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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Y.-H. M. Chan and W. F. Marshall

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1190 Systematic Localization of Common Disease-Associated Variation in Regulatory DNA
M. T. Mauroano et al.
Genetic variants that have been associated with diseases are concentrated in regulatory regions of the genome.
>> News story p. 1159; Perspective p. 1179; Science Podcast

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A scanning single-electron transistor is used to measure the local compressibility of graphene’s electronic states.

1200 Electron Small Polarons and Their Mobility in Iron (Oxyhydr)oxide Nanoparticles
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X-ray spectroscopy highlights the influence of local structure on electron transport in iron minerals.

1203 Photo-Tautomerization of Acetaldehyde to Vinyl Alcohol: A Potential Route to Tropospheric Acids
D. U. Andrews et al.
Enol tautomers may play a bigger role in atmospheric chemistry than previously suspected.

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Drinking Too Much? Blame Your Glass

A GPS for Navigating DNA

Relaxation and Prethermalization in an Isolated Quantum System

Decoherence and Prethermalization

A GPS for Navigating DNA

Relaxation and Prethermalization in an Isolated Quantum System

Decoherence and Prethermalization

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

G. Novarino et al.

Treatable Form of Autism with Epilepsy

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

G. Novarino et al.

When the branches of chain-cholesterol transported into the brain goes awry, neurological deficits can ensue.

10.1126/science.1224631

>> Science Podcast

Relaxation and Prethermalization in an Isolated Quantum System

M. Gring et al.

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

10.1126/science.1223821

>> Technical Comments

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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Systematic Localization of Common Disease-Associated Variation in Regulatory DNA

M. T. Maurano et al.

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10.1126/science.1222794

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4 September issue: http://scagm/ss090412

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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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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.

RESEARCH ARTICLE: Disruption of the Sleep-Wake Cycle and Diurnal Fluctuation of Amyloid-β in Mice with Alzheimer’s Disease Pathology

J. Roh et al.

FOCUS: The Nexus of Aβ, Aging, and Sleep

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Decreased sleep and attenuation of circadian fluctuations in Aβ reflect amyloid-associated pathology in Alzheimer’s disease.

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R. Singer et al.

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

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N. S. Sung and J. Burris

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The actomyosin cytoskeleton.

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