

# Sebastian Josef Maerkl

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## Education

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**California Institute of Technology** Pasadena, CA  
Doctor of Philosophy, 2008  
Biochemistry and Molecular Biophysics Option  
Thesis Advisor: Prof. Stephen R. Quake  
Thesis Topic: Microfluidic Large-Scale Integration and its Application to Systems Biology

**Fairleigh Dickinson University** Madison, NJ  
Bachelor of Science, Biology, cum laude, 2001  
Bachelor of Science, Chemistry, with Honors, cum laude, 2001

## Professional Experience

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**École Polytechnique Fédérale de Lausanne** Lausanne, Switzerland  
Associate Professor 2015 - present  
Institute of Bioengineering, School of Engineering

**École Polytechnique Fédérale de Lausanne** Lausanne, Switzerland  
Tenure Track Assistant Professor 2008 - 2015  
Institute of Bioengineering, School of Engineering

**Howard Hughes Medical Institute** Stanford, CA  
Visiting Graduate Student 2005 - 2008  
Department of Bioengineering, Stanford University

**California Institute of Technology** Pasadena, CA  
Graduate Student 2001 - 2008  
Biochemistry and Molecular Biophysics Option

**California Institute of Technology** Pasadena, CA  
Co-Director, Microfluidic Foundry 2003 - 2005

**BASF Bioresearch Corporation** Worcester, MA  
Intern Summer, 1999 and 2000

## Peer Reviewed Publications

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34. Woodruff K. and Maerkl S.J., "A microfluidic module for real-time generation of complex multi-molecule temporal concentration profiles.", **Analytical Chemistry**, DOI: 10.1021/acs.analchem.7b04099 (2017) [paper link](#)
33. Volpetti F., Petrova E., and Maerkl S.J., "A microfluidic biodisplay.", **ACS Synthetic Biology**, DOI: 10.1021/acssynbio.7b00088 (2017) [paper link](#)

32. Bulushev R.D., Mrion S., Petrova K., James S.D., Maerkl S.J., and Radenovic A., "Single Molecule Localisation and Discrimination of DNA-Protein Complexes by Controlled Translocation Through Nanocapillaries.", **Nano Letters**, DOI: 10.1021/acs.nanolett.6b04165 (2016) [paper link](#)
31. De Maddalena L.L., Niederholtmeyer H., Turtola M., Swank Z., Belogurov G.A., and Maerkl S.J., "GreA and GreB enhance Escherichia coli RNA polymerase transcription rate in a reconstituted transcription-translation system.", **ACS Synthetic Biology**, DOI: 10.1021/acssynbio.6b00017 (2016). [paper link](#)
30. Tatarova Z., Abbuehl J.P., Maerkl S.J., and Huelsken J., "Microfluidic co-culture platform to quantify chemotaxis of primary stem cells" **LOC**, DOI: 10.1039/C6LC00236F (2016) [paper link](#).
29. Woodruff K. and Maerkl S.J., "A High-Throughput Microfluidic Platform for Mammalian Cell Transfection and Culturing" **Scientific Reports**, DOI: 10.1038/srep23937 (2016) [paper link](#).
28. Piraino F.\*, Volpetti F.\*, Watson C., and Maerkl S.J., "A Digital-Analog Microfluidic Platform for Patient-Centric Multiplexed Biomarker Diagnostics of Ultra-Low Volume Samples", **ACS Nano**, DOI: 10.1021/acsnano.5b07939 (2016). Featured in: EurekaAlert, The Times of India, RTS, SwissInfo, EPFL News. [paper link](#).
27. Blackburn M.C., Petrova E., Correia B.E., and Maerkl S.J., "Integrating Gene Synthesis and Microfluidic Protein Analysis for Rapid Protein Engineering.", **Nucleic Acids Research**, DOI: 10.1093/nar/gkv1497 (2015). [paper link](#)
26. Niederholtmeyer H.\*, Sun Z.\*, Hori Y., Yeung E., Verpoorte A., Murray R.M. , and Maerkl S.J. "Rapid cell-free forward engineering of novel genetic ring oscillators.", **eLife**, DOI:10.7554/eLife.09771 (2015). [paper link](#)
25. Volpetti F., Garcia-Cordero J.L., and Maerkl S.J., "A microfluidic platform for high-throughput multiplexed protein quantitation." **PLoS One**, DOI: 10.1371/journal.pone.0117744 (2015). [paper link](#)
24. Knight B., Kubik S., Ghosh B., Bruzzone M.J., Geertz M., Martin V., Denervaud N., Jacquet P., Ozkan B., Rougemont J., Maerkl S.J., Naef F., and Shore D., "Two distinct promoter architectures centered on dynamic nucleosomes control ribosomal protein gene transcription" **Genes & Development**, doi: 10.1101/gad.244434.114 (2014). [paper link](#)
23. Acimovic S.S., Ortega M.A., Sanz V., Berthelot J., Garcia-Cordero J.L., Renger J., Maerkl S.J., Kreuzer M., and Quidant R. "LSPR Chip for Parallel, Rapid, and Sensitive Detection of Cancer Markers in Serum." **Nano Letters**, doi:10.1021/nl500574n (2014). Featured in: Science Daily, Phys.org, EurekaAlert. [paper link](#)
22. Nobs J.B. and Maerkl S.J. "Long-term single cell analysis of *S. pombe* on a microfluidic microchemostat array." **PLoS One**, doi: 10.1371/journal.pone.0093466 (2014). [paper link](#)
21. Garcia-Cordero J.L. and Maerkl S.J. "A 1,024-sample serum analyzer chip for cancer diagnostics." **Lab on a Chip**, doi: 10.1039/C3LC51153G (2013). Featured in: LOC Top 10%, Chemistry World, LOC most downloaded articles, Lab on a Chip Blog. [paper link](#)
20. Niederholtmeyer H., Stepanova V., and Maerkl S.J. "Implementation of cell-free biological networks at steady-state." **PNAS**, doi: 10.1073/pnas.1311166110 (2013). [paper link](#)
19. Denervaud N., Becker J., Delgado-Gonzalo R., Damay P., Rajkumar A.S., Unser M., Shore D., Naef F. and Maerkl S.J. "A chemostat array enables the spatio-temporal analysis of the yeast proteome." **PNAS**, doi: 10.1073/pnas.1308265110 (2013). Featured in: LOC Research Highlights, Molecular Systems Biology Editor's Selection, GenomeWeb. [paper link](#)
18. Rajkumar A.S., Denervaud N., and Maerkl S.J. "Mapping the fine structure of a eukaryotic promoter input-output function." **Nature Genetics**, doi:10.1038/ng.2729 (2013). Featured in: EPFL News, Scicasts, Medical-Express, Radio Canada [paper link](#)
17. Woodruff K., Fidalgo L.M., Gobaa S., Lutolf M.P., and Maerkl S.J. "Live Mammalian Cell Arrays." **Nature Methods**, doi:10.1038/nmeth.2473 (2013). Featured in Faculty of 1000. [paper link](#)

