

Contents

Vol. 200 No. 3 July 2015



Cover photo: The icy waters of the Neumeyer Channel on the Antarctica Peninsula, and regions nearby, are home to several species of Antarctic icefish, animals that fit Darwin's phrase, a "wreck of nature." Unique among vertebrates, icefish lack red blood cells and functional hemoglobin genes, have greatly reduced bone mineralization compared to related fish, and have lost the nearly-ubiquitous inducible heat shock response. Image courtesy of John Postlethwait, 2015 recipient of the Genetics Society of America's George W. Beadle Award.

iv CALL FOR PAPERS

THE 2015 GSA HONORS AND AWARDS

667–669 What Use Is Population Genetics?

Charlesworth, Brian

OPEN ACCESS

671–674 The Genetic Map Enters Its Second Century

Henikoff, Steven

OPEN ACCESS

675–678 "Wrecks of Ancient Life": Genetic Variants Vetted by Natural Selection

Postlethwait, John H.

OPEN ACCESS

679–680 Science Translator: An Interview with Louisa Stark

Stark, Louisa A.

OPEN ACCESS

681–682 Under Tension: Kinetochores and Basic Research

Biggins, Sue

OPEN ACCESS

683–684 Previous Recipients of GSA Awards

OPEN ACCESS

PERSPECTIVES

685–696 The "Genetic Program": Behind the Genesis of an Influential Metaphor

Peluffo, Alexandre E.

INVESTIGATIONS

METHODS, TECHNOLOGY, AND RESOURCES

697–705 Directional *Trans*-Synaptic Labeling of Specific Neuronal Connections in Live Animals

Desbois, Muriel, Steven J. Cook, Scott W. Emmons, and Hannes E. Bülow

STATISTICAL GENETICS AND GENOMICS

707–718 Nonadditive Effects of Genes in Human Metabolomics

Tsepilov, Yakov A., So-Youn Shin, Nicole Soranzo, Tim D. Spector, Cornelia Prehn, Jerzy Adamski, Gabi Kastenmüller, Rui Wang-Sattler, Konstantin Strauch, Christian Gieger, Yuri S. Aulchenko, and Janina S. Ried

HIGHLIGHTED ARTICLE

- 719–736 **Fine Mapping Causal Variants with an Approximate Bayesian Method Using Marginal Test Statistics**
Chen, Wenan, Beth R. Larrabee, Inna G. Ovsyannikova, Richard B. Kennedy, Iana H. Haralambieva, Gregory A. Poland, and Daniel J. Schaid
HIGHLIGHTED ARTICLE
- GENOME INTEGRITY AND TRANSMISSION
- 737–754 ***MSH3* Promotes Dynamic Behavior of Trinucleotide Repeat Tracts *In Vivo***
Williams, Gregory M. and Jennifer A. Surtees
- 755–769 **The Transient Inactivation of the Master Cell Cycle Phosphatase Cdc14 Causes Genomic Instability in Diploid Cells of *Saccharomyces cerevisiae***
Quevedo, Oliver, Cristina Ramos-Pérez, Thomas D. Petes, and Félix Machín
- 771–779 **Chromosome-Specific Painting in *Cucumis* Species Using Bulked Oligonucleotides**
Han, Yonghua, Tao Zhang, Paradee Thammaphichai, Yiqun Weng, and Jiming Jiang
- 781–794 **Parasexual Ploidy Reduction Drives Population Heterogeneity Through Random and Transient Aneuploidy in *Candida albicans***
Hickman, Meleah A., Carsten Paulson, Aimee Dudley, and Judith Berman
OPEN ACCESS
- GENE EXPRESSION
- 795–806 **Histone Sprocket Arginine Residues Are Important for Gene Expression, DNA Repair, and Cell Viability in *Saccharomyces cerevisiae***
Hodges, Amelia J., Isaura J. Gallegos, Marian F. Laughery, Rithy Meas, Linh Tran, and John J. Wyrick
HIGHLIGHTED ARTICLE
- 807–819 **Virulence Gene Regulation by L-Arabinose in *Salmonella enterica***
López-Garrido, Javier, Elena Puerta-Fernández, Ignacio Cota, and Josep Casadesús
- CELLULAR GENETICS
- 821–841 **Comprehensive Genetic Analysis of Paralogous Terminal Septin Subunits Shs1 and Cdc11 in *Saccharomyces cerevisiae***
Finnigan, Gregory C., Julie Takagi, Christina Cho, and Jeremy Thorner
HIGHLIGHTED ARTICLE
- 843–862 **The Carboxy-Terminal Tails of Septins Cdc11 and Shs1 Recruit Myosin-II Binding Factor Bni5 to the Bud Neck in *Saccharomyces cerevisiae***
Finnigan, Gregory C., Elizabeth A. Booth, Angela Duvalyan, Elizabeth N. Liao, and Jeremy Thorner
HIGHLIGHTED ARTICLE
- 863–872 **Germ Cell Segregation from the *Drosophila* Soma Is Controlled by an Inhibitory Threshold Set by the Arf-GEF Steppke**
Lee, Donghoon M., Ronit Wilk, Jack Hu, Henry M. Krause, and Tony J. C. Harris

