Tina Bürki-Thurnherr

Dr.sc.nat

Nationality:	Switzerland
Marital status:	Married, 2 kids (8 and 10 year-old)
Date and place of birth:	May 1st, 1979, Altstaetten SG, Switzerland
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Professional experience

01/2015-present	Group Leader Particles@Barriers group and deputy head of the Laboratory for Particles-Biology Interactions, Swiss Federal Laboratories for Materials Science and Technology (Empa), St.Gallen, Switzerland
05/2012-12/2014	Research Associate, Laboratory for Materials-Biology Interactions, Swiss Federal Laboratories for Materials Science and Technology (Empa), St.Gallen, Switzerland, Advisor: Dr. P. Wick
2008-2012	Postdoctoral fellow, Laboratory for Materials-Biology Interactions, Swiss Federal Laboratories for Materials Science and Technology (Empa), St.Gallen, Switzerland, Advisor: Dr. H.F. Krug

Education

2002-2006	PhD, Institute of Cell Biology, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland *Ph.D. Thesis: "Studies on vertebrate nervous system myelination: The role of cdc42, rac1, and profilin 1 signaling in oligodendrocyte and Schwann cell biology"* Advisors: Prof. U. Suter, Prof. M.E. Schwab, Dr. J. Relvas
1998-2002	Dipl.Nat. ETHZ, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland *Diploma Thesis: "Characterization of the interaction of sarcoplasmic reticulum proteins with creatine kinase"* Advisors: Prof. T. Wallimann, Dr. T. Hornemann
1994-1998	Kantonsschule Heerbrugg, Heerbrugg, Switzerland *Graduation* (Matura Type E: Economics)

Research grants

2020-2023	EU Flagship Graphene (Core3 phase)	Co-applicant (150 M€/ 550 k€)
2018-2021	SNSF- Placenta-mediated nanomaterial risks	PI (260 kCHF)
2018-2020	EU Flagship Graphene (Core2 phase)	Co-applicant (88 M€/ 350 k€)
2017-2020	SNSF- Placenta calcification	Partner (230 kCHF)
2014-2017	BMBF- NanoUmwelt	Co-applicant (1.8 M€ / 180 k€)
2013-2017	7th FP EU Nanosolutions (*NMP*.2012.1.3-1)	Co-applicant (10 M€ / 290 k€)

Student supervision (* co-supervision)

Claudia Rust* (ETH, Master thesis, 2003), Carina Muoth (ETH, Master thesis, 2012), Erminio Di Renzo (ETH, Master thesis, 2018), Angela Diaz (Uni Castilla-La-Mancha, Master thesis, 2021), Lukas Schlagenhauf* (ETH, Doctoral thesis, 2011-2015), Carina Mouth (UZH, Doctoral thesis, 2013-2016), Leonie Aengenheister (ETH, PhD student, 2015-2018), Claudia Hempt (ETH, Doctoral thesis, 2017-2020), Daria Korejwo (UNIFR, PhD student, 2017-2020), Woranan Netkeakul* (ETH, PhD student, 2017-present), Lea Furer (ETH, PhD student, start Oct 2018), Battuja Batbajar Dugershaw (ETH, PhD student, start Oct 2018), Julia Boos* (ETH, PhD student, 2019-present)

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	Nature Communications, Particle and Fiber Toxicology, Nanotoxicology; Theranostics, International Journal of Nanomedicine; Science and Technology of Advanced Materials; Environmental Pollution; Altex; Nanomedicine: Nanotechnology, Biology, and Medicine; Environmental Science: Nano; Basic and clinical pharmacology and toxicology
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), Ethics committee Empa (2016- present)

Event organization

2021	Biointerfaces International, Pre-conference seminar, Zurich, Switzerland Co-organizier BIS and session chair
2018	Nanotoxicology, Düsseldorf, Germany Organization committee and session chair
2017	10th European Placenta Perfusion Workshop, Empa, St.Gallen, Switzerland (30-31.5) Organizer

