

Tina Bürki-Thurnherr

Dr.sc.nat

Kobelstrasse 15
CH-9442 Berneck
Phone +41 79 6454145



Empa – Swiss Federal Laboratories for Materials Science and Technology
Laboratory for Particles–Biology Interactions
Lerchenfeldstrasse 5
CH-9014 St.Gallen
Phone +41 58 765 76 96
E-mail: tina.buerki@empa.ch

Personal data

Date of birth: 01.05.1979
Place of birth: Altstaetten SG, Switzerland
Marital status: Married, 2 children Sean (2010) and Neil (2012)

Professional experience

Since Jan 2015	Empa – Materials Science & Technology Group leader Particles@Barriers, Laboratory for Particles- Biology Interactions	St.Gallen, Switzerland
05/2012-12/2014	Empa – Materials Science & Technology Scientific associate, Laboratory for Materials-Biology Interactions	St.Gallen, Switzerland
07/ 2007-04/2012	Empa – Materials science & Technology Postdoctoral fellow, Laboratory for Materials-Biology Interactions	St.Gallen, Switzerland

Education

12/2002–08/2006	Swiss Federal Institute of Technology (ETH) <i>Ph.D. Thesis</i> : “Studies on vertebrate nervous system myelination: The role of cdc42, rac1, and profilin 1 signaling in oligodendrocyte and Schwann cell biology”; Thesis supervisors: Prof. U. Suter / Prof. M.E. Schwab / Dr. J. Relvas	Zurich, Switzerland
10/1998-10/2002	Swiss Federal Institute of Technology (ETH) <ul style="list-style-type: none">• <i>Study of biology</i> Courses in cell biology, biochemistry, molecular biology, microbiology and genetics Degree: Dipl. Nat. ETHZ• <i>Diploma thesis</i> “Characterization of the interaction of sarcoplasmic reticulum proteins with creatine kinase”; Supervisors: Prof. T. Wallimann / Dr. T. Hornemann	Zurich, Switzerland
1994-1998	Kantonsschule Heerbrugg <i>Graduation</i> (Matura Type E: Economics)	Heerbrugg, Switzerland

Qualifications

2012-2014	Leadership training, Empa
2006	Doctoral degree, ETH Zurich

Curriculum vitae

2006	Certificate in Neuroscience, received by Neuroscience Center, Zurich
2005	Statistic course, Neuroscience Center, Zurich
2003	Training in laboratory animal experiments (LTK Modul I)
2002	Master's degree in general biology
1998	Swiss Cantonal Maturity

Awards

2017	Best Poster Award , Clinical Nanomedicine and Targeted Medicine (CLINAM), Basel, Switzerland, <u>T. Buerki-Thurnherr</u> , C. Muoth, M. Großgarten, U. Karst, P. Manser, L. Diener, M. Kucki, A. Wichser, W. Jochum, P. Wick, "A novel organotypic 3D microtissue model to assess nanoparticle uptake and effects at the human placental barrier"
2016	Best Poster Award , Clinical Nanomedicine and Targeted Medicine (CLINAM), Basel, Switzerland, <u>T. Buerki-Thurnherr</u> , S. Grafmueller, P. Manser, C. Muoth, L. Aengenheister, A. Wichser, W. Jochum, PA. Diener, U. von Mandach, P. Wick, "Studying nanoparticle translocation and effects at the human placental barrier using ex vivo and advanced in vitro model systems"
2014	2nd Best Talk Award , 7 th International Nanotoxicology Congress, Antalya, Turkey Muoth C, Schipanski A, <u>Buerki-Thurnherr T</u> , Rottmar M, Wick P, Maniura K, "Does the cell architecture influence engineered nanomaterial uptake? – an experimental approach"
2011	2nd Best poster award , 35 th International conference on advanced ceramics and composites, Daytona Beach, Florida, L. Xiao, S. Stucky, O. Arslan, D. Hermann, S. Kremer, B. Müller, S. Mathur. <u>T. Buerki-Thurnherr</u> , H. Krug, J. Shi, A. Kunzmann, B. Fadeel, "How safe are nanomaterials for human beings"
2010	Best poster award , 2 nd Nanopointnet conference, Lausanne, Switzerland, <u>T. Buerki-Thurnherr</u> , C. Brandenberger, JP.Kaiser, P. Manser, L. Diner, HF.Krug, P. Wick, "Long-term accumulation of multi-walled carbon nanotubes has no major effects on human lung cell survival and functionality in vitro"