16. Garcia-Cordero J.L., Nembrini C., Stano A., Hubbell J.A., and Maerkl S.J. "A high-throughput nanoimmunoassay chip applied to large-scale vaccine adjuvant screening." **Integrative Biology**, doi: 10.1039/C3IB20263A (2013). Inside Front Cover, Most Read Articles, Top Ten Most Accessed Papers in Q2 2013. [paper link](#)
15. Niederholtmeyer H. and Maerkl S.J. "Real-time mRNA measurement during an in vitro transcription and translation reaction using binary probes." **ACS Synthetic Biology**, doi:10.1021/sb300104f (2012). [paper link](#)
14. Rockel S., Hens K., Geertz M., Deplancke B. and Maerkl S.J. "iSLIM: a comprehensive approach to mapping and characterizing gene regulatory networks." **Nucleic Acids Research**, doi:10.1093/nar/gks1323 (2012). [paper link](#)
13. Garcia-Cordero J.L. and Maerkl S.J. "Multiplexed surface micropatterning of proteins with a pressure-modulated microfluidic button-membrane." **Chem. Commun.**, doi:10.1039/C2CC37740C (2012). Inside Front Cover, Special Issue on Microfluidics [paper link](#)
12. Geertz M., Shore D., and Maerkl S.J. "Massively parallel measurements of biomolecular interaction kinetics on a microfluidic device." **PNAS**, doi:10.1073/pnas.1206011109 (2012). Covered by: Science Daily, ASBMB, Phys.org, Radio Canada. [paper link](#)
11. Schroeter C., Ares S., Morelli L.G., Isakova A., Hens K.J.I., Gajewski M., Juelicher F., Maerkl S.J., Deplancke B. and Oates A. C. "Ubiquitous dimerization and selective DNA binding determine the dynamics of the zebrafish segmentation clock's core circuit." **PLoS Biology**, 10(7): e1001364 (2012). Highlighted in: Nature Reviews Genetics. [paper link](#)
10. Rajkumar A.S. and Maerkl S.J., "Rapid Synthesis Of Defined Eukaryotic Promoter Libraries.", **ACS Synthetic Biology**, doi:10.1021/sb300045j (2012). Top 5 most read articles in July. [paper link](#)
9. Schultzberger R.K., Maerkl S.J., Kirsch J.F. and M.B. Eisen "Probing the Informational and Regulatory Plasticity of a Transcription Factor DNA-Binding Domain.", **PLoS Genetics**, 8(3): e1002614 (2012). [paper link](#)
8. He B., Holloway A., Maerkl S.J. and Kreitman M., "Does positive selection drive transcription factor binding site turnover? A test with Drosophila cis-regulatory modules.", **PLoS Genetics**, e1002053 (2011). [paper link](#)
7. Fidalgo L.M. and Maerkl S.J., "A software-programmable microfluidic device for automated biology.", **Lab on a Chip**, 11(9), 1612-9 (2011). Top 10 most accessed papers in March 2011. [paper link](#)
6. Maerkl S.J. and Quake S.R. "Experimental determination of the evolvability of a helix-loop-helix transcription factor.", **PNAS**, 106, 18650-5 (2009). Featured in: Faculty of 1000. [paper link](#)
5. Huang L, Maerkl S.J., and Martin O.J., "Integration of plasmonic trapping in a microfluidic environment.", **Optics Express**, 17, 6018-24, (2009). [paper link](#)
4. Gerber D, Maerkl S.J. and Quake S.R."An in vitro microfluidic approach to generating protein interaction networks", **Nature Methods**, 6, 71-4 (2009). [paper link](#)
3. Einav S., Gerber D., Bryson P., Sklan E.H., Elazar M., Maerkl S.J., Glenn J.S. and Quake S.R., "Pharmacological Inhibitors of a New Hepatitis C Target Discovered by Microfluidic Affinity Analysis", **Nature Biotechnology**, 26, 1019-27, (2008). Cover; Featured in: Chemistry World. [paper link](#)
2. Maerkl S.J. and Quake S.R., "A Systems Approach to Measuring the Binding Energy Landscapes of Transcription Factors", **Science**, 315, 233-7 (2007). Featured in: Scientific American, Chemical & Engineering News, HHMI News, Nature Methods. [paper link](#)
1. Thorsen T., Maerkl S.J. and Quake S.R., "Microfluidic Large Scale Integration", **Science**, 298, 580-4 (2002). Science Express, Cover; Featured in: Faculty of 1000, Chemical & Engineering News, Nature Science Update, Technology Research News, Science Watch Top 10, ESI-Topics: Microfluidic Devices Top 10 papers (2007). [paper link](#)

