

## INSTRUCTIONS FOR AUTHORS

*Cancer Research*, the official journal of the American Association for Cancer Research, Inc., is devoted to the publication of significant, original research in all the areas of cancer research, including: biochemistry; biophysics; cell biology; chemical, physical, and viral carcinogenesis and mutagenesis; clinical investigations; endocrinology; epidemiology and prevention; experimental pathology; experimental therapeutics; immunology and immunotherapy; molecular biology and genetics; physiology; radiobiology and radiotherapy; and virology.

Only those papers reporting results of novel, timely, and significant studies and meeting high standards of scientific merit will be accepted. Papers are stringently reviewed and are published within an average of 70 days from acceptance.

### CATEGORIES OF PUBLICATION

The following types of material will be considered for publication:

- (1) Papers containing results of original experimental, clinical, or epidemiological studies that are well documented and of high scientific priority.
- (2) Advances in Brief, which are short, definitive reports of highly significant and timely findings in the field. These submissions receive rapid review and, if acceptable, are published within 6-12 weeks of receipt, depending on their priority for publication. They should be approximately 3 printed pages in length (about 12 double-spaced typescript pages), containing an Abstract of about 100 words, a one-paragraph Introduction, an abbreviated Materials and Methods section, Results and Discussion sections (which may be combined), a maximum of 20 references, and no more than 4 items for the display of data (any combination of figures and tables).
- (3) Perspectives in Cancer Research, which are invited articles analyzing either very active or undeveloped areas of research and presenting fresh insights and personal viewpoints on where research in that area may or should be heading.
- (4) Concise reviews on subjects of importance to cancer researchers. Authors of unsolicited reviews should submit an outline of the proposed article for approval by the Editorial Board. If submission of the complete article is encouraged, the review will be given particularly stringent editorial evaluation before acceptance.
- (5) Public Issues, which are brief reports on topics of interest to cancer researchers and the general public; these might include articles on funding for cancer research, training in the field, public education, etc.
- (6) Letters to the Editor, which consist of correspondence about manuscripts published in the Journal. Correspondence that concerns articles not published in *Cancer Research* will not be considered.
- (7) Brief reports of meetings, symposia, and conferences on cancer research. These should comprise no more than 3 printed pages (approximately 12 double-spaced typescript pages) and include a statement of the purpose(s) of the meeting, an integrated summary of the findings presented, and recommendations for future research. The names and affiliations of key speakers may be included if space is available.
- (8) Proceedings of symposia, published as external supplements to the Journal (*Supplements to Cancer Research*), the full expenses of which are assumed by the sponsoring agency. These proceedings are accepted for publication at the discretion of the Editor-in-Chief, based on the importance of the topic covered, the scope of the presentations, and the participants at the meeting.
- (9) Brief announcements of scientific meetings and of courses in cancer-related biomedical science of interest to our readers. These should be submitted at least 3 months prior to the expected month of issue.
- (10) Brief listings of recent deaths of distinguished contributors to the field of cancer research.

### EDITORIAL POLICIES

Submission of a manuscript to *Cancer Research* implies that the author(s) of the paper understand and accept the policies of the Journal as detailed in these "Instructions for Authors."

When a manuscript is received for consideration, the Editors assume that neither the submitted paper nor any similar paper, other than an abstract or preliminary communication, has been or will be submitted for publication or published elsewhere. Further, it is understood that all

authors listed on a manuscript have agreed to its submission and content. For revised manuscripts, if an author is deleted or a new author is added, it is the responsibility of the corresponding author to provide the Publications Department with written documentation at the time of resubmission that the authors involved are aware of and agree to the changes in authorship. *Cancer Research* accepts no responsibility for such changes.

The Journal maintains an international editorial board of Associate Editors with broad expertise in all areas of basic and clinical cancer research. These Associate Editors, along with a large body of outside reviewers, provide fair and thorough evaluations of papers submitted to *Cancer Research*. When reviewing manuscripts, the Associate Editors and reviewers are expected to adhere to a strict code of ethical conduct in the review of scientific literature. This code mandates that the confidentiality of the material under review be maintained. Further details on appropriate conduct for Editors and reviewers can be found in the section on "Ethics" in the *CBE Style Manual* (Fifth Edition, 1983, published by the Council of Biology Editors, Inc., Chicago, IL 60601-4298).

Submission of a manuscript implies acceptance of the strict policy of the Journal that under no circumstances will the identities of the Associate Editors and reviewers be revealed. Every effort is made to render editorial decisions promptly, consistent with thoroughness of review. Inquiries regarding the status of manuscripts should be submitted in writing.

*Collect telephone calls from authors cannot be accepted.*

### SUBMISSION AND PUBLICATION FEES

A nonrefundable submission fee of \$75 is assessed for each manuscript and must be paid regardless of the decision rendered on the paper. A check (drawn on a U.S. bank) or purchase order in U.S. currency, payable to the American Association for Cancer Research, Inc., must accompany the manuscript. If a purchase order must precede payment by an institution, it is the author's responsibility to ensure that the purchase order is followed by payment of the fee.

If an author resubmits a manuscript that our Editors previously found unacceptable for publication, it is Journal policy to consider it a new submission, assign it a new manuscript number, and charge the author another \$75 submission fee. The covering letter accompanying such submissions should indicate that the paper is a resubmission of a manuscript previously declined for publication and give the number of the earlier submission.

