

Cancer Epidemiology Biomarkers & Prevention

March 1998
Volume Seven ■ Number Three
Pages 181-268
ISSN 1055-9965



An Official Journal of the
American Association for Cancer Research
Cosponsored by the
American Society of Preventive Oncology

Molecular Epidemiology Group of the AACR (MEG/AACR)

Events Sponsored by MEG/AACR at the 89th Annual Meeting of the American Association for Cancer Research



**Morial Convention Center
New Orleans, Louisiana
March 28-April 1, 1998**

After last year's organizational meeting of the Molecular Epidemiology Group (MEG), efforts were launched to establish MEG as a scientific forum within the American Association for Cancer Research (AACR). Subsequently the Board of Directors of the AACR enthusiastically approved the formation of MEG/AACR as well as the concept of other scientific groups within the Association to provide a new vehicle for the exchange of ideas among scientists working in specialized areas of cancer research. MEG/AACR members have taken the first steps in the formation of such a group and welcome all annual meeting registrants to attend the events they are sponsoring at the upcoming AACR Annual Meeting.

Saturday, March 28, 1998

- **Educational Session:** *Molecular Epidemiology: Current Perspectives.* **Neil E. Caporaso**, Chairperson, 12:00 noon-2:00 p.m., Room 41
- **Methods Workshop:** *Establishment, Maintenance, and Quality Control of Biorepositories.* **Elio Riboli**, Chairperson, 2:00-6:10 p.m., Room 9
- **Business Meeting and Reception:** 6:15-8:00 p.m., Room 24

Monday, March 30, 1998

- **Poster Discussion Session:** *Epidemiology 3, Biomonitoring Methods for Detection of Carcinogen-DNA Adducts in Human Populations.* **David Hunter Phillips** and **Frederick A. Beland**, Chairpersons, 1:00-5:00 p.m., Exhibit Hall A-B, Section 1, with Discussion from 3:30-4:30 p.m. in Room 11

Tuesday, March 31, 1998

- **"Meet-the-Expert" Sunrise Session:** *Issues and Applications in Molecular Epidemiology.* **Barbara S. Hulka**, 7:00-8:00 a.m., Room 3
- **Minisymposium:** *Epidemiology 4, Molecular Basis of Cancer Susceptibility.* **Timothy Rebbeck** and **Peter G. Shields**, Chairpersons, 8:15-11:45 a.m., Room 36

Wednesday, April 1, 1998

- **Poster Session:** *Epidemiology 6, Molecular Epidemiology.* 8:00 a.m.-12:00 noon, Exhibit Hall A-B, Section 12
- **Symposium:** *Emerging Issues for Individual Cancer Susceptibility and Risk Assessment.* **Fred F. Kadlubar**, Chairperson. 12:45-3:00 p.m., Ballroom C

Cancer Epidemiology & Prevention

Biomarkers

An Official Journal of the American Association for Cancer Research ■ Cosponsored by the American Society of Preventive Oncology

American Association for Cancer Research, Inc.

**Executive Director and
Director of Publications**

Margaret Foti

Publications Staff

Associate Director

of Publications

Mary Anne Mennite

Manager, Editorial Services

Heide M. Puszty

Staff Editors

Michael J. Beveridge

Kathleen C. Assenmacher

Pamela R. Arnold

Ronald M. Vitale

Staff Assistant

Mary Ellen Pirring

Senior Editorial Assistant

Theresa A. Griffith

Editorial Assistants

Valerie L. Samuel

Cecilia Gallo

Marketing Coordinator

Robert B. O'Malley

Administrative Staff

Director of Administration

Adam D. Blstein

Controller

Joan D. Ritchie

Manager, Meetings and Exhibits

Jeffrey M. Ruben

Meeting Planner

Carole L. Kanoff

Public Information Coordinator

Jenny Anne Horst-Martz

Assistant to the Executive Director

Ruth E. Fortson

Membership Development Coordinator

Robin E. Felder

Administrative Assistant

Margaret A. Pickels

Systems Specialist

Lydia I. Rodriguez

Secretary

Malika L. Wright

Editorial Assistant

Diana F. Certo

Office Clerk

James J. Waters

Data Entry Clerk

Robert A. Simms II

Editor-in-Chief

Frederick P. Li

Senior Editors

Epidemiology

John D. Potter

Biomarkers

Fred F. Kadlubar

Prevention

David S. Alberts

Behavioral Sciences

Caryn E. Lerman

Associate Editors

W. Robert Bruce

Webster K. Cavenee

Paul F. Engstrom

Joseph F. Fraumeni, Jr.

