

CURRICULUM VITAE

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Research positions

- 2015 - Professor extraordinarius, **University of Bern**, Medical Faculty, ARTORG Center, Switzerland
- 2010 – 2015 Assistant Professor, **University of Bern**, Medical Faculty, ARTORG Center, Switzerland
- 2009 – 2012 Adjunct Professor, **Ecole Polytechnique Montréal**, Eng. Physics Dept., Canada
- 2009 – 2011 Section Head, **CSEM SA**, Nanomedicine Division, Switzerland
- 2006 – 2009 Assistant Professor, **Ecole Polytechnique Montréal**, Eng. Physical Dept. and Biomedical Eng. Institute, Head of the BioMEMS Lab, Canada.
- 2005 – 2006 Research Fellow, **Harvard Medical School**, Boston, Center for Engineering in Medicine, Prof. M. Yarmush, Prof. M. Toner (1.5 year)
- 2005 – 2006 Research Fellow, Surgery Service, **Massachusetts General Hospital**, Boston and Research Fellow at the Shriners Burns Hospital, Boston (1.5 year)
- 2002 – 2004 Maître-assistant, **University of Neuchâtel**, Institute of Microtechnology, Micro- (bio)electrochemical systems group, Prof. M. Koudelka-Hep
- 2000 – 2002 Postdoctoral Fellow, **University of Neuchâtel**, Institute of Microtechnology, Micro- (bio)electrochemical systems group, Prof. M. Koudelka-Hep

Education and academic career

- 2015 Extraordinarius in Organs-on-Chip Technologies, **University of Bern**, Switzerland
- 2013 Venia Docendi (PD) in Biomedical Engineering, **University of Bern**, Switzerland
- 1995 – 2000 PhD in Electronics and Physics, **University of Neuchâtel**, Switzerland
- 1995 MSc Thesis, **Molecular Devices Corporation**, Sunnyvale, CA, USA
- 1990 – 1995 MSc in Electronics-Physics, **University of Neuchâtel**, Switzerland
- 1986 – 1990 BSc Eng. in Microtechnology, **University of Applied Sciences (HES)**, Biel-Bienne, Switzerland

Awards (most recent)

- 2015 Ypsomed award 2nd prize (20kCHF), *A Breathing Lung-on-Chip*
- 2014 Venturekick I and II awards (30kCHF), *AlveoliX start-up project*
- 2012 Swiss Society for Biomedical Engineering, 2012 Poster Award, Lausanne, EPFL
- 2012 Research Prize, Alumni MedBern 2012
- 2012 Swiss Thoracic Surgery Society Prize, Best experimental communication, Davos
- 2011 MMB2011 Conference Chair Award, 6th Int. Conf. on Microtechnologies in Medicine and Biology

Grants (most important)

2016	Lungenliga Schweiz, <i>Unraveling protective signaling pathways in acute lung injury using a novel lung-on-chip technology</i> , (160kCHF, co-PI with PD Dr. Stefan Freigang, Pathology Bern)
2015	Swiss Commission for Technology and Innovation (CTI), <i>Lung-on-Chip for Pulmonary Fibrosis Compound Testing</i> (332kCHF)
2015	3R foundation, <i>An advanced in vitro model of pulmonary inflammation based on a novel lung-on-chip technology</i> , with PD Dr. S. Freigang Pathology Institute, Bern (138kCHF)
2014	SNSF R'Equip & Chefärzefond Inselspital, <i>Microscopy Equipment for Organ-on-Chips and Perfused Microfluidic Systems</i> (360kCHF)
2013	Swiss Commission for Technology and Innovation (CTI), <i>A new cell culture membrane</i> , (134kCHF)
2013	Novartis Foundation, <i>Chemoresistive assays of mesothelioma spheroids in an in-vivo like environment</i> (60kCHF)
2012	Lungenliga Bern, <i>Advanced alveolar in vitro model for the investigation of pulmonary diseases</i> (85kCHF)
2012	Gebert-Rüf, <i>A breathing Lung-on-Chip</i> , Pilot Project, Switzerland, (187kCHF)
2012	SNSF, <i>Alveolar-capillary microfluidic model for the analysis of lung injury, regeneration and repair</i> , Switzerland, (337kCHF)
2011 – 2014	EU-FP7 project, HeMiBio, <i>Bioartificial liver microreactor for in-vitro toxicology</i> , (10mio€), co-PI
2009 – 2010	NSERC and CIHR, collaborative project, <i>Cell-based microfluidic platform for personalized drug profiling in ovarian cancers</i> , 100k\$, PI
2007 – 2009	FQRNT, Bourse nouveau chercheur, 66.6k\$, PI
2007 – 2010	NSERC, Discovery grant, High functionality cell culture platform permitting real time monitoring of cell functions induced by local drug delivery, 140k\$, PI
2007 – 2008	Canadian Foundation for Innovation (CFI), <i>Infrastructure</i> , 20.3 mio\$, co-PI
2004 – 2007	SNSF Division II project: <i>Ion-selective μelectrode array for the detection of intracellular Ca^{2+} activities</i> , 196 kFr, co-PI.

