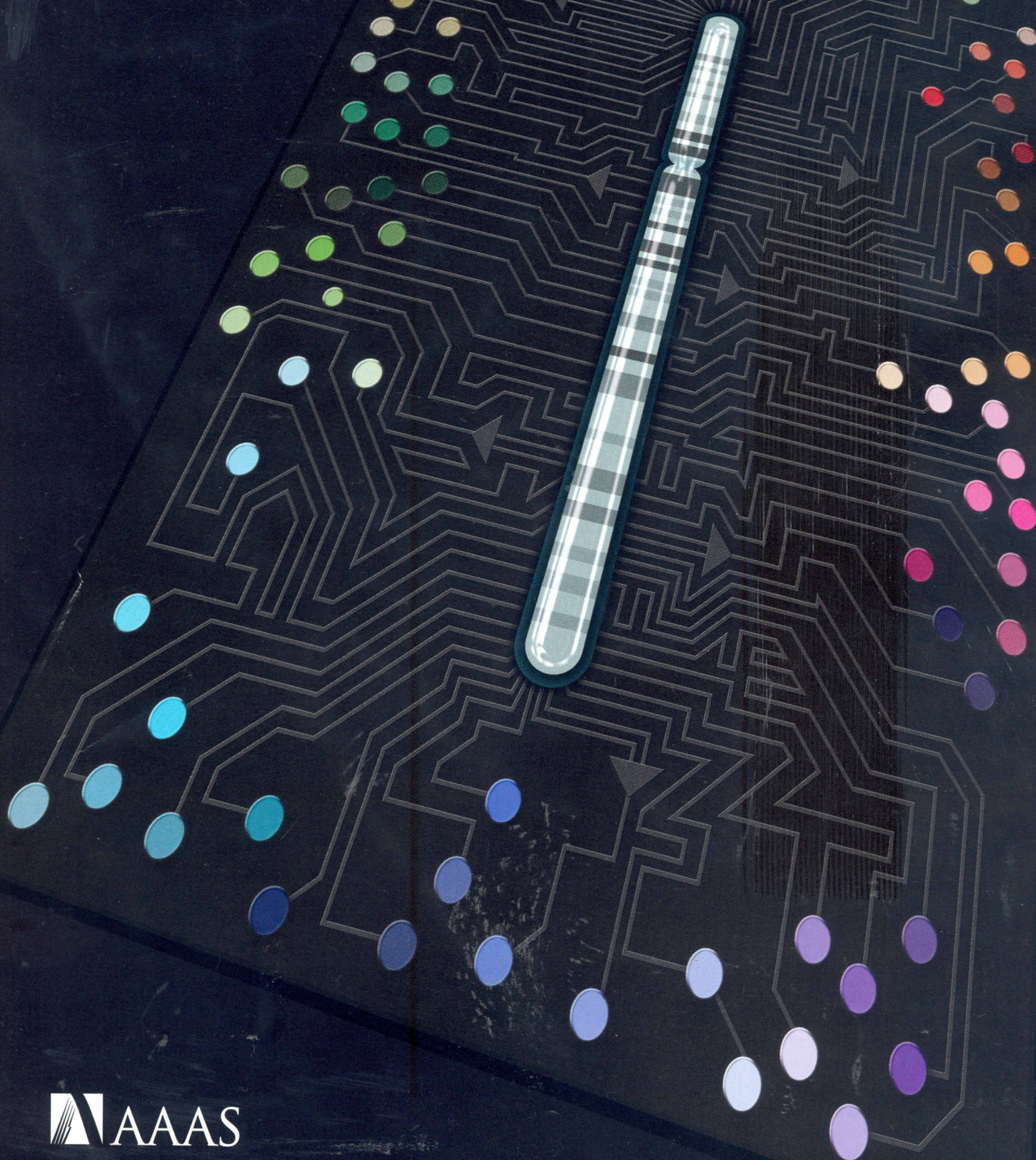


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7 September 2012 | \$10



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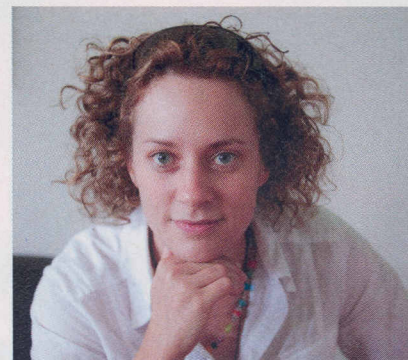
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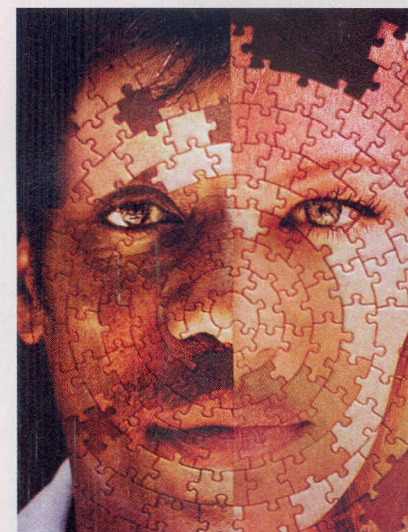
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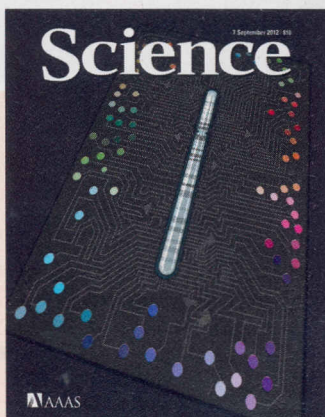
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COVER

Artist's conception of the complex network of relationships between disease and the human genome. Hundreds of diseases and traits (represented by colored dots) have been mapped to specific chromosomal positions in the genome. Most disease-associated genetic variants fall outside of protein-coding genes, instead affecting the genome's regulatory circuitry by modifying the DNA "switches" (some of which are depicted here as gray triangles, many others not shown) that control gene activity. See page 1190.

