

Curriculum Vitae – Assoz. Univ.-Prof. Dr. rer. nat. Stefan Schild

1 – Person / Allgemeine Angaben

Name	Schild Stefan, Assoz. Univ.-Prof. Dr. rer. nat., *16.04.1976, male
Nationality	German
Address	Institut für Molekulare Biowissenschaften, Karl-Franzens Universität Humboldtstrasse 50, 1 st floor, 8010 Graz, Austria Phone: +43 (0) 316 380 1970, E-Mail: stefan.schild@uni-graz.at
Position	associate professor

2 – Academic Education / Akademische Ausbildung mit Abschluss

2002 - 2005	PhD thesis: “Role of the Lipopolysaccharide of pathogenic <i>Vibrio cholerae</i> strains in Virulence and Differentiation to environmental isolates.” Department of Hygienics and Microbiology, University of Würzburg, Germany
1996 - 2002	Study in Biology, University of Würzburg, Germany diploma exams: “very good with honors” including the diploma thesis (05/ 2001 - 01/ 2002): “Characterization of LPS core oligosaccharide biosynthesis gene products of <i>Vibrio cholerae</i> .” Research Center for Infectious Diseases, University of Würzburg, Germany

3 – Scientific Degrees / Wissenschaftliche Abschlüsse

2011	Habilitation (Microbiology), University of Graz
2005	Promotion (Dr. rer. nat.), University of Würzburg
2002	Diploma (Biology), University of Würzburg

4 – Academic Appointments / Beruflicher Werdegang ab Studienabschluss

since 2011	Associate Professor, Institute of Molecular Biosciences, University of Graz, Austria
2010 - 2011	Assistant Professor, Institute of Molecular Biosciences, University of Graz, Austria
2008 - 2010	University Assistant, Institute of Molecular Biosciences, University of Graz, Austria
2005 - 2008	Howard Hughes Medical Institute (HHMI) research associate in the lab of Dr. Andrew Camilli, Department of Molecular Biology & Microbiology, Tufts University, Boston, MA, USA

5 – Additional information / Sonstiges

since 2013	member of the ethic commission for animal research, Institute of Molecular Biosciences, University of Graz, Austria
since 2011	co-representative for biological safety BSL-2 and genetically modified organisms (GMOs), Institute of Molecular Biosciences, University of Graz, Austria

since 2008	Coordinator of animal research for the Dept. of Microbiology, Institute of Molecular Biosciences, University of Graz, Austria
since 2000	trained in special courses on laboratory animals certified by GV-Solas/FELASA, category B
1997 - 2002	Member of the students council of the faculty of Biology, University of Wuerzburg, Germany
	1998 - 1999 Speaker of the students council

6 – Honors ▪ Awards / Preise und Auszeichnungen

2014	Innovation award, Science Park Graz
2011	Travel award from the Land Steiermark
2009	Publication award from the Heinrich-Jörg Stiftung
2002 – 2005	PhD fellowship from the “Studienstiftung des deutschen Volkes”

7 – Externally funded projects / geförderte Drittmittelprojekte

starting in 2016	Stand-alone project P 27654 - Austrian Science Fund (FWF) “Characterization of genes induced during biofilm formation of <i>Vibrio cholerae</i> ” total amount of funding: 325.815,00 €
since 2016	FFG Basis project – industrial partner: “Origimm Biotechnology GmbH”, “Immunotherapy against <i>P. acnes</i> for treatment of acne vulgaris and implant associated infections” total amount of funding: 65.364,00 €/ year
2014 – 2017	principal investigator in the international PhD program “Doktoratskolleg DK: Molecular Enzymology” W901 - funding period 4 - Austrian Science Fund (FWF) total amount of funding: 4.200.000,00 € for 15 principal investigators
2013 – 2018	Stand-alone project P 25691 - Austrian Science Fund (FWF) “Outer membrane vesicles derived from Gram-negative enteric pathogens” total amount of funding: 305.760,00 €
2011 – 2015	Stand-alone project P 22986 - Austrian Science Fund (FWF) “Gene regulation in dynamic biofilms of <i>Vibrio cholerae</i> ” total amount of funding: 281.883,00 €
2011 – 2014	principal investigator in the international PhD program “Doktoratskolleg DK: Molecular Enzymology” W901 - funding period 3- Austrian Science Fund (FWF) total amount of funding: 4.000.000,00 € for 17 principal investigators