POPULATION AND EVOLUTIONARY GENETICS

- 873–890** **Evaluation of Ancestral Sequence Reconstruction Methods to Infer Nonstationary Patterns of Nucleotide Substitution**
Matsumoto, Tomotaka, Hiroshi Akashi, and Ziheng Yang
HIGHLIGHTED ARTICLE
- 891–906** **Maintenance of Quantitative Genetic Variance Under Partial Self-Fertilization, with Implications for Evolution of Selfing**
Lande, Russell and Emmanuelle Porcher
- 907–919** **Real-Time Evolution of a Subtelomeric Gene Family in *Candida albicans***
Anderson, Matthew Z., Lauren J. Wigen, Laura S. Burrack, and Judith Berman
OPEN ACCESS
- 921–934** **Genetic Variability Under the Seedbank Coalescent**
Blath, Jochen, Adrián González Casanova, Bjarki Eldon, Noemi Kurt, and Maite Wilke-Berenguer
- 935–946** **The Rate and Molecular Spectrum of Spontaneous Mutations in the GC-Rich Multichromosome Genome of *Burkholderia cenocepacia***
Dillon, Marcus M., Way Sung, Michael Lynch, and Vaughn S. Cooper
- 947–963** **Worldwide Population Structure, Long-Term Demography, and Local Adaptation of *Helicobacter pylori***
Montano, Valeria, Xavier Didelot, Matthieu Foll, Bodo Linz, Richard Reinhardt, Sebastian Suerbaum, Yoshan Moodley, and Jeffrey D. Jensen
HIGHLIGHTED ARTICLE

GENETICS OF COMPLEX TRAITS

- 965–974** **Evidence That the Origin of Naked Kernels During Maize Domestication Was Caused by a Single Amino Acid Substitution in *tga1***
Wang, Huai, Anthony J. Studer, Qiong Zhao, Robert Meeley, and John F. Doebley
HIGHLIGHTED ARTICLE

GENOME AND SYSTEMS BIOLOGY

- 975–989** **Remarkably Divergent Regions Punctuate the Genome Assembly of the *Caenorhabditis elegans* Hawaiian Strain CB4856**
Thompson, Owen A., L. Basten Snoek, Harm Nijveen, Mark G. Sterken, Rita J. M. Volkers, Rachel Brenchley, Arjen van't Hof, Roel P. J. Bevers, Andrew R. Cossins, Itai Yanai, Alex Hajnal, Tobias Schmid, Jaryn D. Perkins, David Spencer, Leonid Kruglyak, Erik C. Andersen, Donald G. Moerman, LaDeana W. Hillier, Jan E. Kammenga, and Robert H. Waterston
HIGHLIGHTED ARTICLE **OPEN ACCESS**