Jolanda van Leeuwen, PhD
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EMPLOYMENT & EDUCATION

2018-present **Tenure-track Assistant Professor**
University of Lausanne, Switzerland

2011-2018 **Postdoctoral fellow & Research associate in Functional Genomics**
University of Toronto, Canada
Advisors: Drs. Charlie Boone & Brenda Andrews

2006-2011 **PhD in Molecular Toxicology**
VU University Amsterdam, the Netherlands
Advisor: Dr. Nico Vermeulen

2004-2006 **MSc in Chemistry** (*cum laude*)
Leiden University, the Netherlands & Trieste University, Italy
Advisors: Drs. Jan Reedijk & Gianni Sava

2001-2004 **BSc in Chemistry** (*cum laude*)
Leiden University, the Netherlands

GRANTS, FELLOWSHIPS & AWARDS

2019-2024 Swiss National Science Foundation, Eccellenza grant, CHF 1’500’000.

2022 Fondation pour la lutte contre le cancer, CHF 20’000.

2022 Fondation Herbette, University of Lausanne, grant for organization of the CIG symposium, CHF 7’200.

2022 Commission Egalité Diversité Intégration, University of Lausanne, grant for organization of the CIG symposium, CHF 3’500.

2020 Swiss National Science Foundation, Open Access grant, CHF 4’146.

2013-2016 Canadian Institutes of Health Research, postdoctoral fellowship.

2010 Travel award, Organization for the advancement of biochemical research.

2009 2nd prize, national PhD student competition, FIGON Dutch Medicine Days.

2009 Travel award, Organization for the advancement of biochemical research.

2008 Travel award, Royal Dutch Chemistry Society.

2005-2006 European Cooperation in Science and Technology, short-term scientific mission grant.

INVITED SEMINARS

2023 Donnelly Centre for Cellular and Biomolecular Research, University of Toronto, Toronto, Canada.

2023 Centre for Applied Synthetic Biology, Concordia University, Montreal, Canada.

2023 Institute for Bioengineering of Catalonia, Barcelona, Spain.

2022 Institute of Molecular Biology, Mainz, Germany.

2021 Goethe University Frankfurt, Frankfurt, Germany.

2020 Center for Genomic Regulation, Barcelona, Spain.

2020 Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland.

2019 Dementia Research Institute, Cardiff University, Cardiff, UK.

2017 Gurdon Institute, University of Cambridge, Cambridge, UK.

2017 Institute for Systems Genetics, NYU Langone Medical Center, New York, USA.

2016 Institute for Research in Biomedicine, Barcelona, Spain.

2016 Wellcome Trust Sanger Institute, Hinxton, UK.

2016 Amsterdam Institute for Molecules, Medicines, and Systems, VU University Amsterdam, the Netherlands.

CONFERENCE TALKS

2023 Invited talk, *European Cancer Dependency Map* workshop, Milan, Italy.

2023 Invited talk, *Network Biology* meeting, Cold Spring Harbor, USA.

2022 Invited talk (canceled due to COVID-19), *Life Sciences Switzerland* (LS2) conference, Zurich, Switzerland.

2021 Invited talk, *CRISPR and beyond - perturbations at scale to understand genomes*, Hinxton, UK.

2021 Talk, *Levures, Modèles et Outils*, Strasbourg, France.

2021 Talk, *International Congress on Yeasts* and *International Conference on Yeast Genetics and Molecular Biology*, Vienna, Austria.

2021 Invited talk, Workshop "*Mapping the Landscape of Genetic Dependencies in Cancer*", Frankfurt, Germany.

2020 Invited talk (canceled due to COVID-19), Canadian Institute for Advanced Research *Genetic Networks* meeting, Santa Cruz, USA.

2020 Invited talk (canceled due to COVID-19), *European Network Biology Conference: From Networks to Modeling*, Hinxton, UK.