8 – Publications / Publikationen

- Pressler, K, Vorkapic, D, Lichtenegger S, Malli, G, Barilich, BP, Cakar F, Zingl FG, Reidl J, Feldman MF, **Schild S**. 2016. AAA+ proteases and their role in distinct stages along the *Vibrio cholerae* lifecycle. Int J Med Microbiol. In press, doi:10.1016/j.ijmm.2016.05.013
- Roier S, Zingl FG, Cakar F, Durakovic S, Kohl P, Eichmann TO, Klug L, Gadermaier B, Weinzerl K, Prassl R, Lass A, Daum G, Reidl J, Feldman MF, **Schild S**. 2016. A novel mechanism for the biogenesis of outer membrane vesicles in Gram-negative bacteria. Nat Commun. 7:10515. doi: 10.1038/ncomms10515.
- Leitner DR, Zingl FG, **Schild S**. 2015. A Glimpse on Outer Membrane Vesicles as Vaccine Candidates. J Vaccines Vaccin. 6:293. doi:10.4172/2157-7560.1000293.

- Vorkapic, D., Pressler, K., **Schild, S.** 2016. Multifaceted roles of extracellular DNA in bacterial physiology. *Curr Genet.* 62(1):71-9. doi: 10.1007/s00294-015-0514-x.
- Gumpfenberger T, Vorkapic D, Zingl FG, Pressler K, Lackner S, Seper A, Reidl J, **Schild S.** 2016. Nucleoside uptake in *Vibrio cholerae* and its role in the transition fitness from host to environment *Mol Microbiol.* Feb;99(3):470-83. doi: 10.1111/mmi.13143.
- Leitner DR, Lichtenegger S, Temel P, Zingl FG, Ratzberger D, Roier S, Schild-Prüfert K, Feichter S, Reidl J, **Schild S.** 2015. A combined vaccine approach against *Vibrio cholerae* and ETEC based on outer membrane vesicles. *Front Microbiol.* 6 (823) 10.3389/fmicb.2015.00823
- Roier S, Blume T, Klug L, Wagner GE, Elhenawy W, Zangger K, Prassl R, Reidl J, Daum G, Feldman MF, **Schild S.** 2015. A basis for vaccine development: Comparative characterization of *Haemophilus influenzae* outer membrane vesicles. *Int J Med Microbiol.* 305(3):298-309.
- Salem W, Leitner DR, Zingl FG, Schratte G, Prassl R, Goessler W, Reidl J, **Schild S.** 2015. Antibacterial activity of silver and zinc nanoparticles against *Vibrio cholerae* and enterotoxigenic *Escherichia coli*. *Int J Med Microbiol.* 305(1):85-95.
- Schneditz G, Rentner J, Roier S, Herzog KAT, Bücken R, Tröger H, **Schild S,** Weber H, Breinbauer R, Gorkiewicz G, **Högenauer C,** Zechner EL. 2014. Enterotoxicity of a nonribosomal peptide causes antibiotic-associated colitis. *PNAS.* 111(36):13181-13186.
- Seper A, Pressler K, Kariisa A, Haid AG, Roier S, Leitner DR, Reidl J, Tamayo R, **Schild S.** 2014. Identification of genes induced in *Vibrio cholerae* in a dynamic biofilm system. *Int J Med Microbiol.* 304(5-6):749-763.
- Lichtenegger S, Bina I, Roier S, Bauernfeind S, Keidel K, **Schild S,** Anthony M, Reidl J. Characterization of lactate utilization and its implication on the physiology of *Haemophilus influenzae*. *Int J Med Microbiol.* 304(3-4):490-8.
- Seper A, Hosseinzadeh A, Gorkiewicz G, Lichtenegger S, Roier S, Leitner DR, Rohm M, Grutsch A, Reidl J, Urban CF, **Schild S.** 2013. *Vibrio cholerae* Evades Neutrophil Extracellular Traps by the Activity of Two Extracellular Nucleases. *PLoS Pathog* 9:e1003614.
- Leitner DR, Feichter S, Schild-Prüfert K, Rechberger GN, Reidl J, **Schild S.** 2013. Lipopolysaccharide modifications of a cholera vaccine candidate based on outer membrane vesicles reduce endotoxicity and reveal the major protective antigen. *Infect Immun* 81:2379-2393.
- Lees-Miller RG, Iwashkiw JA, Scott NE, Seper A, Vinogradov E, **Schild S,** Feldman MF. 2013. A common pathway for O-linked protein-glycosylation and synthesis of capsule in *Acinetobacter baumannii*. *Mol Microbiol* 89:816-830.
- Roier S, Fenninger JC, Leitner DR, Rechberger GN, Reidl J, **Schild S.** 2013. Immunogenicity of *Pasteurella multocida* and *Mannheimia haemolytica* outer membrane vesicles. *Int J Med Microbiol* 303:247-256.
- Moisi M, Lichtenegger S, Tutz S, Seper A, **Schild S***, Reidl J*. 2013. Characterizing the Hexose-6-Phosphate Transport System of *Vibrio cholerae*, a Utilization System for Carbon and Phosphate Sources. *J Bacteriol* 195:1800-1808. *shared corresponding authors
- Roier S, Leitner DR, Iwashkiw J, Schild-Prüfert K, Feldman MF, Krohne G, Reidl J, **Schild S.** 2012. Intranasal Immunization with Nontypeable *Haemophilus influenzae* Outer Membrane Vesicles Induces Cross-Protective Immunity in Mice. *PLoS One* 7:e42664.
- Fengler VH, Boritsch EC, Tutz S, Seper A, Ebner H, Roier S, **Schild S,** Reidl J. 2012. Disulfide bond formation and ToxR activity in *Vibrio cholerae*. *PLoS One* 7:e47756.