A page charge of \$65 per printed page will be levied on all manuscripts accepted for publication. It is understood at the time of submission that the author(s) agree to pay this charge in the event of publication. Under exceptional circumstances, when no other source of grant or other support exists, the author(s) may apply to the Editor-in-Chief at the time of submission for a waiver of the page charges. All such applications must be countersigned by an appropriate institutional official stating that no funds are available for the payment of page charges.

### PROCEDURES FOR SUBMISSION

Contributions should be addressed to: Dr. Carlo M. Croce, Editor-in-Chief, *Cancer Research*, American Association for Cancer Research, Inc., Public Ledger Bldg., 620 Chestnut Street, Suite 816, Philadelphia, PA 19106-3483. They should be submitted by an author, preferably the senior author, who should indicate in a covering letter:

- (1) that the paper should be considered for publication in *Cancer Research*;
- (2) the exact address to which all related correspondence should be sent and telephone and FAX numbers at which the author can be reached;
- (3) that authorization has been given to use any information conveyed by either personal communication or release of unpublished experimental data;
- (4) the salient and novel findings of the paper (in as concise a statement as possible);
- (5) which one of the following subject categories applies to the manuscript:

Biochemistry and Biophysics  
Carcinogenesis  
Clinical Investigations

Endocrinology  
Epidemiology  
Experimental Therapeutics  
Immunology  
Molecular Biology and Genetics  
Tumor Biology  
Virology

[The final category assignment of an article in an issue's Table of Contents is at the discretion of the Editors.]

Authors may suggest appropriate Associate Editors (the names of whom are listed in the front of each issue of *Cancer Research*) and reviewers to whom the manuscript could be assigned; however, final assignments are at the Editor-in-Chief's discretion.

**Original submissions** must include:

- (1) The author's covering letter *in duplicate* containing the above information.
- (2) *Four* copies of the manuscript and *four* sets of original illustrations. Indicate which set of original illustrations should be used by the printer in the event of publication.
- (3) Papers in press or submitted for publication which are highly relevant to the manuscript under review.

**Revised manuscript submissions** must include:

- (1) A covering letter *in duplicate*, clearly indicating what alterations have been made in response to the criticisms raised. Satisfactory reasons should be given for noncompliance with any of the recommendations for revision.
- (2) *Four* copies of the revised version of the manuscript, plus a red-marked copy of the manuscript indicating the changes made, and *four* sets of original illustrations.
- (3) If available, a disk of the *revised version* of the manuscript to expedite typesetting the article in the event of publication. The disk must be accompanied by a completed Disk Submission Form, which can be found in the back of each issue of *Cancer Research*. (See "Typesetting from Disks" section later in these Instructions for further details.)

*Note: For both original and revised submissions, we cannot guarantee that manuscripts and illustrations will be returned to the author.*

Revised manuscripts will undergo another review, if the original submission required extensive changes. Manuscripts should be revised and returned for reconsideration as quickly as possible. Authors are asked to submit their revised versions within one month from the notification of the decision on a manuscript. The Editors acknowledge that a longer period of time might be needed to make the revisions in some cases. However, if a revised manuscript is not received within a year from the date of its original receipt, the resubmission will be considered a new manuscript and it will be subject to all of the conditions of an original submission.

## FORMAT AND STYLE

Papers should conform strictly to Journal style. A recent issue of *Cancer Research* will provide authors with assistance in the proper arrangement of papers. Manuscripts are to be written in clear, grammatical English. Papers that are not in *Cancer Research* style or that are not in good idiomatic English will be returned to the author without review. Laboratory jargon as well as terminology and abbreviations not consistent with internationally accepted guidelines should be avoided.

For general and technical assistance in writing scientific papers, authors should refer to the following publications: *Stedman's Medical Dictionary* (Twenty-fifth Edition, 1990, The Williams & Wilkins Co., Baltimore, MD); *CBE Style Manual* (Fifth Edition, 1983, published by the Council of Biology Editors, Inc., Chicago, IL); and *The ACS Style Guide* (First Edition, 1986, American Chemical Society, Washington, DC).

Data must be presented concisely. Large masses of data of peripheral significance to the main thesis of the investigation will not be published in *Cancer Research* but may be deposited with the National Auxiliary Publications Service, c/o Microfiche Publications, P.O. Box 3513, Grand Central Station, New York, NY 10163-3513; (516) 481-2300. The manuscript should contain a footnote that indicates how this ancillary material can be obtained. Such data should be submitted for review along with the manuscript.

The manuscript should be typed on 21.6- × 28-cm (8½- × 11-inch) paper with double spacing *throughout*, allowing for ample margins. Manuscripts with typing on both sides of the page will be returned to the authors. Consecutive numbering of all pages is required, with the title page as page 1. The typescript should be arranged in the following order:

(a) title, (b) author(s) and complete name(s) and location(s) of institution(s) or laboratory(ies), (c) running title, (d) key words, (e) footnotes, (f) text and references, (g) tables, (h) legends for all illustrations, (i) illustrations, and (j) other material. Numbered and lettered sections in the text should be avoided. The appropriate location for each table and illustration should be indicated by marginal notes. Simple chemical formulas or mathematical equations should be presented in a form that allows their reproduction in single horizontal lines of type; more complicated mathematical formulas or chemical structures difficult to set in type should be provided in the form of India ink drawings or glossy photographs for camera-ready reproduction.

