

**Jolanda van Leeuwen, PhD**

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**EMPLOYMENT & EDUCATION**

- 2018-present **Tenure-track Assistant Professor**  
University of Lausanne, Switzerland
- 2017-2018 **Research associate in Functional Genomics**  
University of Toronto, Canada  
Advisors: Dr. Charlie Boone & Dr. Brenda Andrews
- 2011-2017 **Postdoctoral fellow in Functional Genomics**  
University of Toronto, Canada  
Advisors: Dr. Charlie Boone & Dr. 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: Dr. Jan Reedijk & Dr. Gianni Sava
- 2001-2004 **BSc in Chemistry (*cum laude*)**  
Leiden University, the Netherlands

**GRANTS, FELLOWSHIPS & AWARDS**

- 2023-2025 Swiss Cancer Research foundation, research grant, CHF 374'860.
- 2023 GenScript, collaborative research agreement, CHF 50'000 (estimation).
- 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.
- 2019-2024 Swiss National Science Foundation, Eccellenza grant, CHF 1'500'000.
- 2013-2016 Canadian Institutes of Health Research, postdoctoral fellowship.
- 2010 Travel award, Organization for the advancement of biochemical research.
- 2009 2<sup>nd</sup> 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 Department of Systems Biology, University of Massachusetts Chan Medical School, Worcester, USA.
- 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, *Life Sciences Switzerland (LS2) Systems Biology* symposium, Zäziwil, Switzerland.
- 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

- 2024- Co-organizer, *Network Biology* meeting, Cold Spring Harbor, USA.
- 2023-present Chair, Genomics and Systems Biology subcommittee, GSA *Yeast Genetics Meeting*, USA.
- 2022-present Program committee member, GSA *Yeast Genetics Meeting*, USA.
- 2022 Co-organizer, *Fungi & Friends*, Lausanne, Switzerland.
- 2022 Program committee member, Systems Track, *European Conference on Computational Biology*, Sitges, Spain.
- 2022 Co-organizer, CIG symposium “*Interactions in Biology*”, Lausanne, Switzerland.
- 2019-2022 Founder and co-organizer, *CRISPR and beyond - perturbations at scale to understand genomes*, Hinxton, UK.
- 2013-2016 Co-organizer, Annual postdoc symposium and biweekly seminars, University of Toronto, Canada.

#### CONFERENCE TALKS BY TRAINEES

- 2023 Amandine Batté, *International Conference on Yeast Genetics and Molecular Biology*, Florence, Italy.
- 2023 Linh Ho, *European Society of Human Genetics Conference*, Glasgow, UK.
- 2023 Linh Ho, CIG symposium “*Emergence of order across biological scales*”, Lausanne, Switzerland.
- 2023 Sabine van Schie, *Network Biology* meeting, Cold Spring Harbor, USA.
- 2023 Linh Ho, *Network Biology* meeting, Cold Spring Harbor, USA.
- 2022 Linh Ho, *CRISPR and beyond - perturbations at scale to understand genomes*, Hinxton, UK.
- 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
- 2018-2023 Betül Ünlü

**PhD students**

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

**MSc students (1 year, thesis project)**

2022-2023	Camille Schmidt	currently stagiaire with us
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	currently finishing Master’s degree
2021	Karunnya Tharmakulasinkam	currently finishing Master’s degree
2020	Christopher Forbes-Jaeger	currently at military/civilian service
2020	Elise Eray	currently laboratory manager with Aleksandar Antanasijevic, CHUV
2019	Jessica Burnier	currently PhD student with Jan-Willem Veening, UNIL

**Other**

2023-present	Jana Brenner	research assistant (~4h/week)
2023-present	Camille Schmidt	stagiaire
2023	Abigail Yoel	summer undergraduate student
2022-2023	Nadine Eliasson	research assistant (~8h/week, 7 months)
2022	Claire Paltenghi	stagiaire (6 months)
2021	Eve Mangin	research assistant (~4h/week, 9 months)
2020-2021	Jonas Barraud	technician apprentice (3 months)
2006-2018	Daily supervisor of 10 MSc and 24 BSc students.	