Karen Glanz

Ellen R. Gritz

Curtis C. Harris

Stephen S. Hecht

Laurence N. Kolonel

W. Thomas London

James R. Marshall

Abraham M. Y. Nomura

James A. Swenberg

Steven R. Tannenbaum

Alice S. Whittemore

Chung S. Yang

Mimi C. Yu

Assistant Editor

Arlene F. Kantor

Editorial Advisory Board

Hans-Olov Adami

Bruce K. Armstrong

Helmut Bartsch

Valerie Beral

Leslie Bernstein

John S. Bertram

Joan R. Bloom

William J. Blot

John D. Boice, Jr.

George E. Bonney

Roberd M. Bostick

Ricardo R. Brentani

Eva Buiatti

Neil E. Caporaso

Wong-Ho Chow

Philip Cole

K. Michael Cummings

Susan J. Curry

Janet Daling

Mary Daly

Eduardo DeStefani

Virginia L. Ernster

Michael Fiore

David Forman

Eduardo L. Franco

Yu-Tang Gao

E. Robert Greenberg

Raymond S. Greenberg

Peter Greenwald

F. Peter Guengerich

Rodrigo Guerrero

Clark W. Heath, Jr.

Kathy J. Helzlsouer

Elizabeth A. Holly

Wun Ki Hong

Geoffrey R. Howe

Mary Claire King

Leo J. Kinlen

Paul Kleihues

Alfred G. Knudson, Jr.

Bernard Levin

Lance A. Liotta

Martin Lipkin

Richard R. Love

Thomas Mack

Frank L. Meyskens, Jr.

Christopher J. Michejda

Rodney F. Minchin

John D. Minna

Ruggero Montesano

John J. Mulvihill

Alvaro Muñoz

Nubia Muñoz

Alfred I. Neugut

Gilbert S. Omenn

C. Tracy Orleans

David L. Page

Frederica Perera

Nicholas L. Petrakis

John P. Pierce

Miriam C. Poirier

Bruce A. J. Ponder

Ross Prentice

Barbara Rimer

Nathaniel Rothman

George C. Roush

Jose Russo

Jonathan M. Samet

Arthur Schatzkin

Mark H. Schiffman

David Schottenfeld

Paul A. Schulte

Peter Shields

Roy E. Shore

Margaret R. Spitz

Louise C. Strong

Takashi Sugimura

G. Marie Swanson

Eiichi Tahara

Bruce Trock

Sally Vernon

Michael J. Wargovich

Lee W. Wattenberg

I. Bernard Weinstein

John H. Weisburger

Noel S. Weiss

Ainsley Weston

Walter C. Willett

Rodger J. Winn

Gerald N. Wogan

Sandra R. Wolman

Ernst L. Wynder

Regina Ziegler

Cancer Epidemiology, Biomarkers & Prevention is published monthly, one volume annually, by the American Association for Cancer Research, Inc. (AACR). Except for members of the AACR, all subscriptions are payable in advance to AACR, Subscription Office, P. O. Box 11806, Birmingham, AL 35202 [Telephone: (800) 633-4931 or (205) 995-1567; FAX: (205) 995-1588], to which all business communications, remittances (in United States currency or its equivalent), and subscription orders should be sent. In Japan, send orders and inquiries to (sole agent): USACO Corporation, Tsutsumi Bldg., 13-12, Shimbashi 1-chome, Minato-ku, Tokyo 105, Japan; Tel. (03) 502-6471. Nonmembers of the AACR within the United States may subscribe to Volume 7 (1998) of *Cancer Epidemiology, Biomarkers & Prevention* at the rate of \$110 (individual nonmembers) or \$285 (institutional nonmembers), including postage. Institutional and individual nonmembers outside of the United States should add \$40 to their respective rates to offset periodicals postage costs, which covers the cost of shipping journals by surface mail. (For faster delivery, expedited mailing rates are available by contacting the AACR Publications Department). Canadian subscribers should add 7% GST. Changes of address notification should be sent 60 days in advance and include both old and new addresses. Member subscribers should send address changes to: Member Services, AACR, Public Ledger Bldg., Suite 826, 150 South Independence Mall West, Philadelphia, PA 19106-3483. Nonmember subscribers should send changes of address to: AACR Subscription Office, P. O. Box 11806, Birmingham, AL 35202. Copies of the journal which are undeliverable because of address changes will be destroyed. Accelerated mailing of all AACR journals to AACR members in Japan is supported by a generous grant from the Banyu Pharmaceutical Company, Tsukuba, Japan.