**Title.** Titles should be brief but informative, and limited if possible to about 100 characters. It is important for literature retrieval to include in the title the key words necessary to identify the nature of the subject matter, including, if applicable, the species on which the work is done. Use of expressions such as "Studies on . . ." or "Observations of . . ." should be avoided, since they are not informative. Chemical formulas or abbreviations should not be used. Also, do not use Roman or Arabic numerals to designate that the paper is one in a series (*see* section below on **Footnotes**).

**Authors and Their Affiliations.** Authors are urged to include their full names, complete with first and middle names or initials. Confusion often arises in the literature when authors are identified by surname and initials only. Authors' academic degrees should not be included. The full names of institutions and subsidiary laboratories should be given, together with a useful address (including postal code). If several authors and institutions are listed on a paper, it should be clearly indicated with which department and institution each author is affiliated.

**Running Title.** A brief running title should be provided, not to exceed 50 characters. Running titles in the form of declarative or interrogative sentences are not acceptable.

**Key Words.** On the title page, provide five key words identifying the nature of the subject matter.

**Footnotes.** Lengthy footnotes are discouraged since the same information can in most instances be presented more effectively in the text.

Footnotes to the title page and text are to be designated consecutively with superscript Arabic numerals. A footnote to the title should contain information on financial support, including the source(s) and number(s) of the grant(s). If the paper is one of a series, a footnote to this effect may be included. Authors should also include a footnote designating to whom reprint requests should be addressed. An all-inclusive abbreviation footnote should contain a definition for every nonstandard abbreviation used in the paper.

For footnotes to tables, *see* section on **Tables** below.

**Abstract.** The abstract, to appear at the beginning of the paper, should be concise, yet indicative of the content of the paper. As abstracts are often copied directly by the secondary services, they should recapitulate in abbreviated form the purpose of the study and the experimental technique, results, and interpretations of the data. Data such as the number of test subjects and controls, strains of animals or viruses, drug dosages and routes of administration, tumor yields and latent periods, length of observation period, and magnitude of activity should be included. Vague, general statements such as "The significance of the results is discussed," or "Some physical properties were studied," are uninformative and not acceptable. All important terms relevant to the content of the paper should be incorporated into the abstract to assist indexers in the derivation of key words. Abbreviations should be kept to an absolute minimum; however, if they are needed, they must be properly identified so as to make the abstract independent of the text. Authors may wish to keep in mind that MEDLINE, the computerized monthly bibliography prepared by the National Library of Medicine, includes only those abstracts that contain fewer than 200 words; with very few exceptions, longer abstracts are not accessible through that service.

**Introduction.** It is not necessary to include all of the background literature in this section. Brief reference to the most pertinent papers generally suffices to acquaint the reader with the findings of others in the field and with the problem or question which the author's particular investigation addresses.

**Materials and Methods.** Explanation of the experimental methods should be brief but adequate for repetition by qualified investigators. Procedures that have been published previously should not be described in detail but merely cited in appropriate references. Only new and significant modifications of previously published procedures need complete exposition. The sources of special chemicals or preparations used should be given along with their locations [city and state (country, if foreign)].

This Journal endorses the principles embodied in the Declaration of Helsinki and expects that all investigations involving humans will have

been performed in accordance with these principles. In particular, papers reporting human experimentation must include a statement that the human investigations were performed after approval by a local Human Investigations Committee and in accordance with an assurance filed with and approved by the Department of Health and Human Services, where appropriate. Also, papers reporting biomedical research involving human subjects must include a statement that informed consent was obtained from each subject or subject's guardian. A copy of the Helsinki Declaration is available from the American Medical Association, 515 N. State Street, Chicago, IL 60610-4320.

The Journal is a staunch supporter of the most humane treatment of animals in the conduct of scientific studies. For animal experimentation reported in this Journal, it is expected that investigators will have observed the *Interdisciplinary Principles and Guidelines for the Use of Animals in Research, Testing, and Education* issued by the New York Academy of Sciences' Ad Hoc Committee on Animal Research, a copy of which is available for \$2.00 from the Communications Department, New York Academy of Sciences, 2 E. 63rd Street, New York, NY 10021-7289. Only results of those experiments, including photographic presentation of data, in which proper attention has been given to experimental ethical considerations toward animals will be published.

**Results.** This section should include a concise textual description of the data presented in tables and illustrations. Excessive elaboration of data already given in tables and illustrations should be avoided. The Results and Discussion sections should be combined if, by so doing, space is saved or the logical sequence of the material is improved.

**Discussion.** In this section, the data should be interpreted concisely without repeating material already presented in the Results section. Speculation is permissible, but it must be well founded.

**References.** Number references in the order of their first mention in the text; cite only the number assigned to the reference. References should be typed in double-spaced form to facilitate copy editing. The bibliography should be limited to only those citations essential to the author's presentation. When comprehensive review articles are available, they are preferred to many separate references.

Before submission of the paper authors should verify the accuracy of all references and should check that all references have been cited in the text. *Cancer Research* style requires that all authors, complete titles of articles, and inclusive page numbers be supplied in the reference list. Examples of the two most common types of Journal references are:

Saylor, R. L., III, Sidransky, D., Friedman, H. S., Bigner, S. H., Bigner, D. D., Vogelstein, B., and Brodeur, G. M. Infrequent *p53* gene mutations in medulloblastomas. *Cancer Res.*, 51: 4721-4723, 1991.

