



# Cancer Research

The Official Organ of the American Association for Cancer Research, Inc.

SIDNEY WEINHOUSE, *Editor*

MARGARET FOTI, *Managing Editor*

PATRICIA A. BERGBAUER, *Assistant Managing Editor*

MICHAEL B. SHIMKIN, *Cover Editor*

## *Editorial Assistants*

EDITH M. BALLOU   MARY JONES   RUTH E. FORTSON   KATHLEEN S. MAYNES  
MARY ANNE MENNITE   C. CHRISTINE MCCAFFERTY   ELIZABETH A. MOORE

## *Associate Editors*

Creed W. Abell  
Samuel Abraham  
Vincent G. Alfrey  
M. Earl Balis  
Claudio Basilico  
Frederick F. Becker  
Aaron Bendich  
L. Lee Bennett, Jr.  
Nathaniel I. Berlin  
Howard A. Bern  
Dani P. Bolognesi  
R. K. Boutwell  
Michael J. Brennan  
Edward Bresnick  
Paul P. Carbone  
Bayard D. Clarkson  
James E. Cleaver  
Allan H. Conney  
Clyde J. Dawe  
Vittorio Defendi  
Friedrich Deinhardt  
Frederick J. de Serres  
Eugene R. DeSombre  
Vincent T. DeVita, Jr.  
Leila Diamond  
Joseph A. DiPaolo  
Gertrude B. Elion  
Edward S. Essner  
John L. Fahey

Alexander Fefer  
Isaiah J. Fidler  
Bernard Fisher  
James R. Fouts  
Joseph F. Fraumeni, Jr.  
Emil Frei, III  
Emil J. Freireich  
John J. Furth  
Robert C. Gallo  
Harry V. Gelboin  
Harold S. Ginsberg  
Phil Gold  
Olga Greengard  
Pietro M. Gullino  
Sen-itiroh Hakomori  
Thomas C. Hall  
M. G. Hanna, Jr.  
Leonard Hayflick  
Ronald B. Herberman  
Evan M. Hersh  
T. C. Hsu  
Frank M. Huennekens  
Robert B. Hurlbert  
Charles C. Irving  
Irving S. Johnson  
Wolfgang K. Joklik  
Robert F. Kallman  
Albert S. Kaplan  
Werner H. Kirsten

Saul Kit  
Montague Lane  
Elizabeth H. Leduc  
Joseph Leighton  
Aaron B. Lerner  
William Lijinsky  
Abraham M. Lilienfeld  
Mortimer B. Lipsett  
Gerald Litwack  
Lawrence A. Loeb  
Robert Love  
Peter N. Magee  
H. George Mandel  
Vincent T. Marchesi  
Charles F. McKhann  
Joseph Meites  
Mortimer L. Mendelsohn  
Enrico Mihich  
James A. Miller  
A. A. Moscona  
Paul Nettesheim  
Warren W. Nichols  
Alex B. Novikoff  
Albert H. Owens, Jr.  
Joseph S. Pagano  
Robert E. Parks, Jr.  
Donald Pinkel  
Keith R. Porter

Fred Rapp  
DeWayne Roberts  
Fred Rosen  
Joseph Sambrook  
George W. Santos  
Alan C. Sartorelli  
Frank M. Schabel, Jr.  
Marvin A. Schneiderman  
Stewart Sell  
Richard B. Setlow  
Michael B. Shimkin  
Hans O. Sjögren  
Edward A. Smuckler  
Fred L. Snyder  
Sam Sorof  
Michael B. Sporn  
Jesse L. Steinfeld  
H. F. Stich  
Osias Stutman  
E. Brad Thompson  
George J. Todaro  
Paul O. P. Ts'o  
John E. Ultmann  
Lee W. Wattenberg  
George Weber  
John H. Weisburger  
Charles E. Wenner  
Gerald N. Wogan

## Notice to Members of the American Association for Cancer Research

### Officers for 1978-1979

**President:** Hugh J. Creech, Institute for Cancer Research, Fox Chase Cancer Center, 7701 Burholme Avenue, Fox Chase, Philadelphia, Pennsylvania 19111

**Vice President:** Paul P. Carbone, Wisconsin Clinical Cancer Center, 1300 University Avenue, Madison, Wisconsin 53706

**Secretary-Treasurer:** Frederick S. Philips, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, New York 10021

### Annual Dues

The annual dues of active members of the American Association for Cancer Research are \$25.00 and they include a subscription to the journal *Cancer Research*. The regular subscription price of *Cancer Research* for members of the Association is \$15.00 per annual volume. Payment of dues and changes of address of members of the Association should be sent promptly to Dr. Frederick S. Philips.

### Sponsors

*Cancer Research* is sponsored by the American Association for Cancer Research, Inc.; the National Cancer Institute, United States Public Health Service; the American Cancer Society, Inc.; the Damon Runyon-Walter Winchell Cancer Fund; and the Elsa U. Pardee Foundation.

