

Contents

Vol. 213 No. 1 September 2019



Picture of a female house fly, *Musca domestica*. House fly is a model species for studying polygenic sex determination. Male-determining genes have been found on all six house fly chromosomes, and a dominant female determining gene is also present in some populations. This means that any chromosome in the house fly genome can be a sex chromosome. This natural variation appears to be maintained by natural selection, despite the fact that the X and Y chromosome pairs have very similar DNA sequence content. Image courtesy of Peter Koomen. See Son *et al.* in *GENETICS* 213: 313–327.

THE 2019 GSA HONORS AND AWARDS

- 1–7 ***E Pluribus Unum: The Fungal Kingdom as a Rosetta Stone for Biology and Medicine***
Heitman, Joseph

FLYBOOK

STEM CELLS AND GERMLINE

- 9–26 **Local and Physiological Control of Germline Stem Cell Lineages in *Drosophila melanogaster***
Drummond-Barbosa, Daniela

WORMBOOK

EVOLUTION AND ECOLOGY

- 27–57 **Males, Outcrossing, and Sexual Selection in *Caenorhabditis* Nematodes**
Cutter, Asher D., Levi T. Morran, and Patrick C. Phillips

INVESTIGATIONS

METHODS, TECHNOLOGY, AND RESOURCES

- 59–77 **Using a Robust and Sensitive GFP-Based cGMP Sensor for Real-Time Imaging in Intact *Caenorhabditis elegans***
Woldemariam, Sarah, Jatin Nagpal, Tyler Hill, Joy Li, Martin W. Schneider, Raakhee Shankar, Mary Futey, Aruna Varshney, Nebat Ali, Jordan Mitchell, Kristine Andersen, Benjamin Barsi-Rhyne, Alan Tran, Wagner Steuer Costa, Michelle C. Krzyzanowski, Yanxun V. Yu, Chantal Brueggemann, O. Scott Hamilton, Denise M. Ferkey, Miri VanHoven, Piali Sengupta, Alexander Gottschalk, and Noelle L'Etoile

OPEN ACCESS

GENOME INTEGRITY AND TRANSMISSION

- 79–96 **Spatial Regulation of Polo-Like Kinase Activity During *Caenorhabditis elegans* Meiosis by the Nucleoplasmic HAL-2/HAL-3 Complex**
Roelens, Baptiste, Consuelo Barroso, Alex Montoya, Pedro Cutillas, Weibin Zhang, Alexander Woglar, Chloe Girard, Enrique Martinez-Perez, and Anne M. Villeneuve
- 97–112 **Mutations in the S-Adenosylmethionine Synthetase Genes *SAM1* and *SAM2* Differentially Affect Genome Stability in *Saccharomyces cerevisiae***
Hoffert, Kellyn M., Kathryn S. P. Higginbotham, Justin T. Gibson, Stuart Oehrle, and Erin D. Strome

- 113–125 **Centromere-Proximal Meiotic Crossovers in *Drosophila melanogaster* Are Suppressed by Both Highly Repetitive Heterochromatin and Proximity to the Centromere**
Hartmann, Michaelyn, James Umbanhowar, and Jeff Sekelsky