## Preprints

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1. Woodruff K. and Maerkl S.J., "Microfluidic Transfection for High-Throughput Mammalian Protein Expression", **bioRxiv**, DOI: 10.1101/200261 (2017) [paper link](#)

## Reviews and Book Chapters (peer-reviewed)

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6. Garcia-Cordero J.L. and Maerkl S.J., "Mechanically Induced Trapping of Molecular Interactions and Its Applications.", **Journal of Laboratory Automation**, doi: 10.1177/2211068215578586 (2014). [paper link](#)
5. Maerkl S.J., "Next generation microfluidic platforms for high-throughput protein biochemistry.", **Current Opinion in Biotechnology**, **22(1)**, 59-65 (2011). [paper link](#)
4. Geertz M. and Maerkl S.J., "Experimental strategies for studying transcription factor–DNA binding specificities.", **Briefings in Functional Genomics**, **9(5-6)**,362-73 (2010). [paper link](#)
3. Maerkl S.J., "Integration column: Microfluidic high-throughput screening.", **Integrative Biology**, **1(1)**, 19-29 (2009). [paper link](#)
2. Geertz M., Rockel S., and Maerkl S.J., "A high-throughput microfluidic method for generating and characterizing transcription factor mutant libraries.", **Methods in Molecular Biology**, **813**, 107-23 (2012). [paper link](#)
1. Rockel S., Geertz M., and Maerkl S.J., "MITOMI: A microfluidic platform for *in vitro* characterization of transcription factor–DNA interactions.", **Methods in Molecular Biology**, **786**, 97-114 (2012). [paper link](#)

## Patents

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6. Maerkl S.J., Piraino F., Volpetti F., "A system, device and method for multiplexed biomarker diagnostics of ultra-low volume whole blood samples", US Provisional Patent Application n 62/267,959.
5. Maerkl S.J. and Garcia-Cordero J.L., "A High-throughput Nanoimmunoassay Chip.", WO 2014/060869 A1.
4. Fidalgo L.M. and Maerkl S.J., "A programmable, universally applicable microfluidic device platform.", patent application number EP10151515.3.
3. Maerkl S.J. and Quake S.R., "Programming Microfluidic Devices with Molecular Information", # 60/762,344.
2. Maerkl S.J. and Quake S.R., "Mechanically Induced Trapping of Molecular Interactions", US 9,329,179 B2.
1. Maerkl S.J., Thorsen T., Bao X., Quake S.R. and Studer V., "Microfluidic Large Scale Integration", # WO2004 028955.

