

# Stanford

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## Dmitri Petrov

Kevin and Michelle Douglas Professor in the School of Humanities and Sciences

Biology

 NIH Biosketch available Online

 Curriculum Vitae available Online

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### Bio

#### ACADEMIC APPOINTMENTS

- Professor, Biology
- Member, Bio-X
- Member, Child Health Research Institute
- Affiliate, Stanford Woods Institute for the Environment

#### LINKS

- My Lab Site: <http://petrov.stanford.edu>

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### Research & Scholarship

#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Evolution of genomes and population genomics of adaptation and variation

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### Teaching

#### COURSES

##### 2017-18

- Reading the Origin of Species in the Age of Genomics: OSPPARIS 58 (Win)

##### 2016-17

- Evolution: BIO 143 (Win)
- Fundamentals of Molecular Evolution: BIO 113, BIO 244 (Win)

##### 2015-16

- Evolution: BIO 143 (Win)
- Fundamentals of Molecular Evolution: BIO 113, BIO 244 (Win)

##### 2014-15

- Evolution: BIO 143 (Spr)
- Fundamentals of Molecular Evolution: BIO 113, BIO 244 (Win)

#### STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Elora Lopez

#### Postdoctoral Faculty Sponsor

Sharon Greenblum, Chuan Li, Christopher McFarland, Monica Sanchez

#### Doctoral Dissertation Advisor (AC)

Alison Feder, Yuping Li, Nicole Nova

#### Doctoral (Program)

Alison Feder, Yuping Li, Nicole Nova

### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biology (School of Humanities and Sciences) (Phd Program)
- Biomedical Informatics (Phd Program)

### Publications

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#### PUBLICATIONS

- **A quantitative and multiplexed approach to uncover the fitness landscape of tumor suppression in vivo.** *Nature methods*  
Rogers, Z. N., McFarland, C. D., Winters, I. P., Naranjo, S., Chuang, C., Petrov, D., Winslow, M. M.  
2017
- **Development of a Comprehensive Genotype-to-Fitness Map of Adaptation-Driving Mutations in Yeast.** *Cell*  
Venkataram, S., Dunn, B., Li, Y., Agarwala, A., Chang, J., Ebel, E. R., Geiler-Samerotte, K., Hérisant, L., Blundell, J. R., Levy, S. F., Fisher, D. S., Sherlock, G., Petrov, et al  
2016; 166 (6): 1585-1596 e22
- **Heterozygote Advantage Is a Common Outcome of Adaptation in *Saccharomyces cerevisiae*** *GENETICS*  
Sellis, D., Kvitek, D. J., Dunn, B., Sherlock, G., Petrov, D. A.  
2016; 203 (3): 1401-?
- **Viruses are a dominant driver of protein adaptation in mammals** *ELIFE*  
Enard, D., Cai, L., Gwennap, C., Petrov, D. A.  
2016; 5
- **More effective drugs lead to harder selective sweeps in the evolution of drug resistance in HIV-1.** *eLife*  
Feder, A. F., Rhee, S., Holmes, S. P., Shafer, R. W., Petrov, D. A., Pennings, P. S.  
2016; 5
- **Obstruction of adaptation in diploids by recessive, strongly deleterious alleles.** *Proceedings of the National Academy of Sciences of the United States of America*  
Assaf, Z. J., Petrov, D. A., Blundell, J. R.  
2015; 112 (20): E2658-66
- **Common variants spanning PLK4 are associated with mitotic-origin aneuploidy in human embryos** *SCIENCE*  
McCoy, R. C., Demko, Z., Ryan, A., Banjevic, M., Hill, M., Sigurjonsson, S., Rabinowitz, M., Fraser, H. B., Petrov, D. A.  
2015; 348 (6231): 235-238
- **Quantitative evolutionary dynamics using high-resolution lineage tracking.** *Nature*  
Levy, S. F., Blundell, J. R., Venkataram, S., Petrov, D. A., Fisher, D. S., Sherlock, G.  
2015; 519 (7542): 181-186
- **Recent selective sweeps in North American *Drosophila melanogaster* show signatures of soft sweeps.** *PLoS genetics*  
Garud, N. R., Messer, P. W., Buzbas, E. O., Petrov, D. A.  
2015; 11 (2)