HIGHLIGHTED ARTICLE

GENE EXPRESSION

- 127–141 **Cohesin Impedes Heterochromatin Assembly in Fission Yeast Cells Lacking Pds5**
Folco, H. Diego, Andrea McCue, Vanivilasini Balachandran, and Shiv I. S. Grewal
[HIGHLIGHTED ARTICLE](#)
- 143–160 **Hybrid Decay: A Transgenerational Epigenetic Decline in Vigor and Viability Triggered in Backcross Populations of Teosinte with Maize**
Xue, Wei, Sarah N. Anderson, Xufeng Wang, Liyan Yang, Peter A. Crisp, Qing Li, Jaclyn Noshay, Patrice S. Albert, James A. Birchler, Paul Bilinski, Michelle C. Stitzer, Jeffrey Ross-Ibarra, Sherry Flint-Garcia, Xuemei Chen, Nathan M. Springer, and John F. Doebley
[HIGHLIGHTED ARTICLE](#) [OPEN ACCESS](#)
- 161–172 **Histone H2B Ubiquitylation Regulates Histone Gene Expression by Suppressing Antisense Transcription in Fission Yeast**
Pagé, Viviane, Jennifer J. Chen, Mickael Durand-Dubief, David Grabowski, Eriko Oya, Miriam Sansô, Ryan D. Martin, Terence E. Hébert, Robert P. Fisher, Karl Ekwall, and Jason C. Tanny
- CELLULAR GENETICS
- 173–194 **ALG-2/AGO-Dependent *mir-35* Family Regulates DNA Damage-Induced Apoptosis Through MPK-1/ERK MAPK Signaling Downstream of the Core Apoptotic Machinery in *Caenorhabditis elegans***
Doll, Markus Alexander, Najmeh Soltanmohammadi, and Björn Schumacher
- 195–211 **Plasma Membrane Integrity During Cell–Cell Fusion and in Response to Pore-Forming Drugs Is Promoted by the Penta-EF-Hand Protein PEF1 in *Neurospora crassa***
Schumann, Marcel René, Ulrike Brandt, Christian Adis, Lisa Hartung, and André Fleißner
[HIGHLIGHTED ARTICLE](#)
- 213–227 **Roles for Stress Response and Cell Wall Biosynthesis Pathways in Caspofungin Tolerance in *Cryptococcus neoformans***
Pianalto, Kaila M., R. Blake Billmyre, Calla L. Telzrow, and J. Andrew Alspaugh
[OPEN ACCESS](#)
- 229–249 **Phenotypic and Genotypic Consequences of CRISPR/Cas9 Editing of the Replication Origins in the rDNA of *Saccharomyces cerevisiae***
Sanchez, Joseph C., Anja Ollodart, Christopher R. L. Large, Courtnee Clough, Gina M. Alvino, Mitsuhiro Tsuchiya, Matthew Crane, Elizabeth X. Kwan, Matt Kaeberlein, Maitreya J. Dunham, M. K. Raghuraman, and Bonita J. Brewer
[OPEN ACCESS](#)
- 251–265 **Insights into the Role of P-Bodies and Stress Granules in Protein Quality Control**
Nostramo, Regina, Siyuan Xing, Bo Zhang, and Paul K. Herman
[HIGHLIGHTED ARTICLE](#)

DEVELOPMENTAL AND BEHAVIORAL GENETICS

- 267–279 **Interneurons Regulate Locomotion Quiescence via Cyclic Adenosine Monophosphate Signaling During Stress-Induced Sleep in *Caenorhabditis elegans***

Cianciulli, Alana, Lauren Yoslov, Kristen Buscemi, Nicole Sullivan, Ryan T. Vance, Francis Janton, Mary R. Szurgot, Thomas Buerkert, Edwin Li, and Matthew D. Nelson

POPULATION AND EVOLUTIONARY GENETICS

- 281–295 **The Relationship Between Haplotype-Based F_{ST} and Haplotype Length**

Mehta, Rohan S., Alison F. Feder, Simina M. Boca, and Noah A. Rosenberg

HIGHLIGHTED ARTICLE

GENETICS OF COMPLEX TRAITS

- 297–311 **Predicting Phenotypic Diversity from Molecular and Genetic Data**

Harel, Tom, Naama Peshes-Yaloz, Eran Bacharach, and Irit Gat-Viks

HIGHLIGHTED ARTICLE

GENOME AND SYSTEMS BIOLOGY

- 313–327 **Minimal Effects of Proto-Y Chromosomes on House Fly Gene Expression in Spite of Evidence that Selection Maintains Stable Polygenic Sex Determination**

Son, Jae Hak, Tea Kohlbrenner, Svenia Heinze, Leo W. Beukeboom, Daniel Bopp, and Richard P. Meisel

HIGHLIGHTED ARTICLE