## Invited Conference Talks

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### 52 Invited Conference Talks

**2017** EPFL-ETHZ Summer School: Shaping the Future of Bioengineering, Davos, Switzerland (co-organizer).

**2017** Open Plant Forum, University of Cambridge, England.

**2017** HFSP Meeting, Lisbon, Portugal.

**2017** Microfluidic Compartmentalization Workshop (OIST), Okinawa, Japan.

**2017** 1st European Congress on Cell-Free Synthetic Biology, Ascona, Switzerland (co-organizer).

**2016** Frontiers in NanoBioEngineering and Medicine, EPFL, Switzerland.

**2016**  $\mu$ TAS, Dublin, Ireland

**2016** All SystemsX.ch Day, Bern, Switzerland

**2016** Prosense Winter School, EPFL, Switzerland.

**2015** Microfluidics Congress, London, UK.

**2015** EMBL Symposium: Biological Oscillators: Design, Mechanism, Function, Heidelberg, Germany.

**2015** Dagstuhl Seminar 15352, Dagstuhl, Germany.

**2015** EPFL-ETHZ joint Summer School in Translational Biology, Interlaken, Switzerland.

**2015** VIB Conference: Next-Generation Antibodies and Protein Analysis: Tools and Technologies, Gent, Belgium.

**2015** Lab on a Chip European Congress, Berlin, Germany.  
**2014** Synthetic Biology, Engineering, Evolution & Design, Manhattan Beach, USA.  
**2014** Workshop on Microfluidics and Microsystems, Ecole Polytechnique, France.  
**2014** Ludwig Cancer Research Center Minisymposium, CHUV, Switzerland.  
**2013** Annual Meeting of the National Doctoral Program in Informational and Structural Biology, Saariselka, Finland.  
**2013** Frontiers in Nanomedicine and Imaging, Lausanne, Switzerland.  
**2013** The Physical Biology of the Cell, Hawaii, USA.  
**2013** Microfluidics for Systems Biology and Bioprocess Development, Frankfurt, Germany.  
**2012** 59th AVS International Symposium, Tampa, USA.  
**2012** MipTec 2012, Basel, Switzerland.  
**2012** Swiss Single Molecule Localisation Microscopy Symposium, EPFL, Switzerland.  
**2012** EMBL Conference: Microfluidics 2012, Heidelberg, Germany.  
**2012** GDR Microfluidique / Micro Nano Systems, Bordeaux, France.  
**2011** 104th International Titisee Conference on Genomic Regulation, Titisee, Germany.  
**2011** 1st International SystemsX.ch Conference, Basel, Switzerland.  
**2011** Bertinoro Computational Biology (BCB) Meeting, Italy.  
**2011** 12th International Conference on Systems Biology (ICSB), Heidelberg/Mannheim, Germany.  
**2011** USGEB Meeting 2011, University of Zurich, Switzerland  
**2010** All SystemsX Day, University of Geneva, Switzerland.  
**2010** Swiss Image-Based Screening Conference, EPFL, Switzerland.  
**2010** NCCR Frontiers in Genetics Annual Meeting, Saas-Fee, Switzerland.  
**2010** NanoBio-Zurich 2010, Zurich, Switzerland.  
**2010** 24th Annual Symposium of the Protein Society, San Diego, USA.  
**2010** Molecular Basis of Evolutionary Innovations, Marche-en-Famenne, Belgium.  
**2010** CMI Annual Review Meeting, EPFL, Switzerland.  
**2009** BioNano 2009, Aigle, Switzerland.  
**2009** Eurosensors School 2009, Lausanne, Switzerland.  
**2009** 435. WE-Heraeus-Conference, Physics of Biological Function, Bad Honnef, Germany.  
**2009** Information Processing in Cells and Tissues (IPCAT 2009), Ascona, Switzerland.  
**2008** NCCR Frontiers in Genetics Annual Meeting, Saas-Fee, Switzerland.  
**2008** Synthetic Biology Workshop, University of Groningen, Netherlands.  
**2008** All-SystemsX.ch Day, Basel, Switzerland  
**2008** Union of the Swiss Societies of Experimental Biology, Lausanne, Switzerland.  
**2006** Genomes, Medicine and the Environment Conference, Hilton Head, SC.  
**2006** BioLSI-2, Caltech, CA.  
**2005** Biophysical Society Meeting, Long Beach, CA. (Poster)  
**2004** BioLSI-1, Aspen, CO.  
**2002** DARPA-BIOS Principal Investigator Kickoff Meeting, San Diego, CA.

## **Invited Seminars**

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### **42 Invited Seminars**

**2016** Institut Pasteur, Paris, France.  
**2016** University of Bern, Switzerland.  
**2016** TU Darmstadt, Germany.  
**2016** Biozentrum, University of Basel, Switzerland.  
**2015** Yale University, USA.  
**2015** FAS Center for Systems Biology, Harvard University, USA.

