

# Leading Edge

Cell Volume 146 Number 6, September 16, 2011

## IN THIS ISSUE

### SELECT

847 Human Evolutionary Genomics

### BENCHMARKS

851 Molecular Mechanism  
of Protein Folding in the Cell

*J.E. Rothman and R. Schekman*

855 Artemisinin: Discovery  
from the Chinese Herbal Garden

*L.H. Miller and X. Su*

### PREVIEWS

859 SIP-ing the Elixir of Youth

*W. Mair, K.K. Steffen, and A. Dillin*

861 A New Shield for a Cytokine Storm

*A. Iwasaki and R. Medzhitov*

863 Synaptic Plasticity of Feeding Circuits:  
Hormones and Hysteresis

*M.O. Dietrich and T.L. Horvath*

### PERSPECTIVE

866 DNA Demethylation Dynamics

*N. Bhutani, D.M. Burns, and H.M. Blau*

### REVIEW

873 Basic and Therapeutic  
Aspects of Angiogenesis

*M. Potente, H. Gerhardt, and P. Carmeliet*

### SNAPSHOT

1044 High-Throughput Sequencing  
Applications

*H. Han, R. Nutiu, J. Moffat, and B.J. Blencowe*

# Articles

Cell Volume 146 Number 6, September 16, 2011

- 889 Chromosome Catastrophes Involve Replication Mechanisms Generating Complex Genomic Rearrangements  
*P. Liu, A. Erez, S.C.S. Nagamani, S.U. Dhar, K.E. Kołodziejska, A.V. Dharmadhikari, M.L. Cooper, J. Wiszniewska, F. Zhang, M.A. Withers, C.A. Bacino, L.D. Campos-Acevedo, M.R. Delgado, D. Freedenberg, A. Garnica, T.A. Grebe, D. Hernández-Almaguer, L.D. Immken, S.R. Lalani, S.D. McLean, H. Northrup, F. Scaglia, L. Strathearn, P. Trapane, S.-H.L. Kang, A. Patel, S.W. Cheung, P.J. Hastings, P. Stankiewicz, J.R. Lupski, and W. Bi*
- 904 BET Bromodomain Inhibition as a Therapeutic Strategy to Target c-Myc  
*J.E. Delmore, G.C. Issa, M.E. Lemieux, P.B. Rahl, J. Shi, H.M. Jacobs, E. Kastiris, T. Gilpatrick, R.M. Paranal, J. Qi, M. Chesi, A.C. Schinzel, M.R. McKeown, T.P. Heffernan, C.R. Vakoc, P.L. Bergsagel, I.M. Ghobrial, P.G. Richardson, R.A. Young, W.C. Hahn, K.C. Anderson, A.L. Kung, J.E. Bradner, and C.S. Mitsiades*
- 918 USP1 Deubiquitinates ID Proteins to Preserve a Mesenchymal Stem Cell Program in Osteosarcoma  
*S.A. Williams, H.L. Maecker, D.M. French, J. Liu, A. Gregg, L.B. Silverstein, T.C. Cao, R.A.D. Carano, and V.M. Dixit*
- 931 Selective Bypass of a Lagging Strand Roadblock by the Eukaryotic Replicative DNA Helicase  
*Y.V. Fu, H. Yardimci, D.T. Long, The Vinh Ho, A. Guainazzi, V.P. Bermudez, J. Hurwitz, A. van Oijen, O.D. Schärer, and J.C. Walter*
- 942 Wnt Regulates Spindle Asymmetry to Generate Asymmetric Nuclear  $\beta$ -Catenin in *C. elegans*  
*K. Sugioka, K. Mizumoto, and H. Sawa*
- 955 Regulation of the MEX-5 Gradient by a Spatially Segregated Kinase/Phosphatase Cycle  
*E.E. Griffin, D.J. Odde, and G. Seydoux*
- 969 Acetylation of Yeast AMPK Controls Intrinsic Aging Independently of Caloric Restriction  
*J.-Y. Lu, Y.-Y. Lin, J.-C. Sheu, J.-T. Wu, F.-J. Lee, Y. Chen, M.-I. Lin, F.-T. Chiang, T.-Y. Tai, S.L. Berger, Y. Zhao, K.-S. Tsai, H. Zhu, L.-M. Chuang, and J.D. Boeke*
- 980 Endothelial Cells Are Central Orchestrators of Cytokine Amplification during Influenza Virus Infection  
*J.R. Teijaro, K.B. Walsh, S. Cahalan, D.M. Fremgen, E. Roberts, F. Scott, E. Martinborough, R. Peach, M.B.A. Oldstone, and H. Rosen*
- 992 Hunger States Switch a Flip-Flop Memory Circuit via a Synaptic AMPK-Dependent Positive Feedback Loop  
*Y. Yang, D. Atasoy, H.H. Su, and S.M. Sternson*
- 1004 Driving Opposing Behaviors with Ensembles of Piriform Neurons  
*G.B. Choi, D.D. Stettler, B.R. Kallman, S.T. Bhaskar, A. Fleischmann, and R. Axel*

(continued)

## RESOURCES

1016 Identification of 67 Histone Marks and Histone Lysine Crotonylation as a New Type of Histone Modification

*M. Tan, H. Luo, S. Lee, F. Jin, J.S. Yang, E. Montellier, T. Buchou, Z. Cheng, S. Rousseaux, N. Rajagopal, Z. Lu, Z. Ye, Q. Zhu, J. Wysocka, Y. Ye, S. Khochbin, B. Ren, and Y. Zhao*

1029 Sperm Methylation Profiles Reveal Features of Epigenetic Inheritance and Evolution in Primates

*A. Molaro, E. Hodges, F. Fang, Q. Song, W.R. McCombie, G.J. Hannon, and A.D. Smith*

## CORRECTIONS

1042 Complete Kinetochores Tracking Reveals Error-Prone Homologous Chromosome Biorientation in Mammalian Oocytes

*T.S. Kitajima, M. Ohsugi, and J. Ellenberg*

1042 Stochastic State Transitions Give Rise to Phenotypic Equilibrium in Populations of Cancer Cells

*P.B. Gupta, C.M. Fillmore, G. Jiang, S.D. Shapira, K. Tao, C. Kuperwasser, and E.S. Lander*

## ERRATUM

1043 Synaptic PRG-1 Modulates Excitatory Transmission via Lipid Phosphate-Mediated Signaling

*T. Trimbuch, P. Beed, J. Vogt, S. Schuchmann, N. Maier, M. Kintscher, J. Breustedt, M. Schuelke, N. Streu, O. Kieselmann, I. Brunk, G. Laube, U. Strauss, A. Battefeld, H. Wende, C. Birchmeier, S. Wiese, M. Sendtner, H. Kawabe, M. Kishimoto-Suga, N. Brose, J. Baumgart, B. Geist, J. Aoki, N.E. Savaskan, A.U. Bräuer, J. Chun, O. Ninnemann, D. Schmitz, and R. Nitsch*

## ANNOUNCEMENTS

## POSITIONS AVAILABLE

On the cover: During the earliest stages of development, mammalian cells undergo dramatic reprogramming of cytosine methylation patterns. In this issue, Molaro et al. (pp. 1029–1041) present a comparative analysis of cytosine methylation between human sperm, chimp sperm, and human ES cells that reveals the impact of the epigenome on genome evolution. The image displays a methylated cytosine and suggests its role in human/chimp speciation through germline inheritance. Image credit: James Duffy (CSHL).

