

CURRICULUM VITAE

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KEYWORDS

Chromatin dynamics, epigenetics, transcriptional silencing, heterochromatin, synthetic biology

EDUCATION

Postdoctoral Research

03.2009 – 06.2013	Laboratory of Gerald R. Crabtree, Howard Hughes Medical Institutes and Stanford University School of Medicine, Stanford CA, USA
02.2008 – 12.2008	Dirk Schübeler, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland

Graduate Education

08.2003 – 01.2008	Dirk Schübeler, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland
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Undergraduate Education

10.1999 – 05.2003	Mannheim University of Applied Sciences, Mannheim
09.1998 – 06.1999	California State University, Northridge CA, USA

APPOINTMENTS

08.2018 – present	Assistant Professor, Biochemistry and Molecular Medicine, Stem Cells and Regenerative Medicine, University of Southern California
08.2013 – 07.2019	Group Leader at IMBA – Institute of Molecular Biotechnology of the Austrian Academy of Sciences

AWARDS

2015 – 2019	HFSP Career Development Award (CDA)
2013 – 2019	NFG - New Frontiers Group (career development award by the Austrian Academy of Sciences)
2010 – 2012	HFSP Long-Term Postdoctoral Fellowship
2009 – 2010	EMBO Long-Term Postdoctoral Fellow
2009	Swiss National Science Foundation Postdoctoral Fellowship (gratefully declined)

RELEVANT ACTIVITIES

2017	Polycomb in vivo Assay
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2013 – present Ad-hoc reviewer for Science, Genes & Development, Nucleic Acid Research

FUNDED PROJECTS

09.2021 – 08.2026 NIH-NIMH R01 grant. Principle Investigator, Award Number: R01MH122565-01A1

09.2018 – 04.2022 NIH-NCI multi-PI R01 grant. Program Director: Stephen Frye, Sub PI: Oliver Bell, Award Number: R01CA218392

08.2013 – 07.2018 NFG-05 (PI: Bell), New Frontiers Group (NFG) Grant (Austrian Academy of Sciences (OEAW)): *Investigating Chromatin Dynamics and Memory in vivo*
Total: € 3.300.000

03.2015 – 02.2019 CDA00036/2014-C (PI: Bell), HUMAN FRONTIERS SCIENCE PROGRAMME (HFSP): *Investigating the dynamics and memory of Polycomb-mediated gene repression in vivo*
Total: \$ 300.000

MOST RELEVANT COLLABORATIONS

Stephen V. Frye, University of North Carolina (UNC) Eshelman School of Pharmacy. The Frye and Bell labs collaborate on the chemical and molecular biology of Polycomb regulation.

Ulrich Elling, (IMBA) Institute of Molecular Biotechnology, Vienna, Austria. The Bell and the Elling labs collaborate to identify novel genetic interactors of epigenetic gene silencing using genome-wide CRISPR mutagenesis in mouse ES cells.

PUBLICATIONS

Yelagandula R*, Stecher K*, Novatchkova M, Michetti L, Michlits G, Wang J, Hofbauer P, Pribitzer C, Vainorius G, Isbel L, Mendjan S, Schübeler D, Elling U, Brennecke J, Bell O. ZFP462 targets heterochromatin to transposon-derived enhancers restricting transcription factor binding and expression of lineage-specifying genes. BioRxiv pre-print 02.2021. doi: <https://doi.org/10.1101/2021.06.28.449463>. *shared first authors

Suh JL, Bsteh D, Si Y, Hart B, Weaver TM, Pribitzer C, Lau R, Soni S, Ogana H, Rectenwald JM, Norris JL, Cholensky SH, Sagum C, Umana JD, Li D, Hardy B, Bedford MT, Mumenthaler SM, Lenz HJ, Kim YM, Wang GG, Pearce KH, James LI, Kireev DB, Musselman CA, Frye SV and Bell O. REPROGRAMMING CBX8-PRC1 FUNCTION WITH A POSITIVE ALLOSTERIC MODULATOR. BioRxiv pre-print 02.2021. doi: <https://doi.org/10.1101/2021.02.23.432388>

Zepeda-Martinez JA, Pribitzer C, Wang J, Bsteh D, Golumbeanu S, Zhao Q, Burkard TR, Reichholf B, Rhie SK, Jude J, Moussa HF, Zuber J, **Bell O**. Parallel PRC2/cPRC1 and vPRC1 pathways silence lineage-specific genes and maintain self-renewal in mouse embryonic stem cells. *Sci. Adv.* 2020; 6: eaax5692 1 April 2020

Lamb KN, Bsteh D, Dishman SN, Moussa HF, Fan H, Stuckey JI, Norris JL, Cholensky SH, Li D, Wang J, Sagum C, Stanton BZ, Bedford MT, Pearce KH, Kenakin TP, Kireev DB, Wang GG, James LI, **Bell O***, Frye SV*. Discovery and Characterization of a Cellular Potent Positive

Allosteric Modulator of the Polycomb Repressive Complex 1 Chromodomain, CBX7. *Cell Chem Biol.* 2019 Oct 17;26(10):1365-1379.e22. doi: 10.1016/j.chembiol.2019.07.013.

*co-corresponding author

MacDonald IA, Butler KV, Herring LE, Clinkscales SE, Yelagandula R, Stecher K, **Bell O**, Graves LM, Jin J, Hathaway NA. Pathway-Based High-Throughput Chemical Screen Identifies Compounds That Decouple Heterochromatin Transformations. *SLAS Discov.* 2019 Sep;24(8):802-816. doi: 10.1177/2472555219849838.