**2015** School of Biological Sciences, University of Edinburgh, UK.  
**2015** IGBMC, Strasbourg, France.  
**2015** KU Leuven, Leuven, Belgium.  
**2015** ICFO, Castelldefels, Spain.  
**2015** TU Eindhoven, Eindhoven, Netherlands.  
**2015** Utrecht University, Utrecht, Netherlands.  
**2014** Institute of Molecular Pathology, Vienna, Austria.  
**2014** Institute of Science and Technology Austria, Vienna, Austria.  
**2014** California Institute of Technology, Pasadena CA, USA.  
**2013** Department of Biosystems Science and Engineering, ETHZ, Switzerland.  
**2013** Department of Fundamental Microbiology, UNIL, Switzerland.  
**2013** Columbia University, New York, USA.  
**2013** University of British Columbia, Vancouver, Canada.  
**2013** Institute for Systems Biology, Seattle, USA.  
**2013** University of Washington, Seattle, USA.  
**2013** Lewis-Sigler Institute, Princeton University, USA.  
**2012** Institute of Chemical and Bioengineering, ETHZ, Switzerland.  
**2012** Institute of Biochemistry, ETHZ, Switzerland.  
**2011** Department of Information Technology and Electrical Engineering, ETHZ, Switzerland.  
**2011** Bio-Rad Laboratories, Hercules CA, USA.  
**2009** Life Technologies / Invitrogen, Carlsbad CA, USA.  
**2009** SystemsX.ch SME workshop, ETHZ, Switzerland.  
**2009** ICFO, Castelldefels, Spain.  
**2009** GeneArt AG, Regensburg, Switzerland.  
**2009** Zurich Research Laboratory, IBM, Switzerland.  
**2008** Institute of Biochemistry, ETHZ, Switzerland.  
**2008** Institute for Theoretical Physics, University of Cologne, Germany.  
**2008** Department of Biosystems Science and Engineering, ETHZ, Switzerland.  
**2008** Institute of Bioengineering Retreat, EPFL, Switzerland.  
**2008** CCMX Workshop, EPFL, Switzerland.  
**2008** Institute of Molecular Systems Biology, ETHZ, Switzerland.  
**2007** Department of Ecology & Evolution, University of Chicago, USA.  
**2007** Buck Institute, Novato CA, USA.  
**2007** Bioengineering Department, University of San Diego, USA.  
**2007** University of California San Francisco, USA.  
**2007** Lewis-Sigler Institute, Princeton University, USA.

## **Conferences Organized**

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**2017** EuroTech Winter School: Molecular Engineering of Synthetic Biological Systems, Eindhoven, Netherlands (co-organizers: Tom de Greef, Friedrich Simmel, Morten Norholm)  
**2017** EPFL-ETHZ Summer School: Shaping the Future of Bioengineering, Davos, Switzerland. (co-organizer: Andreas Hierlemann)  
**2017** 1st European Congress on Cell-free Synthetic Biology, Congressi Stefano Franscini, Ascona, Switzerland (co-organizers: Richard Murray and Paul Freemont).  
**2015** MRS Fall Meeting, Symposium K: Materials Science, Technology and Devices for Cancer Modeling, Diagnosis and Treatment, Boston, USA (co-organizers: Rong Fan, Sharon Gerech, Tony Dickherber, Miqin Zhang)  
**2013** Physical Biology of Transcription, University of Geneva, Switzerland (co-organizer: David Shore)

2012 Swiss Society of Biomedical Engineering Annual Meeting, EPFL, Switzerland

## Awards

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2016 **ERC Consolidator Grant**

2015 **HFSP Program Grant**

2012 **Prix SSV - Ambition:** EPFL prize for dedication to teaching and promotion of EPFL students and the school at large.

2008 **Demetriades-Tsafka-Kokkalis Prize in Biotechnology or Related Fields:** The prize honors annually the best Caltech Ph.D. thesis in the given category.

2005 **1<sup>st</sup> place Innovator's Challenge. Category: Biotechnology.** The I-Challenge is a joint technology contest amongst Stanford University, UC Berkeley and the California Institute of Technology.