- **Genomic Evidence of Rapid and Stable Adaptive Oscillations over Seasonal Time Scales in *Drosophila*** *PLOS GENETICS*  
Bergland, A. O., Behrman, E. L., O'Brien, K. R., Schmidt, P. S., Petrov, D. A.  
2014; 10 (11)
- **Soft Selective Sweeps in Complex Demographic Scenarios** *GENETICS*  
Wilson, B. A., Petrov, D. A., Messer, P. W.  
2014; 198 (2): 669-684
- **Precise estimates of mutation rate and spectrum in yeast** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Zhu, Y. O., Siegal, M. L., Hall, D. W., Petrov, D. A.  
2014; 111 (22): E2310-E2318
- **Genome-wide signals of positive selection in human evolution.** *Genome research*  
Enard, D., Messer, P. W., Petrov, D. A.  
2014; 24 (6): 885-895
- **Illumina TruSeq synthetic long-reads empower de novo assembly and resolve complex, highly-repetitive transposable elements.** *PloS one*  
McCoy, R. C., Taylor, R. W., Blauwkamp, T. A., Kelley, J. L., Kertesz, M., Pushkarev, D., Petrov, D. A., Fiston-Lavier, A.  
2014; 9 (9)
- **Population genomics of rapid adaptation by soft selective sweeps** *TRENDS IN ECOLOGY & EVOLUTION*  
Messer, P. W., Petrov, D. A.  
2013; 28 (22): 659-669
- **Frequent adaptation and the McDonald-Kreitman test.** *Proceedings of the National Academy of Sciences of the United States of America*  
Messer, P. W., Petrov, D. A.  
2013; 110 (21): 8615-8620
- **Strong purifying selection at synonymous sites in *D. melanogaster*.** *PLoS genetics*  
Lawrie, D. S., Messer, P. W., Hershberg, R., Petrov, D. A.  
2013; 9 (5)
- **Host species and environmental effects on bacterial communities associated with *Drosophila* in the laboratory and in the natural environment.** *PloS one*  
Staubach, F., Baines, J. F., Künzel, S., Bik, E. M., Petrov, D. A.  
2013; 8 (8)
- **Heterozygote advantage as a natural consequence of adaptation in diploids** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Sellis, D., Callahan, B. J., Petrov, D. A., Messer, P. W.  
2011; 108 (51): 20666-20671
- **High sensitivity to aligner and high rate of false positives in the estimates of positive selection in the 12 *Drosophila* genomes** *GENOME RESEARCH*  
Markova-Raina, P., Petrov, D.  
2011; 21 (6): 863-874
- **Population Genomics of Transposable Elements in *Drosophila melanogaster*** *MOLECULAR BIOLOGY AND EVOLUTION*  
Petrov, D. A., Fiston-Lavier, A., Lipatov, M., Lenkov, K., Gonzalez, J.  
2011; 28 (5): 1633-1644
- **T-lex: a program for fast and accurate assessment of transposable element presence using next-generation sequencing data** *NUCLEIC ACIDS RESEARCH*  
Fiston-Lavier, A., Carrigan, M., Petrov, D. A., Gonzalez, J.  
2011; 39 (6)
- **Evidence That Mutation Is Universally Biased towards AT in Bacteria** *PLOS GENETICS*  
Hershberg, R., Petrov, D. A.  
2010; 6 (9)
- **Evidence that Adaptation in *Drosophila* Is Not Limited by Mutation at Single Sites** *PLOS GENETICS*  
Karasov, T., Messer, P. W., Petrov, D. A.

