucleic Acids Research 49, 4: 2192-2212

Marincola G, Liong O, Schoen C, Abouelfetouh A, Hamdy A, Wencker FDR, Marciniak T, Becker K, Kock R, **Ziebuhr W** (2021)

Antimicrobial Resistance Profiles of Coagulase-Negative Staphylococci in Community-Based Healthy Individuals in Germany

Frontiers in Public Health 9: 684456

Marincola G, Jaschkowitz G, Kieninger AK, Wencker FDR, Fessler AT, Schwarz S, **Ziebuhr W** (2021)

*Plasmid-Chromosome Crosstalk in *Staphylococcus aureus*: A Horizontally Acquired Transcription Regulator Controls Polysaccharide Intercellular Adhesin-Mediated Biofilm Formation*

Frontiers in Cellular Infection Microbiology 11: 660702

Barthels F, Meyr J, Hammerschmidt SJ, Marciniak T, Rader HJ, **Ziebuhr W**, Engels B, Schirmeister T (2021)

*2-Sulfonylpyrimidines as Privileged Warheads for the Development of *S. aureus* Sortase A Inhibitors*

Frontiers in Molecular Biosciences 8: 804970

Huber C, Stamm I, **Ziebuhr W**, Marincola G, Bischoff M, Strommenger B, Jaschkowitz G, Marciniak T, Cuny C, Witte W, Doellinger J, Schaudinn C, Thurmer A, Epping L, Semmler T, Lubke-Becker A, Wieler LH, Walther B (2020)

Silence as a way of niche adaptation: mecC-MRSA with variations in the accessory gene regulator (agr) functionality express kaleidoscopic phenotypes

Scientific Reports 10, 1: 14787

Barthels F, Marincola G, Marciniak T, Konhauser M, Hammerschmidt S, Bierlmeier J, Distler U, Wich PR, Tenzer S, Schwarzer D, **Ziebuhr W**, Schirmeister T (2020)

Asymmetric Disulfanylbenzamides as Irreversible and Selective Inhibitors of Staphylococcus aureus Sortase A

ChemMedChem 15, 10: 839-850

Schoenfelder SMK, Lange C, Prakash SA, Marincola G, Lerch MF, Wencker FDR, Forstner KU, Sharma CM, **Ziebuhr W** (2019)

The small non-coding RNA RsaE influences extracellular matrix composition in Staphylococcus epidermidis biofilm communities

PLoS Pathogens 15, 3: e1007618

Marincola G, Wencker FDR, **Ziebuhr W** (2019)

The Many Facets of the Small Non-coding RNA RsaE (RoxS) in Metabolic Niche Adaptation of Gram-Positive Bacteria

Journal of Molecular Biology 431, 23: 4684-4698

Lerch MF, Schoenfelder SMK, Marincola G, Wencker FDR, Eckart M, Forstner KU, Sharma CM, Thormann KM, Kucklick M, Engelmann S, **Ziebuhr W** (2019)

A non-coding RNA from the intercellular adhesion (ica) locus of Staphylococcus epidermidis controls polysaccharide intercellular adhesion (PIA)-mediated biofilm formation

Molecular Microbiology 111, 6: 1571-1591

Balasubramanian S, Skaf J, Holzgrabe U, Bharti R, Forstner KU, **Ziebuhr W**, Humeida UH, Abdelmohsen UR, Oelschlaeger TA (2018)

A New Bioactive Compound From the Marine Sponge-Derived Streptomyces sp. SBT348 Inhibits Staphylococcal Growth and Biofilm Formation

Frontiers in Microbiology 9: 1473

Schoenfelder SM, Dong Y, Fessler AT, Schwarz S, Schoen C, Kock R, **Ziebuhr W** (2017)

Antibiotic resistance profiles of coagulase-negative staphylococci in livestock environments

Veterinary Microbiology 200: 79-87

Fessler AT, Zhao Q, Schoenfelder S, Kadlec K, Brenner Michael G, Wang Y, **Ziebuhr W**, Shen J, Schwarz S (2017)

Complete sequence of a plasmid from a bovine methicillin-resistant Staphylococcus aureus harbouring a novel ica-like gene cluster in addition to antimicrobial and heavy metal resistance genes

Veterinary Microbiology 200: 95-100

Cuny C, Arnold P, Hermes J, Eckmanns T, Mehraj J, Schoenfelder S, **Ziebuhr W**, Zhao Q, Wang Y, Fessler AT, Krause G, Schwarz S, Witte W (2017)

Occurrence of cfr-mediated multiresistance in staphylococci from veal calves and pigs, from humans at the corresponding farms, and from veterinarians and their family members