## Professional Activities

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2014 - 2015, Mentor for "Mentoring Deutschschweiz"

2008 - 2012, Executive Board Member, Swiss Society of Biomedical Engineering (SSBE)

## Reviewer for

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### Funding Agencies:

Swiss National Science Foundation, Medical Research Council, A\*STAR, ERC Consolidator Grant, Israel Science Foundation, BBSRC, NC3Rs, HFSP, NWO (Netherlands Organization for Scientific Research)

### Journals:

Proceedings of the National Academy of Sciences, Nature Methods, PLoS ONE, Lab on a Chip, Sensors and Actuators B, Biomedical Microdevices, Aging Cell, ACS Chemical Biology, Journal of Biotechnology, Interface Focus, Journal of Laboratory Automation, RSC Advances, Biotechnology Journal, Analytical Chemistry, ACS Nano, ACS Synthetic Biology, Nature Communications, Scientific Reports, Nature Reviews Molecular Cell Biology, Nucleic Acids Research, Metabolic Engineering, Nature Nanotechnology, Cell, Scientific Data, Nature Microbiology, Biochemical Society Transactions, IEEE, HardwareX

## Funding Sources

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### Research Grants:

2017 - 2020, Principal Investigator, EPFL-Biltema Foundation Grant. "Microfluidic Single-cell T-cell Screening."

2017 - 2022, Principal Investigator, ERC Consolidator Grant. "RetroNets: Reverse Engineering Gene Regulatory Networks."

2015 - 2017, Principal Investigator, SystemsX.ch Special Opportunity Grants. "Development of a high-throughput platform for systems immunology and protein engineering."

2015 - 2018, Principal Investigator, HFSP Program Grant (RGP0032/2015). "Establishing microfluidic cell-free systems for the rapid characterization of genetic networks."

2015 - 2016, Co - Principal Investigator, EPFL Integrated Food and Nutrition Center, "On-demand synthesis of vitamins."

2015 - 2018, Principal Investigator, SystemsX.ch IPhD grant (SNF:51PHP0 157292 / SysX:2014/242). "Comprehensive analysis of transcription factor - promoter interaction in vitro and in vivo."

2012 - 2015, Principal Investigator, SNSF grant (CR23I2 140697). "Development of a microfluidic platform for the high-throughput quantitation of proteins."

2011 - 2014, Co - Principal Investigator, ProDoc SNSF (PDFMP3 137065). "Development of a microfluidics/biochip platform for high-throughput analysis of cellular chemoattraction."

2010 - 2012, Principal Investigator, Marie Curie Actions - Intra-European Fellowship (IEF). "Microfluidic device for high-throughput three-dimensional culture, mechanical stimulation and drug screening of stem cells."

2010 - 2013, Co - Principal Investigator, FP7 - SPEDOC. "Surface Plasmon Early Detection & Treatment Follow-up of Circulating Heat Shock Proteins & Tumor Cells."

2009 - 2010, Co - Principal Investigator, SystemsX.ch, IPP. "A computational high-throughput platform for characterizing transcription regulatory interactions."

**2008 - 2013**, Principal Investigator, SystemsX.ch, DynamiX RTD. "A systems approach to characterizing and modeling the yeast transcriptional regulatory network."

**2008 - 2009**, Principal Investigator, Nano-Tera, NTF. "A programmable, universally applicable microfluidic device platform."

Miscellaneous:

**2017**, KGF, iGEM project sponsor

**2017**, Nikon, iGEM project sponsor

**2016**, KGF, iGEM project sponsor

**2015**, KGF, iGEM project sponsor

**2014**, KGF, iGEM project sponsor

**2014**, Nikon Instruments, iGEM project sponsor

**2013**, KGF, Physical Biology of Transcription Meeting Sponsor

**2013**, KGF, iGEM project sponsor

**2012**, KGF, iGEM project sponsor

**2011**, Nikon Instruments, iGEM project sponsor

**2011**, KGF, iGEM project sponsor

**2010**, Nikon Instruments, iGEM project sponsor

**2010**, KGF, iGEM project sponsor

**2009**, Nikon Instruments, iGEM project sponsor

**2009**, KGF (Roche, Novartis, Merck, Syngenta), iGEM project sponsor

## Teaching

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**2017**

iGEM Project Course (Bachelor, Master), EPFL: Gold Medal, Giant Jamboree MIT, Award for Best Education and Public Engagement Project, Nominated for: Best Diagnostics Project, Best Integrated Human Practices, Best New Basic Part, Best Software

Scientific project design in regenerative medicine and diagnostics (Masters), EPFL

**2016**

Scientific project design in regenerative medicine and diagnostics (Masters), EPFL

**2015**

Physical Biology of the Cell I (Bachelor), EPFL

iGEM Project Course (Bachelor, Master), EPFL: Silver Medal

Scientific project design in regenerative medicine and diagnostics (Masters), EPFL

**2014**

Physical Biology of the Cell I (Bachelor), EPFL

iGEM Project Course (Bachelor, Master), EPFL: Gold Medal

Scientific project design in regenerative medicine and diagnostics (Masters), EPFL

**2013**

Physical Biology of the Cell I (Bachelor), EPFL

iGEM Project Course (Bachelor, Master), EPFL: Silver Medal, Qualified for World Championship