2010; 6 (6)

- **Adaptive Evolution of Pelvic Reduction in Sticklebacks by Recurrent Deletion of a Pitx1 Enhancer** *SCIENCE*  
Chan, Y. F., Marks, M. E., Jones, F. C., Villarreal, G., Shapiro, M. D., Brady, S. D., Southwick, A. M., Absher, D. M., Grimwood, J., Schmutz, J., Myers, R. M., Petrov, D., Jonsson, et al  
2010; 327 (5963): 302-305
- **General Rules for Optimal Codon Choice** *PLOS GENETICS*  
Hershberg, R., Petrov, D. A.  
2009; 5 (7)
- **Pervasive Natural Selection in the Drosophila Genome?** *PLOS GENETICS*  
Sella, G., Petrov, D. A., Przeworski, M., Andolfatto, P.  
2009; 5 (6)
- **Pervasive Hitchhiking at Coding and Regulatory Sites in Humans** *PLOS GENETICS*  
Cai, J. J., Macpherson, J. M., Sella, G., Petrov, D. A.  
2009; 5 (1)
- **High Functional Diversity in Mycobacterium tuberculosis Driven by Genetic Drift and Human Demography** *PLOS BIOLOGY*  
Hershberg, R., Lipatov, M., Small, P. M., Sheffer, H., Niemann, S., Homolka, S., Roach, J. C., Kremer, K., Petrov, D. A., Feldman, M. W., Gagneux, S.  
2008; 6 (12): 2658-2671
- **High Rate of Recent Transposable Element-Induced Adaptation in Drosophila melanogaster** *PLOS BIOLOGY*  
Gonzalez, J., Lenkov, K., Lipatov, M., Macpherson, J. M., Petrov, D. A.  
2008; 6 (10): 2109-2129
- **Pervasive and Persistent Redundancy among Duplicated Genes in Yeast** *PLOS GENETICS*  
Dean, E. J., Davis, J. C., Davis, R. W., Petrov, D. A.  
2008; 4 (7)
- **Genomewide spatial correspondence between nonsynonymous divergence and neutral polymorphism reveals extensive adaptation in drosophila** *GENETICS*  
Macpherson, J. M., Sella, G., Davis, J. C., Petrov, D. A.  
2007; 177 (4): 2083-2099
- **Pesticide resistance via transposition-mediated adaptive gene truncation in Drosophila** *SCIENCE*  
Aminetzach, Y. T., Macpherson, J. M., Petrov, D. A.  
2005; 309 (5735): 764-767
- **Size matters: Non-LTR retrotransposable elements and ectopic recombination in Drosophila** *MOLECULAR BIOLOGY AND EVOLUTION*  
Petrov, D. A., Aminetzach, Y. T., Davis, J. C., Bensasson, D., Hirsh, A. E.  
2003; 20 (6): 880-892
- **Evolution of genome size: new approaches to an old problem** *TRENDS IN GENETICS*  
Petrov, D. A.  
2001; 17 (1): 23-28
- **Evidence for DNA loss as a determinant of genome size** *SCIENCE*  
Petrov, D. A., Sangster, T. A., Johnston, J. S., Hartl, D. L., Shaw, K. L.  
2000; 287 (5455): 1060-1062
- **Patterns of nucleotide substitution in Drosophila and mammalian genomes** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Petrov, D. A., Hartl, D. L.  
1999; 96 (4): 1475-1479
- **High intrinsic: Rate of DNA loss in Drosophila** *NATURE*  
Petrov, D. A., Lozovskaya, E. R., Hartl, D. L.  
1996; 384 (6607): 346-349