- Iwashkiw JA, Seper A, Weber BS, Scott NE, Vinogradov E, Stratilo C, Reiz B, Cordwell SJ, Whittal R, **Schild S**, Feldman MF. 2012. Identification of a general O-linked protein glycosylation system in *Acinetobacter baumannii* and its role in virulence and biofilm formation. PLoS Pathog 8:e1002758.
- Seper A, Fengler VH, Roier S, Wolinski H, Kohlwein SD, Bishop AL, Camilli A, Reidl J, **Schild S**. 2011. Extracellular nucleases and extracellular DNA play important roles in *Vibrio cholerae* biofilm formation. Mol Microbiol 82:1015-1037.
- Bishop AL, **Schild S**, Patimalla B, Klein B, Camilli A. 2010. Mucosal immunization with *Vibrio cholerae* outer membrane vesicles provides maternal protection mediated by antilipoplysaccharide antibodies that inhibit bacterial motility. Infect. Immun. 78:4402-4420.
- Moisi M, Jenul C, Butler SM, New A, Tutz S, Reidl J, Klose KE, Camilli A, **Schild S**. 2009. A novel regulatory protein involved in motility of *Vibrio cholerae*. J Bacteriol 191:7027-7038.
- Schild S**, Nelson EJ, Bishop AL, Camilli A. 2009. Characterization of *Vibrio cholerae* outer membrane vesicles as a candidate vaccine for cholera. Infect Immun 77:472-484.
- Schild S**, Bishop AL, Camilli A. 2008. Ins and Outs of *Vibrio cholerae*. Microbe 3:131-136.
- Nelson EJ, Chowdhury A, Flynn J, **Schild S**, Bourassa L, Shao Y, LaRocque RC, Calderwood SB, Qadri F, Camilli A. 2008. Transmission of *Vibrio cholerae* is antagonized by lytic phage and entry into the aquatic environment. PLoS Pathog 4:e1000187.
- Schild S**, Nelson EJ, Camilli A. 2008. Immunization with *Vibrio cholerae* outer membrane vesicles induces protective immunity in mice. Infect Immun 76:4554-4563.
- Tamayo R, **Schild S**, Pratt JT, Camilli A. 2008. Role of cyclic Di-GMP during el tor biotype *Vibrio cholerae* infection: characterization of the in vivo-induced cyclic Di-GMP phosphodiesterase CdpA. Infect Immun 76:1617-1627.
- Song T, Mika F, Lindmark B, Liu Z, **Schild S**, Bishop A, Zhu J, Camilli A, Johansson J, Vogel J, Wai SN. 2008. A new *Vibrio cholerae* sRNA modulates colonization and affects release of outer membrane vesicles. Mol Microbiol 70:100-111.
- Schild S**, Tamayo R, Nelson EJ, Qadri F, Calderwood SB, Camilli A. 2007. Genes induced late in infection increase fitness of *Vibrio cholerae* after release into the environment. Cell Host Microbe 2:264-277.
- Berg T, **Schild S**, Reidl J. 2007. Regulation of the chitobiose-phosphotransferase system in *Vibrio cholerae*. Arch Microbiol 187:433-439.
- Schild S**, Lamprecht AK, Fourestier C, Lauriano CM, Klose KE, Reidl J. 2005. Characterizing lipopolysaccharide and core lipid A mutant O1 and O139 *Vibrio cholerae* strains for adherence properties on mucus-producing cell line HT29-Rev MTX and virulence in mice. Int J Med Microbiol 295:243-251.
- Schild S**, Lamprecht AK, Reidl J. 2005. Molecular and functional characterization of O antigen transfer in *Vibrio cholerae*. J Biol Chem 280:25936-25947.
- Schild S**, Reidl J. 2003. *Vibrio cholerae*: Ursache und Wirkung. BIOSpektrum 4:360-361.
- Nesper J, Kraiss A, **Schild S**, Blass J, Klose KE, Bockemuhl J, Reidl J. 2002. Comparative and genetic analyses of the putative *Vibrio cholerae* lipopolysaccharide core oligosaccharide biosynthesis (*wav*) gene cluster. Infect Immun 70:2419-2433.
- Nesper J*, **Schild S***, Lauriano CM*, Kraiss A, Klose KE, Reidl J. 2002. Role of *Vibrio cholerae* O139 surface polysaccharides in intestinal colonization. Infect Immun 70:5990-5996. *shared first authors