**2012**

Physical Biology of the Cell I (Bachelor), EPFL

Genome and Network Architecture (Master), EPFL

iGEM Project Course (Bachelor, Master), EPFL: Gold Medal

**2011**

Genome and Network Architecture (Master), EPFL

iGEM Project Course (Bachelor, Master), EPFL: Gold Medal, Qualified for World Championship

**2010**

iGEM Project Course (Bachelor, Master), EPFL: Gold Medal, iGEMers prize (shared with Slovenia, Cambridge, Imperial College London, and MIT)

**2009**



iGEM Project Course (Bachelor, Master), EPFL: Gold Medal, Special Prize "Best New BioBrick or Device, Engineered" (shared with University of Freiburg)

**2008**

iGEM Project Course (Bachelor, Master), EPFL: Bronze Medal

**1999-2003**

Teaching Assistant, Intro. to the Design of Biol. Molecules and Systems, Caltech, 2002-2003

Teaching Assistant, Molecular Biology Laboratory, Caltech, 2002

Peer Tutor, Fairleigh Dickinson University, 1999-2000

## Students and Collaborators

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### Post-Doctoral Fellows:

Nadanai Laohakunakorn, 2015-

Evan Olson, 2017 -

Julia Tischler (Marie Heim-Vgtlin SNF Fellow), 2017 -

### PhD Students:

Ekaterina Petrova, 2013-

Zoe Swank, 2015-

Ivan Istomin, 2015-

Barbora Lavickova, 2016-

Gregoire Michielin (SNF MD-PhD Fellow), 2016-

Fabien Jammes, 2017-

Ming Yip, 2017-

Michael Crone, 2017-

### Co-Advised Students:

Simone Giaveri (Stellacci Lab), 2016-

### Master Students (Thesis):

### Master Students (Projects):

### Undergraduate Students (Projects):

### Interns:

Rohan Thakur (UC Berkeley), Whitaker International Fellow, 2017 - 2018

## Alumni

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### Post-Doctoral Fellows:

Francesco Piraino, 2013-2017

Jose Garcia-Cordero, 2010-2013

Luis Miguel Fidalgo, 2009-2012

Marcel Geertz (Post-Doc, Shore Lab), 2008-2012

### PhD Students:

Francesca Volpetti, 2012-2017

Kristina Woodruff, 2012-2017

Matthew Blackburn, 2010-2016

Henrike Niederholtmeyer, 2010-2015

Jean-Bernard Nobs, 2009-2014

Arun Rajkumar, 2008-2013

Sylvie Rockel, 2008-2013

Nicolas Denervaud, 2008-2012

Tatjana Petrov, 2009-2011

**Co-Advised Students:**

Amanda Verpoorte (McKinney Lab), 2012-2017

Zuzana Petrova (Huelsenken Lab), 2012-2016

Johannes Becker (Naef Lab), 2012-2015

Meltem Elitas (McKinney Lab), 2008-2012

Bin He (Kreitman Lab, U. Chicago), 2008-2012

Lina Huang (Martin Lab), 2008-2010

**Master Students (Thesis):**

Thomas Simonet (external), 2015

Craig Watson, 2015

Adele Drame-Maigne (external), 2014

David Moi, 2014

Nicolas Gobet (external), 2010-11

Valoise Mendoh, 2010-11

**Masters Students (semester projects):**

Killian Choquet, Fall 2015

Pernille Rainer, Fall 2015

Thibaud Szymczak, Fall 2015

Lea de Maddalena, 2014-2015

Praneeth Karempudi, 2015

Alexander Belushkin, Spring 2014

Christophe Nell, Spring 2014

Steve Beguin (EPFL), Fall Semester 2013

Sylvain Bernard, 2013

**Undergraduate Students (Projects):**

Golzar Mesbah, Summer 2015

Julien Delisle, Spring 2014

Stefano Tartini, Spring 2014

David Christe, Spring 2014

Astrid Kibleur, 2011

Viktoria Stepanova, 2009

**Interns:**

Ahmed Saadawi (Paris Descartes University), Intern, Summer 2017

Felix Faltings (EPFL), Intern, 2016

Stefan Bassler (University of Heidelberg), Intern, 2016

Malek Kabani (EPFL), Intern 2016

Evgenia Pankevich (Lomonosov Moscow State University), SRP Intern , 2016

Caroline Werlang (B.S. Caltech), Fulbright Scholar, September 2015 - 2016

Anna Olerinyova (Oxford University), SRP Intern, 2015

Emma Hemus (McGill University), ThinkSwiss Research Scholarship, 2015

Charlotte ter Haar (Northwestern University), Whitaker International Fellow, 2014-2015