Grant acquisition

2018-2020	EU Flagship Graphene (Core2 phase)	Co-applicant (88 M€ 350 k€)
2017-2020	SNSF- Placenta calcification	Partner (230 kCHF)
2015-2018	BMBF-proposal NanoUmwelt	Co-applicant (1.8 M€/ 180 k€)
2013-2017	7 th FP EU Nanosolutions (NMP.2012.1.3-1)	Co-applicant (10 M€/ 290 k€)

Student supervision

Since 2009	Supervision of 2 master students, 3 PhD students; Co-supervision of 2 PhD students, Empa	St.Gallen, Switzerland
2003	Co-supervision of 1 master student, ETH	Zurich, Switzerland

Teaching/courses

Lectures	Vorarlberg University of Applied Sciences: Master course in micro- and nanotechnology (acknowledged as the best technical degree program in Austria) 2010-2011
----------	--

Service

Ad hoc reviewer	Nanotoxicology, International Journal of Nanomedicine, Science and Technology of Advanced Materials (STAM), Environmental Pollution, Altex
Member	International Federation of Placenta Association (IFPA) (2017-present); BioNanoNet (2017-present); ETPN- European Technology Platform Nanomedicine (2015-present); Competence Center TEDD (Tissue engineering for drug development and substance testing) (2007- present), EU Nanosafety Cluster (2013-present)

Invited lectures

- 30.8.2017 Nanomedicine lab, University of Manchester, UK, Steering nanoparticle-placenta interactions: Impact of particle properties and functionalization on placental uptake, penetration and biological effects
- 5-6.2.2015 Education Days on Organotypic Cell Models, Sanofi Pasteur, Marcy l'Etoile, France
- 3.3.2016 9.Tierversuchstagung des Schweizer Tierschutz STS, Ersatzmethoden – wohin? Plazenta-Barriere: Mit neuen Technologien und Erkenntnissen zu aussagekräftigen humanen Modellen, Olten, Switzerland
- 5-6.2.2015 Education Days on Organotypic Cell Models, Sanofi Pasteur, Marcy l'Etoile, France
- 29.10.2014 Mini Symposium: Nanoparticle interaction with the placental barrier, Exploiting novel technologies to develop advanced placenta models for nanomaterial testing, Medical University Graz, Graz, Austria
- 14.3.2013 In vitro Barrier Models, Novel human placenta in vitro models for nanomaterial testing, Empa, St.Gallen, Switzerland
- 12.9.2011 Alte Garde Ascom, Nanotechnologie im Alltag: Fluch oder Segen? Hotel Bern, Bern, Switzerland
- 19.3.2010 1st VERT Forum, Placenta penetration of nanoparticles, Empa, Dübendorf, Switzerland

Publications

> 1335 citations, h-index 14 (Google scholar 23.9.2017)