Awards

2019	**2nd Best Poster Award**, SST Annual Meeting 2019, Basel, Switzerland, Dugershaw BB., Nowak-Sliwinska P., Hornung R., Sturla S., Buerki-Thurnherr T. "Exploring mechanisms of indirect fetotoxic effects of nanomaterials at the human placental barrier"
2017	**Best Poster Award**, Clinical Nanomedicine and Targeted Medicine (CLINAM), Basel, Switzerland, T. Buerki-Thurnherr, 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	**3rd Best Talk Award**, Empa PhD Students' Symposium 2016, Dübendorf, Zurich, Aengenheister L, Schönenberger R, Manser P, Muoth C, Wick , Buerki-Thurnherr T. "Improving nanoparticle translocation studies at the placental barrier: an advanced in vitro model"
2016	**Best Poster Award**, Clinical Nanomedicine and Targeted Medicine (CLINAM), Basel, Switzerland, T. Buerki-Thurnherr, 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**, 7th International Nanotoxicology Congress, Antalya, Turkey, Muoth C, Schipanski A, Buerki-Thurnherr T, Rottmar M, Wick P, Maniura K, "Does the cell architecture influence engineered nanomaterial uptake? – an experimental approach"
2011	**2nd Best poster award**, 35th International conference on advanced ceramics and composities, Daytona Beach, Florida, L. Xiao, S. Stucky, O. Arslan, D. Hermann, S. Kremer, B. Müller, S. Mathur. T. Buerki-Thurnherr, H. Krug, J. Shi, A. Kunzmann, B. Fadeel, "How safe are nanomaterials for human beings"
2010	**Best poster award**, 2nd Nanpoimpactnet conference, Lausanne, Switzerland, T. Buerki-Thurnherr, 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"

Invited talks

2021	Annual meeting of the German Society for Cytometry, Berlin, Germany
2020	TEDD (Tissue Engineering for Drug Development and Substance Testing) Annual Meeting 2020, virtual meeting
2019	Swiss NanoConvention 2019, EPFL, Lausanne, Switzerland
2019	Comprehensive Pneumology Center, Helmholtz Zentrum München, Germany
2018	Annual Meeting 2018 of the Swiss Society of Toxicology, Basel, Switzerland
2018	Focus Event 9th VERT Forum, Empa, Dübendorf, Switzerland
2017	Nanomedicine lab, University of Manchester, UK
2016	9.Tierversuchstagung des Schweizer Tierschutz STS, Olten, Switzerland
2015	Education Days on Organotypic Cell Models, Sanofi Pasteur, Marcy l'Etoile, France

2014	Mini Symposium: Nanoparticle interaction with the placental barrier, Medical University Graz, Graz, Austria
2013	In vitro Barrier Models, Empa, St.Gallen, Switzerland
2011	Alte Garde Ascom, Bern, Switzerland
2010	1st VERT Forum, Empa, Dübendorf, Switzerland

Career breaks

10/2012 - 02/2013	Maternity leave
08/2010 – 11/2010	Maternity leave
11/2006 – 07/2007	Trip around the world

Publications

> 2581 citations, h-index 23 (Google scholar 01.02.2021)

1. Aengenheister L., Favaro RR., Morales-Prieto DM., Furer LA., Gruber M., Wadsack C., Markert UR., Buerki-Thurnherr T. (2020). Research on nanoparticles in human perfused placenta: state of the art and perspectives. Placenta, 104, 199-207 (IF:2.773)

2. Hempt C., Hirsch C., Hannig Y., Rippl A., Wick P., Buerki-Thurnherr T. (2020). Investigating the effects of differently produced synthetic amorphoussilica (E 551) on the integrity and functionality of the human intestinalbarrier using an advanced in vitro co-culture model, Arch Toxicol, DOI: 0.1007/s00204-020-02957-2. (IF: 5.059)

3. Dugershaw BB., Aengenheister L., Schmidt Kjølner Hansen S., Sørig Hougaard K., Buerki-Thurnherr T. (2020). Recent insights on indirect mechanisms in developmental toxicity of nanomaterials, Part Fibre Toxicol, 17, 31 (2020). (IF:6.56)

4. Hempt C., Kaiser JP., Scholder O., Buerki-Thurnherr T., Hofmann H., Rippl A., Schuster TB., Wick P., and Hirsch C. (2020) The impact of synthetic amorphous silica (E 551) on differentiated Caco-2 cells, a model for the human intestinal epithelium, Toxicol In Vitro, 28 May 2020, 67:104903. (IF: 2.9)