Kruszka P, Hu T, Hong S, Signer R, Cogné B, Isidor B, Mazzola SE, Giltay JC, van Gassen KLI, England EM, Pais L, Ockeloen CW, Sanchez-Lara PA, Kinning E, Adams DJ, Treat K, Torres-Martinez W, Bedeschi MF, Iacone M, Blaney S, **Bell O**, Tan TY, Delrue MA, Jurgens J, Barry BJ, Engle EC, Savage SK, Fleischer N, Martinez-Agosto JA, Boycott K, Zackai EH, Muenke M. Phenotype delineation of ZNF462 related syndrome. *Am J Med Genet A.* 2019 Jul 30;. doi: 10.1002/ajmg.a.61306.

Moussa HF, Bsteh D, Yelagandula R, Pribitzer C, Stecher K, Bartalska K, Michetti L, Wang J, Zepeda-Martinez JA, Elling U, Stuckey JI, James LI, Frye SV, **Bell O**. Canonical PRC1 controls sequence-independent propagation of Polycomb-mediated gene silencing. *Nat Commun.* 2019 Apr 29;10(1):1931. doi: 10.1038/s41467-019-09628-6.

Chory EJ, Calarco JP, Hathaway NA, **Bell O**, Neel DS, Crabtree GR. Nucleosome Turnover Regulates Histone Methylation Patterns over the Genome. *Mol Cell.* 2019 Jan 3;73(1):61-72.e3. doi: 10.1016/j.molcel.2018.10.028.

Elling U, Wimmer R, Leibbrandt A, Burkard T, Michlits G, Leopoldi A, Abdeen D, Zhuk S, Handl C, Liebergesell J, Hubmann M, Husa AM, Kinzer M, Schuller N, Wetzel E, *Zepeda-Martinez JA*, Micheler TM, Blaas D, **Bell O**, Stark A, Marquis J, Levebvre G, Descombes P, Hoepfner D, Estoppey D, Gerhardt H, Aspalter I, Ivics Z, Riedl R and Penninger JM. A conditional ES cell biobank for functional genomics. *Nature.* 2017 Oct 5;550(7674):114-118. doi: 10.1038/nature24027

Cheloufi S, Elling U, Hopfgartner B, Jung YL, Murn J, Ninova M, Hubmann M, Badeaux AI, Euong Ang C, Tenen D, Wesche DJ, Abazova N, Hogue M, Tasdemir N, Brumbaugh J, Rathert P, Jude J, Ferrari F, Blanco A, Fellner M, Wenzel D, Zinner M, Vidal SE, **Bell O**, Stadtfeld M, Chang HY, Almouzni G, Lowe SW, Rinn J, Wernig M, Aravin A, Shi Y, Park PJ, Penninger JM, Zuber J and Hochedlinger K. (2015) The histone chaperone CAF-1 safeguards somatic cell identity. *Nature* 528: 218–224

Hathaway NA#, **Bell O**#, Hodges C, Miller EL, Neel DS & Crabtree GR (2012) Dynamics and memory of heterochromatin in living cells. *Cell* 149: 1447–1460

#equal contribution

Bell O*, Tiwari VK, Thomä NH, Schübeler D (2011) Determinants and dynamics of genome accessibility *Nature reviews. Genetics* 12 (8), 554

*co-corresponding author

Bell O#, Schwaiger M#, Oakeley EJ, Lienert F, Beisel C, Stadler MB & Schübeler D (2010) Accessibility of the Drosophila genome discriminates PcG repression, H4K16 acetylation and replication timing. *Nature Structural & Molecular Biology* 17: 894–900
#equal contribution

Schwaiger M, Stadler MB, **Bell O**, Kohler H, Oakeley EJ, Schübeler D (2009) Chromatin state marks cell-type-and gender-specific replication of the Drosophila genome. *Genes & Development* 23 (5), 589-601

Bell O, Schübeler D (2009) Chromatin: sub out the replacement Current Biology 19 (14), R545-R547

Bell O, Conrad T, Kind J, Wirbelauer C, Akhtar A & Schübeler D (2008) Transcription-Coupled Methylation of Histone H3 at Lysine 36 Regulates Dosage Compensation by Enhancing Recruitment of the MSL Complex in Drosophila melanogaster. *Molecular and Cellular Biology* 28: 3401–3409

Bell O, Wirbelauer C, Hild M, Scharf AND, Schwaiger M, MacAlpine DM, Zilbermann F, van Leeuwen F, Bell SP, Imhof A, Garza D, Peters AHFM & Schübeler D (2007) Localized H3K36 methylation states define histone H4K16 acetylation during transcriptional elongation in Drosophila. *EMBO J* 26: 4974–4984

Wirbelauer C, **Bell O** and Schübeler D. (2005) Variant histone H3.3 is deposited at sites of nucleosomal displacement throughout transcribed genes while active histone modifications show a promoter-proximal bias. *Genes & Development* 19: 1761–1766

Galy B, Ferring D, Minana B, **Bell O**, Janser HG, Muckenthaler M, Schümann K, Hentze MW (2005) Altered body iron distribution and microcytosis in mice deficient in iron regulatory protein 2 (IRP2) *Blood* 106 (7), 2580-2589

BOOK CHAPTERS

Wirbelauer C, Schwaiger M, **Bell O**, Weber M, Schübeler D. Epigenetic regulation: An array of tasks beyond expression.

TEACHING EXPERIENCE

2018 – present	course co-director BIOC543, lecturer INTD561, lecturer BIOC581
2014 – 2018	Graduate lectures in Chromosome Biology at the University of Vienna

During my graduate and postdoctoral trainings, I have trained and mentored two students BSc students and two PhD students. Since 2013 I have been the primary supervisor to six MSc students, four PhD students and one postdoctoral fellow.