1. Muoth C., Großgarten M., Karst U., Ruiz Aranzaes J., Astruc D., Moya S., Diener L., Grieder K., Wichser A., Jochum W., Wick P., **Buerki-Thurnherr T.** (2017). Impact of particle size and surface modification on the localization and penetration of gold nanoparticles in human placental co-culture microtissues. *Nanomedicine*, 12(10); 1119-1133.
2. Muoth C., Wichser A., Monopoli M., Correia M., Ehrlich N., Loeschner K., Gallud A., Kucki M., Diener L., Jochum W., Wick P., **Buerki-Thurnherr T.** (2016). A 3D microtissue co-culture model of the human placenta for nanotoxicity assessment. *Nanoscale*, 2016, 8, 17322 - 17332.
3. Muoth C., Rottmar M., Schipanski A., Gmuender C., Maniura-Weber K., Wick P., **Buerki-Thurnherr T.** (2016). A micropatterning approach to study the influence of actin cytoskeletal organization on polystyrene nanoparticle uptake by BeWo cells. *RSC Advances*, 2016, 6, 72827 - 72835.
4. Muoth C., Aengenheister L., Kucki M., Wick P., **Buerki-Thurnherr T.** (2016). Nanoparticle transport across the placental barrier: Pushing the field forward! *Nanomedicine*, Apr;11(8):941-57.
5. Schlagenhauf L., Kianfar B., **Buerki-Thurnherr T.**, Kuo, Y., Wichser A., Nuesch F., Wick P., Wang J. (2015). Weathering of a Carbon Nanotube / Epoxy Nanocomposite under UV Light and in Water Bath: Impact on Abraded Particles. *Nanoscale*. 7, 18524 - 18536
6. Schlagenhauf L., **Buerki-Thurnherr T.**, Losert S., Ott N., Wichser A., Nuesch F., Wick P., Wang J. (2015). Released carbon nanotubes from an epoxy-based nanocomposite: quantification and toxicity. *Environ. Sci. Technol.*, 49 (17): 10616–10623
7. Grafmueller S., Manser P., Diener L., Maurizi L., Diener PA., Hofmann H., Jochum W., Krug HF., **Buerki-Thurnherr T.**, von Mandach U., Wick P. (2015). Transfer studies of polystyrene nanoparticles in the ex vivo human placenta perfusion model: key sources of artifacts. *Sci. Technol. Adv. Mater.* 16 (4) 044602
8. Grafmueller S., Manser P., Diener L., Diener PA., Maeder-Althaus X., Maurizi L., Jochum W., Krug H.F., **Buerki-Thurnherr T.**, von Mandach U., Wick P. (2015). Differential bidirectional transfer of polystyrene nanoparticles across the placental barrier reveals different transport kinetics. *Environ Health Persp.*,123(12):1280-6.
9. **Buerki-Thurnherr T.** *, Montani L. *, Paes de Faria J., Pereira J.A., Dias N., Fernandes R., Braun A.,

