

Curriculum Vitae Stefan A. TSCHANZ

BIOGRAPHICAL INFORMATION

Last name: Tschanz
First names: Stefan Andreas
Date of birth: April 17, 1963
Place of birth: Röthenbach i. E.
Nationality: Swiss
Academic degree: PD (Privat Dozent) MD, Software Engineer
Present position: University Lecturer, head of the IT section and Stereology unit
Institute of Anatomy, University of Berne, Switzerland

EDUCATION

1976 - 1982: Primary, secondary and high school in Biel; certificate in mathematics and science 1982
1982 - 1989: Medical school in Bern, diploma 1989

FURTHER PROFESSIONAL DEVELOPMENT

1990: MD thesis, dissertation at the Children's Hospital, University of Bern
2000: Scientific project at University of Western Australia, Perth, Department of Physiology: Functional respiratory morphology in the newborn quokka wallaby
2001 -2002: Academic studies in software engineering at the Swiss Software School, Bern, diploma in 2002

PROFESSIONAL CAREER OVERVIEW

1991-1992: Clinical assistant, department of neurosurgery, Kantonsspital St. Gallen
1993-1998: Research assistant, Institute of Anatomy, University of Bern
Since 1998: Research associate (wissenschaftlicher Mitarbeiter), Institute of Anatomy, University of Bern
Since 2004: Head of the IT section, Institute of Anatomy, University of Bern
2011-2016: Coordinator of the interfaculty Microscopy Imaging Center (MIC), University of Bern
Since 2011: University Lecturer (Dozent II), Institute of Anatomy, University of Bern
2015: Venia docendi Anatomie und Histologie
Since 2016: Senior University Lecturer (Dozent I)
Since 2017: Member of the Institute Board

ACTIVITIES AT THE INSTITUTE OF ANATOMY

Research

- Methodology of structural quantification by light- and electron microscopic approaches (Stereology)
- Image analysis and processing, 3D imaging
- Lung development and the influence of postnatal glucocorticoids, starvation and other impacts, including species comparison
- Primary Ciliary Dyskinesia: Structure and function analysis

Teaching

- Musculoskeletal system: Lectures for medical students and responsibility for the curriculum
- Histology: Lectures and practical courses for medical and veterinary students
- Gross anatomy: courses for medical students
- General anatomy: Lectures for pharmacy and biomedical engineering students
- Tutor in the problem based learning (PBL) curriculum of the Bernese Medical Faculty
- Stereology & Microscopy: Lectures in the "Cutting edge microscopy" series of the MIC

Supervision experience

- Supervisor of several MD theses
- Supervisor of medical master theses
- Supervisor of master theses of biomedical engineers
- Organizer (including teaching) of an internationally attended annual 1 week workshop on stereology

Services and other support

- Head of the IT-section of the institute of Anatomy including security and database management and web publishing
- Leader of the Stereological Unit, Institute of Anatomy (interdisciplinary)
- Leader of the competence center for ultrastructural diagnosis of primary ciliary dyskinesia
- Support contact for EM and LM imaging with respect to digital capturing, image analysis and database solutions
- Member of the IT commission of the medical faculty

FUNDING

- **NF 31-55-895.98**, Concepts of late alveolization and of capillary restructuring, Burri PH, Tschanz SA
- **KTI Project 14055.1**, Dynamic high-resolution micro angiography, co-applicant, Djonov V, Hlushchuk R, Tschanz SA
- **SNF / R'Equip 316030_150823 / 1** (2013), Serial block face SEM Zuber B, Tschanz SA, Schittny JC, Djonov V

PROFESSIONAL MEMBERSHIPS

- Swiss Society of Anatomy, Histology and Embryology (SGAHE)
- Swiss Society of Optics and Electron Microscopy (SSOM)
- International Society for Stereology (ISS)
- Swiss Society for Medical Informatics (SSMI)
- Gesellschaft zur Förderung der Software-Technologie (GST)

PUBLICATION LIST

Link to PubMed with all publications in life science:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=tschanz+s>

Pear Reviewed Articles (1-33)