Veterinary Microbiology 200: 88-94

Balasubramanian S, Othman EM, Kampik D, Stopper H, Hentschel U, **Ziebuhr W**, Oelschlaeger TA, Abdelmohsen UR (2017)
Marine Sponge-Derived Streptomyces sp. SBT343 Extract Inhibits Staphylococcal Biofilm Formation
Frontiers in Microbiology 8: 236

Ziebuhr W, Vogel J (2015)
The end is not the end: remnants of tRNA precursors live on to sponge up small regulatory RNAs
Molecular Cell 58, 3: 389-390

Rajan V, Schoenfelder SM, **Ziebuhr W**, Gopal S (2015)
Genotyping of community-associated methicillin resistant Staphylococcus aureus (CA-MRSA) in a tertiary care centre in Mysore, South India: ST2371-SCCmec IV emerges as the major clone
Infection Genetics and Evolution 34: 230-235

Köck R, Ballhausen B, Bischoff M, Cuny C, Eckmanns T, Fetsch A, Harmsen D, Goerge T, Oberheitmann B, Schwarz S, Selhorst T, Tenhagen BA, Walther B, Witte W, **Ziebuhr W**, Becker K (2014)
The burden of zoonotic MRSA colonization and infection in Germany. MRSA als Erreger von Zoonosen in Deutschland.
Berliner und Münchener Tierärztliche Wochenschrift 9, 10: 384–398

Ballhausen, B, Jung P, Kriegeskorte A, Makgotlho PE, Ruffing U, von Muller L, Kock R, Peters G, Herrmann M, **Ziebuhr W**, Becker K, Bischoff M (2014)
LA-MRSA CC398 differ from classical community acquired-MRSA and hospital acquired-MRSA lineages: functional analysis of infection and colonization processes
International Journal of Medical Microbiology 304, 7: 777-786

Schoenfelder SM, Marincola G, Geiger T, Goerke C, Wolz C, **Ziebuhr W** (2013)
Methionine Biosynthesis in Staphylococcus aureus Is Tightly Controlled by a Hierarchical Network Involving an Initiator tRNA-Specific T-box Riboswitch
PLoS Pathogens 9, 9: e1003606

Makgotlho PE, Marincola G, Schafer D, Liu Q, Bae T, Geiger T, Wasserman E, Wolz C, **Ziebuhr W**, Sinha B (2013)
SDS Interferes with SaeS Signaling of Staphylococcus aureus Independently of SaePQ
PLoS One 8, 8: e71644

Hilmi D, Parcina M, Bode K, Ostrop J, Schuett S, Heeg K, **Ziebuhr W**, Sommerburg O, Bekeredjian-Ding I (2013)
Functional variation reflects intra-strain diversity of Staphylococcus aureus small colony variants in the host-pathogen interaction
International Journal of Medical Microbiology 303, 2: 61-69.

Ziebandt AK, Kusch H, Degner M, Jaglitz S, Sibbald MJ, Arends JP, Chlebowicz MA, Albrecht D, Pantucek R, Doskar J, **Ziebuhr W**, Broker BM, Hecker M, van Dijl JM, Engelmann S (2010)
Proteomics uncovers extreme heterogeneity in the Staphylococcus aureus exoproteome due to genomic plasticity and variant gene regulation
Proteomics 10, 8: 1634-1644

Weisser M, Schoenfelder SM, Orasch C, Arber C, Gratwohl A, Frei R, Eckart M, Fluckiger U, **Ziebuhr W** (2010)
Hypervariability of biofilm formation and oxacillin resistance in a Staphylococcus epidermidis strain causing persistent severe infection in an immunocompromised patient
J Clin Microbiol 48, 7: 2407-2412

Kozytska S, Stauss D, Pawlik MC, Hensen S, Eckart M, **Ziebuhr W**, Witte W, Ohlsen K (2010)
Identification of specific genes in Staphylococcus aureus strains associated with bovine mastitis
Vet Microbiol 145, 3-4: 360-365

Hennig S, **Ziebuhr W** (2010)
Characterization of the Transposase Encoded by IS256, the Prototype of a Major Family of Bacterial Insertion Sequence Elements
J Bacteriol 192, 16: 4153-4163

Chatterjee I, Schmitt S, Batzilla CF, Engelmann S, Keller A, Ring MW, Kautenburger R, **Ziebuhr W**, Hecker M, Preissner KT, Bischoff M, Proctor RA, Beck HP, Lenhof HP, Somerville GA, Herrmann M (2009)
Staphylococcus aureus ClpC ATPase is a late growth phase effector of metabolism and persistence
Proteomics 9, 5: 1152-1176