Yuspa, S. H., Hennings, H., Roop, D., Strickland, J., and Greenhalgh, D. A. Genes and mechanisms involved in malignant conversion. In: C. C. Harris and L. A. Liotta (eds.), *Genetic Mechanisms in Carcinogenesis and Tumor Progression*, pp. 115-126. New York: Wiley-Liss, 1990.

**Journal articles and serial compendia.** The complete title, journal, volume number, inclusive pages, and year of publication should be given. Serial compendia, such as *Advances in Cancer Research* and the *Annual Review of Biochemistry*, which appear annually in numbered sequence, should be cited as journals rather than books, thus omitting the names of publishers and editors. *Serial Sources for the BIOSIS Previews Data Base* (Volume 1992) should be consulted for abbreviations of journals and serials.

**Books and chapter citations.** Citation of a specific chapter or article in a book should carry the author(s) of the chapter, its title, editor(s) of the book, book title, edition, volume, inclusive pages of the chapter, location and name of the publisher, and year of publication. For references to complete books, give all of the above information that is pertinent.

**Papers in press.** Papers in press may be listed among the references with the journal name and tentative year of publication.

**Unpublished material.** Papers in preparation or submitted for publication, unpublished data, and personal communications should be cited in a footnote, *not* in the Reference section. The names of all authors should be given, along with manuscript titles if possible.

**Addenda.** Data acquired after acceptance of the paper, by the authors themselves or by others, cannot be added to the text. An addendum may be added in proof upon approval by the Editor-in-Chief. Addenda should be kept extremely brief. The full expense of printing an addendum will be charged to the author.

**Tables.** Tables should be constructed so that when typeset, they will fit within a single Journal column (8.9 cm or 3½ inches). Tabular material should not duplicate data already presented in the charts. Unnecessary columns of data that can easily be derived from the rest of the results in the table should not be included. Large groups of individual values

should be avoided; instead, these should be averaged and an appropriate designation of the dispersion such as standard deviation or standard error included.

Authors are obliged to indicate the significance of their observations by appropriate statistical analysis.

Every table *must* have a descriptive title and an explanatory paragraph that clearly gives the experimental details for understanding by the reader without reference to the text. Each column must carry an appropriate heading and, if numerical measurements are given, these units should be added to the column heading. Tables should be numbered with Arabic numerals and table footnotes should be indicated with superscript italic letters (<sup>a,b,c</sup> etc.).

All units of measurement and concentration should be clearly designated. Exponential terminology is discouraged (the term mM is preferable to 10<sup>-3</sup> M). If exponentials are absolutely unavoidable in column headings, the quantity expressed should be preceded, not followed, by the power of 10 by which its value has been multiplied, *i.e.*, 10<sup>-3</sup> × concentration (M). This will prevent confusion as to whether the quantity should be multiplied or divided to obtain the correct value.

**Illustrations.** Both line-cut (graphs and drawings) and halftone (photographs, photomicrographs, electrophoretic patterns, etc.) illustrations should be designated figures.

Figures should be used when salient points need illustration for better comprehension by the reader. Halftones are particularly expensive to reproduce and only those absolutely essential to the clarity of the presentation should be included. Straight-line functions such as relationships between concentration and absorbance, or Lineweaver-Burk plots when these are linear, should be described in a few lines in the text.

Each figure should be labeled in pencil with the first author's name and the figure number on an adhesive label on the reverse side. For halftones, the top of the figure should also be noted.

Legends are required for all figures. They should briefly describe the data shown; details in the text should not be repeated. Staining should be included for halftones, where applicable. Each legend should adequately identify all symbols, abbreviations, mathematical expressions, abscissas, ordinates, units, and reference points used on the figure.

**Line-cut illustrations,** including flow diagrams and complex biochemical structures, should be prepared with professional instruments (not simply typewritten). They may be on Bristol board, tracing paper or cloth, or coordinate paper printed in light blue. They should not be mounted on heavy cardboard. Clear, glossy prints are acceptable in lieu of original drawings, provided that all parts of the illustration are in focus. X-ray films or Polaroid photographs are not acceptable. If original drawings are submitted, they should not be larger than 21.6 × 28 cm (8½ × 11 inches).

Computer-generated graphs are permissible provided that their quality adheres to the same standards as those produced by other means, *e.g.*, all labeling must be clear and scaling must be in the proper proportion to reproduce legibly when reduced.

Except for especially complicated drawings showing large amounts of data, all line-cut illustrations are published at one-column width (8.9 cm or 3½ inches) or less. It is recommended that they be submitted in one-column size. If larger ones are submitted, it is the responsibility of the author to see that the abscissas, ordinates, lines, and especially the symbols are sufficiently large to permit reduction. When the graphs are reduced to the size of a single column, the letters and numbers must be at least 1.5 mm high and the smallest part of the illustration must be discernible or the drawing will be returned to the author for correction. On original artwork, this can be accomplished by having the minimum height for lower-case letters 5 mm; numerals and upper-case letters 6 mm; and symbols within the drawings 5 mm. The thickness of ruled lines on graphs is also vital for clear presentation of the data.

The symbols should be defined in the legend. Only those common symbols for which the printer has type (×, ○, ●, □, ■, △, ▲, ⊙) should be used. Lines connecting the symbols should not extend beyond the data points.

