

# Curriculum Vitae

## Thomas Braun

PhD

Thomas Braun  
C-CINA  
Biozentrum  
Mattenstrasse 26  
CH-4058 Basel  
++41(0)79 733 72 69  
[thomas.braun@unibas.ch](mailto:thomas.braun@unibas.ch)

### Personal

- Work address: Center for Cellular Imaging and NanoAnalytics (C-CINA), Biozentrum, University Basel, Mattenstrasse 26, CH-4058 Basel
- Telephone: ++41 (0)79 733 72 69
- E-mail: [thomas.braun@unibas.ch](mailto:thomas.braun@unibas.ch)
- Languages: German, English, French
- Citizenship: Swiss

### Academic working experiences

- Team Leader Visual Proteomics, Center for Cellular Imaging and Nanoanalytics, Biozentrum, University of Basel (Prof. H. Stahlberg) – 2009-present.  
“New nano-tools to study neurodegeneration”: Visual proteomics for single cell analysis and nano mechanical viscometers for label- and functionalization-free characterisation of interactions. Minimalistic tissue engineering as platform to study prion-like spreading.
- Senior researcher, CRANN, Naughton institute; Trinity College Dublin, Ireland ( Prof. M. Hegner) – 2007 .. 2008
- Postdoc, Institut for Physics; University of Basel (Prof. Chr. Gerber) – 2002 .. 2007
- PhD student, Maurice E. Müller Institut; University of Basel (Prof. A. Engel) – 1999 .. 2002
- Researcher, Biozentrum; University of Basel (PD Dr. G. Vergères) – 1998 .. 1998
- Diploma thesis, Biozentrum; University of Basel (Prof. G. Schwarz) – 1996 .. 1997

### Academic education

- 1999-2002: PhD thesis in Biophysics  
Title: “2D Crystallization and 3D Structures of Membrane Channels and Transporters”
- 1998: Diploma (masters) degree in Biology II (topic: Biophysical chemistry).  
Title: “Interaktionen von MARCKS und MRP mit Lipid- und Biomembranen”
- 1993: Start studies of Biology II (main topic: Biophysics) at the Biozentrum of the University of Basel

### Software

- *openBEB*: A plug-in based tool for instrument control, data acquisition, browsing and annotating of correlative data.
- *NOSEtools*: A software suite to process and analyse cantilever based sensor data for multimode measurements.
- *Tiltaxcalc*: Program for determination of the sample orientation (tilt-angle) in electron microscopes.

# Publications

## Peer-reviewed publications (since march 2009)

- Bircher B. A., Krenger R., and T. Braun. Automated high-throughput viscosity and density sensor using nanomechanical resonators. *Sens Actuat B-chem.* 2016;223(C):784–90.
- Escobedo, C., Bürgel, S. C., Kemmerling, S., Sauter, N., Braun, T. and A. Hierlemann. On-chip lysis of mammalian cells through a handheld corona device. *Lab Chip.* 2015;15(14): 2990–7.
- Bircher, B. A., Krenger, R., Braun T. Influence of squeeze-film damping on higher-mode microcantilever vibrations in liquid. *EPJ Techn Instrum.* 2014;1(1):10–3.
- Giss, D., Kemmerling, S., Dandey, V., Stahlberg, H., Braun T. Exploring the interactome: microfluidic isolation of proteins and interacting partners for quantitative analysis by electron microscopy. *Anal Chem.* 2014;86(10):4680–7.
- Ramakrishnan, Ch., Bieri, A., Roizard, S., Ringler, P., Goldie, K. N., Enimanev, K., Stahlberg, H., Rinn, B. and T. Braun. openBEB: open biological experiment browser for correlative measurements. *BMC Bioinformatics.* 2014;15(1):1–14.
- Bircher B.A., Duempelmann L., Lang H.-P., Gerber C., T. Braun. Photothermal excitation of microcantilevers in liquid: effect of the excitation laser position on temperature and vibrational amplitude. *Micro & Nano Letters.* 2013;8(11):770–4.
- Bircher B.A., Dümpelmann L., Renggli K., Lang H.-P., Gerber C., Bruns N., and T. Braun. Real-Time Viscosity and Mass Density Sensors Requiring Microliter Sample Volume Based on Nanomechanical Resonators. *Anal Chem.* 2013. 85(18):8676–83.
- Kemmerling, S., Arnold, S. A., Bircher, B., Escobedo, C., Hierlemann, A., Stahlberg, H. and T. Braun. Single-cell lysis for visual analysis by electron microscopy. *J Struct Biol.* (2013) vol. 183: p. 467–473.
- Weidmann S., Kemmerling S., Mädler S, Stahlberg H, Braun T, and R. Zenobi. Ionic liquids as matrices in microfluidic sample deposition for high-mass matrix-assisted laser desorption/ionization mass spectrometry. *Eur J Mass Spectrom.* 2012;18(3):279–86.
- Kemmerling, S., Ziegler, J., Schweighauser, G., Arnold, D. Giss, S. A., Müller, S.A., Ringler, Goldie, K. N., Goedecke, N., Hierlemann, A., Stahlberg, H., Engel, A., and T. Braun. (2012) Connecting  $\mu$ -fluidics to Electron Microscopy. *J Struct Biol,* vol. 177(1): pp. 128-134.
- Backmann, N., Kappeler, N., Braun, T., Huber, F., Lang, H-P., Gerber, Chr. and R. Lim. (2010). Sensing surface PEGylation with microcantilevers. *Beilstein J Nanotechnol.* 1: pp. 3–13.
- Braun, T.\*, M. K. Ghatkesar\*, N. Backmann, W. Grange, P. Boulanger, L. Letellier, H. P. Lang, A. Bietsch, Ch. Gerber and M. Hegner. Quantitative, time-resolved measurement of membrane protein-ligand interactions using nano-mechanical cantilever sensors. *Nature Nanotech* (2009) vol. 4 (3) pp. 179-85

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