CANCER DISCOVERY

EDITORS-IN-CHIEF

Lewis C. Cantley José Baselga

EXECUTIVE EDITOR

Mark W. Landis

EDITORIAL STAFF

DEPUTY EDITOR

Elizabeth S. McKenna

ASSOCIATE EDITORS

Michele M. Hartsough

I-Mei Siu

SENIOR EDITOR, SCIENCE AND MEDICAL NEWS

Suzanne L. Rose

WRITER/REPORTER, SCIENCE AND MEDICAL NEWS

Catherine C. Caruso

SCIENCE WRITER

Krista L. Bledsoe

SENIOR PRODUCTION PROJECT EDITOR

Julie Ehlers

SCIENTIFIC EDITORS

Kari Alitalo Levi A. Garraway David R. Piwnica-Worms

James P. Allison Jennifer R. Grandis Helen M. Piwnica-Worms

Scott A. Armstrong Nathanael S. Gray Kornelia Polyak
Carlos L. Arteaga Daniel A. Haber Carol Prives

Alan Ashworth William C. Hahn Antoni Ribas

Alberto Bardelli Douglas Hanahan Leffrey M. Rose

Alberto Bardelli Douglas Hanahan Jeffrey M. Rosen René Bernards Manuel Hidalgo Mark A. Rubin

Elizabeth H. Blackburn Waun Ki Hong Charles L. Sawyers

Paolo Boffetta Tyler Jacks David Schenkein
Joan S. Brugge Elizabeth M. Jaffee

John C. Byrd William G. Kaelin

Margaret A. Shipp

Andrea Califano Theodore S. Lawrence Kevan M. Shokat
Arul Chinnaiyan John P. Leonard

Sara A. Courtneidge Roger S. Lo
Lisa Coussens Douglas R. Lowy

M. Celeste Simon
Lillian L. Siu

Alan D. D'Andrea Tak W. Mak
Laura Soucek

Johann S. de Bono Richard M. Marais
Hugues de Thé Joan Massagué Charles Swanton

Ehlers Ralph J. DeBerardinis Frank McCormick Josep Tabernero
Ronald A. DePinho Ari M. Melnick Craig B. Thompson

Vishva M. Dixit Gordon B. Mills Nicholas C. Turner Susan M. Domchek Paul S. Mischel David A. Tuveson

Matthew J. Ellis Sean J. Morrison Robert H. Vonderheide

 Jeffrey A. Engelman
 Benjamin G. Neel
 Karen H. Vousden

 Douglas T. Fearon
 Olufunmilayo I. Olopade
 Xiaodong Wang

 Lori Friedman
 Pier Paolo Pandolfi
 Ralph Weissleder

Thomas F. Gajewski William Pao Eileen White

EDITORIAL OFFICE: Cancer Discovery [ISSN 2159-8274 (Print); ISSN 2159-8290 (Online)] is published monthly, one volume per year, by the American Association for Cancer Research, Inc., 615 Chestnut St., 17th Floor, Philadelphia, PA 19106-4404. Periodicals postage is pending at Philadelphia, PA, and additional mailing offices. POSTMASTER: Send address changes to Cancer Discovery, AACR Member Services, 615 Chestnut St., 17th Floor, Philadelphia, PA 19106-4404 or E-mail: membership@aacr.org. Copyright 2018 by the American Association for Cancer Research, Inc. ⊗ The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

CANCER DISCOVERY

PUBLISHING INFORMATION

ISSN 2159-8274 (PRINT) ISSN 2159-8290 (ONLINE)

AACR OFFICERS

Elizabeth M. Jaffee, President Elaine R. Mardis, President-Elect Michael A. Caligiuri, Past President William N. Hait, Treasurer Margaret Foti, Chief Executive Officer