Graphs should be ruled off close to the area occupied by the curve, and abscissas and ordinates should be clearly marked with appropriate units. Explanations of the coordinates should not extend beyond the respective lines. Do not box-in graphs with top and right-hand frame lines unless these are essential for reference. Titles printed outside the confines of the drawing waste space; all of this information should be included in the legend. Also, to conserve space those curves that may appropriately appear together should be included in a single graph.

The use of exponentials for labeling coordinates in graphs is considered ambiguous and should, if possible, be avoided. If exponentials must be used, the quantity expressed should be preceded by the power of 10 by which its value has been multiplied, *i.e.*, 10<sup>3</sup> × concentration (M). The

form "Concentration ( $M \times 10^{-3}$ )" is not acceptable. If powers of 10 are used, the legend should designate how the quantity is to be calculated (whether multiplied or divided) to give the correct value.

**Half-tone illustrations** should be submitted *unmounted and trimmed* to exclude all but essential material. The set of half-tone illustrations intended for the printer's use must be made from original negatives, *i.e.*, they must be first generation glossy prints. Photographs made from other prints are not acceptable for reproduction. Karyotypes should be presented in the form of cardboard plates onto which chromosome sections from an original photomicrograph are pasted.

All halftones will be published at either 1(3½"), 1½(5"), or 2(7¼")-column width and placed as close as possible to their first citation in the text. Halftones must be prepared within these dimensions if they are to be reproduced without reduction; otherwise, they will be reduced to conform to these widths.

Figure *numbers* should not be included on the face of the illustration. However, halftones that must appear together for comparison should be grouped under one figure number with each section lettered "a," "b," "c," etc., in the lower right-hand corner on the face of the illustration. Composite figures may be mounted on a plate, with the sections butted together and tooling (thin white lines) placed between the parts of the figure. For optimal reproduction, the contrast among photographs on a plate should be consistent. The overall dimensions of photographs on a plate should not exceed 18.4 × 22.4 cm (7¼ × 9 inches). The minimum dimensions to which the plate can be reduced must be indicated on the back.

Symbols, arrows, or letters used in photomicrographs should contrast with the background. India ink lettering is preferred. If pressure-sensitive labeling such as Chartpak, Letraset, or Prestype is used, tissue overlays should be placed on the half-tone to prevent the lettering from chipping away. In general, tissue overlays are recommended to protect the surface of halftones. The important areas of the photographs that must be reproduced with greatest fidelity should be indicated on overlays.

*Internal scale markers should always be included on the photographs themselves as opposed to listing magnification in the legend since it may be necessary to reduce the figures.* Magnifications given in the legend will reflect size before reduction.

**Color Photographs.** The complete expense of reproducing color photographs will be charged to the author. Estimates for color reproduction can be obtained from the AACR Publications Department. Please be advised that the cost of color reproduction in recent *Cancer Research* articles has ranged from \$875 to \$2400 per page of color. The price is dependent upon such factors as the size and complexity of the illustration; *i.e.*, the smaller and fewer parts to a figure, the less expensive it is to reproduce in color. Thus, if the illustration is a composite figure, the parts should be mounted together in as space-saving an arrangement as possible. *All color illustrations must be submitted on flexible backing, including mounted composite figures.* Please note that the author is responsible for submitting prints that are of sufficient quality to permit accurate reproduction, and for approving the final color proof. *Cancer Research* assumes no responsibility for the quality of the photograph as it appears in the Journal.

## ABBREVIATIONS

Abbreviations are in general a hindrance to readers in fields other than that of the author(s), to abstractors, and to scientists in foreign countries. Authors should limit their use to an absolute minimum. Single words should not be abbreviated, *e.g.*, daunomycin, folate, vincristine. Abbreviations are not to be used in titles, but running titles may carry abbreviations for purposes of brevity. Abstracts may contain abbreviations for terms mentioned 3 or more times in that section but their identification is mandatory.

Authors should follow the recommendations of the IUPAC-IUB Commission on Biochemical Nomenclature (*see* section below on **Terminology**). All nonstandard abbreviations should be identified in an inclusive abbreviation footnote to the first such abbreviation after the Abstract.

Abbreviations that form recognizable words, such as EAT and MOPS, are discouraged.

**Standard Abbreviations.** Authors may use, without definition, the abbreviations in the following lists.

NAD <sup>+</sup> , NADH	nicotinamide adenine dinucleotide and its reduced form
NADP <sup>+</sup> , NADPH	nicotinamide adenine dinucleotide phosphate and its reduced form
(DPN <sup>+</sup> , TPN <sup>+</sup> , and their reduced forms are not acceptable.)	
CoA, acyl-CoA	coenzyme A and its acyl derivatives ( <i>e.g.</i> , acetyl)

AMP, GMP, IMP, UMP, CMP, TMP	the 5'-phosphates of ribosyladenine, -guanine, -inosine, -uracil, -cytosine, and -thymine
ADP, etc.	the 5'(pyro)-diphosphates of adenosine, etc.
ATP, etc.	the 5'(pyro)-triphosphates of adenosine, etc.
dAMP, dGMP, dIMP	the 5'-phosphates of 2'-deoxyribosyladenine, etc.
RNA, DNA	ribonucleic acid, deoxyribonucleic acid
RNase, DNase	ribonuclease, deoxyribonuclease
mRNA	messenger RNA
nRNA	nuclear RNA
rRNA	ribosomal RNA
tRNA	transfer RNA (sRNA is not recommended for RNA preparations that accept amino acids.)
P <sub>i</sub> , PP <sub>i</sub>	orthophosphate, pyrophosphate
Tris	tris(hydroxymethyl)methylamine
EDTA	ethylenediaminetetraacetate
POPOP	1,4-bis[2-(5-phenyloxazolyl)]benzene
PPO	2,5-diphenyloxazole
DEAE, TEAE	diethylaminoethyl, triethylaminoethyl
UV, IR	ultraviolet, infrared
RBC, WBC	red blood cell(s), white blood cell(s)