Image: Rachael Ludwig and John Stamatoyannopoulos

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Genetic variants that have been associated with diseases are concentrated in regulatory regions of the genome.
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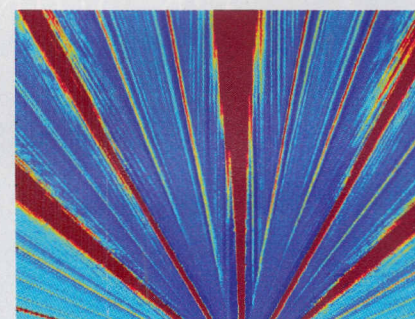
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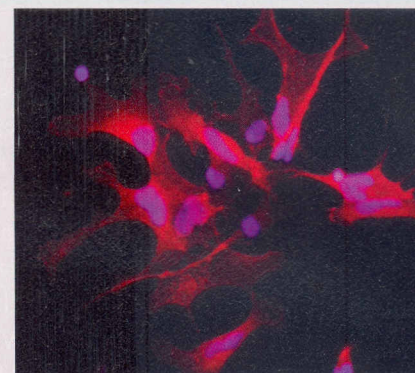
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Systematic Localization of Common Disease-Associated Variation in Regulatory DNA

M. T. Maurano et al.

Genetic variants that have been associated with diseases are concentrated in regulatory regions of the genome.

10.1126/science.1222794

A GPS for Navigating DNA

E. Schadt and R. Chang

10.1126/science.1227739

Evidence of Abundant Purifying Selection in Humans for Recently Acquired Regulatory Functions

L. D. Ward and M. Kellis

Diversity in human-specific regions of the genome has been reduced by functional constraints.

10.1126/science.1225057

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Mutations in *BCKD*-kinase Lead to a Potentially Treatable Form of Autism with Epilepsy

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When the balance of branched-chain amino acids transported into the brain goes awry, neurological deficits can ensue.

10.1126/science.1224631

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Relaxation and Prethermalization in an Isolated Quantum System

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Two halves of a split ultracold gas of rubidium atoms retain memory of the initial state for an extended time.

10.1126/science.1224953

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Comment on "Orthographic Processing in Baboons (*Papio papio*)"

W. Bains

Full text at www.sciencemag.org/cgi/content/full/337/6099/1173-b

Response to Comment on "Orthographic Processing in Baboons (*Papio papio*)"

J. Grainger et al.

Full text at www.sciencemag.org/cgi/content/full/337/6099/1173-c

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http://scim.ag/Ancient_Girl

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4 September issue: <http://scim.ag/ss090412>

RESEARCH ARTICLE: FAM123A Binds to Microtubules and Inhibits the Guanine Nucleotide Exchange Factor ARHGEF2 to Decrease Actomyosin Contractility

P. F. Siesser et al.

Unlike related proteins, FAM123A interacts with microtubule-associated proteins and alters microtubule dynamics.

RESEARCH ARTICLE: Guanylyl Cyclases A and B Are Asymmetric Dimers That Are Allosterically Regulated by ATP Binding to the Catalytic Domain

J. W. Robinson and L. R. Potter

PERSPECTIVE: Allosteric Regulation of Nucleotidyl Cyclases—An Emerging Pharmacological Target

R. Seifert and K. Y. Beste

An ATP-binding allosteric site could be pharmacologically targeted to alter the activity of membrane guanylyl cyclases.

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Integrating Medicine and Science

5 September issue: <http://scim.ag/stm090512>

RESEARCH ARTICLE: Structural Basis for Benzothiazinone-Mediated Killing of *Mycobacterium tuberculosis*

J. Neres et al.

FOCUS: Bridging the Gap Between a TB Drug and Its Target

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The crystal structure of the mycobacterial DprE1 reveals how the TB drug benzothiazinone BTZ043 blocks this microbial enzyme target.

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RESEARCH ARTICLE: An Intravaginal Ring That Releases the NNRTI MIV-150 Reduces SHIV Transmission in Macaques

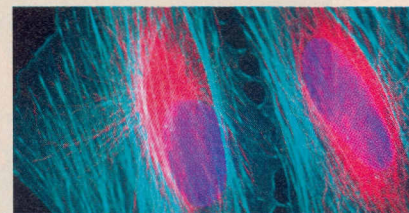
R. Singer et al.

An intravaginal ring loaded with the NNRTI MIV-150 prevents transmission of the HIV/SIV chimera SHIV-RT in macaques.

FOCUS: Regulatory Science Innovation—A Rate-Limiting Step in Translation

N. S. Sung and J. Burris

Sustained funding for academic regulatory science will drive innovation and implementation, forge a viable career path, and build an educated workforce.



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J. A. Hobin et al.

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Taken for Granted: Rethinking the Ph.D.

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http://scim.ag/TGF_Rethinking

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