- Benninger Y., Goncalves A. F., Nave K.A., Franklin R.J.M., Meijer D., Fässler R., Suter U., Relvas J.B. (2014) Profilin1 is required for peripheral nervous system myelination. **Development** 141, 141(7):1553-61 *shared first author
10. Tuomela S., Autio R, **Buerki-Thurnherr T.**, Arslan O., Kunzmann A., Andersson-Willmann B., Wick P., Matur S., Scheynius A., Krug H.F., Fadeel B., Lahesmaa R. (2013). Gene expression profiling of immune-competent cells exposed to engineered zinc oxide or titanium dioxide nanoparticles. **Plos ONE** 8(7):e68415
 11. Kaiser JP., **Buerki-Thurnherr T.**, Wick P. (2013). Influence of single walled carbon nanotubes at subtoxic concentrations on cell adhesion and other cell parameters of human epithelial cells. **The Journal King Saud University – Science** 25(1),15-27
 12. **Buerki-Thurnherr T.**, Xiao L., Diener L., Arslan O., Hirsch C., Maeder-Althaus X., Grieder K., Wampfler B., Mathur S., Wick P., Krug H.F. (2012). In vitro mechanistic study towards a better understanding of ZnO nanoparticle toxicity. **Nanotoxicology**. 7(4):402-16
 13. Andersson-Willman B., Gehrman U., Cansu Z., **Buerki-Thurnherr T.**, Krug H.F., Gabrielsson S., Scheynius A. (2012). Effects of subtoxic concentrations of TiO₂ and ZnO nanoparticles on human lymphocytes, dendritic cells and exosome production. **Toxicol Appl Pharmacol**. 264(1):94-103
 14. **Buerki-Thurnherr T.**, von Mandach U., Wick P. (2012). Knocking at the door of the unborn child: Engineered nanoparticles at the human placenta barrier. **Swiss Med Wkly**. 2012;142:w13559
 15. Kaiser J-P., Roesslein M., **Buerki-Thurnherr T.**, Wick P. (2011). Carbon Nanotubes- Curse or Blessing. **Current Medicinal Chemistry**, 18, 2115-2128
 16. Kunzmann A., Andersson B., Vogt C., Neus F., Ye F., Gabrielsson S., Toprak M.S., **Buerki-Thurnherr T.**, Laurent S., Bridot J.L., Müller R., Vahter M., Krug H.F., Muhammed M., Scheynius A., Fadeel B. (2011). Efficient internalization of silica-coated iron oxide nanoparticles of different sizes by primary human macrophages and dendritic cells. **Toxicol Appl Pharmacol**.253(2):81-93
 17. **Thurnherr T.**, Brandenberger C., Fischer K., Diener L., Manser P., Maeder-Althaus X., Kaiser J.P., Krug H.F., Rothen-Rutishauser B., Wick P. (2011). A comparison of acute and long-term effects of industrial multiwalled carbon nanotubes on human lung and immune cells in vitro. **Toxicol Lett**. 200(3):176-86
 18. Kunzmann A., Andersson B., **Thurnherr T.**, Krug H.F., Scheynius A., Fadeel B. (2010). Toxicology of engineered nanomaterials: Focus on biocompatibility, biodistribution and biodegradation. **Biochim Biophys Acta**, 1810(3):361-73
 19. **Thurnherr T.**, Su D.S., Diener L., Weinberg G., Manser P., Pfänder N., Arrigo R., Schuster M.E., Wick P., Krug H.F. (2009). Comprehensive evaluation of in vitro toxicity of three large-scale produced carbon nanotubes on human Jurkat T cells and a comparison to crocidolite asbestos. **Nanotoxicology** 3 (4), 319-338.
 20. Pereira J.A., Benninger Y., Baumann R., Gonçalves A.F., Özçelik M., **Thurnherr T.**, Tricaud N., Meijer D., Fässler R., Suter U., Relvas J.B. (2009). Integrin-linked kinase is required for radial sorting of axons and Schwann cell myelination in the peripheral nervous system. **J Cell Biol**. 185 (1), 147-161.
 21. **Thurnherr T.***, Benninger Y.*, Pereira J.A., Krause S.M., Wu X., Chrostek A., Herzog D., Nave K.A., Franklin R.J.M., Meijer D., Brakebusch C., Suter U., Relvas, J.B. (2007). Essential and distinct roles for cdc42 and rac1 in the regulation of Schwann cell biology during PNS myelination. **J Cell Biol**. 177, 1051-61. See also commentary: Chan, J.R. (2007). Myelination: all about Rac 'n' roll. *The Journal of Cell Biology*: 177:953-5 and Whalley, K. (2007). It's a wrap. *Nature reviews Neuroscience* 8:572 *shared first author

22. **Thurnherr T.***, Benninger Y.*, Wu X., Chrostek A., Krause S.M., Franklin, R.J.M., Nave K.A., Brakebusch C., Suter U., Relvas, J.B. (2006). Cdc42 and rac1 signaling are both required for and act synergistically in the correct formation of myelin sheaths in the CNS. **J Neurosci** 26, 10110-10119. (featured article). Faculty of 1000 Recommended, *shared first author
23. Benninger Y., Colognato H., **Thurnherr T.**, Franklin, R.J.M., Leone D.P., Atanasoski S., Nave, K.A., Ffrench-Constant C., Suter U., Relvas, J.B. (2006). Beta1-integrin signaling mediates premyelinating oligodendrocyte survival but is not required for CNS myelination and remyelination. **J Neurosci** 26, 7665-7673. Faculty of 1000 Recommended