

CANCER EPIDEMIOLOGY, BIOMARKERS & PREVENTION

Translating Science to Populations

AN OFFICIAL JOURNAL OF THE **AACR** American Association
for Cancer Research



Editor-in-Chief

Elizabeth A. Platz

Deputy Editors

Scarlett Lin Gomez
Nicolas Wentzensen

Senior Editors

Jiyoung Ahn
Smita Bhatia
Melissa L. Bondy
Louise A. Brinton
Neil E. Caporaso
Meira Epplein
Jo L. Freudenheim
Patti Gravitt
John D. Groopman
Chanita Hughes-Halbert
Eric Jacobs
Ahmedin Jemal
Anita Y. Kinney
Loïc Le Marchand
Christopher I. Li
Lorelei A. Mucci
Julie R. Palmer
Jong Y. Park
Emanuel F. Petricoin III
Leslie L. Robison
Thomas E. Rohan
Meredith Shiels
Shelley S. Tworoger
Cornelia M. Ulrich
Sally W. Vernon
John S. Witte

Anne Zeleniuch-Jacquotte
Wei Zheng

Editorial Staff

Managing Editor

Greg Pavlovcak

Associate Editor

Jing Peng

Associate Journal Manager

Crystal Cheepudom

Special Content Manager

Chris Vesci

Editorial Staff

Nageena Laing

Senior Production Editor

Corinne Mooney

Editorial Board

Christian C. Abnet
Hans-Olov Adami
Anthony J. Alberg
Howard H. Bailey
Jill S. Barnholtz-Sloan

Sonja I. Berndt
Marianne Berwick
Deborah J. Bowen
Otis W. Brawley
W. Robert Bruce
James R. Cerhan
Andrew T. Chan
June M. Chan
Shine Chang
Jenny Chang-Claude
Chu Chen
Jinbo Chen
Michael B. Cook
Kerry S. Courneya
Wendy Cozen
Wendy Demark-Wahnefried
Eduardo DeStefani
Michael A. Diefenbach
Zora Djuric
Joanne F. Dorgan
Julie A. Douglas
Steven M. Dubinett

In collaboration with the
**AACR Molecular
Epidemiology Group**
and the
**American Society of
Preventive Oncology**

Editorial Office: *Cancer Epidemiology, Biomarkers & Prevention* [ISSN: 1055-9965 (Print); 1538-7755 (Online)] is published monthly, one volume per year, by the American Association for Cancer Research, Inc.; 615 Chestnut Street, 17th Floor, Philadelphia, PA 19106-4404. Periodicals postage paid at Philadelphia, PA, and additional mailing offices. POSTMASTER: Send address changes to *Cancer Epidemiology, Biomarkers & Prevention*, Member Services, AACR, 615 Chestnut Street, 17th Floor, Philadelphia, PA 19106-4404 or E-mail: membership@aacr.org. Copyright 2020 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).

Editorial Board *(continued)*

Kathleen M. Egan
Janine Einspahr
Eduardo L. Franco
Joseph F. Fraumeni Jr.
Karen M. Freund
Peter Gann
Judy E. Garber
Graham G. Giles
Edward L. Giovannucci
Karen Glanz
Alisa M. Goldstein
Carolyn Gotay
Stephen B. Gruber
Susan E. Hankinson
Maureen Hatch
Stephen S. Hecht
Robert A. Hiatt
Ari P. Hirvonen
Ashraful Hoque
Mohammad Obaidul Hoque
Ann W. Hsing
David J. Hunter
Elizabeth T. Jacobs
Mark A. Jenkins
Esther M. John
Peter A. Kanetsky
Daehee Kang
Timothy Key
Lambertus A. Kiemeny
Omer Kucuk
James V. Lacey Jr.
Maria T. Landi
Paula M. Lantz
Carlo La Vecchia