**Mentees**

2023-present	Vishwaja Jhaveri (Roignant lab)	PhD student mentorship program
2020-present	Chiara Auwerx (Reymond lab)	PhD student mentorship program
2019-present	Nina Dukanovic (Franken lab)	PhD student mentorship program
2018	Piret Avila (Lehmann lab)	PROWD mentorship program for female postdocs

**SERVICE ON THESIS COMMITTEES**

2023	Member, PhD exam committee, Mireia Seuma Bolognesi lab, Institute for Bioengineering of Catalonia, Spain	
2020-present	Member, PhD committee, Anastasiia Semenova Gambetta lab, University of Lausanne, Switzerland	
2020	President, PhD exam committee, Júlia Domingo Lehner lab, Center for Genomic Regulation, Spain	
2019-present	Member, PhD committee, Alexandra Bendel Diss lab, Friedrich Miescher Institute for Biomedical Research, Switzerland	
2019	Member, PhD 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*, 16 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**

- 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 Medicine; Genome Research; Journal of Molecular Biology; Nature Biotechnology; Nature Communications; Nature Genetics; Molecular Systems Biology; mSystems; PLOS Genetics; PNAS; Review Commons; and Science.
  - 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.
- 2023-present Chair, Equity, Diversity, and Inclusion committee, Center for Integrative Genomics, University of Lausanne, Switzerland.
- 2023 Member, Faculty search committee cell biology, Department of Fundamental Microbiology, University of Lausanne, Switzerland.
- 2022-present Chair, Safety committee, Center for Integrative Genomics, University of Lausanne, Switzerland.
- 2022 External expert, Faculty search committee CRISPR technology in human reproduction, Department of Endocrinology, Diabetology and Clinical Nutrition, University of Zurich, Switzerland.
- 2020-present Member, Equipment committee, Center for Integrative Genomics, University of Lausanne, Switzerland.
- 2020 Member, Faculty search committee microbial biotechnology, Department of Fundamental Microbiology, University of Lausanne, Switzerland.
- 2020 Member, Prix Guenin selection committee, Center for Integrative Genomics, University of Lausanne, Switzerland.

**OUTREACH & MEDIA COVERAGE**

- 2023 Human Technopole, interview on our research and the European Cancer Dependency Map initiative ([link](#)).
- 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

29. C Pons and **J van Leeuwen** (2023) *Meta-analysis of dispensable essential genes and their interactions with bypass suppressors* Life Sci Alliance, in press.
28. B Ünlü, C Pons, UL Ho, A Batté, P Aloy, and **J van Leeuwen** (2023) *Global analysis of suppressor mutations that rescue human genetic defects* Genome Med, 15, 78.
27. L Trastulla, A Savino, P Beltrao, I Cortés Ciriano, P Fenici, MJ Garnett, I Guerini, N López Bigas, I Mattaj, E Petsalaki, L Riva, CJ Tape, **J van Leeuwen**, S Sharma, F Vazquez, F Iorio (2023) *Highlights from the 1st European Cancer Dependency Map Symposium and Workshop*, FEBS Lett, 597, 1921-1927.
26. N Bosch-Guiteras and **J van Leeuwen** (2022) *Exploring conditional gene essentiality through systems genetics approaches in yeast* Curr Opin Genet Dev, 76, 101963.
25. A Pallaseni, EM Peets, J Koeppel, J Weller, T Vanderstichele, UL Ho, L Crepaldi, **J van Leeuwen**, F Allen, and L Parts (2022) *Predicting base editing outcomes using position-specific sequence determinants* Nucleic Acids Res, gkac161.
24. A Batté, SC van der Horst, M Tittel-Elmer, SM Sun, S Sharma, **J van Leeuwen**, A Chabes, and H van Attikum (2022) *Chl1 helicase controls replication fork progression by regulating dNTP pools* Life Sci Alliance, 5, e202101153.
23. L Parts, A Batté, M Lopes, MW Yuen, M Laver, BJ San Luis, JX Yue, C Pons, E Eray, P Aloy, G Liti, and **J van Leeuwen** (2021) *Natural variants suppress mutations in hundreds of essential genes* Mol Syst Biol, 17, e10138.
22. **J van Leeuwen\***, C Pons, G Tan, JZ Wang, J Hou, J Weile, M Gebbia, W Liang, E Shuteriqi, Z Li, M Lopes, M Ušaj, A Dos Santos Lopes, N van Lieshout, CL Myers, FP Roth, P Aloy, BJ Andrews\*, and C Boone\* (2020) *Systematic analysis of bypass suppression of essential genes*, Mol Syst Biol, 16, e9828 (\* co-corresponding authors).
21. M Costanzo, E Kuzmin, **J van Leeuwen**, B Mair, J Moffat, C Boone, and BJ Andrews (2019) *Global genetic networks and the genotype to phenotype relationship*. Cell, 177, 85-100.