- **DIVERSE TRANSPOSABLE ELEMENTS ARE MOBILIZED IN HYBRID DYSGENESIS IN DROSOPHILA-VIRILIS** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Petrov, D. A., Schutzman, J. L., Hartl, D. L., Lozovskaya, E. R.  
1995; 92 (17): 8050-8054
- **Soft Selective Sweeps in Evolutionary Rescue.** *Genetics*  
Wilson, B. A., Pennings, P. S., Petrov, D. A.  
2017
- **Seeking Goldilocks During Evolution of Drug Resistance.** *PLoS biology*  
Sherlock, G., Petrov, D. A.  
2017; 15 (2)
- **Extremely Rare Polymorphisms in *Saccharomyces cerevisiae* Allow Inference of the Mutational Spectrum.** *PLoS genetics*  
Zhu, Y. O., Sherlock, G., Petrov, D. A.  
2017; 13 (1)
- **Adaptive dynamics of cuticular hydrocarbons in *Drosophila*.** *Journal of evolutionary biology*  
Rajpurohit, S., Hanus, R., Vrkoslav, V., Behrman, E. L., Bergland, A. O., Petrov, D., Cvacka, J., Schmidt, P. S.  
2016
- **An Intrinsically Disordered Region of the DNA Repair Protein Nbs1 Is a Species-Specific Barrier to Herpes Simplex Virus 1 in Primates.** *Cell host & microbe*  
Lou, D. I., Kim, E. T., Meyerson, N. R., Pancholi, N. J., Mohni, K. N., Enard, D., Petrov, D. A., Weller, S. K., Weitzman, M. D., Sawyer, S. L.  
2016; 20 (2): 178-188
- **Whole Genome Analysis of 132 Clinical *Saccharomyces cerevisiae* Strains Reveals Extensive Ploidy Variation** *G3-GENES GENOMES GENETICS*  
Zhu, Y. O., Sherlock, G., Petrov, D. A.  
2016; 6 (8): 2421-2434
- **Elevated Linkage Disequilibrium and Signatures of Soft Sweeps Are Common in *Drosophila melanogaster*** *GENETICS*  
Garud, N. R., Petrov, D. A.  
2016; 203 (2): 863-?
- **Effects of maternal age on euploidy rates in a large cohort of embryos analyzed with 24-chromosome single-nucleotide polymorphism-based preimplantation genetic screening** *FERTILITY AND STERILITY*  
Demko, Z. P., Simon, A. L., McCoy, R. C., Petrov, D. A., Rabinowitz, M.  
2016; 105 (5): 1307-1313
- **Global Transcriptional Profiling of Diapause and Climatic Adaptation in *Drosophila melanogaster*.** *Molecular biology and evolution*  
Zhao, X., Bergland, A. O., Behrman, E. L., Gregory, B. D., Petrov, D. A., Schmidt, P. S.  
2016; 33 (3): 707-720
- **Secondary contact and local adaptation contribute to genome-wide patterns of clinal variation in *Drosophila melanogaster*.** *Molecular ecology*  
Bergland, A. O., Tobler, R., González, J., Schmidt, P., Petrov, D.  
2016; 25 (5): 1157-1174
- **Comparative population genomics of latitudinal variation in *Drosophila simulans* and *Drosophila melanogaster*.** *Molecular ecology*  
Machado, H. E., Bergland, A. O., O'Brien, K. R., Behrman, E. L., Schmidt, P. S., Petrov, D. A.  
2016; 25 (3): 723-740
- **Evidence of Selection against Complex Mitotic-Origin Aneuploidy during Preimplantation Development** *PLOS GENETICS*  
McCoy, R. C., Demko, Z. P., Ryan, A., Banjevic, M., Hill, M., Sigurjonsson, S., Rabinowitz, M., Petrov, D. A.  
2015; 11 (10)
- **Quantification of GC-biased gene conversion in the human genome** *GENOME RESEARCH*  
Glemin, S., Arndt, P. F., Messer, P. W., Petrov, D., Galtier, N., Duret, L.  
2015; 25 (8): 1215-1228
- **Imperfect drug penetration leads to spatial monotherapy and rapid evolution of multidrug resistance** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*

