Erika M. Kvikstad

The Wellcome Trust Centre for Human Genetics
University of Oxford
Roosevelt Drive
Oxford, UK OX3 7BN
+44 (0)1865 287758
Erika.Kvikstad@well.ox.ac.uk
https://www.linkedin.com/in/erikakvikstad/
https://scholar.google.co.uk/erikakvikstad

EDUCATION

2003-2009	**PhD, Genetics** The Pennsylvania State University University Park, PA, USA
1994-1999	**B.S. Honors, Biochemistry and French** University of Wisconsin-Madison Madison, WI, USA

RESEARCH EXPERIENCE

2016-present	**Bioinformatician,** Oxford Biomedical Research Centre University of Oxford Oxford, UK Group Leader: Jenny Taylor
2015	**Visiting Scientist**, Medical and Population Genetics The Broad Institute, Inc. Boston, Massachusetts, USA Host: Daniel MacArthur
2013-2015	**Research Associate**, The Wellcome Trust Centre for Human Genetics University of Oxford Oxford, UK Group Leader: Gerton Lunter
2009-2012	**Postdoctoral Researcher**, Department of Genetics and Evolutionary Genomics Université Lyon 1 Lyon, France Advisor: Laurent Duret
2003-2009	**Research Assistant**, Department of Biology The Pennsylvania State University University Park, PA, USA Advisor: Kateryna Makova
2000-2003	**Research Specialist**, Department of Genetics/Biotechnology Center University of Wisconsin-Madison Madison, WI, USA Group Leader: David C. Schwartz
1999-2000	**Associate Research Specialist**, Department of Chemistry University of Wisconsin-Madison Madison, WI, USA Group Leader: Lloyd M. Smith

GRANTS AND FELLOWSHIPS

2015	**European Molecular Biology Organization**, Short-Term Fellowship Host: The Broad Institute, Inc Boston, Massachusetts, USA
2010-2012	**European Molecular Biology Organization,** Long-Term Fellowship Host: Université Lyon 1 Lyon, France
2005-2008	**The Pennsylvania State University**, Academic Computing Fellowship The Pennsylvania State University University Park, PA, USA

HONORS AND AWARDS

2015	The Wellcome Trust Centre for Human Genetics: Carer's Fund Award
2015	Society for Molecular Biology and Evolution: Childcare Travel Award
2008	Jeanette Ritter Mohnkern Graduate Student Scholarship in Biology
2006-2007	Institute for Molecular Evolutionary Genetics: Travel Award
2006	Intercollege Graduate Degree Program in Genetics: Travel Award
2005-2006	Women in Science and Engineering (WISE): Lockheed Martin Travel Grant
2004-2005	The Pennsylvania State University: Graham Endowed Fellowship
2004-2005	The Pennsylvania State University: J. Ben and Helen D. Hill Memorial Award
2003-2004	The Pennsylvania State University: Braddock Research Award
2003-2004	The Pennsylvania State University: Graduate Fellowship, university-wide recognition of highly recruited students
1999	University of Wisconsin-Madison: Graduation with Honors

PUBLICATIONS

1. **Kvikstad E.M**., Piazza P., Taylor J.C., Lunter, G. (2017) A high throughput screen for active human transposable elements. bioRxiv doi: 10.1101/192708.
2. Anna Schuh, Helene Dreau, Samantha JL Knight, Rosanna T Mizani, Richard Colling, Dimitris Vavoulis, Kate Ridout, Pavlos Antoniou**, Erika M. Kvikstad**, Melissa Pentony, Angela Hamblin, Andrew Protheroe, Marina Parton, Ketan A Shah, Orosz Zsolt, Nick Athanasou, Bass Hassan, Adrienne M Flanagan, Ahmed Ahmed, Stuart Winter, Adrian Harris, I Tomlinson, Niko Popitsch, David Church, Jenny C Taylor. (2017) Whole Genome Sequencing reveals clinically actionable mutation profiles in patients with cancer. (submitted).
3. **Kvikstad E.M.,** Duret L. (2014) Strong heterogeneity in mutation rate causes misleading hallmarks of natural selection on indel mutations. *Molecular Biology and Evolution* 31(1):23-36.
4. **Kvikstad E.M**., Makova K.D. (2013) Rapid evolution of genes on the human X-chromosome version 2.0. In: *Encyclopedia Of Life Sciences*. John Wiley & Sons, Ltd: Chichester.
5. Montgomery S.B.*, Goode D*, **Kvikstad E***, Albers K, Zhang Z, Mu XJ, Ananda G, Howie B, The 1000 Genomes Pilot Project Consortium, Sidow A, Duret L, Gerstein M, Makova K, Marchini J, McVean G, Lunter G. (2013) The origin, evolution, and functional impact of short insertion-deletion variants identified in 179 human genomes. *Genome Research* 23(5): 749-61.