5. Netkueakul W., Korejwo D., Hammer T., Chortarea S., Rupper P., Braun O., Calame M., Rothen-Rutishauser B., Buerki-Thurnherr T., Wick P. and Wang J. (2020) Release of graphene-related materials from epoxy-based composites: characterization, quantification and hazard assessment in vitro. Nanoscale. 2020,12,10703 - 10722 (IF: 6.97)

6. Hempt C., Gontsarik M., Buerki-Thurnherr T., Hirsch C. and Salentinig S. (2020). Nanostructure Generation During Milk Digestion in Presence of Cell Culture Models Simulating the Small Intestine. J Colloid Interface Sci., 2020 Apr 18;574:430-440 (IF: 6.36)

7. Inderbinen SG., Engeli ST., Rohrer SR., Di Renzo E., Aengenheister L., Buerki-Thurnherr T., Odermatt A. (2020). Tributyltin and triphenyltin induce 11β-hydroxysteroid dehydrogenase 2 expression and activity through activation of retinoid X receptor α. Toxicol Lett. 2020 Apr 1;322:39-49. (IF: 3.858)

8. Warth B., Preindl K., Manser P., Wick P., Marko D., Buerki-Thurnherr T*. (2019). Transfer and metabolism of the xenoestrogen zearalenone in human perfused placenta. Environ Health Persp., 127(10):107004. *senior and corresponding author (IF: 8.05)

9. Anthis AHC., Tsolaki E., Didierlaurent L., Staubli S., Zboray R., Neels A., Dietrich D., Manser P., May Desbiolles L., Leschka M., Wildermuth S., Lehner S., Chavatte-Palmer P., Jochum W., Wick P., Dommann A., Bürki-Thurnherr T., Fischer T., Hornung R., Bertazzo S. and Herrmann IK. (2019). Nano-analytical characterization of endogenous minerals in healthy placental tissue: mineral distribution, composition and ultrastructure. Analyst 2019 Nov 18;144(23):6850-6857 (IF: 4.019)

10. Aengenheister L., Dugershaw BB., Manser P., Wichser A., Schoenenberger R., Wick P., Hesler M., Kohl Y., Straskraba S., Suter MJF., Buerki-Thurnherr T*. (2019). Investigating the accumulation and translocation of titanium dioxide nanoparticles with different surface modifications in static and dynamic human placental transfer models. Eur J Pharm Biopharm. 2019, 142:488-497. *corresponding author (IF:4.71)

11. Hesler M., Aengenheister L., Ellinger B., Drexel R., Straskraba S., Jost C., Wagner S., Meier F., von Briesen H., Büchel C., Wick P., Buerki-Thurnherr T., Kohl Y. (2019). Multi-endpoint toxicological assessment of polystyrene nano- and microparticles in different biological models in vitro. Toxicol In Vitro. 2019 Jul 27;61:104610. (IF: 3.07)

12. Fadeel B., Bussy C., Merino S., Vázquez E., Flahaut E., Mouchet F., Evariste L., Gauthier L., Koivisto J., Vogel U., Martín C., Delogu LG., Buerki-Thurnherr T., Wick P., Beloin-Saint-Pierre D., Hischier R., Pelin M., Carniel CF., Tretiach M., Cesca F., Benfenati F., Scaini D., Ballerini L., Kostarelos K., Prato M. and Bianco A. (2018). Safety Assessment of Graphene-Based Materials: Focus on Human Health and the Environment. ACS Nano 2018 Nov 27;12(11):10582-10620 (IF: 13.71)

13. Aengenheister L., Dietrich D., Sadeghpour A., Manser P., Diener L., Wichser A., Karst U., Wick P., Buerki-Thurnherr T*. (2018). Gold nanoparticle distribution in advanced in vitro and ex vivo human placental barrier models. J Nanobiotechnol (2018) 16:79. * senior and corresponding author (IF: 5.02)

14. Buerki-Thurnherr T*., Schaepper K., Aengenheister L., Wick P. (2018). Developmental toxicity of nanomaterials: Need for a better understanding of indirect effects. Chem. Res. Tox. 2018, 31 (8), 641–642. *corresponding author (IF: 3.43)

15. Vidmar J., Loeschner K., Correia M., Larsen E.H., Manser P., Wichser A., Boodhia K., S. Al-Ahmady Z., Ruiz J., Astruc D., Buerki-Thurnherr T*. (2018). Single particle ICP-MS characterization of silver nanoparticles translocation in the ex vivo human placental perfusion model to predict potential fetal exposure. Nanoscale 2018, 10(25):11980-11991* senior and corresponding author (IF: 7.23)