Lorenz U, Huttinger C, Schafer T, **Ziebuhr W**, Thiede A, Hacker J, Engelmann S, Hecker M, Ohlsen K (2008)
The alternative sigma factor sigma B of Staphylococcus aureus modulates virulence in experimental central venous catheter-related infections
Microbes and Infection 10, 3: 217-223

Kim JH, Kim CH, Hacker J, **Ziebuhr W**, Lee BK, Cho SH (2008)
Molecular characterization of regulatory genes associated with biofilm variation in a Staphylococcus aureus strain
Journal of Microbiology and Biotechnology 18, 1: 28-34

Hennig S, **Ziebuhr W** (2008)
A transposase-independent mechanism gives rise to precise excision of IS256 from insertion sites in Staphylococcus epidermidis
J Bacteriol 190, 4: 1488-1490

Neugebauer U, Schmid U, Baumann K, **Ziebuhr W**, Kozitskaya S, Holzgrabe U, Schmitt M, Popp J (2007)
The Influence of Fluoroquinolone Drugs on the Bacterial Growth of S. epidermidis Utilizing the Unique Potential of Vibrational Spectroscopy
The Journal of Physical Chemistry A 111, 15: 2898-2906

Neugebauer U, Schmid U, Baumann K, **Ziebuhr W**, Kozitskaya S, Deckert V, Schmitt M, Popp J (2007)
Towards a detailed understanding of bacterial metabolism--spectroscopic characterization of Staphylococcus epidermidis
Chemphyschem 8, 1: 124-137

- Hoerr V, **Ziebuhr W**, Kozitskaya S, Katzowitsch E, Holzgrabe U (2007)
Laser-induced fluorescence-capillary electrophoresis and fluorescence microplate reader measurement: two methods to quantify the effect of antibiotics
Analytical Chemistry 79, 19: 7510-7518
- Hennig S, Nyunt Wai S, **Ziebuhr W** (2007)
Spontaneous switch to PIA-independent biofilm formation in an ica-positive Staphylococcus epidermidis isolate
International Journal of Medical Microbiology 297, 2: 117-122
- Neugebauer U, Schmid U, Baumann K, Holzgrabe U, **Ziebuhr W**, Kozitskaya S, Kiefer W, Schmitt M, Popp J (2006)
Characterization of bacterial growth and the influence of antibiotics by means of UV resonance Raman spectroscopy
Biopolymers 82, 4: 306-311
- Batzilla CF, Rachid S, Engelmann S, Hecker M, Hacker J, **Ziebuhr W** (2006)
Impact of the accessory gene regulatory system (Agr) on extracellular proteins, codY expression and amino acid metabolism in Staphylococcus epidermidis
Proteomics 6, 12: 3602-3613
- Kozitskaya S, Olson ME, Fey PD, Witte W, Ohlsen K, **Ziebuhr W** (2005)
Clonal analysis of Staphylococcus epidermidis isolates carrying or lacking biofilm-mediating genes by multilocus sequence typing
Journal of Clinical Microbiology 43, 9: 4751-4757
- Kozitskaya S, Cho SH, Dietrich K, Marre R, Naber K, **Ziebuhr W** (2004)
The bacterial insertion sequence element IS256 occurs preferentially in nosocomial Staphylococcus epidermidis isolates: association with biofilm formation and resistance to aminoglycosides
Infection and Immunity 72, 2: 1210-1215
- Ohlsen K, Ternes T, Werner G, Wallner U, Löffler D, **Ziebuhr W**, Witte W, Hacker J (2003)
Impact of antibiotics on conjugational resistance gene transfer in Staphylococcus aureus in sewage
Environmental Microbiology 5, 8: 711-716
- Kipp F, **Ziebuhr W**, Becker K, Krimmer V, Hobeta N, Peters G, Von Eiff C (2003)
Detection of Staphylococcus aureus by 16S rRNA directed in situ hybridisation in a patient with a brain abscess caused by small colony variants
Journal of Neurology Neurosurgery and Psychiatry 74, 7: 1000-1002
- Loessner I, Dietrich K, Dittrich D, Hacker J, **Ziebuhr W** (2002)
Transposase-dependent formation of circular IS256 derivatives in Staphylococcus epidermidis and Staphylococcus aureus
Journal of Bacteriology 184, 17: 4709-4714
- Cho SH, Naber K, Hacker J, **Ziebuhr W** (2002)
Detection of the icaADBC gene cluster and biofilm formation in Staphylococcus epidermidis isolates from catheter-related urinary tract infections
International Journal of Antimicrobial Agents 19, 6: 570-575