   * joint first authors

6. **Kvikstad E.M.**, Makova K.D. (2010) The (r)evolution of SINE vs. LINE distributions in primate genomes: Sex chromosomes are important. *Genome Research* 20: 600-613. **Featured cover.**
7. **Kvikstad E.M**., Chiaromonte F., Makova K.D. (2009) Ride the wavelet: Scale specific dynamics of genomic contexts flanking small insertions and deletions. *Genome Research* 19: 1153-1164.
8. **Kvikstad E.M**., Makova K.D. (2008) Rapid evolution of genes on the human X-chromosome. In: *Encyclopedia Of Life Sciences*. John Wiley & Sons, Ltd: Chichester.
9. **Kvikstad E.M**., Tyekucheva S., Chiaromonte F., Makova K.D. (2007) A macaque's-eye view of human insertions and deletions: Differences in mechanisms. *PLoS Comp Bio* 3(9): e176.
10. Zhou S, Kile A, Bechner M, Place M, **Kvikstad E**, Deng W, Wei J, Severin J, Runnheim R, Churas C, Forrest D, Dimalanta ET, Lamers C, Burland V, Blattner FR, Schwartz DC. (2004) Single-molecule approach to bacterial genomic comparisons via optical mapping. *J Bacteriol.* **186**(22): 7773-82.
11. Zhou S, Kile A, **Kvikstad E**, Bechner M, Severin J, Forrest D, Runnheim R, Churas C, Anantharaman TS, Myler P, Vogt C, Ivens A, Stuart K, Schwartz DC. (2004) Shotgun optical mapping of the entire *Leishmania major* Friedlin genome. *Mol Biochem Parasitol.* **138**(1):97-106.
12. Zhou S, **Kvikstad E**, Kile A, Severin J, Forrest D, Runnheim R, Churas C, Hickman JW, Mackenzie C, Choudhary M, Donohue T, Kaplan S, Schwartz DC. (2003) Whole-genome shotgun optical mapping of *Rhodobacter sphaeroides* strain 2.4.1 and its use for whole genome shotgun sequence assembly. *Genome Research* **13**(9): 2142-51.
13. Zhou S, Deng W, Anantharaman TS, Lim A, Dimalanta ET, Wang J, Wu T, Chunhong T, Creighton R, Kile A, **Kvikstad E**, Bechner M, Yen G, Garic-Stankovic A, Severin J, Forrest D, Runnheim R, Churas C, Lamers C, Perna NT, Burland V, Blattner FR, Mishra B, Schwartz DC. (2002) A Whole Genome Shotgun Optical Map of *Yersinia Pestis* Strain KIM. *Applied and Environmental Microbiology* **68**: 6321-6331.

PRESENTATIONS

Invited Seminars

2017	Nevada Institute Personalized Medicine. March 2017.
2017	School of Pharmacy and Biomedical Sciences: University of Portsmouth, UK. January 2017.
2016	Wolfson Wohl Research Centre: University of Glasgow, UK. December 2016.
2015	Analytic and Translational Genetics Unit: Massachusetts General Hospital, USA. September 2015.
2015	Center for Medical Genomics: The Pennsylvania State University-Research Park, PA, USA. August 2015.
2015	Department of Genetics: University of Cambridge, UK. July 2015.
2011	Center for Comparative Genomics and Bioinformatics: The Pennsylvania State University-Research Park, PA, USA. May 2011.
2010	Hubricht Institute: Utrecht, The Netherlands. April 2010.
2009	Laboratoire Biométrie et Biologie Évolutive: Université Claude Bernard-Lyon 1, France. January 2009.
2009	Centre Integratif de Genomique: University Lausanne-Lausanne, Switzerland. January 2009.