Miscellaneous scientific functions (selection)

2011	Chairman of the 6 th MMB2011, Lucerne, Switzerland, http://www.mmb2011.org/
2010	Peer Reviewer for NRC grant (National Research Council of Canada Genomics and Health Initiative)
2009 -	International Steering Committee for the Microtechnologies in Medicine and Biology Conferences (IC MMB)
2009	Program Chair of the 5 th Int. Conf. on MMB2009, Québec, http://www.mmb2009.org/
2009 - 2012	Member of the selection committee for NSERC-CIHR, Collaborative Health Research Projects Program (CHRP)
2008 -	Referee for NSERC “Innov” and “Discovery” Programs
2000 -	Reviewer for different scientific journals: Analytical chemistry, Sensors and Actuators B, Analytica Chimica Acta, JMM, Solid State Electronics, JMEMS, Plos One, Lab Chip

Acronyms:

NSERC: Natural Sciences and Engineering Research Council of Canada; **CIHR**: Canadian Institutes of Health Research; **FQRNT**: Fond Québécois Recherche Nature et Technologie; **FRSQ**: Fond de la recherche en santé Québec; **GRSTB**: Groupe de recherche en sciences et technologies biomédicales, Québec; **SNSF**: Swiss National Science Foundation; **A*STAR**: Singapore Agency for Science Technology and Research

Membership:

IEEE Member EMBS (Engineering in Medicine and Biology Society)
Swiss Biomedical Engineering Society
TEDD Tissue Engineering for Drug Discovery, Member

Invited lectures and presentations (selection)

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- *A Lung-on-Chip for drug discovery*, Organ-on-a-Chip World Congress, Boston, USA 07/15
- *A breathing lung alveoli model with physiological relevance for drug discovery applications*, Sanofi Education Days, Marcy l'Etoile (Lyon), France, 02/2015
- *Microfluidic based in-vivo-like lung disease models*, ITAV-Université Paul Sabatier, Toulouse, France, 10/2014
- *Lung-on-chip models*, European Thoracic Research Club, Bern, Switzerland, 01/2014
- *In-Vitro Barrier Models: How reliable and clinically relevant are these systems?'*, Advanced microfluidic based in-vitro models for lung research, TEDD Workshop, St-Gallen, Switzerland, 3/2013
- 6th Swiss Aerosol Conference Berne, *Microfluidic Wound Healing Assay to Investigate the Regenerative Effect of HGF on Epithelial Regeneration*, Switzerland, 10/2011

List of publications of Olivier Guenat (peer reviewed articles last 5 years)

Submitted:

Stucki J., Hobi N., Guenat O., *Towards a fully automated organ-on-chip: A lung-on-chip including a passive medium exchange mechanism*, submitted

