

natureOUTLOOK

BREAST CANCER

31 May 2012 / Vol 485 / Issue No. 7400



Cover art: Mark Smith

Editorial

Herb Brody, Michelle Grayson, Tony Scully, Davina Dudley-Moore, Nick Haines

Art & Design

Wes Fernandes, Nicola Hawes, Alisdair Macdonald, Andrea Duffy

Production

Karl Smart, Susan Gray, Leonora Dawson-Bowling

Sponsorship

Yuki Fujiwara, Yvette Smith, Gerard Preston

Marketing

Elena Woodstock, Hannah Phipps

Project Manager

Christian Manco

Art Director

Kelly Buckheit Krause

Magazine Editor

Tim Appenzeller

Editor-in-Chief

Philip Campbell

Editorial Advisors

Nicola McCarthy, Lisa Hutchinson, Barbara Marte

More than 1.3 million women worldwide are diagnosed with breast cancer each year, making it the second most common form of cancer behind lung cancer. Its prevalence, along with robust awareness-raising efforts (such as the pink-ribbon campaign), has given breast cancer a high public profile. Research into breast cancer's origins and pathology, as well as into treatment options, is therefore well funded.

As a result, the survival rates for breast cancer have improved markedly over the decades. In the 1960s, only 35% of women diagnosed with breast cancer in the United States would have been alive ten years later; by the mid-1990s, that figure was 77%. But nearly half-a-million women still die from this disease each year.

Not all breast cancer is the same, however. Women with certain types of breast cancer fare better than others (page S50), so understanding the different types is the next big challenge. One subgroup with a particularly poor prognosis is 'triple-negative' breast cancer. Here the tumour cells lack the three receptors commonly found in breast cancer, leaving drug developers with little to aim at. But researchers are uncovering new drivers and molecular targets for this subgroup that might provide a way in (S52).

Today the worst prognosis is for breast cancer that has already spread, or metastasized, to other sites at the time of diagnosis. What's more, tumour cells can hide quietly in distant organs before awakening and multiplying years or even decades after the initial treatment (S55). Preventing such metastases could save millions of lives, but real progress on this front will mean rethinking the way metastasis inhibitors are tested in clinical trials (S58).

We acknowledge the financial support of Saisei Mirai in producing this *Nature Outlook*. As always, *Nature* has full responsibility for all editorial content.

Michelle Grayson

Senior editor, Nature Outlook

CONTENTS

S50 STATISTICS

The hard facts

Assessing the scale of the problem

S52 MOLECULAR ONCOLOGY

The positive in the negative

Sometimes the drug targets are missing

S54 PREGNANCY

Delivery from breast cancer

Hope for mother and baby

S55 METASTASIS

The rude awakening

When cancer comes back

S58 PERSPECTIVE

The right trials

Patricia S. Steeg

S60 RISK ANALYSIS

A dense issue

Getting a clear picture of cancer risk

S62 EXERCISE

Powering up

Keep fit and cancer-free

S64 ENVIRONMENT AND GENETICS

Making sense of the noise

The search for the causes of cancer

S66 PERSPECTIVE

Not just for women

Valerie Speirs

COLLECTION

S67 Clinical and epidemiological issues in mammographic density

Valentina Assi, Jane Warwick, Jack Cuzick and Stephen W. Duffy

S75 Drug candidates derailed in case of mistaken identity

Heidi Ledford

S76 Cells of origin in cancer

Jane E. Visvader

S85 Does tumour dormancy offer a therapeutic target?

Paul E. Goss and Ann F. Chambers

Nature Outlooks are sponsored supplements that aim to stimulate interest and debate around a subject of interest to the sponsor, while satisfying the editorial values of *Nature* and our readers' expectations. The boundaries of sponsor involvement are clearly delineated in the *Nature Outlook* Editorial guidelines available at http://www.nature.com/advertising/resources/pdf/outlook_guidelines.pdf

CITING THE OUTLOOK

Cite as a supplement to *Nature*, for example, *Nature* Vol XXX, No. XXXX Suppl, Sxx–Sxx (2012). To cite previously published articles from the collection, please use the original citation, which can be found at the start of each article.

VISIT THE OUTLOOK ONLINE

The *Nature Outlook Breast Cancer* supplement can be found at http://www.nature.com/nature/outlook/breast_cancer

All featured articles will be freely available for 6 months.

SUBSCRIPTIONS AND CUSTOMER SERVICES

For UK/Europe (excluding Japan): Nature Publishing Group, Subscriptions, Brunel Road, Basingstoke, Hants, RG21 6XS, UK. Tel: +44 (0) 1256 329242. Subscriptions and customer services for Americas – including Canada, Latin America and the Caribbean: Nature Publishing Group, 75 Varick St, 9th floor, New York, NY 10013-1917, USA. Tel: +1 866 363 7860 (US/Canada) or +1 212 726 9223 (outside US/Canada). Japan/China/Korea: Nature Publishing Group – Asia-Pacific, Chiyoda Building 5-6th Floor, 2-37 Ichigaya Tamachi, Shinjuku-ku, Tokyo, 162-0843, Japan. Tel: +81 3 3267 8751.

CUSTOMER SERVICES

Feedback@nature.com
Copyright © 2012 Nature Publishing Group