Notice to Members of the American Association for Cancer Research (AACR)

Officers for 1997-1998

President: Donald S. Coffey, Johns Hopkins University School of Medicine, Baltimore MD 21287-2101

President-Elect: Webster K. Cavenee, Ludwig Institute for Cancer Research, La Jolla, CA 92023-0660

Treasurer: Bayard D. Clarkson, Memorial Sloan-Kettering Cancer Center, New York, NY 10021

Executive Director: Margaret Foti, AACR, Public Ledger Bldg., Suite 826, Philadelphia, PA 19106-3483

Annual Dues

The annual dues of active members of the AACR are \$175, \$55 of which may be applied toward a subscription to *Cancer Epidemiology, Biomarkers & Prevention*. Corresponding members of the Association will be charged an appropriate fee to offset periodicals postage costs. Payment of dues and changes of address of members of the Association should be sent promptly to Margaret Foti, Executive Director, AACR, Public Ledger Bldg., Suite 826, 150 South Independence Mall West, Philadelphia, PA 19106-3483; Telephone: (215) 440-9300; FAX: (215) 440-9313.

Submission of Manuscripts

Cancer Epidemiology, Biomarkers & Prevention publishes original research on cancer causation and prevention in humans, linking three previously unintegrated disciplines: epidemiology, biomarkers, and prevention. Topics include descriptive, analytical, biochemical, and molecular epidemiology; the use of biomarkers to study the neoplastic and preneoplastic processes in humans; chemoprevention and other types of prevention trials; and the role of behavioral factors in cancer etiology and prevention. Manuscripts that address individual subjects in any of the three disciplines are welcome as well as manuscripts with an interdisciplinary approach. All submissions undergo peer review. Papers should be sent to: *Cancer Epidemiology, Biomarkers & Prevention*, AACR Publications Department, Public Ledger Building, Suite 826, 150 South Independence Mall West, Philadelphia, PA 19106-3483. See Instructions for Authors (page *i* of this issue) for further information concerning submissions.

Back Issues and Single Copy Sales of the Journal

Copies of back stock of the journal may be ordered from AACR Subscription Office, P. O. Box 11806, Birmingham, AL 35202 [Telephone: (800) 633-4931 or (205) 995-1567; FAX: (205) 995-1588]. As long as supplies permit, single copies will be sold by this company at \$25.00/copy. Orders outside the U.S. add \$3.00/copy to offset postage costs.

Advertisements

Advertisement insertion orders and copy must be received one month prior to the date of issue in which the advertisement is to be published. The journal is mailed by approximately the 7th day of the month of issue. Inquiries about advertising should be directed to: M. J. Mrvica Associates, Inc., 2 West Taunton Avenue, Berlin, NJ 08009 [Telephone: (609) 768-9360; FAX: (609) 753-0064].

Copyright and Permissions

Authors who wish to publish in *Cancer Epidemiology, Biomarkers & Prevention* must formally transfer copyright to the proprietor of the journal, the AACR, Inc. It is understood by this transfer that the authors relinquish all exclusive rights of copyright ownership, including without limitation rights of reproduction, derivation, distribution, sale, and

display of the work, in whole or in part, in any and all forms of media now or hereafter known.

Authors who prepared their articles as part of their official duties as employees of the U.S. Federal Government are not required to transfer copyright to the AACR, Inc., since these articles are considered to be in the public domain. In the case of articles supported by federal grants or contracts, copyright transfer to the AACR, Inc., is required. The federal government may retain a nonexclusive license to publish or republish such material.

The Journal will routinely allow authors (or others with the permission of the authors) to include select parts of a copyrighted article in reviews, books, or subsequent papers, upon written request to the AACR Director of Publications. Requests to reproduce an article in its entirety will be considered on an individual basis and permission may be granted contingent upon payment of an appropriate copyright fee. All reproduction requests must include a brief description of intended use and a stamped, self-addressed envelope. Third parties should obtain the approval of the authors *before* corresponding with the AACR.

Those who wish to photocopy articles should contact the AACR Publications Department [Telephone: (215) 440-9300; FAX: (215) 440-9355].

No responsibility is accepted by the Editors, by the AACR, Inc., by the American Society of Preventive Oncology, or by Cadmus Journal Services for the opinions expressed by contributors or for the content of the advertisements.

Cancer Epidemiology, Biomarkers & Prevention is indexed in *Chemical Abstracts*, *Current Contents/CM*[®], *Index Medicus*, *MEDLINE*, and the *BIOSIS Previews*[®] Database. This journal is printed on acid-free paper.

Cancer Epidemiology, Biomarkers & Prevention (ISSN 1055-9965) is published monthly by the American Association for Cancer Research, Inc., Public Ledger Bldg., Suite 826, 150 South Independence Mall West, Philadelphia, PA 19106-3483 for \$55 annually for members, \$110 for individual nonmembers, and \$285 for institutional nonmembers. Periodicals postage paid at Philadelphia, PA and additional mailing offices. POSTMASTER: Send address changes to AACR Subscription Office, P. O. Box 11806, Birmingham, AL 35202. Copyright 1998 by the American Association for Cancer Research, Inc. Printed in the U.S.A.