## Units of Concentration

molar (moles/liter)	M (not used for moles)
millimolar (millimoles/liter)	mM (preferred to 10 <sup>-3</sup> M)
micromolar (micromoles/liter)	μM (preferred to 10 <sup>-6</sup> M)
nanomolar	nM (not mμM)
picomolar	pM (not μμM)

The expression mg % should be avoided; weight concentrations should be given as g per ml, g per 100 ml, g per liter, etc.

## Units of Length, Area, Volume, Mass, Time

The abbreviations below are correct for both singular and plural forms of each term.

meter	m
centimeter	cm
square centimeter	cm <sup>2</sup>
millimeter	mm
micrometer (not micron)	μm (not μ)
nanometer (not millimicron)	nm (not mμ)
picometer (not micromicron)	pm (not μμ)
Angstrom (0.1 nm)	Å
liter	not abbreviated
milliliter	ml
microliter	μl (not λ)
gram	g
milligram	mg
microgram	μg (not γ)
kilogram	kg
hour	h
minute	min
second	s

## Physical and Chemical Units

retardation factor	R <sub>f</sub>
acceleration of gravity	g
sedimentation coefficient	S
sedimentation coefficient in water at 20°	S <sub>20,w</sub>
degree Celsius (Centigrade)	°C
degree Fahrenheit	°F
Kelvin	K
diffusion coefficient	D
equilibrium constant	K
inhibition constant	K <sub>i</sub>
Michaelis constant	K <sub>m</sub>
maximum velocity	V <sub>max</sub>

*Others*

mole	mol
Curie	Ci
equivalent	eq
counts per minute	cpm
disintegrations per minute	dpm
revolutions per minute	rpm
volt	V
Svedberg unit	S
absorbance	<i>A</i> (not O.D.)
probability	<i>P</i>
roentgen	R
standard deviation	SD
standard error of the mean	SE
logarithm (Briggsian)	log
logarithm (natural)	ln
entropy	<i>S</i>
molecular weight	<i>M<sub>r</sub></i>

*In chemical compounds*

ortho	<i>o</i>
meta	<i>m</i>
para	<i>p</i>
secondary	<i>sec</i>
tertiary	<i>tert</i>

*Routes of administration*

intramuscular	<i>i.m.</i>
intraoperative	<i>i.p.</i>
intravenous	<i>i.v.</i>
oral	<i>p.o.</i>
subcutaneous	<i>s.c.</i>

## TERMINOLOGY

Approved terms and abbreviations for chemical substances have been collected in *Biochemical Nomenclature and Related Documents*, International Union of Biochemistry, Second Edition, 1992. This volume is available from: Portland Press Ltd., 59 Portland Place, London W1N 3AJ, United Kingdom; FAX: 44-71-323-1136. Included are all recommendations issued by the IUPAC-IUB Commission on Biochemical Nomenclature in the following areas: general abbreviations and symbols; abbreviations and symbols for chemical names of special interest in biological chemistry; stereochemistry; natural products and related compounds; isotopically labeled and modified compounds; biochemical equilibrium data;  $\alpha$ -amino acids; symbols for amino acid derivatives and peptides; synthetic modifications of natural peptides; synthetic polypeptides or polymerized amino acids; amino acid sequences; conformation of polypeptide chains; peptide hormones; human immunoglobulins, multiple forms of enzymes; nucleic acids, polynucleotides, and their constituents; lipids; steroids, quinones with isoprenoid side chains; carotenoids; tocopherols and related compounds; carbohydrates; cyclitols; phosphorus-containing compounds of importance in biochemistry; folic acids and related compounds; vitamins B<sub>6</sub> and related compounds; corrinoids.

**Isotopically Labeled Compounds.** A radioactive nuclide is indicated by its mass number as a superscript to the left of the symbol (<sup>32</sup>P); when written out, it should correspond to the spoken word (phosphorus-32).

In an isotopically labeled compound, the isotopic prefix should be placed in *square brackets and immediately precede the name* (word) to which it refers, as in [<sup>14</sup>C]thymidine, [ $\alpha$ -<sup>14</sup>C]leucine, L-[*methyl*-<sup>14</sup>C]methionine, [<sup>3</sup>H]-3-hydroxykynurenine. When more than one position in a substance is labeled by means of the same isotope and the positions are not indicated, the number of labeled atoms is added as a subscript to the right of the element, as in [<sup>14</sup>C]<sub>2</sub>glycolic acid. The symbol *U* indicates uniform labeling and *G*, general labeling, e.g., [*U*-<sup>14</sup>C]glucose (where the <sup>14</sup>C is uniformly distributed among all six positions) and [*G*-<sup>14</sup>C]glucose (where the <sup>14</sup>C is distributed among all six positions, but not necessarily uniformly).