9 – Patents / Patente

Roier S, Reidl J, **Schild S**. 2012. Vaccine against Pasteurellaceae. EP 2505208

Schild S, Nelson EJ, Camilli A. 2008. Cholera Vaccines. PCT/US08/879,292

10 – Selected oral presentations (invited only) / ausgewählte Vorträge (nur Einladungen)

"From outer membrane vesicles to nanoparticles: Therapeutic approaches to fight bacterial infections". University of Stuttgart Hohenheim. May 2015

"They are out there – OMVs as vaccine candidates". International Graduate School 1409, University Muenster. December 2014

"OMVs - Vaccine against Pasteurellaceae". Biovaria Munich. June 2013

"There and Back again: A Vibrio's tale". Research summit in Obergurgl of the DFG research program „Host-Adapted Metabolism of Bacterial Pathogens“. October 2012

"Outer membrane vesicles as vaccine candidates". New York University – Dept. of Medicine. September 2011.

"Bacterial pathogenesis of the gastrointestinal tract: *Vibrio cholerae* and cholera". University of Wuerzburg - Symposium Infectious Diseases. March 2010

"Microbial Pathogenesis: *Vibrio cholerae* and *Clostridium difficile*". Copenhagen – Symposium by MIMS. January 2010

"The facultative pathogen *Vibrio cholerae*: Insights into the lifecycle and a new vaccine approach". University of Umea. June 2009

"Research in the times of cholera". University of Osaka. March 2009

"Outer membrane vesicles: A novel vaccine candidate for cholera". Frontiers in *Vibrio* research. 82nd Annual Congress of Japanese Society of Bacteriology. March 2009