DeAnn Lazovich
Michael F. Leitzmann
Paul J. Limburg
James R. Marshall
Marji McCullough
Katherine A. McGlynn
Gail E. McKeown-Eyssen
Amy McQueen
Helen I. Meissner
Dominique S. Michaud
Paola C. Muti
Ronald E. Myers
Polly A. Newcomb
Kevin C. Oeffinger
Olufunmilayo I. Olopade
Jamie S. Ostroff
David L. Page
Howard L. Parnes
Melissa R. Partin
Rena Pasick
Alpa V. Patel
Malcolm C. Pike
Mark P. Purdue
You Lin Qiao
Janet S. Rader
William Rakowski
Juergen K.V. Reichardt
Gad Rennert
Nathaniel Rothman
Mack T. Ruffin
Mark W. Schiffman
Kathryn H. Schmitz
Marc D. Schwartz
Stephen M. Schwartz

O. John Semmes
V. Wendy Setiawan
Saul Shiffman
Erin M. Siegel
Rashmi Sinha
Christine Skibola
Martyn T. Smith
Margaret R. Spitz
Janet L. Stanford
Rachael Stolzenberg-Solomon
Suzanne M. Stratton
Susan R. Sturgeon
Sapna Syngal
Stephen H. Taplin
Patricia Ann Thompson
Michael J. Thun
Jasmin A. Tiro
Amy Trentham-Dietz
Mary K. Tripp
Rebecca Troisi
Asad Umar
Thomas L. Vaughan
Damon J. Vidrine
Paolo L. Vineis
Jaye L. Viner
Keiji Wakabayashi
Sophia S. Wang
Graham W. Warren
Alice S. Whittemore
Walter C. Willett
Xiaohong Rose Yang
Wei-cheng You
Kai Yu
Zuo-Feng Zhang

CANCER EPIDEMIOLOGY,
BIOMARKERS & PREVENTION

Publishing Information

AN OFFICIAL JOURNAL OF THE **AACR** American Association
for Cancer Research

AACR Officers

Antoni Ribas, President
David A. Tuveson,
President-Elect
Elaine R. Mardis, Past President
William N. Hait, Treasurer
Margaret Foti, Chief Executive
Officer

Publications Committee

Victor E. Velculescu, Chairperson
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
Gloria M. Petersen
David R. Piwnica-Worms
William Pao
Charles W.M. Roberts
Alice T. Shaw
Lillian L. Siu
Saraswati Sukumar
Toshikazu Ushijima

Publishing Staff

Publisher

Christine Battle

Director, Journal Operations and Systems

Daniel S. Evanko

Director, Journal Sales and Marketing

Nicola L. Hill

Director, Digital Publishing

Mark Jacobson

Director, Editorial

Robert Kruger

Associate Director,

Production

Charlene Squibb

Assistant Director, Journal Marketing

Joanna Arnold

Assistant Director, Institutional Sales & Outreach

Karola Rac

Marketing and Creative Services

Senior Director

Paul Driscoll

Design Staff

Susan Moore

Scope

Cancer Epidemiology, Biomarkers & Prevention publishes original, peer-reviewed, population-based research on cancer etiology, prevention, surveillance, and survivorship. The following topics are of special interest: descriptive, analytical, and molecular epidemiology; biomarkers including assay development, validation, and application; chemoprevention and other types of prevention research in the context of descriptive and observational studies; the role of behavioral factors in cancer etiology and prevention; survivorship studies; risk factors; implementation science and cancer care delivery; and the science of cancer health disparities. Besides welcoming manuscripts that address individual subjects in any of the relevant disciplines, *CEBP* editors encourage the submission of manuscripts with a transdisciplinary approach.

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

Submission of Manuscripts

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

Publication Charges

Articles will be published with the understanding that the author(s) will pay both a publication fee plus a color figure handling fee. Please see the Instructions for Authors, which are available from the Journal's home page at <http://cebp.aacrjournals.org/>.

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 The Walchli Tauber Group, Inc., 2225 Old Emmorton Road, Suite 201, Bel Air, MD 21015; 443-512-8899; maura.paoletti@wt-group.com.

Copyright and Permissions

Content printed in or disseminated by *Cancer Epidemiology, Biomarkers & Prevention* is protected by copyright. Authors who wish to publish material in *Cancer Epidemiology, Biomarkers & Prevention* 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 <http://aacrjournals.org/content/authors/copyright-permissions-and-access>.