### Subscription Information

*Cancer Research* is published monthly, one volume per year, for Cancer Research, Inc. by Waverly Press, Inc., 428 E. Preston Street, Baltimore, Maryland 21202. Subscriptions include the *Proceedings* of the American Association for Cancer Research and the American Society of Clinical Oncology, issued in March of each year. Except for members of the American Association for Cancer Research, all subscriptions are payable in advance to the publisher of the journal, Waverly Press, Inc., to which all business communications, remittances (in United States currency or its equivalent), and subscription orders should be sent. Nonmembers of the American Association for Cancer Research, Inc. may subscribe to the journal *Cancer Research* at the rate of \$75.00 per annual volume, including postage. The publisher should be notified of changes of address 60 days in advance; subscribers should give both their old and new addresses. Members of the American Association for Cancer Research should also inform the Secretary-Treasurer, Dr. Frederick S. Philips, of their change of address. Copies of the journal which are undeliverable because of address changes will be destroyed.

### Back Issues and Single Copy Sales of the Journal

Copies of back stock of the journal *Cancer Research* for the two years preceding the current year may be ordered from Waverly Press, Inc. As long as supplies permit, single copies of *Cancer Research* will be sold by this company at \$12.00 per copy for regular issues and \$15.00 per copy for Part 2 issues which contain supplementary material from special symposia. The annual *Proceedings* of the American Association for Cancer Research and the American Society of Clinical Oncology is available at \$10.00 per copy. When available, earlier issues may be obtained from Walter J. Johnson, Inc., 355 Chestnut Street, Norwood, New Jersey 07648.

### Advertising in Cancer Research

Advertisement insertion orders and copy must be received 60 days prior to the month of issue in which the advertisement is to be published. The journal is mailed on the 20th of the month preceding the month of issue. Inquiries regarding advertising should be directed to: Donald H. Nichols, Vice President, Journal Sales, Waverly Press, Inc., 428 E. Preston Street, Baltimore, Maryland 21202. Telephone: 301/528-4280.

### Submission of Manuscripts

Papers submitted for publication in *Cancer Research* and all other communications for the attention of the Editor should be sent to: Dr. Sidney Weinhouse, Editor, *Cancer Research*, Fels Research Institute, Temple University School of Medicine, Philadelphia, Pennsylvania 19140. Telephone: 215/221-4720. *Cancer Research* publishes original clinical, experimental or statistical studies in the fields of cancer research and cancer-related biomedical science. Authors should consult the detailed "Instructions for Authors" printed in the January issue of the journal; copies are available upon request.

#### Manuscript Processing Fee

Journal policy requires that a single manuscript processing fee of \$50 be assessed for all papers to defray the expenses incurred in the review process. An invoice is sent to the author upon receipt of the manuscript; review is not delayed pending payment of this fee.

#### Copyright and Copyright Clearance Center

The Copyright Revision Act (PL 94-553), which became effective January 1, 1978, states that the copyright of a work is vested in the author from the moment of creation. Therefore, all authors who wish to publish in *Cancer Research* must formally transfer copyright to the proprietor of the journal, Cancer Research, Inc. It is understood by this transfer that the authors relinquish all exclusive rights of copyright ownership, including the rights of reproduction, derivation, distribution, sale, and display.

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 Cancer Research, Inc., since these articles are considered to be in the public domain. However, it is necessary for these authors to sign the appropriate section of the transfer form. In the case of articles supported by federal grants or contracts, copyright transfer to Cancer Research, Inc., is required. The federal government may retain a nonexclusive license to publish or republish such material. The duly authorized agent of a commercial firm or commissioning organization must sign the transfer form if the author prepared the article as part of his or her official duties as an employee.

Appropriate forms for transfer of copyright will be sent routinely with acknowledgment of receipt of manuscripts for review. They may also be requested from the *Cancer Research* Editorial Office.

The journal will not publish a paper unless the form is properly completed and signed.

The appearance of the code 0008-5472/78/0038-0000\$02.00 at the top of the first page of an article in *Cancer Research* indicates that the copyright owner has consented that copies of the article may be made for personal or internal use, provided that the copier pay the stated per-copy fee of \$2.00 through the Copyright Clearance Center, Inc. This Center is a nonprofit organization through which individuals and institutions may reimburse a copyright owner for photocopying of journal articles beyond what is defined as "fair use" in Sections 107 and 108 of the Copyright Revision Act of 1978.

Those who wish to photocopy *Cancer Research* articles may report the number they have made together with the fee code to: Copyright Clearance Center, Inc., Operations Office, P. O. Box 765, Schenectady, New York 12301. Remittances may be sent to the Center at the time of reporting or the Center will bill the user on a monthly basis. Deposit accounts and prepayment plans may also be arranged.

Articles from any issue of *Cancer Research* dating from 1973 may be photocopied under the same conditions and at the same fee. If there is no fee code, as in issues prior to June 1978, the user should report the title of the journal, the month of the issue, and the initial page number of the article, together with a statement of the number of copies made. If an article published after June 1978 does not carry a fee code, it is understood to be in the public domain and may be copied without restriction or payment of a fee.

*Cancer Research* is abstracted or indexed in *Biological Abstracts*, *Chemical Abstracts*, *Index Medicus*, *Science Citation Index*, and the *International Cancer Research Data Bank*.

No responsibility is accepted by the Editors, by Cancer Research, Inc., by the American Association for Cancer Research, or by the publisher of the journal *Cancer Research* for the opinions expressed by contributors or for the content of the advertisements.

Second-class postage paid at Baltimore, Maryland, and additional mailing offices.

Copyright 1978 by Cancer Research, Inc.