2019 Talk, *International Conference on Yeast Genetics and Molecular Biology*, Gothenburg, Sweden.

2019 Invited talk, *European Society of Human Genetics Conference*, Gothenburg, Sweden.

2019 Talk, *Network Biology* meeting, Cold Spring Harbor, USA.

2018 Invited talk, iGenolevure meeting "*High-Throughput Technologies Applied to Yeasts*", Strasbourg, France.

2018 Invited talk, *Levures, Modèles et Outils*, Rheinau, Switzerland.

2017 Talk, Canadian Institute for Advanced Research *Genetic Networks* meeting, Toronto, Canada.

2017 Talk, *Systems Biology: Networks* meeting, Cold Spring Harbor, USA.

2016 Talk, *International Conference on Systems Biology*, Barcelona, Spain.

2016 Talk, *Yeast Genetics and Molecular Biology Meeting*, Orlando, USA.

2016 Talk, *North East Regional Yeast Meeting*, Buffalo, USA.

2016	Talk, Breast Cancer Informatics Group *Genetic Networks* meeting, McGill-Bellairs research institute, Barbados.
2015	Talk, *OMICs in Biomedical Research* meeting, Split, Croatia.
2015	Talk, Canadian Institute for Advanced Research *Genetic Networks* meeting, Toronto, Canada.
2014	Talk, *Yeast Genetics and Molecular Biology meeting*, Seattle, USA.
2010	Talk, *Yeasterday*, Leuven, Belgium.
2009	Talk, *FIGON Dutch Medicine Days*, Lunteren, the Netherlands.

ORGANIZATION OF CONFERENCES

2022-present	Founder and co-organizer, *Fungi & Friends*, ~50 participants, Lausanne, Switzerland.
2022-present	Program committee member, GSA *Yeast Genetics Meeting*, UCLA, USA.
2022	Program committee member, Systems Track, *European Conference on Computational Biology*, Sitges, Spain.
2022	Co-organizer, CIG symposium "*Interactions in Biology*", ~200 participants, Lausanne, Switzerland.
2019-2022	Founder and co-organizer, *CRISPR and beyond - perturbations at scale to understand genomes*, ~250 participants, Hinxton, UK.
2013-2016	Co-organizer, Annual postdoc symposium and biweekly seminars, ~50 participants, University of Toronto, Canada.

CONFERENCE TALKS BY TRAINEES

2022	Betül Ünlü, *Swiss Society for Microbiology Annual Meeting*, EPFL, Switzerland.
2022	Núria Bosch, GSA *Yeast Genetics Meeting*, UCLA, USA.
2022	Linh Ho, *Talents de la génétique*, Société Française de Génétique, France.
2022	Núria Bosch, *Fungi & Friends*, Lausanne, Switzerland.
2021	Núria Bosch, *International Congress on Yeasts* and *International Conference on Yeast Genetics and Molecular Biology*, Vienna, Austria.

SUPERVISION OF TRAINEES

Postdocs

2021-present	Sabine van Schie
2021-present	Núria Bosch
2019-present	Amandine Batté
2018-present	Betül Ünlü

PhD students

2022-present	Claire Paltenghi
2021-present	Erfan Heidari
2019-present	Uyen Linh Ho

MSc students (1 year, thesis project)

2022-present	Camille Schmidt	
2021-2022	Jade Nicolet	currently PhD student with Niko Geldner, UNIL
2021-2022	Claire Paltenghi	currently PhD student with us
2019-2020	Romane Mizeret (co-advisor)	currently PhD student with David Suter, EPFL

MSc students (3 months, "first-step" project)

2022	Loïc Zen-Ruffinen	
2021	Karunnya Tharmakulasinkam	
2020	Christopher Forbes-Jaeger	
2020	Elise Eray	
2019	Jessica Burnier	currently PhD student with Jan-Willem Veening, UNIL

Other

2006-2018	Daily supervisor of 10 MSc and 24 BSc students.

SERVICE ON THESIS COMMITTEES

2020-present	Member, PhD thesis committee, Anastasiia Semenova (Gambetta lab, University of Lausanne, Switzerland).
2019-present	Member, PhD thesis committee, Alexandra Bendel (Diss lab, Friedrich Miescher Institute for Biomedical Research, Switzerland).
2023	Member, PhD thesis committee, Mireia Seuma (Bolognesi lab, Institute for Bioengineering of Catalonia, Spain)
2020	President, PhD thesis committee, Júlia Domingo (Lehner lab, Center for Genomic Regulation, Spain).
2019	Member, PhD thesis committee, Terry Mara (Martin and Pelet labs, University of Lausanne, Switzerland).

