

Curriculum Vitae

Benjamin Towbin, PhD

Institute of Cell Biology
University of Bern
Baltzerstrasse 4
CH-3012 Bern
Switzerland

ResearcherID: C-8545-2018
Date of birth: 7.9.1982
Nationality: Swiss
Marital status: married, 2 children



Education and Research Experience

- Sept 2019 **SNSF Eccellenza Assistant Professor**
Institute of Cell Biology, University of Bern (CH)
Organismal Systems Biology lab
- Sept 2016-
Jun 2019 **Postdoctoral researcher (Systems Biology)**
funded by HFSP, Marie-Curie, Engelhorn
Friedrich Miescher Institute for Biomedical Research, Basel (CH)
“Tradeoffs between growth and aging of *C. elegans*”
Advisor: Dr. Helge Grosshans
- Mar 2013-
Aug 2016 **Postdoctoral researcher (Systems Biology)**
funded by HFSP, SNSF, Swiss friends of WIS
Weizmann Institute of Science (WIS), Rehovot (IL)
“Optimal and suboptimal control of gene expression in *E. coli*”
most relevant publication: Towbin et al., Nature Communications (2017)
Advisor: Prof. Dr. Uri Alon
- Mar 2012-
Feb 2013 **Short-term postdoctoral research fellow (Molecular Biology)**
Friedrich Miescher Institute for Biomedical Research, Basel (CH)
most relevant publication: Gonzales-Sandoval, Towbin et al., Cell (2015)
Advisor: Prof. Dr. Susan Gasser
- Dec 2007-
Mar 2012 **PhD thesis in Genetics** (*summa cum laude*)
awarded as best thesis by the Faculty of Nat. Sciences of Univ. of Basel and the FMI
Friedrich Miescher Institute for Biomedical Research (FMI), Basel (CH)
University of Basel (CH)
Thesis title: “Dynamics of subnuclear chromatin organization during *C. elegans* development: a role for H3K9 methylation”
most relevant publication: Towbin et al., Cell (2012)
Date of PhD defense: March 14, 2012
Advisor: Prof. Dr. Susan Gasser
- Sep 2005-
Nov 2007 **MSc in Biomedical Sciences**
final grade: 8.9 (scale: 1-10), top 5%
University of Utrecht (NL)
Advisor: Prof. Dr. Ronald Plasterk, Hubrecht laboratory, Utrecht (NL)
- Sep 2002-
Aug 2005 **BSc in Molecular Biology**
University of Basel (CH)

Publications

3 most important publications marked by *

1. * Towbin BD, Korem Y, Bren A, Doron S, Sorek R, Alon U (2017) *Optimality and sub-optimality in a bacterial growth law*, **Nature Communications**, 8:14123
2. * Gonzalez-Sandoval A, Towbin BD, Kalck V, Gaidatzis D, Hauer MH, Geng L, Cabianca DS, Wang X, Yang T, Zhao K, Gasser SM (2015) *Perinuclear anchoring of H3K9-methylated chromatin stabilizes induced cell fate*. **Cell**, 163(6):1333-47
3. * Towbin BD, Gonzalez C, Meister P, Gaidatzis D, Kalck V, Sack R, Askjaer P, Gasser SM (2012) *Step-wise methylation of histone H3K9 positions heterochromatin at the nuclear envelope*. **Cell** 150(5): 934-47

4. Padeken J, Zeller P, Towbin BD, Katic I, Kalck V, Methot SP, Gasser SM (2019) *Synergistic lethality between BRCA1 and H3K9me2 loss reflects satellite derepression*. **Genes & Development** 33(7-8):436-451.
5. Korem Y, Levi D, Jona G, Towbin BD, Bren A, Alon U (2018), *A bacterial growth law out of steady state*, **Cell reports** 23(10):2891-2900
6. Hastings J., [..], Towbin BD, [..], and Casanueva O (38 authors) (2017) *WormJam: A consensus C. elegans Metabolic Reconstruction and Metabolomics Community and Workshop Series*, **Worm**, 6(2): e1373939
7. Bren A, Park JO, Towbin BD, Dekel E, Rabinowitz JD, Alon U (2016), *Glucose becomes one of the worst carbon sources for E.coli on poor nitrogen sources due to suboptimal levels of cAMP*. **Scientific Reports**, 6:24834
8. Aidelberg G, Towbin BD, Rothschild D, Dekel E, Bren A, Alon U (2014) *Hierarchy of non-glucose sugars in Escherichia coli*. **BMC Systems Biology**. 8:133
9. Ferreira HC, Towbin BD, Jegou T, Gasser SM (2013) *The shelterin protein POT-1 anchors Caenorhabditis elegans telomeres through SUN-1 at the nuclear periphery*. **Journal of Cell Biology** 203(5):727-35
10. Gonzalez-Sandoval A, Towbin BD, Gasser SM (2013) *The formation and sequestration of heterochromatin during development*. **FEBS Journal** 280(14):3212-9 (review)
11. Towbin BD, Gonzalez-Sandoval A, Gasser SM (2013) *Mechanisms of heterochromatin subnuclear localization*. **Trends in Biochemical Sciences** 38(7):356-63 (review)
12. Dion V, Kalck V, Horigome C, Towbin BD & Gasser SM (2012) *Increased mobility of double-strand breaks requires Mec1, Rad9 and the homologous recombination machinery*. **Nature Cell Biology** 14: 502-509
13. Mattout A, Pike BL, Towbin BD, Bank EM, Gonzalez-Sandoval A, Stadler MB, Meister P, Gruenbaum Y & Gasser SM (2011) *An EDMD mutation in C. elegans lamin blocks muscle-specific gene relocation and compromises muscle integrity*. **Current Biology** 21: 1603-1614
14. Towbin BD, Meister P, Pike BL & Gasser SM (2011) *Repetitive transgenes in C. elegans accumulate heterochromatic marks and are sequestered at the nuclear envelope in a copy-number- and lamin-dependent manner*. **Cold Spring Harbor Symposia on Quantitative Biology** 75: 555-565. (book chapter / conference paper)
15. Meister P, Towbin BD, Pike BL, Ponti A & Gasser SM (2010) *The spatial dynamics of tissue-specific promoters during C. elegans development*. **Genes & Development** 24: 766-782
16. Towbin BD, Meister P & Gasser SM (2009) *The nuclear envelope - a scaffold for silencing?* **Current Opinion in Genetics & Development** 19: 180-186 (review)