PUBLICATIONS COMMITTEE

Dafna Bar-Sagi Mary Helen Barcellos-Hoff Michael E. Berens John D. Carpten Maura L. Gillison Rakesh K. Jain Pasi A. Jänne Gerrit A. Meijer Gordon B. Mills Steffi Oesterreich William Pao Gloria M. Petersen David R. Piwnica-Worms Charles W.M. Roberts Alice T. Shaw Lillian L. Siu Saraswati V. Sukumar Toshikazu Ushijima Victor E. Velculescu, Chairperson

PUBLISHING STAFF

PUBLISHER

Christine B. Rullo

DIRECTOR, JOURNAL OPERATIONS AND SYSTEMSDaniel S. Evanko

DIRECTOR, JOURNAL SALES AND MARKETING

Nicola L. Hill

DIRECTOR, DIGITAL PUBLISHING

Robert Spanier

ASSOCIATE DIRECTOR, PRODUCTION

Charlene Squibb

ASSISTANT DIRECTOR, JOURNAL MARKETING

Joanna Arnold

ASSISTANT DIRECTOR, INSTITUTIONAL SALES &

OUTREACH Karola Rac

SCOPE

Cancer Discovery publishes high-impact, peer-reviewed articles describing major advances in research and clinical trials. As the premier cancer information resource, the Journal also presents Review Articles, Perspectives and Commentaries, News stories, and Research Watch summaries

of important journal articles to its readers to keep them informed about the latest findings in the field. Topics span the spectrum of cancer research and medicine from the laboratory to the clinic and epidemiologic studies.

Cancer Discovery is abstracted and/or indexed in Current Contents/Clinical Medicine, MEDLINE, Science Citation Index, Scopus, and Web of Science.

SUBMISSION OF MANUSCRIPTS

Manuscript submission is welcomed online at http://cd.msubmit.net. Before submitting a manuscript, please read the Instructions for Authors, which are available from the Journal's home page at http://cancerdiscovery.aacrjournals.org.

PUBLICATION CHARGES

Articles are published with the understanding that the author(s) must pay both a publication fee of \$2,500 and, if applicable, a color figure handling fee of \$450 per figure.

SUBSCRIPTION INFORMATION

Nonmember Individuals

Subscriptions include print version with online access. Contacts listed below are for nonmember individual subscriptions.

USA and Rest of World (excluding Japan) American Association for Cancer Research, 615 Chestnut Street, Philadelphia, PA 19106; 1-855-744-4667; pubsales@aacr.org

Japan

e-support@maruzen.co.jp; journal@kinokuniya.co.jp; usaco@usaco.co.jp

International print subscriptions include cost of surface mail. Expedited mailing is available. Contact the American Association for Cancer Research for rates.

Site Licenses

For information about institutional site licenses, contact pubsales@aacr.org.

AACR Members

AACR members may opt to receive either a print subscription with online access to content or an online-only subscription. Contact membership@aacr.org or visit the membership page at www.aacr.org for more information.

Single Issue Sales

Subject to their availability, single or back issues may be purchased for \$60 (U.S.) or \$65 (outside the U.S.) each. The cost must be prepaid. Contact pubsales@aacr.org.

Claims

One-time claims for missing issues made within 120 days of the issue's publication will be honored, subject to availability. No credit or refund will be given if an issue is out of print at the time of claim.

AACR Members membership@aacr.org

Nonmembers and Institutions pubsales@aacr.org

ADVERTISING INFORMATION

For information about advertising in AACR journals, contact Pharmaceutical Media Inc., 30 East 33rd St., 4th Floor, New York, NY 10016; 212-904-0360; Dsimone@pminy.com.

COPYRIGHT AND PERMISSIONS

Content printed in or disseminated by *Cancer Discovery* is protected by copyright. Authors who wish to publish material in *Cancer Discovery* must formally transfer copyright to the AACR. All authors must sign copyright transfer forms before the AACR can proceed with publication.

To read the complete AACR Copyright and Permissions Policy, visit www. aacrjournals.org/content/authors/copyright-permissions-and-accesss