16. Notter T., Aengenheister L., Weber-Stadlbauer U., Wick P., Meyer U*., Buerki-Thurnherr T*.. (2018). Prenatal exposure to TiO_2 nanoparticles causes behavioral deficits relevant for autism-spectrum disorders and beyond. Transl. Psychiatry 2018 Sep 20;8(1):193. * shared senior author (IF: 4.69)

17. Vidmar J., Buerki-Thurnherr T, Loeschner K. (2018). Use of alkaline or enzymatic sample pre-treatment prior to characterization of silver nanoparticles in human tissue by single particle ICP-MS. J. Anal. At. Spectrom., 2018,33, 752 (IF: 3.61)

18. Kucki M., Aengenheister L., Diener L., Rippl A.,Vranic S., Newman L., Vazquez E., Kostarelos K., Wick P., Buerki-Thurnherr T*. (2018). Assessment of cell viability and functionality of human placental trophoblast cells in vitro after exposure to label-free graphene oxide. 2D Mater. 5 (2018), 035014 *senior and corresponding author (IF:7.04)

19. Drasler B., Kucki M., Delhaes F., Buerki-Thurnherr T., Vanhecke D., Korejwo D., Petri-Fink A., Rothen-Rutishauser B., Wick P. (2018). Single exposure to aerosolized graphene oxide and graphene nanoplatelets did not initiate an acute biological response in a 3D human lung model. Carbon, 137,125-135 (IF: 7.08)

20. Aengenheister L., Keevend K., Muoth C., Schönenberger R., Diener L., Wick P., Buerki-Thurnherr T*. (2018). An advanced human in vitro co-culture model for translocation studies across the human placental barrier. Sci Rep. 2018; 8(1):5388. *senior and corresponding author (IF: 4.12)

21. Muoth C., Großgarten M., Karst U., Ruiz Aranzaes J., Astruc D., Moya S., Diener L., Grieder K., Wichser A., Jochum W., Wick P., Buerki-Thunherr 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. *senior and corresponding author (IF: 5.01)

22. 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. *senior and corresponding author (IF: 7.37)

23. 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. *senior and corresponding author (IF: 3.11)

24. Muoth C., Aengenheister L., Kucki M., Wick P., Buerki-Thurnherr T*. (2016). Nanoparticle transport across the placental barrier: Pushing the field forward! Nanomedicine, 11(8): 941-57. (Review). *senior and corresponding author (IF: 4.73)

25. Schlagenhauf L., Kianfar B., Buerki-Thurnherr T., Kuo, Y., Wichser A., Nueesch 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. (IF: 7.76)

26. Schlagenhauf L., Buerki-Thurnherr T., Losert S., Ott N., Wichser A., Nüesch F., Wick P., Wang J. (2015). Released carbon nanotubes from an epoxy-based nanocomposite: quantification and toxicity. Environ. Sci. Technol., 49 (17): 10616–10623. (IF: 5.39)

27. 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. (IF: 3.43)

28. 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. (IF: 8.44)

29. Montani L. *, Buerki-Thurnherr T. *, 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. (IF: 7.21)
*shared first author

30. 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. (IF: 4.49)

31. Kaiser JP., Buerki-Thurnherr T., Wick P. (2013). Influence of single walled carbon nanotubes at subtoxical concentrations on cell adhesion and other cell parameters of human epithelial cells. The Journal King Saud University – Science 25(1),15-27. (IF: 1.43)

32. 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. (IF: 5.62)

33. Andersson-Willman B., Gehrmann 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. (IF: 4.37)

34. 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.

35. Kaiser J-P., Roesslein M., Buerki-Thurnherr T., Wick P. (2011). Carbon Nanotubes- Curse or Blessing. Current Medicinal Chemistry, 18, 2115-2128. (IF: 4.94)

36. 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. (IF: 5.47)

37. 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. (IF: 3.58)

38. 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 (IF: 4.93)

39. 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.

40. 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. (IF: 9.56)

41. Benninger Y.*, Thurnherr T.*, 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 (IF: 8.78)

42. 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 (IF: 8.46)

43. 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 (IF: 8.46)