Awards

1. Award for best PhD thesis at the Faculty of Natural Sciences, University of Basel (CH). 2014
2. Ed Fisher Prize for best PhD thesis at the Friedrich Miescher Institute, Basel (CH), 2013

Funding

1. SNSF Eccellenza Professorial Fellowship, €1'500'000, [2019](#)
2. Marie Skłodowska-Curie Individual Fellowship, €187'000, [2017](#)
3. Engelhorn-Traudl foundation postdoctoral fellowship, €155'000, [2017](#)
4. Swiss friends of the Weizmann Institute postdoctoral fellowship, €16'000, [2016](#)
5. Weizmann Institute Azrieli project grant, €8'900, [2015](#)
6. HFSP long-term fellowship, €175'800, [2013](#)
7. EMBO long-term fellowship, gratefully declined, [2013](#)
8. FEBS long-term fellowship, gratefully declined, [2013](#)
9. SNSF early post-doc mobility fellowship, €43'000, [2013](#)

Selected conference presentations

1. Cellular Dynamics and Models, CSHL, USA (**selected speaker**), [2019](#)
2. Evolutionary Systems Biology, Cambridge, UK (**selected speaker**), [2018](#)
3. UNIL CompBio meeting, Lausanne, CH (**invited speaker**), [2017](#)
4. GENiE workshop on *C. elegans* metabolism, Cambridge, UK (**selected speaker**), [2017](#)
5. EMBO conference: From Functional Genomics to Systems Biology, Heidelberg, DE (**selected speaker**), [2016](#)
6. HFSP awardees meeting, Singapore (**selected speaker**), [2016](#)
7. Stochastic processes in the cell cycle, Jerusalem, IL (**selected speaker**), [2016](#)
8. Annual meeting of the Israeli Society for Microbiology Tel Aviv, IL (**selected speaker**), [2016](#)
9. InteGeR workshop Nuclear Structure and Gene Expression, Utrecht, NL (**speaker**), [2011](#)
10. EMBO conference: Nuclear Structure and Dynamics, L'Isle sur la Sorgue, F (**selected speaker**), [2011](#)
11. EMBO workshop: Chromatin structure, organization and dynamics, Prague, CZ (**selected speaker**), [2011](#)
12. 6th course on epigenetics, Institut Curie, Paris, F (**speaker**), [2010](#)
13. International worm meeting, Los Angeles, USA (**selected speaker**), [2009](#)

Selected invited seminars

1. WUSTL St. Louis, USA, hosted by Prof. Z. Pincus, [2019](#)
2. IZB University of Bern, hosted by Prof. Dr. M. Nowacki, [2018](#)
3. Max-Planck Institute Freiburg, hosted by Prof. Dr. T. Jenuwein, [2017](#)
4. DEE University of Lausanne, hosted by Prof. Dr. T. Schwander, [2017](#)
5. DUW University of Basel, hosted by Prof. Dr. M. Tschopp, [2017](#)
6. Biozentrum University of Basel, hosted by Prof. Dr. A. Becskei, [2017](#)
7. Hebrew University of Jerusalem, IL, hosted by Prof. Dr. Y. Gruenbaum, [2013](#)

Teaching activities

Nov 2018	Contribution to Cellular and Genetic Networks course University of Bern (CH)
Jul 2014- Aug 2016	Co-organizer of bi-weekly cross-departmental forum for PostDocs in Systems Biology Weizmann Institute of Science (IL)
Sept 2008- Feb 2009	Teaching assistant for introductory biology tutorial University of Basel (CH)
Sept 2003- Aug 2004	Teaching assistant for introductory course in computer science (programming course) University of Basel (CH)

Outreach activities

1. Recurrent Participation in “Tage der Genforschung”, [2009-2019](#)
2. Presentation at “Numbers day”, Gymnasium am Münsterplatz, [2018](#)
3. Scientific presentation for Swiss federal parliamentary group Switzerland-Israel, [2016](#)
4. Scientific presentation for Swiss business delegation visiting the Weizmann Institute, [2015](#)

5. “Gen Olympiade”, science day for high school students, 2010
6. Contribution to “Tage der Genforschung”, scientific outreach day of University of Basel, 2009

Languages

German (mother tongue), English (fluent), French (fluent), Hebrew (intermediate), Dutch (basics), Spanish (basics)

Career breaks

paternity leave (dual career family): Aug 2012 – Mar 2013, Nov 2014 - Jan 2015