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REVIEWS

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GENETICS

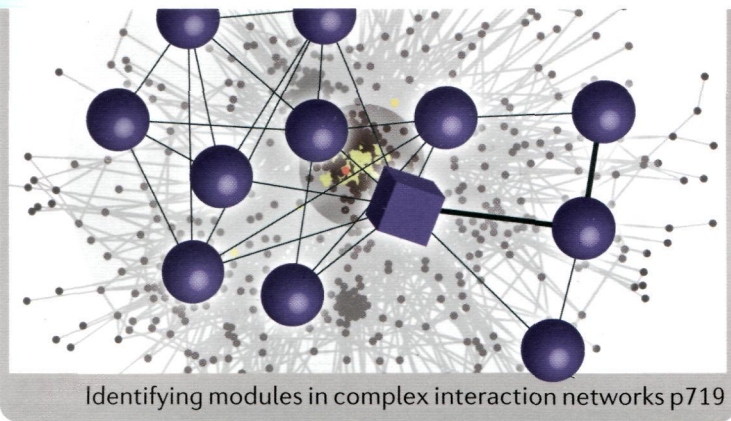


RARE DISEASE GENETICS

Insight from DNA-sequencing technologies

Somatic mutations in cancer

Patterns across diverse tissues



Identifying modules in complex interaction networks p719

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Rare-disease genetics in the era of next-generation sequencing: discovery to translation

Kym M. Boycott, Megan R. Vanstone, Dennis E. Bulman and Alex E. MacKenzie

The identification of mutations that underlie rare diseases has dramatically accelerated in recent years thanks to next-generation sequencing. This Review discusses strategies for further identification studies, insights into disease mechanisms and the clinical implications of the rapid progress in this field of research.

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FEATURED ARTICLE

Recent human adaptation: genomic approaches, interpretation and insights

Laura B. Scheinfeldt and Sarah A. Tishkoff

The recent availability of human genomic data has facilitated the search for candidate loci that are linked to adaptive human traits. This Review discusses methods and strategies for identifying these candidate adaptive loci, as well as the insights gained from applying them.

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Emerging patterns of somatic mutations in cancer

Ian R. Watson, Koichi Takahashi, P. Andrew Futreal and Lynda Chin

Next-generation sequencing has allowed an unprecedented genomic characterization of diverse cancer types. This Review describes our latest understanding of cancer genomes, including methods to interpret the mutation data, and the emerging biological and clinical implications.

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Integrative approaches for finding modular structure in biological networks

Koyel Mitra, Anne-Ruxandra Carvunis, Sanath Kumar Ramesh and Trey Ideker

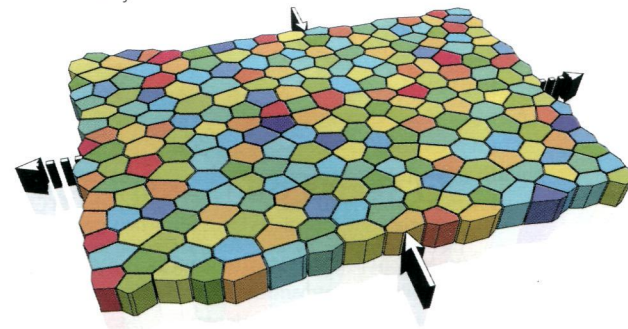
The recent proliferation of omics data has required a toolbox of integrative systems biology bioinformatics approaches to elucidate functional relationships between molecules. Here the authors explain the principles behind these approaches and discuss their applications.

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The interplay between cell signalling and mechanics in developmental processes

Callie Johnson Miller and Lance A. Davidson

Forces are known to directly shape morphogenesis; however, the role of forces in activating cell signalling in cell fate transitions is less well understood. In this Review, the authors consider the role of mechanics in developmental transitions and propose areas for future study.



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Christoph Plass, Stefan M. Pfister, Anders M. Lindroth, Olga Bogatyrova, Rainer Claus and Peter Lichter

The genetic causes of convergent evolution
David L. Stern

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Key points provides a bullet-pointed summary of the main topics covered in each article.

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RESEARCH HIGHLIGHTS

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- 744 **New genes as drivers of phenotypic evolution (corrigendum)**
Sidi Chen, Benjamin H. Krinsky and Manyuan Long



ImageSource/Photodisc/Getty

SERIES ON TRANSLATIONAL GENETICS

A special series of articles focusing on how genetic knowledge is changing medical practice, by facilitating screening tests, by informing diagnoses and drug prescribing and by paving the way for personalized health-risk assessments and tailored treatments. <http://www.nature.com/nrg/series/translational>



► COVER: 'Character types' by Patrick Morgan, inspired by the Review on p681.



grafica/Alamy

Research highlight on bookmarking of genomic loci p676

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