Ziebuhr W, Loessner I, Krimmer V, Hacker J (2001)

Methods to detect and analyze phenotypic variation in biofilm-forming Staphylococci

Methods in Enzymology 336, 195-205

Ziebuhr W, Dietrich K, Trautmann M, Wilhelm M (2000)

Chromosomal rearrangements affecting biofilm production and antibiotic resistance in a Staphylococcus epidermidis strain causing shunt-associated ventriculitis

International Journal of Medical Microbiology 290, 1: 115-120

Rachid S, Ohlsen K, Witte W, Hacker J, **Ziebuhr W** (2000)

Effect of subinhibitory antibiotic concentrations on polysaccharide intercellular adhesin expression in biofilm-forming Staphylococcus epidermidis

Antimicrobial Agents and Chemotherapy 44, 12: 3357-3363

Rachid S, Ohlsen K, Wallner U, Hacker J, Hecker M, **Ziebuhr W** (2000)

Alternative transcription factor sigma(B) is involved in regulation of biofilm expression in a Staphylococcus aureus mucosal isolate

Journal of Bacteriology 182, 23: 6824-6826.

Ziebuhr W, Krimmer V, Rachid S, Loessner I, Götz F, Hacker J (1999)

A novel mechanism of phase variation of virulence in Staphylococcus epidermidis: evidence for control of the polysaccharide intercellular adhesin synthesis by alternating insertion and excision of the insertion sequence element IS256

Molecular Microbiology 32, 2: 345-356

Krimmer V, Merkert H, von Eiff C, Frosch M, Eulert J, Lohr JF, Hacker J, **Ziebuhr W** (1999)

Detection of Staphylococcus aureus and Staphylococcus epidermidis in clinical samples by 16S rRNA-directed in situ hybridization

Journal of Clinical Microbiology 37, 8: 2667-2673

Ohlsen K, **Ziebuhr W**, Koller KP, Hell W, Wichelhaus TA, Hacker J (1998)

Effects of subinhibitory concentrations of antibiotics on alpha-toxin (hla) gene expression of methicillin-sensitive and methicillin-resistant Staphylococcus aureus isolates

Antimicrobial Agents and Chemotherapy 42, 11: 2817-2823

Kreft B, Ilic S, **Ziebuhr W**, Kahl A, Frei U, Sack K, Trautmann M (1998)

Adherence of Staphylococcus aureus isolated in peritoneal dialysis-related exit-site infections to HEp-2 cells and silicone peritoneal catheter materials

Nephrology Dialysis and Transplantation 13, 12: 3160-3164

Ziebuhr W, Heilmann C, Götz F, Meyer P, Wilms K, Straube E, Hacker J (1997)

Detection of the intercellular adhesion gene cluster (ica) and phase variation in Staphylococcus epidermidis blood culture strains and mucosal isolates

Infection and Immunity 65, 3: 890-896

Kreft B, Walek T, **Ziebuhr W**, Rob PM, Trautmann M (1996)

Exit-site colonization and subsequent peritonitis by Pseudomonas aeruginosa in a patient on CAPD

Peritoneal Dialysis International 16, 2: 179-181

Mempel M, Feucht H, **Ziebuhr W**, Endres M, Laufs R, Grüter L (1994)
Lack of mecA transcription in slime-negative phase variants of methicillin-resistant Staphylococcus epidermidis
Antimicrobial Agents and Chemotherapy 38, 6: 1251-1255

Linhardt F, **Ziebuhr W**, Meyer P, Witte W, Hacker J (1992)
Pulsed-field gel electrophoresis of genomic restriction fragments as a tool for the epidemiological analysis of Staphylococcus aureus and coagulase-negative staphylococci
FEMS Microbiology Letters 74, 2-3: 181-185

Review articles

Heilmann C, **Ziebuhr W**, Becker K (2019)
Are coagulase-negative staphylococci virulent?
Clinical Microbiology and Infection 25, 9: 1071-1080

Schoenfelder SM, Lange C, Eckart M, Hennig S, Kozytska S, **Ziebuhr W** (2010)
Success through diversity - how Staphylococcus epidermidis establishes as a nosocomial pathogen
International Journal of Medical Microbiology 300, 6: 380-386. S1438-4221

Becker K, Bierbaum G, von Eiff C, Engelmann S, Götz F, Hacker J, Hecker M, Peters G, Rosenstein R, **Ziebuhr W** (2007)
Understanding the physiology and adaptation of staphylococci: A postgenomic approach
International Journal of Medical Microbiology 297: 483-501

Ziebuhr W, Hennig S, Eckart M, Kraenzler H, Batzilla C, Kozitskaya S (2006)
Nosocomial infections by Staphylococcus epidermidis: how a commensal bacterium turns into a pathogen
International Journal of Antimicrobial Agents 28 Suppl 1:S14-20

Ohlsen K, Hacker J, **Ziebuhr W** (2004)
Genome variability in gram-positive pathogenic bacteria – impact on virulence and evolution.
Current Genomics 5 (7): 589-600.