Holly Rees (University of Cambridge), SRP Intern, 2014

Mathieu Quinodoz (EPFL), Intern, 2013

Florian Borse (EPFL), Intern, 2013

Dennis Zhou (Cornell University), SRP Intern, 2013

Vincent Zimmern (EPFL), Intern, 2012

Heidi Culver (Johns Hopkins University), SRP Intern, 2011

Arja Ray (IIT Kharagpur), Summer Intern, 2011  
Kelli Xu (UCSD), SRP Intern, 2010  
Bhaskar Ganesh Chennuri (IIT Guwahati), Summer Intern, 2010  
Siddharth Gupta (IIT Guwahati), Summer Intern, 2009

## Committees

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**2016** Synthetic and Systems Biology Search Committee, Istituto Italiano di Tecnologia, Italy  
**2016** Bioengineering Faculty Search Committee, EPFL  
**2015 - present** Agora Lab and Facilities Design Team, Swiss Cancer Center  
**2015 - present** "Future Leaders in Bioengineering" Award Committee, Bioengineering EPFL  
**2015** Synthetic Biology Search Committee, UNIL  
**2014** Member, Immunoengineering Search Committee, STI EPFL  
**2010 - present** CMI/CMI+ Committee, STI EPFL  
**2010 - present** EDBB Committee, SV EPFL  
**2009 - present** Bureau de Recherche, STI EPFL  
**2008 - 2009** BioMEMS Search Committee, IBI EPFL  
**2008** BioE Curriculum Committee, IBI EPFL

## PhD committees

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### Thesis Committees (16 total)

**2017**, Julien Cors, Advisor: Bradley Nelson (ETHZ)  
**2017**, Roman Bulushev, Advisor: Aleksandra Radenovic  
**2016**, Yoji Tabata, Advisor: Matthias Lutolf  
**2016**, Nathalie Brandenburg, Advisor: Matthias Lutolf  
**2015**, Arun Shivanandan, Advisor: Aleksandra Radenovic  
**2015**, Laura Prochazka, Advisor: Kobi Benenson (ETHZ)  
**2015**, Sowmya Balasubramanian, Advisor: Florian Wurm  
**2015**, Simone Allazetta, Advisor: Matthias Lutolf  
**2014**, Yuya Okawa, Advisor: Matthias Lutolf  
**2014**, Alina Isakova, Advisor: Bart Deplancke  
**2014**, Aline Roch, Advisor: Matthias Lutolf  
**2014**, Philipp Lienemann, Advisor: Matthias Lutolf  
**2013**, Nicolas Descharmes, Advisor: Romuald Houdre  
**2012**, Steffen Cosson, Advisor: Matthias Lutolf  
**2012**, Stefan Kobel, Advisor: Matthias Lutolf  
**2008**, Elodie Dahan, Advisor: Yusuf Leblebici

### Candidacy Committees (25 total)

**2017**, Alice Gillen, Advisor: Ardemis Boghossian  
**2017**, Margeaux Duchamp, Advisor: Philippe Renaud  
**2017**, Thomas Simonet, Advisor: John McKinney  
**2015**, Michael Graf, Advisor: Aleksandra Radenovic  
**2015**, Oleg Mikhajlov, Advisor: John McKinney  
**2015**, Vincent Trachsel, Advisor: Matthias Lutolf  
**2014**, Daniel Strebing, Advisor: David Suter  
**2014**, Li Dong, Advisor: Martin Gijs  
**2014**, Yannick R. Devaud, Advisor: Matthias Lutolf & Martin Ehrbar (USZ)  
**2014**, Tian Qiu, Advisor: Jeffrey Hubbell  
**2014**, Tabata Yoji, Advisor: Matthias Lutolf  
**2013**, Laura Kolb, Advisor: Matthias Lutolf  
**2013**, Katrin Schneider, Advisor: John McKinney  
**2013**, Nathalie Brandenburg, Advisor: Matthias Lutolf

**2013**, Stefano Varricchio, Advisor: Dario Floreano  
**2012**, Volodymyr Koman, Advisor: Olivier Martin  
**2012**, Manuel Fankhauser, Advisor: Melody Swartz  
**2012**, Michael Unger, Advisor: Heinz Koepl (ETHZ)  
**2012**, Shourya Dutta Gupta, Advisor: Olivier Martin  
**2011**, Mukul Girotra, Advisor: Matthias Lutolf  
**2011**, Sagar Manoli, Advisor: Florian Wurm  
**2011**, Aline Roch, Advisor: Matthias Lutolf  
**2010**, Irina Krier, Advisor: Bart Deplancke  
**2010**, Yuya Okawa, Advisor: Matthias Lutolf  
**2010**, Alina Isakova, Advisor: Bart Deplancke  
**2009**, Meltem Elitas, Advisor: John McKinney