Contributed Talks at Conferences and Meetings

2014	Kvikstad E.M., Lunter G. A cost-effective screen for identifying novel transposable element insertions in human genomes. American Society for Human Genetics Annual Meeting: San Diego, CA, USA. October 2014.
2014	Kvikstad E.M., Duret L. Strong heterogeneity in mutation rate causes misleading hallmarks of natural selection on indel mutations. EMBO Long Term Fellows' Meeting 2014: EMBL, Heidelberg, Germany. June 2014.
2012	Kvikstad E.M., Duret L. Give a little, take a little: Indels and the evolution of genome architecture. Genome Informatics: Cambridge, UK. September 2012.
2011	Kvikstad E.M., Duret L. Indels and the evolution of genome architecture: the long and short of it. Groupement de Recherche Européen –AR "Comparative Genomics": Université Claude Bernard-Lyon 1, France. November 2011.
2010	Kvikstad, E.M., Duret L., 1000 Genomes Consortium Indel Analysis Subgroup. Heterogeneity in patterns of insertions and deletions segregating in 1000 Genomes. Integrative Post-Genomics: Université Claude Bernard-Lyon 1, France. November 2010.
2009	Kvikstad E.M., Makova K.D. The (r)evolution of SINE vs. LINE distributions in primate genomes: Do sex chromosomes matter? Groupement de Recherche Européen –AR "Comparative Genomics": Université Claude Bernard-Lyon 1, France. October 2009.
2007	Kvikstad E.M., Tyekucheva, S., Chiaromonte, F., Makova K.D. A macaque's-eye view of human insertions and deletions: Regional rate variation and mechanisms of mutagenesis. Society for Molecular Biology and Evolution Annual Meeting: Halifax, Nova Scotia, Canada. June 2007.
2006	Kvikstad E.M., Makova K.D. Contribution of insertion/deletion events to sex chromosome architecture as inferred from human-chimpanzee genomic alignments. Society for Molecular Biology and Evolution Annual Meeting: Tempe, AZ, USA. May 2006.

POSTERS

2015	Kvikstad E.M., Lunter G. Towards quantifying the disease impact of transposable element (TE) insertions in humans. EMBO/EMBL Symposium "The Mobile Genome: Genetic and physiological impacts of transposable elements": Heidelberg, Germany. September 2015.
2015	Kvikstad E.M., Lunter G. A cost-effective whole-genome screen for identifying novel transposable element (TE) insertions. Society for Molecular Biology and Evolution Annual Meeting 2015: Vienna, Austria. July 2015.
2012	Kvikstad E.M., Duret L. Indels and the evolution of genome architecture. Society for Molecular Biology and Evolution Annual Meeting 2012: Dublin, Ireland. June 2012.
2011	Kvikstad E.M., Duret L., 1000 Genomes Consortium Indel Analysis Subgroup. Born this way: Insertions and deletions are equally deleterious. The EMBO Meeting: Vienna, Austria. September 2011.
2011	Kvikstad E.M., Duret L., 1000 Genomes Consortium Indel Analysis Subgroup. Born this way: Insertions and deletions are equally deleterious. The Biology of Genomes: Cold Spring Harbor Laboratory, NY, USA. May 2011.