TEACHING

2022-present	Tutor and lecturer, *Reviews in Quantitative Biology*, ~8 hours, course for PhD students, University of Lausanne, Switzerland.
2020-present	Course organizer and lecturer, *CRISPR-Cas9 genome editing*, 14 hours, course for MSc students, University of Lausanne, Switzerland.
2019-present	Tutor, *Write-a-review*, ~8 hours, course for MSc students, University of Lausanne, Switzerland.
2019-present	Course organizer and lecturer, *Epistasis, Oligogenicity, Pleiotropy and beyond*, 6 hours, course for 3rd year BSc students, University of Lausanne, Switzerland.
2007-2011	Teaching assistant, 7 lab courses in life sciences, VU University Amsterdam, the Netherlands.

OTHER ACADEMIC RESPONSIBILITIES (University of Lausanne)

2022-present	Member, Safety committee, Center for Integrative Genomics, University of Lausanne.
2020-present	Member, Equipment committee, Center for Integrative Genomics, University of Lausanne.
2020-present	Mentor, PhD student Chiara Auwerx (Reymond lab), Center for Integrative Genomics, University of Lausanne.
2019-present	Mentor, PhD student Nina Dukanovic (Franken lab), Center for Integrative Genomics, University of Lausanne.
2020	Member, Faculty search committee microbial biotechnology, Department of Fundamental Microbiology, University of Lausanne.
2020	Member, Prix Guenin selection committee for the best PhD thesis from the Center for Integrative Genomics, University of Lausanne.
2018	Mentor, PROWD program, advising female postdocs at the University of Lausanne on career planning and development.

OTHER ACADEMIC RESPONSIBILITIES (External)

2017-present	Ad hoc manuscript reviewer for Biological Reviews; Cell Genomics; Cell Systems; Current Genetics; eLIFE; EMBO Journal; G3: Genes, Genomes, Genetics; Genome Biology and Evolution; Genome Research; Journal of Molecular Biology; Nature Biotechnology; Nature Communications; Molecular Systems Biology; mSystems; PLOS Genetics; PNAS; and Review Commons.
2021-present	Ad hoc grant reviewer for DevelopMed (Marie Skłodowska-Curie COFUND action, Ireland), the Icelandic Research Fund, the Swiss Cancer Research foundation, and the Swiss National Science Foundation.
2022	External expert, faculty search committee CRISPR technology in human reproduction, Department of Endocrinology, Diabetology and Clinical Nutrition, University of Zurich, Switzerland.

OUTREACH & MEDIA COVERAGE

2022	Nature Biotechnology, *Adrestia Therapeutics — Gene networks to the rescue* (link).
2022	RTS (Swiss radio station), CQFD, radio interview on CRISPR technology (link).
2021	Science Daily, *'Rescue mutations' that suppress harmful DNA changes could shed light on genetic disorders* (link).
2021	Biomedical Picture of the Day, *Rescue Me* (link).
2017	University of Toronto, Interview on the academic job search (link).
2017	Outreach video, *Why study interaction networks?* (link).
2016	Quanta magazine, *Why some genetic miscues are helpful* (link).
2016	The Scientist, *Mutation vs. Mutation* (link).
2016	Trouw (Dutch newspaper), *Zoeken naar de rem op het gen dat ons ziek maakt.*
2011	NTR Radio 5 (Dutch radio station), Hoe?Zo!, radio interview on PhD thesis.
2011	RTL news (Dutch news agency), *Proefdieren mogelijk overbodig dankzij gist.*
2011	AT5 news (Dutch news agency), *Gist verlost proefdieren van onderzoek.*