### Postdoctoral research

20. E Kuzmin, B VanderSluis, AN Nguyen Ba, W Wang, EN Koch, M Usaj, A Khmelinskii, M Mattiazzi Usaj, **J van Leeuwen**, O Kraus, A Tresenrider, M Prysxlak, MC Hu, B Varriano, M Costanzo, M Knop, A Moses, CL Myers, BJ Andrews, and C Boone (2020) *Exploring whole-genome duplicate gene retention with complex genetic interaction analysis*. Science, 368, 1446.
19. J Hou, **J van Leeuwen**, BJ Andrews, and C Boone (2018) *Genetic network complexity shapes background-dependent phenotypic expression*. Trends Genet, 34, 578-586.
18. E Kuzmin, B VanderSluis, W Wang, G Tan, R Deshpande, Y Chen, M Usaj, A Balint, M Mattiazzi Usaj, **J van Leeuwen**, EN Koch, C Pons, AJ Dagilis, M Prysxlak, Z Wang, J Hanchard, M Riggi, K Xu, H Heydari, BJ San Luis, E Shuteriqi, H Zhu, N Van Dyk, S Sharifpoor, M Costanzo, R Loewith, A Caudy, D Bolnick, GW Brown, BJ Andrews, C Boone, and CL Myers (2018) *Systematic analysis of complex genetic interactions*. Science, 360, 283.
17. M Shin, **J van Leeuwen**, C Boone, and A 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. **J van Leeuwen**, C Boone, and BJ Andrews (2017) *Mapping a diversity of genetic interactions in yeast*. Curr Opin Syst Biol, 6, 14-21.
15. T Hart, AHY Tong, K Chan, **J van Leeuwen**, A Seetharaman, M Aregger, M Chandrashekar, N Hustedt, S Seth, A Noonan, A Habsid, O Sizova, L Nedyalkova, R Climie, L Tworzyanski, K Lawson, MA Sartori, S Alibeh, D Tieu, S Masud, P Mero, A Weiss, KR Brown, M Ušaj, M Billmann, M Rahman, M Costanzo, CL Myers, BJ Andrews, C Boone, D Durocher, and J Moffat (2017) *Evaluation and design of genome-wide CRISPR/Cas9 knockout screens*. G3 (Bethesda), 7, 2719-2727.
14. JS Piotrowski, SC Li, R Deshpande, SW Simpkins, J Nelson, Y Yashiroda, JM Barber, H Safizadeh, E Wilson, H Okada, AA Gebre, K Kubo, NP Torres, MA LeBlanc, K Andrusiak, R Okamoto, M Yoshimura, E DeRango-Adem, **J van Leeuwen**, K Shirahige, A Baryshnikova, GW Brown, H Hirano, M Costanzo, BJ Andrews, Y Ohya, H Osada, M Yoshida, CL Myers, and C Boone (2017) *Functional annotation of chemical libraries across diverse biological processes*. Nat Chem Biol, 13, 982-993.
13. **J van Leeuwen**, C Pons, C Boone, and BJ Andrews (2017) *Mechanisms of suppression: the wiring of genetic resilience*. BioEssays, 39, 1700042.
12. A Huseinovic, **J van Leeuwen**, T van Welsem, F van Leeuwen, NPE Vermeulen, JM Kooter, and JC Vos (2017) *The effect of acetaminophen on ubiquitin homeostasis in Saccharomyces cerevisiae* PLoS One 12, e017357.