- Moreno-Gamez, S., Hill, A. L., Rosenbloom, D. I., Petrov, D. A., Nowak, M. A., Pennings, P. S.  
2015; 112 (22): E2874-E2883
- **T-lex2: genotyping, frequency estimation and re-annotation of transposable elements using single or pooled next-generation sequencing data.** *Nucleic acids research*  
Fiston-Lavier, A., Barrón, M. G., Petrov, D. A., González, J.  
2015; 43 (4)
  - **Comparative population genomics: power and principles for the inference of functionality** *TRENDS IN GENETICS*  
Lawrie, D. S., Petrov, D. A.  
2014; 30 (4): 133-139
  - **Genomic inference accurately predicts the timing and severity of a recent bottleneck in a nonmodel insect population.** *Molecular ecology*  
McCoy, R. C., Garud, N. R., Kelley, J. L., Boggs, C. L., Petrov, D. A.  
2014; 23 (1): 136-150
  - **Illumina TruSeq Synthetic Long-Reads Empower De Novo Assembly and Resolve Complex, Highly-Repetitive Transposable Elements.** *PloS one*  
McCoy, R. C., Taylor, R. W., Blauwkamp, T. A., Kelley, J. L., Kertesz, M., Pushkarev, D., Petrov, D. A., Fiston-Lavier, A.  
2014; 9 (9)
  - **Population genomics of transposable elements in Drosophila.** *Annual review of genetics*  
Barrón, M. G., Fiston-Lavier, A., Petrov, D. A., González, J.  
2014; 48: 561-581
  - **Host Species and Environmental Effects on Bacterial Communities Associated with Drosophila in the Laboratory and in the Natural Environment** *PLOS ONE*  
Staubach, F., Baines, J. F., Kuenzel, S., Bik, E. M., Petrov, D. A.  
2013; 8 (8)
  - **Strong Purifying Selection at Synonymous Sites in D. melanogaster.** *PLoS genetics*  
Lawrie, D. S., Messer, P. W., Hershberg, R., Petrov, D. A.  
2013; 9 (5)
  - **Evaluating methods of demographic inference and testing for balancing selection using genomic data from the checkerspot butterfly Euphydryas gillettii** *Annual Meeting of the Society-for-Integrative-and-Comparative-Biology (SICB)*  
Mccoy, R. C., Boggs, C. B., Petrov, D. A.  
OXFORD UNIV PRESS INC.2013: E329–E329
  - **Evolutionary biology for the 21st century.** *PLoS biology*  
Losos, J. B., Arnold, S. J., Bejerano, G., Brodie, E. D., Hibbett, D., Hoekstra, H. E., Mindell, D. P., Monteiro, A., Moritz, C., Orr, H. A., Petrov, D. A., Renner, S., Ricklefs, et al  
2013; 11 (1)
  - **Evolutionary Biology for the 21st Century** *PLOS BIOLOGY*  
Losos, J. B., Arnold, S. J., Bejerano, G., Brodie, E. D., Hibbett, D., Hoekstra, H. E., Mindell, D. P., Monteiro, A., Moritz, C., Orr, H. A., Petrov, D. A., Renner, S., Ricklefs, et al  
2013; 11 (1)
  - **On the Limitations of Using Ribosomal Genes as References for the Study of Codon Usage: A Rebuttal** *PLOS ONE*  
Hershberg, R., Petrov, D. A.  
2012; 7 (12)
  - **LDx: Estimation of Linkage Disequilibrium from High-Throughput Pooled Resequencing Data** *PLOS ONE*  
Feder, A. F., Petrov, D. A., Bergland, A. O.  
2012; 7 (11)
  - **Genome Patterns of Selection and Introgression of Haplotypes in Natural Populations of the House Mouse (Mus musculus)** *PLOS GENETICS*  
Staubach, F., Lorenc, A., Messer, P. W., Tang, K., Petrov, D. A., Tautz, D.  
2012; 8 (8)
  - **Empirical Validation of Pooled Whole Genome Population Re-Sequencing in Drosophila melanogaster** *PLOS ONE*

