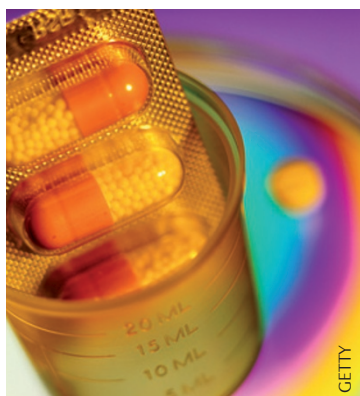


IN THIS ISSUE



Efficiency of drug R&D p191



Cancer biomarkers p201

The number of new drugs approved per billion US dollars invested in research and development (R&D) has declined progressively in the past 60 years, despite improvements in scientific and technological inputs into the R&D process. Given the apparent lack of impact so far of many solutions to this decline in R&D efficiency, Scannell and colleagues question whether the underlying problems have been correctly diagnosed and discuss factors they consider to be responsible, with the aim of stimulating further systematic analysis. It is anticipated that the use of biomarkers to match the right drug to the right patient is one strategy that could reduce the size, failure rates and cost of clinical trials. In their Perspective article, Kelloff and Sigman highlight the biomarkers expressed during cancer development and progression, focusing on those that are most relevant for identifying patients who are likely to respond to a specific therapy, and those that are most effective for measuring patient response. The design of biomarker-based cancer clinical trials and the associated challenges are considered. Accumulating evidence suggests that indicators of immune system activity in cancer patients can also be of prognostic value or be used to predict treatment response. This is discussed by Galluzzi and colleagues, who review the cellular and molecular mechanisms by which current anticancer agents can activate the immune system against cancer, and their therapeutic implications. Inappropriate immune system activation has a key role in chronic inflammatory disorders, a common feature of which is bone loss. Redlich and Smolen review the mechanisms mediating bone loss in such disorders, and discuss current and emerging counteractive therapeutic strategies.

EDITORIAL OFFICE

LONDON NatureReviews@nature.com
The Macmillan Building, 4 Crinan Street,
London N1 9XW, UK
Tel: +44 (0)20 7843 3620;
Fax: +44 (0)20 7843 3629

To subscribe and for more detailed information visit
www.nature.com/reviews/drugdisc

CHIEF EDITOR: Peter Kirkpatrick
SENIOR EDITORS: Alexandra Fleming,
Charlotte Harrison, Sarah Crunkhorn,
Monica Hoyos Flight
SENIOR NEWS EDITOR: Asher Mullard
ASSISTANT EDITOR: Man Tsuey Tse
COPY EDITOR: Mariam Faruqi
SENIOR COPY EDITORS: Catriona Rodwell,
Lucie Wootton
COPY EDITING MANAGER: Lewis Packwood
ART CONTROLLER: Susanne Harris
SENIOR ART EDITORS: Vicky Summersby,
Patrick Morgan, Kirsten Lee

MANAGING PRODUCTION EDITOR: Judith Shadwell
SENIOR PRODUCTION EDITOR: Simon Fenwick
PRODUCTION CONTROLLER: Natalie Smith
SENIOR EDITORIAL ASSISTANT: Laura Corns
EDITORIAL ASSISTANT: Ella Lines
WEB PRODUCTION MANAGER: Deborah Anthony
MARKETING MANAGERS: Tim Redding, Nazly De La Rosa
PUBLISHING DIRECTOR: Peter Collins

NEW YORK nature@natureny.com
Nature Publishing Group, 75 Varick Street, 9th floor,
New York, NY 10013-1917, USA
Tel: +1 212 726 9200;
Fax: +1 212 696 9006

PUBLISHER (BIOPHARMA): Melanie Brazil

CUSTOMER SERVICES: Feedback@nature.com

Copyright © 2012 Nature Publishing Group
Research Highlight images courtesy of Getty Images
unless otherwise credited.
Printed in Wales by Cambrian Printers on acid-free paper.

EDITORS



PETER KIRKPATRICK



ALEXANDRA FLEMING



CHARLOTTE HARRISON



SARAH CRUNKHORN



ASHER MULLARD



MAN TSUEY TSE