SPECIAL SECTION

Synthetic Biology

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COVER

Bacteria constructed from toy building bricks represent the potential of synthetic biology to design and construct genetic modules that can be used to introduce new functions into existing organisms or even to engineer new biological systems. A special section highlights how this field is contributing to our understanding of biology and harnessing this understanding to benefit humanity. See page 1235 and www.sciencemag.org/special/syntheticbio.

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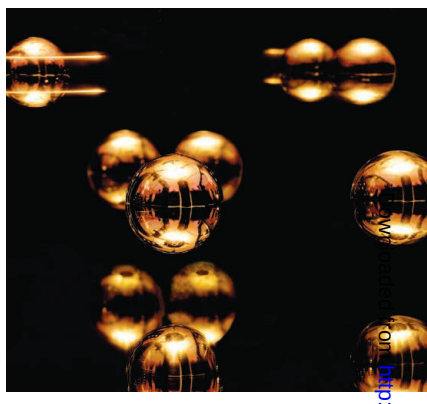

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Linking Long-Term Dietary Patterns with Gut Microbial Enterotypes
G. D. Wu et al.
The basic composition of the human gut microbiome is influenced by long-term diet: high fat and protein versus high fiber.
10.1126/science.1208344

ER Tubules Mark Sites of Mitochondrial Division
J. R. Friedman et al.
Mitochondrial division occurs at positions where endoplasmic reticulum tubules contact mitochondria and mediate constriction.
10.1126/science.1207385

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D. Refojo et al.
Imbalance in the bidirectional role of corticotropin-releasing hormone receptor 1 in anxiety might lead to emotional disorders.
10.1126/science.1202107

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A quantum version of a central processing unit was created with superconducting circuits and elements.
10.1126/science.1208517

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B. P. Lanyon et al.
A series of trapped calcium ions was used to simulate the complex dynamics of an interacting spin system.
10.1126/science.1208001

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Comment on "Additive Genetic Breeding Values Correlate with the Load of Partially Deleterious Mutations"
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A. Chakraborty et al.
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A Father-and-Son Journey Into Synthetic Biology
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Justin Siegel rationally engineered unnatural enzymes partly thanks to technology his dad helped develop.
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