Ziebuhr W, Xiao K, Coulibaly B, Schwarz R, Dandekar T (2004)
Pharmacogenomic strategies against resistance development in microbial infections
Pharmacogenomics 5: 361-79

Hentschel U, **Ziebuhr W**, Hacker J (2002)
Die Suche nach neuen Wirkstoffen gegen Infektionskrankheiten
Biospektrum 8 (Sonderausgabe): 489-491

Morschhäuser J, Köhler G, **Ziebuhr W**, Blum-Oehler G, Dobrindt U, Hacker J (2000)
Evolution of microbial pathogens
Philos Trans R Soc Lond B Biol Sci 355: 695-704

Ziebuhr W, Ohlsen K, Karch H, Korhonen T, Hacker J (1999)
Evolution of bacterial pathogenesis
Cellular and Molecular Life Sciences 56: 719-728

Book chapters

Wencker F, **Ziebuhr W** (2017)

Methionine Synthesis in Microbes.

In: The Handbook of Microbial Metabolism of Amino Acids, Edited by: JPF D'Mello, pp 179-197
Boston: CAB International

Papenfort K, Corcoran CP, Gupta SK, Miyakoshi M, Heidrich N, Chao Y, Fröhlich KS, Sharma CM, **Ziebuhr W**, Böhm A, Vogel J (2013)

Regulatory Mechanisms of Special Significance: Role of Small RNAs in Virulence Regulation

In: Regulation of Bacterial Virulence. Edited by: M. L. Vasil and A. J. Darwin. pp 493-527.
Washington, D.C., ASM press

Ziebuhr W (2012)

Genome structure and variability in coagulase-negative staphylococci

In: Genome Plasticity and Infectious Diseases. Edited by: J. Hacker, U. Dobrindt and R. Kurth. pp 44-57.

Washington, ASM Press

Ziebuhr W, Flückiger U (2012)

Coagulase-negative Staphylococci

In: Hospital Epidemiology and Infection Control. Edited by: C. G. Mayhall. pp 443-462
Philadelphia, PA, Lippincott Williams & Wilkins

Ohlsen K, Eckart M, Hüttinger C, **Ziebuhr W**. (2006)

Pathogenic staphylococci: Lessons from comparative genomics

In: Pathogenomics Edited by J. Hacker and U. Dobrindt, pp. 175-202.
Weinheim, Wiley-VCH

Ziebuhr W. (2004)

Mikrobiologische Aspekte und Resistenzentwicklung

In: Septische Knochen- und Gelenkchirurgie. Edited by C. Hendrich, S. Frommelt, and J. Eulert, pp. 20-26.

Berlin, Springer

Mühdorfer I, **Ziebuhr W**, Hacker J. (2002)

Escherichia coli in urinary tract infections

pp. 585-603 Edited by M. Sussman *et al.* Mol. Med. Microbiol., Acad. Press.

Ziebuhr W. (2001)

Staphylococcus aureus and Staphylococcus epidermidis: emerging pathogens in nosocomial infections.

pp. 102-107. *In* I. Mühdorfer and K.P. Schäfer (eds.) Contrib. Microbiol. Vol. 8. Karger, Basel.

Ziebuhr W. (2002)

Therapeutic problems with infectious diseases

pp. 207-213. *In* J. Hacker, J. Heesemann (eds.) Molecular Infection Biology. Interactions between microorganisms and cells. Wiley & Sons., Hoboken

Ziebuhr W. (2000)

Staphylokokken

pp. 224-226. *In* J. Hacker, J. Heesemann (eds.) Molekulare Infektionsbiologie. Interaktionen zwischen Mikroorganismen und Zellen. Spektrum Akademischer Verlag Heidelberg, Berlin.

Ohlsen K, **Ziebuhr W**, Reichardt W, Götz F, Witte W, Hacker J. (1999)
Mobile elements, phages and genomic islands of Staphylococci and Streptococci
pp. 265-287. In J. Kaper and J. Hacker (eds.) Pathogenicity islands and other mobile virulence elements.
ASM-Press, Washington D.C.