The isotopic prefix precedes that part of the name to which it refers, as in sodium [<sup>14</sup>C]formate, iodof[<sup>14</sup>C]<sub>2</sub>acetic acid, 1-amino[<sup>14</sup>C]methylcyclopentanol,  $\alpha$ -naphth[<sup>14</sup>C]oic acid, 2-acetamido-7-[<sup>131</sup>I]iodofluorene, fructose 1,6-[1-<sup>32</sup>P]biphosphate, 17 $\beta$ -[<sup>3</sup>H]estradiol. Terms such as "<sup>131</sup>I-labeled albumin" should *not* be contracted to "[<sup>131</sup>I]albumin" (since native albumin does not contain iodine), and "<sup>14</sup>C-labeled amino acids"

should similarly *not* be written as "[<sup>14</sup>C]amino acids" (since there is no carbon in the amino group).

When isotopes of more than one element are introduced, their symbols should be arranged in alphabetical order, e.g., [3-<sup>14</sup>C; 2,3-D; <sup>15</sup>N]serine. Deuterium and tritium may be designated as <sup>2</sup>H and <sup>3</sup>H or as D and T, respectively.

When not sufficiently distinguished by the foregoing means, the positions of isotopic labeling are indicated by Arabic numerals. Greek letters, or prefixes in italics, as appropriate; these are to be placed within square brackets to appear before the symbol of the element concerned and are attached to it by a hyphen. Examples of this style are [1-<sup>14</sup>C]alanine, L-[2-<sup>14</sup>C]leucine or L-[ $\alpha$ -<sup>14</sup>C]leucine, [*carboxy*-<sup>14</sup>C]leucine, [2,3-<sup>14</sup>C]maleic anhydride, [3,4-<sup>14</sup>C, <sup>35</sup>S]methionine, L-[*methyl*-<sup>14</sup>C]methionine. The symbol indicating configuration always precedes the bracketed isotope, and a hyphen is used to separate it from the brackets, e.g., D-[<sup>14</sup>C]-glucose; L-[1-<sup>14</sup>C]leucine.

The same rules apply when the labeled compound is designated by a standard abbreviation or symbol other than the atomic symbol, e.g., [ $\alpha$ -<sup>32</sup>P]ATP, [<sup>32</sup>P]CMP, or [<sup>125</sup>I]IdUrd. The square brackets are not to be used, however, with atomic symbols, or when the isotopic symbol is attached to a word that is not a specific chemical name, abbreviation, or symbol. Proper usage here is: <sup>14</sup>CO<sub>2</sub>, <sup>2</sup>H<sub>2</sub>O, H<sub>2</sub><sup>35</sup>SO<sub>4</sub>, <sup>32</sup>P, <sup>131</sup>I-labeled, <sup>3</sup>H-ligands, <sup>14</sup>C-steroids.

**Enzymes.** Authors should use the Recommended Name given in *Enzyme Nomenclature 1992: Recommendations of the Nomenclature Committee of the International Union of Biochemistry on the Nomenclature and Classification of Enzymes* (Academic Press, Inc., Orlando, FL, 1992). In some cases the Systematic Name or the reaction catalyzed should also be included. It is strongly recommended that the Enzyme Commission number be stated at first mention.

For information on isozyme nomenclature, consult *Biochemical Nomenclature and Related Documents*, mentioned previously.

**Histones.** The six histone fractions are to be labeled H1, H1<sup>o</sup>, H2A, H2B, H3, and H4, rather than F1, F1<sup>o</sup>, F2a2, F2b, F3, and F2a1, respectively.

**Interferon Assays.** When reporting the calibration of interferon assays, authors should state the name, identifying number, and assigned potency of the international standard used to calibrate their assay, along with the observed geometric mean titer of the standard, the standard deviation of that value, the number of titrations performed to obtain that value, and the technical details of the assay.

**Inbred Strains.** Designations for inbred mouse strains should conform to the guidelines in "Standardized Nomenclature for Inbred Strains of Mice: Eighth Listing," *Cancer Res.*, 45:945-977, 1985, prepared by Joan Staats for the Committee on Standardized Nomenclature for Mice; for designations of inbred strains of rats, please refer to "Standardized Nomenclature for Inbred Strains of Rats: Fourth Listing," Michael Festing and Joan Staats. *Transplantation*, 16(No. 3): 221-245, 1973.

**Outbred Animal Stocks.** Nomenclature for outbred laboratory animals should conform to that recommended by the Committee on Nomenclature, Institute of Laboratory Animal Resources: "A Nomenclature System for Outbred Animals," *Lab. Animal Care*, 20: 903-906, 1970.

**Drugs.** Generic names of drugs are preferred; a proprietary name may be used only after the first mention of the generic name and should be avoided in titles unless both names can be listed easily. If a foreign proprietary name is used, the name of the comparable U. S. product should be given. When there is no generic name for a drug, authors should give the chemical name or formula or a description of the active ingredients.

Authors should refer to the formally adopted generic names listed in *USAN and the USP Dictionary of Drug Names* (1993).

**Tumors.** Tumors used in experimental investigations should be clearly described and identified in acceptable terminology. If these tumors are well known and have been identified in previous publications, extended descriptions and photomicrographs are unnecessary.

Authors of clinical papers are encouraged to use the TNM staging system approved by the International Union Against Cancer and the American Joint Committee on Cancer, whenever applicable.