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- Zhu, Y., Bergland, A. O., Gonzalez, J., Petrov, D. A.  
2012; 7 (7)
- **Origins and rates of aneuploidy in human blastomeres** *FERTILITY AND STERILITY*  
Rabinowitz, M., Ryan, A., Gemelos, G., Hill, M., Baner, J., Cinnioglu, C., Banjevic, M., Potter, D., Petrov, D. A., Demko, Z.  
2012; 97 (2): 395-401
  - **Evolution of genome content: population dynamics of transposable elements in flies and humans.** *Methods in molecular biology (Clifton, N.J.)*  
González, J., Petrov, D. A.  
2012; 855: 361-383
  - **Faster than Neutral Evolution of Constrained Sequences: The Complex Interplay of Mutational Biases and Weak Selection** *GENOME BIOLOGY AND EVOLUTION*  
Lawrie, D. S., Petrov, D. A., Messer, P. W.  
2011; 3: 383-395
  - **Drosophila melanogaster recombination rate calculator** *GENE*  
Fiston-Lavier, A., Singh, N. D., Lipatov, M., Petrov, D. A.  
2010; 463 (1-2): 18-20
  - **Genome-Wide Patterns of Adaptation to Temperate Environments Associated with Transposable Elements in Drosophila** *PLOS GENETICS*  
Gonzalez, J., Karasov, T. L., Messer, P. W., Petrov, D. A.  
2010; 6 (4)
  - **Relaxed Purifying Selection and Possibly High Rate of Adaptation in Primate Lineage-Specific Genes** *GENOME BIOLOGY AND EVOLUTION*  
Cai, J. J., Petrov, D. A.  
2010; 2: 393-409
  - **Broker Genes in Human Disease** *GENOME BIOLOGY AND EVOLUTION*  
Cai, J. J., Borenstein, E., Petrov, D. A.  
2010; 2: 815-825
  - **Time for DNA Disclosure** *SCIENCE*  
Krane, D. E., Bahn, V., Balding, D., Barlow, B., Cash, H., Desportes, B. L., D'Eustachio, P., Devlin, K., Doom, T. E., Dror, I., Ford, S., Funk, C., Gilder, et al  
2009; 326 (5960): 1631-1632
  - **The adaptive role of transposable elements in the Drosophila genome** *GENE*  
Gonzalez, J., Petrov, D. A.  
2009; 448 (2): 124-133
  - **MITEs-The Ultimate Parasites** *SCIENCE*  
Gonzalez, J., Petrov, D.  
2009; 325 (5946): 1352-1353
  - **A Recent Adaptive Transposable Element Insertion Near Highly Conserved Developmental Loci in Drosophila melanogaster** *MOLECULAR BIOLOGY AND EVOLUTION*  
Gonzalez, J., Macpherson, J. M., Petrov, D. A.  
2009; 26 (9): 1949-1961
  - **Molecular Evolution of the Testis TAFs of Drosophila** *MOLECULAR BIOLOGY AND EVOLUTION*  
Li, V. C., Davis, J. C., Lenkov, K., Bolival, B., Fuller, M. T., Petrov, D. A.  
2009; 26 (5): 1103-1116
  - **Inferring the Strength of Selection in Drosophila under Complex Demographic Models** *MOLECULAR BIOLOGY AND EVOLUTION*  
Gonzalez, J., Macpherson, J. M., Messer, P. W., Petrov, D. A.  
2009; 26 (3): 513-526
  - **Similarly Strong Purifying Selection Acts on Human Disease Genes of All Evolutionary Ages** *GENOME BIOLOGY AND EVOLUTION*  
Cai, J. J., Borenstein, E., Chen, R., Petrov, D. A.  
2009; 1: 131-144