Mermoud Y., Felder M., Stucki J.D., Stucki A.O., Guenat O.T., *Microimpedance tomography system to monitor cell activity and membrane movements in a breathing lung-on-chip*, submitted

In revision:

Bichsel C., Wang L., Froment L., Berezoska S., Müller S., Dorn P., Marti T., Peng R., Geiser T., Schmid R., Guenat O., Hall S., *Increased PD-L1 expression and IL-6 secretion characterize human lung tumor-derived perivascular-like cells that promote vascular I*, in revision

Published:

La Cour JB, Generelli S, Barbe L, **Guenat OT**, *Low-cost disposable ALT electrochemical microsensors for in-vitro hepatotoxic assessment*, Sensors and Actuators B: Chemical, Volume 228, 2, 360–365, 2016. (IF:4.1)

Stucki A., Stucki J., Felder M., Mermoud Y., Hall S., Schmid R., Geiser T., **Guenat O.**, *A bioartificial lung-on-chip with primary lung cells*, Lab Chip, 15, pp. 1302-1310, 2015. (IF:6.1)

Stucki, J.; **Guenat, OT**. *A microfluidic bubble trap and oscillator*. Lab chip, 15, pp. 4393-4397, 2015. (IF:6.1)

Bichsel C., Hall S., Schmid R., **Guenat O.***, Geiser T.*, *Primary human lung pericytes support and stabilize in vitro perfusable microvessels*, Tissue engineering. Part A, 21(15-16), p. 2166, 2015. (*shared senior authorship) (IF:4.48)

Ruppen J., Strub C, Hall S., Schmid R., **Guenat O.**, *Bio-inspired microfluidic system for the formation of homogeneous tumor spheroids for personalized medicine applications*, Lab Chip 15(14), pp. 3076-3085, 2015. (IF:6.1)

Wick, P.; Chortarea, S.; **Guenat, O**; Roesslein, M.; Stucki, Janick; Hirn, S.; Petri-Fink, A.; Rothen-Rutishauser, B. (2015). *In vitro-ex vivo model systems for nanosafety assessment*. European Journal of Nanomedicine, 7(3), pp. 169-179. De Gruyter 10.1515/ejnm-2014-0049

Felder M., Stucki A. O., Stucki J. D., Geiser T. and **Guenat O.**, *The potential of microfluidic lung epithelial wounding: towards in vivo-like alveolar microinjuries*, Integr. Biol., 2014 6(12), 1132–1140 (IF:4.45)

Ruppen J., Cortes-Dericks L., Marconi E., Karoubi G., Schmid R.A., Peng R., Marti T. M., **Guenat O.**, *Microfluidic platform for chemoresistive testing of multicellular pleural cancer spheroids*, Lab on Chip, 2014;14(6):1198-205 (IF:5.7)

Das T., Meunier L., Barbe L., **Guenat O.**, Gervais T., Mes-Masson A.M., *Empirical Chemosensitivity Testing in a Spheroid Model of Ovarian Cancer using a Microfluidics-based Multiplex Platform*, *Biomicrofluidics*, Special Edition: Microfluidics in Cancer Research, *Biomicrofluidics* 7, 011805, 2013, (IF:3.37).

Felder M., Sallin P., Barbe L., Haenni B., Gazdhar A., Geiser T., **Guenat O.**, *Microfluidic wound-healing assay to assess the regenerative effect of HGF on wounded alveolar epithelium*, *Lab on Chip*, 2012, 12, 640. (IF: 6.3)

Patents

O. Guenat, S. Generelli, *Disposable cartridge for ion selective electrodes for long term monitoring*, USP 61/609615, 2012.

O. Guenat, M. Felder, A. Stucki, J. Stucki, T. Geiser, “*Device for In-Vitro Modelling In-Vivo Tissues of Organs*”, EP13183063, 2013.

O. Guenat, J., Stucki, C. Léchet, M. Aeschlimann, “*Modular System for in-vitro modelling tissues of organs in-vivo*”, EU Patent Application No. 16200451.9 (November 2016)