2008	Kvikstad E.M., Chiaromonte, F., Makova K.D. Ride the wavelet: Scale specific dynamics of genomic contexts flanking small insertions and deletions. Society for Molecular Biology and Evolution 2008: Barcelona, Spain. June 2008.
2008	Kvikstad E.M., Chiaromonte, F., Makova K.D. Ride the wavelet: Scale specific dynamics of genomic contexts flanking small insertions and deletions. The Biology of Genomes: Cold Spring Harbor Laboratory, NY, USA. May 2008.
2007	Kvikstad E.M., Tyekucheva, S., Chiaromonte, F., Makova K.D. A macaque's-eye view of human insertions and deletions: Regional rate variation and mechanisms of mutagenesis. The Biology of Genomes: Cold Spring Harbor Laboratory, NY, USA. May 2007.
2006	Kvikstad E.M., Makova K.D. Contribution of insertion/deletion events to sex chromosome architecture as inferred from human-chimpanzee genomic alignments. The Biology of Genomes: Cold Spring Harbor Laboratory, NY, USA. May 2006.
2006	Kvikstad E.M., Makova K.D. Contribution of insertion/deletion events to sex chromosome architecture as inferred from human-chimpanzee genomic alignments. The Pennsylvania State University Genetics Symposium 2006: The Pennsylvania State University-Research Park, PA, USA. April 2006.
2004	Goetting-Minesky P, **Kvikstad E**, Makova K. Male mutation bias in Perissodactyla and Cetacea. Society for Molecular Biology and Evolution Annual Meeting 2004: The Pennsylvania State University-Research Park, PA, USA. June 2004.

TEACHING AND MENTORING EXPERIENCE

2017	"Introduction to Genomics" School of Biological Sciences University of Canterbury Guest Lecturer
2014	Galaxy Demo The Wellcome Trust Centre for Human Genetics University of Oxford Instructor
2011-2012	Eugénie Pessia Université Lyon 1 PhD Thesis Committee Member
2010	Galaxy Demo PRABI Université Claude Bernard-Lyon 1 Instructor
2009	Evolution of Developmental Mechanisms The Pennsylvania State University Teaching Assistant
2008	Molecular Evolution The Pennsylvania State University Teaching Assistant
2006-2008	"Evolution of Sex Chromosomes", Molecular Evolution The Pennsylvania State University Guest Lecturer

2005	3rd Bioinformatics Workshop The Pennsylvania State University Teaching Assistant

PROFESSIONAL SERVICE

Professional Membership

2014-present	Gender Equality Committee, The Wellcome Trust Centre for Human Genetics
2013-present	Oxford Females in Engineering, Science and Technology (OxFEST)
2006-present	Society for Molecular Biology and Evolution
2014	American Society of Human Genetics
2003-2009	Institute of Molecular Evolutionary Genetics

Conferences and Symposia

2010	Technical staff, Society for Molecular Biology and Evolution Annual Meeting (Lyon, France)
2006	Technical support, CSHL Biology of Genomes (Cold Spring Harbor Laboratory, NY)
2005	Technical support, Penn State 24th Summer Symposium in Molecular Biology "Comparative and Functional Genomics" (University Park, PA)

Review of manuscripts

- *Bioinformatics*
- *BMC Evolutionary Biology*
- *Genome Biology*
- *Human Mutation*
- *Journal of Molecular Evolution*
- *Molecular Biology and Evolution*
- *Molecular Genetics and Genomics*
- *Nature Scientific Reports*
- *Nucleic Acids Research*
- *PLoS Genetics*

Outreach

2016	Volunteer, Oxford Biomedical Research Centre Open Day, John Radcliffe Hospital, Oxford, UK
2015-2016	Volunteer, Question of Taste DNA Workshop, The Museum of Natural History, Oxford UK
2014	Volunteer, Science in Your World, Oxfordshire Science Festival, Oxford, UK
2010	Volunteer**,** 19 édition de la Fête de la Science "Biodiversité, biotechnologie et bioéthique, quels défis pour l'avenir ?" Lyon, France

COMPUTATIONAL SKILLS

Languages

- Perl
- R
- AWK
- MySQL
- HTML

Bioinformatics tools/packages

- BWA, Stampy
- SAM tools, Picard tools
- BED tools
- VCF tools, BCF tools
- MEGA, HyPHy, PAML
- CLUSTAL, MUSCLE, BLAST, BlastZ
- Galaxy, EMBOSS suite
- UCSC Table Browser/Genome Browser, IGV
- Plink

Operating Systems

- Linux/Unix
- OSX, Windows

Other

- BASH shell scripting
- UNIX utilities
- HPC cluster job management (PBS, SGE, Torque)