PUBLICATIONS

Van Leeuwen lab

28. Carles Pons, Patrick Aloy, and **Jolanda van Leeuwen** (2022) *Co-occurrence of essential gene dispensability and bypass suppressor mutations across species* bioRxiv.
27. Betül Ünlü, Carles Pons, Uyen Linh Ho, Patrick Aloy, and **Jolanda van Leeuwen** (2022) *Global analysis of suppressor mutations that rescue human genetic defects* bioRxiv.
26. Núria Bosch-Guiteras and **Jolanda van Leeuwen** (2022) *Exploring conditional gene essentiality through systems genetics approaches in yeast* Curr Opin Genet Dev, 76, 101963.
25. Ananth Pallaseni, Elin Madli Peets, Jonas Koeppel, Juliane Weller, Thomas Vanderstichele, Uyen Linh Ho, Luca Crepaldi, **Jolanda van Leeuwen**, Felicity Allen, and Leopold Parts (2022) *Predicting base editing outcomes using position-specific sequence determinants* Nucleic Acids Res, gkac161.
24. Amandine Batté, Sophie C van der Horst, Mireille Tittel-Elmer, Su Ming Sun, Sushma Sharma, **Jolanda van Leeuwen**, Andrei Chabes, and Haico van Attikum (2022) *Chl1 helicase controls replication fork progression by regulating dNTP pools* Life Sci Alliance, 5, e202101153.
23. Leopold Parts, Amandine Batté, Maykel Lopes, Michael W. Yuen, Meredith Laver, Bryan-Joseph San Luis, Jia-Xing Yue, Carles Pons, Elise Eray, Patrick Aloy, Gianni Liti, and **Jolanda van Leeuwen** (2021) *Natural variants suppress mutations in hundreds of essential genes* Mol Syst Biol, 17, e10138.
22. **Jolanda van Leeuwen***, Carles Pons, Guihong Tan, Jason Zi Wang, Jing Hou, Jochen Weile, Marinella Gebbia, Wendy Liang, Ermira Shuteriqi, Zhijian Li, Maykel Lopes, Matej Ušaj, Andreia Dos Santos Lopes, Natascha van Lieshout, Chad L. Myers, Frederick P. Roth, Patrick Aloy, Brenda J. Andrews*, and Charles Boone* (2020) *Systematic analysis of bypass suppression of essential genes*, Mol Syst Biol, 16, e9828 (* co-corresponding authors).
21. Michael Costanzo, Elena Kuzmin, **Jolanda van Leeuwen**, Barbara Mair, Jason Moffat, Charles Boone, and Brenda J. Andrews (2019) *Global genetic networks and the genotype to phenotype relationship*. Cell, 177, 85-100.

Postdoctoral research

20. Elena Kuzmin, Benjamin VanderSluis, Alex N. Nguyen Ba, Wen Wang, Elizabeth N. Koch, Matej Usaj, Anton Khmelinskii, Mojca Mattiazzi Usaj, **Jolanda van Leeuwen**, Oren Kraus, Amy Tresenrider, Michael Pryszlak, Ming-Che Hu, Brenda Varriano, Michael Costanzo, Michael Knop, Alan Moses, Chad L. Myers, Brenda J. Andrews, and Charles Boone (2020) *Exploring whole-genome duplicate gene retention with complex genetic interaction analysis.* Science, 368, 1446.
19. Jing Hou, **Jolanda van Leeuwen**, Brenda J. Andrews, and Charles Boone (2018) *Genetic network complexity shapes background-dependent phenotypic expression*. Trends Genet, 34, 578-586.
18. Elena Kuzmin, Benjamin VanderSluis, Wen Wang, Guihong Tan, Raamesh Deshpande, Yiqun Chen, Matej Usaj, Attila Balint, Mojca Mattiazzi Usaj, **Jolanda van Leeuwen**, Elizabeth N. Koch, Carles Pons, Andrius J. Dagilis, Michael Pryszlak, Zi Wang, Julia Hanchard, Margot Riggi, Kaicong Xu, Hamed Heydari, Bryan-Joseph San Luis, Ermira Shuteriqi, Hongwei Zhu, Nydia Van Dyk, Sara Sharifpoor, Michael Costanzo, Robbie Loewith, Amy Caudy, Daniel Bolnick, Grant W. Brown, Brenda J. Andrews, Charles Boone, and Chad L. Myers (2018) *Systematic analysis of complex genetic interactions*. Science, 360, 283.
17. Myungjoo Shin, **Jolanda van Leeuwen**, Charles Boone, and Anthony Bretscher (2018) *Yeast Aim21/Tda2 both regulates free actin by reducing barbed end assembly and forms a complex with Cap1/Cap2 to balance actin assembly between patches and cables*. Mol Biol Cell, 29, 923-936.