- **Nonadaptive explanations for signatures of partial selective sweeps in *Drosophila*** *MOLECULAR BIOLOGY AND EVOLUTION*  
Macpherson, J. M., Gonzalez, J., Witten, D. M., Davis, J. C., Rosenberg, N. A., Hirsh, A. E., Petrov, D. A.  
2008; 25 (6): 1025-1042
- **Selection on Codon Bias** *ANNUAL REVIEW OF GENETICS*  
Hershberg, R., Petrov, D. A.  
2008; 42: 287-299
- **Similar levels of X-linked and autosomal nucleotide variation in African and non-African populations of *Drosophila melanogaster*** *BMC EVOLUTIONARY BIOLOGY*  
Singh, N. D., Macpherson, J. M., Jensen, J. D., Petrov, D. A.  
2007; 7
- **Evolution of gene function on the X chromosome versus the autosomes.** *Genome dynamics*  
Singh, N. D., Petrov, D. A.  
2007; 3: 101-118
- **Reduced selection leads to accelerated gene loss in *Shigella*** *GENOME BIOLOGY*  
Hershberg, R., Tang, H., Petrov, D. A.  
2007; 8 (8)
- **Minor shift in background substitutional patterns in the *Drosophila saltans* and *willistoni* lineages is insufficient to explain GC content of coding sequences** *BMC BIOLOGY*  
Singh, N. D., Arndt, P. F., Petrov, D. A.  
2006; 4
- **Fitness cost of LINE-1 (L1) activity in humans** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Boissinot, S., Davis, J., Entezam, A., Petrov, D., Furano, A. V.  
2006; 103 (25): 9590-9594
- **A novel method distinguishes between mutation rates and fixation biases in patterns of single-nucleotide substitution** *JOURNAL OF MOLECULAR EVOLUTION*  
Lipatov, M., Arndt, P. F., Hwa, T., Petrov, D. A.  
2006; 62 (2): 168-175
- **Paucity of chimeric gene-transposable element transcripts in the *Drosophila melanogaster* genome** *BMC BIOLOGY*  
Lipatov, M., Lenkov, K., Petrov, D. A., Bergman, C. M.  
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- **Do disparate mechanisms of duplication add similar genes to the genome?** *TRENDS IN GENETICS*  
Davis, J. C., Petrov, D. A.  
2005; 21 (10): 548-551
- **Codon bias and noncoding GC content correlate negatively with recombination rate on the *Drosophila* X chromosome** *JOURNAL OF MOLECULAR EVOLUTION*  
Singh, N. D., Davis, J. C., Petrov, D. A.  
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- **X-linked genes evolve higher codon bias in *Drosophila* and *Caenorhabditis*** *GENETICS*  
Singh, N. D., Davis, J. C., Petrov, D. A.  
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- **Substantial regional variation in substitution rates in the human genome: Importance of GC content, gene density, and telomere-specific effects** *JOURNAL OF MOLECULAR EVOLUTION*  
Arndt, P. F., Hwa, T., Petrov, D. A.  
2005; 60 (6): 748-U28
- **Protein evolution in the context of *Drosophila* development** *JOURNAL OF MOLECULAR EVOLUTION*  
Davis, J. C., Brandman, O., Petrov, D. A.  
2005; 60 (6): 774-U42



- **Genomic heterogeneity of background substitutional patterns in *Drosophila melanogaster*** *GENETICS*  
Singh, N. D., Arndt, P. F., Petrov, D. A.  
2005; 169 (2): 709-722
- **Elevated evolutionary rates in the laboratory strain of *Saccharomyces cerevisiae*** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Gu, Z. L., David, L., Petrov, D., Jones, T., Davis, R. W., Steinmetz, L. M.  
2005; 102 (4): 1092-1097
- **The large genome constraint hypothesis: Evolution, ecology and phenotype** *2nd Plant Genome Size Workshop and Discussion Meeting*  
Knight, C. A., Molinari, N. A., Petrov, D. A.  
OXFORD UNIV PRESS.2005: 177-90
- **Enhancer choice in cis and in trans in *Drosophila melanogaster*: Role of the promoter** *GENETICS*  
Morris, J. R., Petrov, D. A., Lee, A. M., Wu, C. T.  
2004; 167 (4): 1739-1747
- **Rapid sequence turnover at an intergenic locus in *Drosophila*** *MOLECULAR BIOLOGY AND EVOLUTION*  
Singh, N. D., Petrov, D. A.  
2004; 21 (4): 670-680
- **Preferential duplication of conserved proteins in eukaryotic genomes.** *PLoS biology*  
Davis, J. C., Petrov, D. A.  
2004; 2 (3): E55-?
- **Preferential duplication of conserved proteins in eukaryotic genomes** *PLOS BIOLOGY*  
Davis, J. C., Petrov, D. A.  
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