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REVIEWS

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GENETICS

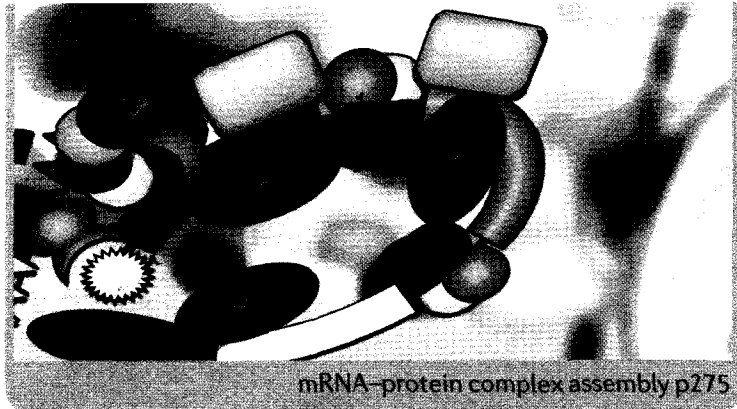


ANTIBIOTIC RESISTANCE

Monitoring bacterial evolution to manage infections

RNA-binding proteins

Dynamic complexes in mRNA transport and processing



CONTENTS

REVIEWS

240



Emerging methods in protein co-evolution

David de Juan, Florencio Pazos and Alfonso Valencia

Functional interactions between proteins and within proteins result in co-evolutionary signatures in amino acid sequences that serve as clues to various forms of interdependence. This Review discusses the principles and distinctions of the large range of computational tools to analyse protein co-evolution and the biological insight that they are providing.

252

Genomic signatures of selection at linked sites: unifying the disparity among species

Asher D. Cutter and Bret A. Payseur

Evolution by natural selection at genomic loci sculpts the sequence features of not just each immediate locus but also nearby chromosomally linked sites. However, the way that this occurs substantially varies among different species, and this Review discusses potential reasons for these disparities.

275

How cells get the message: dynamic assembly and function of mRNA-protein complexes

Michaela Müller-McNicoll and Karla M. Neugebauer

RNA-binding proteins (RBPs) are crucial for guiding mRNAs through the many steps from transcription to translation and decay. This Review discusses recent insights into the repertoire of RBPs, how they package RNA molecules and how they can connect different processing steps.

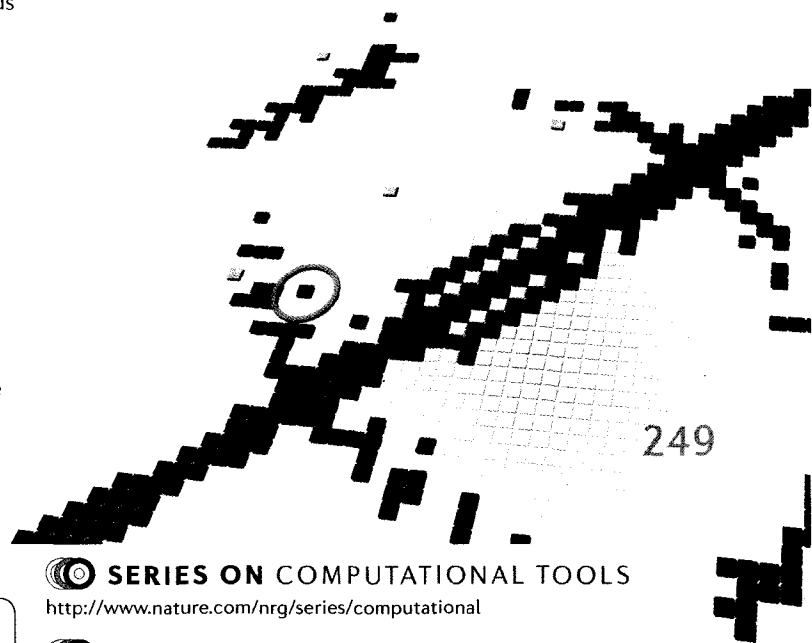
243

FEATURED ARTICLE

Understanding, predicting and manipulating the genotypic evolution of antibiotic resistance

Adam C. Palmer and Roy Kishony

The authors review new tools for studying the evolution of antibiotic resistance, including approaches to evolve resistance in the laboratory and analysis of clinical samples. Insights into pathways of evolution and the basis of resistance could inform future management of infections.



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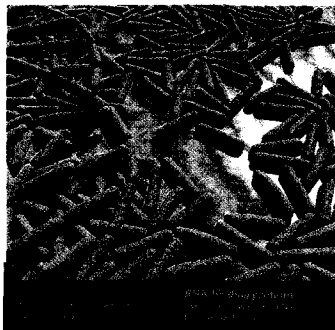
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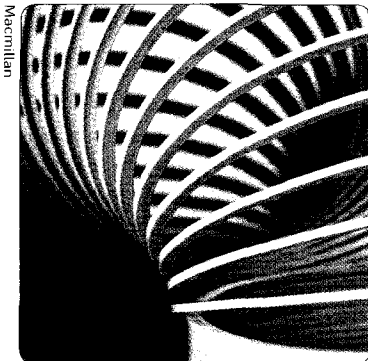
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► **COVER:** 'Bacterial order' by Patrick Morgan, inspired by the Progress on p243.



Supercoiled roles p238

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RESEARCH HIGHLIGHTS

Selections from the recent scientific literature

PERSPECTIVES

VIEWPOINT

Enhancers: five essential questions

Len A. Pennacchio, Wendy Bickmore, Ann Dean, Marcelo A. Nobrega and Gill Bejerano

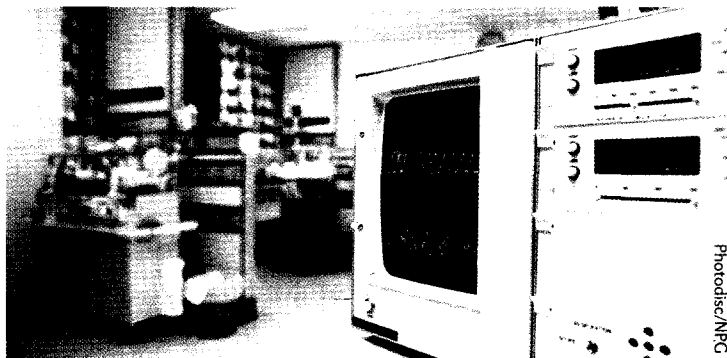
Although enhancers are crucial and widespread gene-regulatory elements, we are far from a complete understanding of how they function or their importance in areas such as disease and evolution. Five prominent researchers discuss some of the key outstanding questions in enhancer biology.

OPINION

Disease-targeted sequencing: a cornerstone in the clinic

Heidi L. Rehm

Clinical sequencing tests that focus on genes linked to specific diseases or phenotypes are increasingly widely being used. This article discusses how disease-targeting tests retain several advantages despite moves towards the clinical application of whole-genome or exome sequencing.



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