16. **Jolanda van Leeuwen**, Charles Boone, and Brenda J. Andrews (2017) *Mapping a diversity of genetic interactions in yeast*. Curr Opin Syst Biol, 6, 14-21.

15. Traver Hart, Amy H.Y. Tong, Katie Chan, **Jolanda van Leeuwen**, Ashwin Seetharaman, Michael Aregger, Megha Chandrashekhar, Nicole Hustedt, Sahil Seth, Avery Noonan, Andrea Habsid, Olga Sizova, Lyudmilla Nedyalkova, Ryan Climie, Leanne Tworzyanski, Keith Lawson, Maria Augusta Sartori, Sabriyeh Alibeh, David Tieu, Sanna Masud, Patricia Mero, Alexander Weiss, Kevin R. Brown, Matej Ušaj, Maximilian Billmann, Mahfuzur Rahman, Michael Costanzo, Chad L. Myers, Brenda J. Andrews, Charles Boone, Daniel Durocher, and Jason Moffat (2017) *Evaluation and design of genome-wide CRISPR/Cas9 knockout screens*. G3 (Bethesda), 7, 2719-2727.

14. Jeff S. Piotrowski, Sheena C. Li, Raamesh Deshpande, Scott W. Simpkins, Justin Nelson, Yoko Yashiroda, Jacqueline M. Barber, Hamid Safizadeh, Erin Wilson, Hiroki Okada, Abraham A. Gebre, Karen Kubo, Nikko P. Torres, Marissa A. LeBlanc, Kerry Andrusiak, Reika Okamoto, Mami Yoshimura, Eva DeRango-Adem, **Jolanda van Leeuwen**, Katsuhiko Shirahige, Anastasia Baryshnikova, Grant W. Brown, Hiroyuki Hirano, Michael Costanzo, Brenda Andrews, Yoshikazu Ohya, Hiroyuki Osada, Minoru Yoshida, Chad L. Myers, and Charles Boone (2017) *Functional annotation of chemical libraries across diverse biological processes*. Nat Chem Biol, 13, 982-993.

13. **Jolanda van Leeuwen**, Carles Pons, Charles Boone, and Brenda J. Andrews (2017) *Mechanisms of suppression: the wiring of genetic resilience*. BioEssays, 39, 1700042.

12. Angelina Huseinovic, **Jolanda van Leeuwen**, Tibor van Welsem, Fred van Leeuwen, Nico. P.E. Vermeulen, Jan M. Kooter, and J. Chris Vos (2017) *The effect of acetaminophen on ubiquitin homeostasis in Saccharomyces cerevisiae* PLoS One 12, e017357.

11. **Jolanda van Leeuwen**, Carles Pons, Joseph C. Mellor, Takafumi N. Yamaguchi, Helena Friesen, John Koschwanez, Mojca Mattiazzi Ušaj, Maria Pechlaner, Mehmet Takar, Matej Ušaj, Benjamin VanderSluis, Kerry Andrusiak, Pritpal Bansal, Anastasia Baryshnikova, Claire Boone, Jessica Cao, Atina Cote, Marinella Gebbia, Gene Horecka, Ira Horecka, Elena Kuzmin, Nicole Legro, Wendy Liang, Natascha van Lieshout, Margaret McNee, Bryan-Joseph San Luis, Fatemeh Shaeri, Ermira Shuteriqi, Song Sun, Lu Yang, Ji-Young Youn, Michael Yuen, Michael Costanzo, Anne-Claude Gingras, Patrick Aloy, Chris Oostenbrink, Andrew Murray, Todd R. Graham, Chad L. Myers, Brenda J. Andrews, Frederick P. Roth, and Charles Boone (2016) *Exploring genetic suppression interactions on a global scale.* Science 354, 599.