A New Resource Kit
from the
National Cancer Institute

- *Cancer Research challenges, advances, and opportunities*
- *Cancer Statistics*
- *Research Initiatives*
- *Clinical Studies... and more*



To order, call NCI's
Cancer Information Service at
1-800-4-CANCER
(1-800-422-6237)

People with TTY equipment,
dial 1-800-332-8615

**FACULTY LEVEL POSITION,
TENURE TRACK OR TENURED—**
For top quality research psychologist with training/expertise and grant-getting ability in health psychology-behavioral medicine, focus on oncology, prevention, tobacco control/addiction, behavior change, and community-based/population studies. Send vita, reprints, and three references to: Dr. Suzanne M. Miller, Director, Psychosocial and Behavioral Medicine Program, Division of Population Science, Fox Chase Cancer Center, 215 South Broad Street, 5th Floor, Philadelphia, PA 19107. Equal Opportunity Employer.

If you'd like your library to carry *Cancer Epidemiology, Biomarkers & Prevention*, fill out the form below, and pass it on to your librarian.

✂

LIBRARY RECOMMENDATION FORM

To: Librarian / Library Acquisition Committee

I have reviewed a copy of the journal entitled, *Cancer Epidemiology, Biomarkers & Prevention* (ISSN 1055-9965). Please include it in your next serials review meeting with my recommendation.

You can obtain free sample copies of *Cancer Epidemiology, Biomarkers & Prevention* from the American Association for Cancer Research, Attn: Marketing, Public Ledger Building, Suite 826, 150 S. Independence Mall West, Philadelphia, PA 19106-3483, USA.
Tel: (215) 440-9300; Fax: (215) 440-9355; e-mail: acr@aacr.org.

I recommend the journal for the following reasons:

Name: _____ Position: _____
Department: _____
Tel: _____ Fax: _____ E-mail: _____

The American Association for Cancer Research Presents

Molecular Biology in Clinical Oncology: A Workshop

Supported by a Generous Grant from the National Cancer Institute

An intensive, one-week summer workshop on molecular biology designed for clinical oncologists in training or in their early academic careers.

July 3-9, 1998
Given Biomedical Institute
Aspen, Colorado

ORGANIZERS

MICHAEL B. KASTAN
The Johns Hopkins
Oncology Center
Baltimore, MD

L. MICHAEL GLODÉ
University of Colorado
School of Medicine
Denver, CO

JENNIFER A. PIETENPOL
Vanderbilt University
School of Medicine
Nashville, TN

- Lectures by leading experts on molecular biology concepts and the latest developments in molecular oncology. Topics include gene therapy, oncogenes and growth factors, tumor suppressor genes, molecular genetics, metastasis genes, and drug design.
- Small group laboratory sessions to demonstrate the important experimental techniques utilized in molecular biology.
- A workshop syllabus containing relevant published papers, references to key articles in the literature, and details on important laboratory procedures.
- Financial support for participants who are physicians in training or oncology fellows.

Faculty

Lectures

KATHLEEN R. CHO/ Baltimore, MD

CHI VAN DANG/ Baltimore, MD

ERIC R. FEARON/ Ann Arbor, MI

TYLER JACKS/ Cambridge, MA

MICHAEL B. KASTAN/ Baltimore, MD

ROBERT S. KERBEL/ Toronto, ON, Canada

MARC E. LIPPMAN/ Washington, DC

EDISON T. LIU/ Bethesda, MD

A. THOMAS LOOK/ Memphis, TN

SANFORD MARKOWITZ/ Cleveland, OH

HAROLD L. MOSES/ Nashville, TN

GARY J. NABEL/ Ann Arbor, MI

PERRY D. NISEN/ Abbott Park, IL

ELAINE OSTRANDER/ Seattle, WA

DREW PARDOLL/ Baltimore, MD

JENNIFER A. PIETENPOL/ Nashville, TN

FRANK J. RAUSCHER, III/ Philadelphia, PA

NADIA ROSENTHAL/ Charlestown, MA

ERIC J. STANBRIDGE/ Irvine, CA

Laboratory Rotations

MARK S. BOGUSKI/ Bethesda, MD. "Computer Searching in Molecular Biology."

LAB DIRECTOR TO BE ANNOUNCED/ "Specialized Techniques in PCR."

JAMES P. HOEFFLER/ San Diego, CA. "Protein Expression."

ROBERT A. SCLAFANI/ Denver, CO. "Transcript Array Analysis."

LAB DIRECTOR TO BE ANNOUNCED "Inducible Gene Expression Systems."

Application Deadline March 30, 1998

For further information, contact

American Association for Cancer Research
Public Ledger Building, Suite 826
150 S. Independence Mall West
Philadelphia, PA 19106-3483
Telephone: (215) 440-9300 • FAX: (215) 440-9313
Email: meetings@aacr.org