11. **J van Leeuwen**, C Pons, JC Mellor, TN Yamaguchi, H Friesen, J Koschwanez, M Mattiazzi Ušaj, M Pechlaner, M Takar, M Ušaj, B VanderSluis, K Andrusiak, P Bansal, A Baryshnikova, C Boone, J Cao, A Cote, M Gebbia, G Horecka, I Horecka, E Kuzmin, N Legro, W Liang, N van Lieshout, M McNee, BJ San Luis, F Shaeri, E Shuteriqi, S Sun, L Yang, JY Youn, M Yuen, M Costanzo, AC Gingras, P Aloy, C Oostenbrink, A Murray, TR Graham, CL Myers, BJ Andrews, FP Roth, and C Boone (2016) *Exploring genetic suppression interactions on a global scale*. Science 354, 599.
10. M Costanzo, B VanderSluis, EN Koch, A Baryshnikova, C Pons, G Tan, W Wang, M Ušaj, J Hanchard, SD Lee, V Pelechano, EB Styles, M Billmann, **J van Leeuwen**, N van Dyk, ZY Lin, E Kuzmin, J Nelson, JS Piotrowski, T Srikumar, S Bahr, Y Chen, R Deshpande, CF Kurat, SC Li, Z Li, M Mattiazzi Ušaj, H Okada, N Pascoe, BJ San Luis, S Sharifpoor, E Shuteriqi, SW Simpkins, J Snider, H Garadi Suresh, Y Tan, H Zhu, N Malod-Dognin, V Janjic, N Przulj, OG Troyanskaya, I Stagljar, T Xia, Y Ohya, AC Gingras, B Raught, M Boutros, LM Steinmetz, CL Moore, AP Rosebrock, AA Caudy, CL Myers, BJ Andrews, and C Boone (2016) *A global genetic interaction network maps a wiring diagram of cellular function*. Science 353, 1381.
9. **J van Leeuwen**, BJ Andrews, C Boone, and G Tan (2015) *Rapid and efficient plasmid construction by homologous recombination in yeast (protocol)*. Cold Spring Harb Protoc 9, pdb.prot085100.
8. **J van Leeuwen**, BJ Andrews, C Boone, and G Tan (2015) *Construction of multi-fragment plasmids by homologous recombination in yeast (topic introduction)*. Cold Spring Harb Protoc 9, pdb.top084111.

#### PhD research

7. **J van Leeuwen**, NPE Vermeulen, and JC Vos (2012) *Yeast as a humanized model organism for biotransformation-related toxicity*. Curr Drug Metab 13, 1464-1475.
6. **J van Leeuwen**, B Ünlü, NPE Vermeulen, and JC 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. **J 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. **J van Leeuwen**, NPE Vermeulen, and JC 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. J Reinen, **J van Leeuwen**, Y Li, L Sun, PDJ Grootenhuis, CJ Decker, J Saunders, NPE Vermeulen, and JNM 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. **J van Leeuwen**, R Orij, M Luttkik, GJ Smits, NPE Vermeulen, and JC Vos (2011) *Subunits Rip1p and Cox9p of the respiratory chain contribute to diclofenac-induced mitochondrial dysfunction.* Microbiology 157, 685-694.
1. **J van Leeuwen**, G Vredenburg, S Dragovic, TFJ Tjong, JC Vos, and NPE Vermeulen (2011) *Metabolism related toxicity of diclofenac in yeast as model system.* Toxicol Lett 200, 162-168.