10. Michael Costanzo, Benjamin VanderSluis, Elizabeth N. Koch, Anastasia Baryshnikova, Carles Pons, Guihong Tan, Wen Wang, Matej Ušaj, Julia Hanchard, Susan D. Lee, Vicent Pelechano, Erin B. Styles, Maximilian Billmann, **Jolanda van Leeuwen**, Nydia van Dyk, Zhen-Yuan Lin, Elena Kuzmin, Justin Nelson, Jeff S. Piotrowski, Tharan Srikumar, Sondra Bahr, Yiqun Chen, Raamesh Deshpande, Christoph F. Kurat, Sheena C. Li, Zhijian Li, Mojca Mattiazzi Ušaj, Hiroki Okada, Natasha Pascoe, Bryan-Joseph San Luis, Sara Sharifpoor, Emira Shuteriqi, Scott W. Simpkins, Jamie Snider, Harsha Garadi Suresh, Yizhao Tan, Hongwei Zhu, Noel Malod-Dognin, Vuk Janjic, Natasa Przulj, Olga G. Troyanskaya, Igor Stagljar, Tian Xia, Yoshikazu Ohya, Anne-Claude Gingras, Brian Raught, Michael Boutros, Lars M. Steinmetz, Claire L. Moore, Adam P. Rosebrock, Amy A. Caudy, Chad L. Myers, Brenda Andrews, and Charles Boone (2016) *A global genetic interaction network maps a wiring diagram of cellular function*. Science 353, 1381.

9. **Jolanda van Leeuwen**, Brenda J. Andrews, Charles M. Boone, and Guihong Tan (2015) *Rapid and efficient plasmid construction by homologous recombination in yeast* (protocol). Cold Spring Harb Protoc 9, pdb.prot085100.

8. **Jolanda van Leeuwen**, Brenda J. Andrews, Charles M. Boone, and Guihong Tan (2015) *Construction of multi-fragment plasmids by homologous recombination in yeast* (topic introduction). Cold Spring Harb Protoc 9, pdb.top084111.

PhD research

7. **Jolanda van Leeuwen**, Nico P.E. Vermeulen and J. Chris Vos (2012) *Yeast as a humanized model organism for biotransformation-related toxicity*. Curr Drug Metab 13, 1464-1475.
6. **Jolanda van Leeuwen**, Betül Ünlü, Nico P.E. Vermeulen and J. Chris Vos (2012) *Differential involvement of mitochondrial dysfunction, cytochrome P450 activity and active transport in the toxicity of structurally related NSAIDs*. Toxicol In Vitro 26, 197-205.
5. **Jolanda van Leeuwen** (2012) *Yeast as a model eukaryote in drug safety studies: New insights on diclofenac-induced toxicity* (in Dutch). BVLT 39, 225-230.
4. **Jolanda van Leeuwen**, Nico P.E. Vermeulen and J. Chris Vos (2011) *Involvement of the pleiotropic drug resistance response, protein kinase C signaling, and altered zinc homeostasis in resistance of Saccharomyces cerevisiae to diclofenac*. Appl Environ Microbiol 77, 5973-5980.
3. Jelle Reinen, **Jolanda van Leeuwen**, Yongmin Li, Lifang Sun, Peter D.J. Grootenhuis, Caroline J. Decker, John Saunders, Nico P.E. Vermeulen and Jan N.M. Commandeur (2011) *Efficient screening of P450 BM3 mutants for their metabolic activity and diversity towards a wide set of drug-like molecules in chemical space*. Drug Metab Dispos 39, 1568-1576.
2. **Jolanda van Leeuwen**, Rick Orij, Marijke Luttik, Gertien J. Smits, Nico P.E. Vermeulen and J. Chris Vos (2011) *Subunits Rip1p and Cox9p of the respiratory chain contribute to diclofenac-induced mitochondrial dysfunction*. Microbiology 157, 685-694.
1. **Jolanda van Leeuwen**, Galvin Vredenburg, Sanja Dragovic, T.F. Jennifer Tjong, J. Chris Vos and Nico P.E. Vermeulen (2011) *Metabolism related toxicity of diclofenac in yeast as model system*. Toxicol Lett 200, 162-168.