1. Kalenga M, Tschanz SA, & Burri PH (1995) Protein deficiency and the growing rat lung. II. Morphometric analysis and morphology. *Pediatr. Res.* 37(6):789-795.
2. Kalenga M, Tschanz SA, & Burri PH (1995) Protein deficiency and the growing rat lung. I. Nutritional findings and related lung volumes. *Pediatr. Res.* 37(6):783-788.
3. **Tschanz SA**, Damke BM, & Burri PH (1995) Influence of postnatally administered glucocorticoids on rat lung growth. *Biol. Neonate* 68(4):229-245.
4. Makanya AN, Maina JN, Mayhew TM, Tschanz SA, & Burri PH (1997) A stereological comparison of villous and microvillous surfaces in small intestines of frugivorous and entomophagous bats: species, inter-individual and craniocaudal differences. *J. Exp. Biol.* 200(Pt 18):2415-2423.
5. **Tschanz SA** & Burri PH (1997) Postnatal lung development and its impairment by glucocorticoids. *Pediatr. Pulmonol. Suppl.* 16:247-249.
6. Duebener LF, Takahashi Y, Wada H, Tschanz SA, Burri PH, & Schafers HJ (1999) Do mature pulmonary lobes grow after transplantation into an immature recipient? *Ann. Thorac. Surg.* 68(4):1165-1170.
7. Djonov V, Schmid M, Tschanz SA, & Burri PH (2000) Intussusceptive angiogenesis: its role in embryonic vascular network formation. *Circ. Res.* 86(3):286-292.
8. Ellis T, Gambardella L, Horcher M, Tschanz S, Capol J, Bertram P, Jochum W, Barrandon Y, & Busslinger M (2001) The transcriptional repressor CDP (Cutl1) is essential for epithelial cell differentiation of the lung and the hair follicle. *Genes Dev.* 15(17):2307-2319.
9. Meier FM, Tschanz SA, Ganzfried R, & Epstein D (2002) A comparative assessment of endothelium from pseudophakic and phakic donor corneas stored in organ culture. *Br. J. Ophthalmol.* 86(4):400-403.
10. **Tschanz SA** & Burri PH (2002) A new approach to detect structural differences in lung parenchyma using digital image analysis. *Exp. Lung Res.* 28(6):457-471.
11. **Tschanz SA**, Haenni B, & Burri PH (2002) Glucocorticoid induced impairment of lung structure assessed by digital image analysis. *Eur. J. Pediatr.* 161(1):26-30.

12. Burri PH, Haenni B, Tschanz SA, & Makanya AN (2003) Morphometry and allometry of the postnatal marsupial lung development: an ultrastructural study. *Respir Physiol Neurobiol* 138(2-3):309-324.
13. Schwyter M, Burri PH, & **Tschanz SA** (2003) Geometric properties of the lung parenchyma after postnatal glucocorticoid treatment in rats. *Biol. Neonate* 83(1):57-64.
14. **Tschanz SA**, Makanya AN, Haenni B, & Burri PH (2003) Effects of neonatal high-dose short-term glucocorticoid treatment on the lung: a morphologic and morphometric study in the rat. *Pediatr. Res.* 53(1):72-80.
15. Ehrbar M, Djonov VG, Schnell C, Tschanz SA, Martiny-Baron G, Schenk U, Wood J, Burri PH, Hubbell JA, & Zisch AH (2004) Cell-demanded liberation of VEGF121 from fibrin implants induces local and controlled blood vessel growth. *Circ. Res.* 94(8):1124-1132.
16. Frey G, Egli E, Chailley-Heu B, Lelievre-Pegorier M, Burri PH, Bourbon J, & **Tschanz SA** (2004) Effects of mild vitamin a deficiency on lung maturation in newborn rats: a morphometric and morphologic study. *Biol. Neonate* 86(4):259-268.
17. Makanya AN, Tschanz SA, Haenni B, & Burri PH (2007) Functional respiratory morphology in the newborn quokka wallaby (*Setonix brachyurus*). *J. Anat.* 211(1):26-36.
18. Baum O, Suter F, Gerber B, Tschanz SA, Buergy R, Blank F, Hlushchuk R, & Djonov V (2010) VEGF-A promotes intussusceptive angiogenesis in the developing chicken chorioallantoic membrane. *Microcirculation* 17(6):447-457.
19. Lelu K, Laffont S, Delpy L, Paulet PE, Perinat T, Tschanz SA, Pelletier L, Engelhardt B, & Guery JC (2011) Estrogen receptor alpha signaling in T lymphocytes is required for estradiol-mediated inhibition of Th1 and Th17 cell differentiation and protection against experimental autoimmune encephalomyelitis. *J. Immunol.* 187(5):2386-2393.
20. **Tschanz SA**, Burri PH, & Weibel ER (2011) A simple tool for stereological assessment of digital images: the STEPanizer. *J. Microsc.* 243(1):47-59.
21. Riche F, Schneebeli M, & **Tschanz SA** (2012) Design-based stereology to quantify structural properties of artificial and natural snow using thin sections. *Cold Regions Science and Technology* 79-80:67-74.
22. Cremona TP, Tschanz SA, von Garnier C, & Benarafa C (2013) SerpinB1 deficiency is not associated with increased susceptibility to pulmonary emphysema in mice. *Am J Physiol Lung Cell Mol Physiol* 305(12):L981-989.
23. Haberthur D, Barre SF, Tschanz SA, Yao E, Stampanoni M, & Schittny JC (2013) Visualization and stereological characterization of individual rat lung acini by high-resolution X-ray tomographic microscopy. *J Appl Physiol (1985)* 115(9):1379-1387.
24. Mouton WG, Habegger AK, Haenni B, Tschanz S, Baumgartner I, & Ochs M (2013) Valve disease in chronic venous disorders: a quantitative ultrastructural analysis by transmission electron microscopy and stereology. *Swiss Med Wkly* 143:w13755.
25. Schatz G, Schneiter M, Ricka J, Kuhni-Boghenbor K, Tschanz SA, Doherr MG, Frenz M, & Stoffel MH (2013) Ciliary beating plane and wave propagation in the bovine oviduct. *Cells Tissues Organs* 198(6):457-469.
26. Roth-Kleiner M, Berger TM, Gremlich S, Tschanz SA, Mund SI, Post M, Stampanoni M, & Schittny JC (2014) Neonatal steroids induce a down-regulation of tenascin-C and elastin and cause a deceleration of the first phase and an acceleration of the second phase of lung alveolarization. *Histochem. Cell Biol.* 141(1):75-84.
27. Tahedl D, Wirkes A, Tschanz SA, Ochs M, & Muhlfield C (2014) How common is the lipid body-containing interstitial cell in the mammalian lung? *Am J Physiol Lung Cell Mol Physiol* 307(5):L386-394.
28. **Tschanz S**, Schneider JP, & Knudsen L (2014) Design-based stereology: Planning, volumetry and sampling are crucial steps for a successful study. *Ann Anat* 196(1):3-11.
29. **Tschanz SA**, Salm LA, Roth-Kleiner M, Barre SF, Burri PH, & Schittny JC (2014) Rat lungs show a biphasic formation of new alveoli during postnatal development. *J Appl Physiol (1985)* 117(1):89-95.

30. Baum O, Gubeli J, Frese S, Torchetti E, Malik C, Odriozola A, Graber F, Hoppeler H, & **Tschanz SA** (2015) Angiogenesis-related ultrastructural changes to capillaries in human skeletal muscle in response to endurance exercise. *J Appl Physiol (1985)* 119(10):1118-1126.
31. Baum O, Torchetti E, Malik C, Hoier B, Walker M, Walker PJ, Odriozola A, Graber F, Tschanz SA, Bangsbo J, Hoppeler H, Askew CD, & Hellsten Y (2016) Capillary ultrastructure and mitochondrial volume density in skeletal muscle in relation to reduced exercise capacity of patients with intermittent claudication. *Am J Physiol Regul Integr Comp Physiol* 310(10):R943-951.
32. Bigler M, Koutsantonis D, Odriozola A, Halm S, Tschanz SA, Zakrzewicz A, Weichert A, & Baum O (2016) Morphometry of skeletal muscle capillaries: the relationship between capillary ultrastructure and ageing in humans. *Acta Physiol (Oxf)* 218(2):98-111.
33. Hlushchuk R, Bronnimann D, Correa Shokiche C, Schaad L, Triet R, Jazwinska A, Tschanz SA, & Djonov V (2016) Zebrafish Caudal Fin Angiogenesis Assay-Advanced Quantitative Assessment Including 3-Way Correlative Microscopy. *PLoS One* 11(3):e0149281.

Books / Reviews

- Tschanz SA, Burri PH. Morphologie der Lunge und Entwicklung des Gasaustauschapparates, in Pädiatrie. 3. Auflage, Lentze et al. (ed.). Springer Verlag, Heidelberg, 2007
- Tschanz SA, Burri PH. Prä- und postnatale Entwicklung und Wachstum der Lunge, in Pädiatrische Pneumologie. 2. Auflage, Rieger, C. et al. (ed.), pp. 3-15. Springer Verlag, Heidelberg, 2004
- Tschanz SA. Strukturelle Aspekte der prä- und postnatalen Lungenentwicklung. *Pneumologie*. 2007 Jul;61(7):479-81 (Review)