**General.** The composition of all solutions and buffers should be specified in sufficient detail so that the concentration of each component can be determined. The word "saline" should be replaced by "NaCl solution," along with the exact concentration. Inexact terms such as "physiological saline" or "phosphate-buffered saline" are not permitted; exact contents and concentrations should be given.

Decimals are preferred to fractions; the form 0.01, not .01, is required in text, tables, and illustrations.

Ionic charge should be designated by a superscript immediately following the chemical symbol, e.g., Mg<sup>2+</sup>, S<sup>-</sup>.

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# AMERICAN ASSOCIATION FOR CANCER RESEARCH

## 1993 EMPLOYMENT REGISTER FORMS AND INSTRUCTIONS

### INTRODUCTION

The AACR's Employment Register is intended to attract young scientists to the Association, increase interest in AACR programs, and provide a valuable service to all cancer researchers, both senior and junior investigators.

The AACR had operated a limited Employment Register since 1983 with a fee structure that permitted only the listing of positions and candidates at the annual meeting. Beginning in 1988, AACR Staff scheduled interviews at the annual meeting, and brief advertisements describing available candidates and positions were published in the *Proceedings of the American Association for Cancer Research* and in two issues of *Cancer Research*. These services will be continued in 1993. Registration forms for the 1993 Employment Register can be found on the following pages. Fees have been set at the following levels:

#### Each candidate registration

- by an AACR member \$10
- by a nonmember \$25

#### Each position listing

- by an AACR member from a nonprofit or governmental organization \$75
- by a nonmember from a nonprofit or governmental organization \$125
- from a commercial organization \$250

### INSTRUCTIONS FOR CANDIDATES

1. Supply all information requested on the attached candidate registration form.
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3. Enclose the original form plus 1 copy.
4. Enclose appropriate payment:
  - a. \$10 from AACR members
  - b. \$25 from nonmembers
5. Checks should be issued in U.S. dollars, drawn on a U.S. bank, and made payable to AACR, Inc.
6. **Forms should be submitted by January 25, 1993**, to ensure publication of listings in the *Proceedings*. However, candidate registration forms will continue to be accepted in the Association Office until April 23, 1993. After that date forms should be submitted at the annual meeting.
7. Mail all candidate registration forms to:  
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American Association for Cancer Research, Inc.  
Public Ledger Building  
620 Chestnut Street, Suite 816  
Philadelphia, PA 19106-3483

### INSTRUCTIONS FOR EMPLOYERS

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5. Checks should be issued in U.S. dollars, drawn on a U.S. bank, and made payable to AACR, Inc.
6. **Forms should be submitted by January 25, 1993**, to ensure publication of listings in the *Proceedings*. However, position listing forms will continue to be accepted in the Association Office until April 23, 1993. After that date forms should be submitted at the annual meeting.
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Employment Register  
American Association for Cancer Research, Inc.  
Public Ledger Building  
620 Chestnut Street, Suite 816  
Philadelphia, PA 19106-3483

### SCHEDULING OF INTERVIEWS

The AACR will set aside space at the annual meeting for interviews which will be scheduled at mutually agreeable times during the following hours: Wednesday, Thursday, and Friday, May 19-21, from 8:00 a.m. to 5:00 p.m., and Saturday, May 22, from 9:00 a.m. to 12:00 noon. Each candidate and employer will receive an identification number. Registrants who submit their forms and fees by April 23, 1993, will receive an acknowledgment card which contains their identification number.

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Short advertisements describing each candidate and position listing will be published in Volume 34 (1993) of the *Proceedings of the American Association for Cancer Research* and in the September 1, and December 1, 1993, issues of *Cancer Research*. The attached forms contain space for copy for these advertisements. Please type carefully to ensure accurate reproduction of your advertisement. Your copy must not exceed the limits of the box because space for these advertisements is limited. Advertisements for available positions should contain the name and address of the person conducting the job search, and candidates will be able to communicate with that person directly. Candidate advertisements will be anonymous. The AACR will send the candidate's complete form via first-class mail to any registered employer who requests it. The employer must bear the cost of receiving candidate forms in any manner other than first-class mail.

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### FURTHER INFORMATION

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EMPLOYMENT REGISTER**

(Please type and submit original and 1 copy)

**DESCRIPTION OF POSITION**

Title \_\_\_\_\_

Nature of Work and Responsibilities (research, teaching, administration, etc.)

Education and Experience Required

Date Position Available \_\_\_\_\_ Annual Salary Range \_\_\_\_\_

Location of Position \_\_\_\_\_

**Areas of Specialization**

(Indicate a maximum of three in order of greatest activity)

- \_\_\_ <sup>1</sup>Biochemistry & Biophysics    \_\_\_ <sup>2</sup>Biostatistics    \_\_\_ <sup>3</sup>Carcinogenesis    \_\_\_ <sup>4</sup>Cellular Biology & Genetics
- \_\_\_ <sup>5</sup>Clinical Investigations    \_\_\_ <sup>6</sup>Endocrinology    \_\_\_ <sup>7</sup>Epidemiology    \_\_\_ <sup>8</sup>Immunology
- \_\_\_ <sup>9</sup>Molecular Biology & Genetics    \_\_\_ <sup>10</sup>Preclinical Pharmacology & Experimental Therapeutics    \_\_\_ <sup>11</sup>Virology
- \_\_\_ <sup>12</sup>Other: \_\_\_\_\_  
(please specify)

=====

**EMPLOYER'S REPRESENTATIVE(S)**

\_\_\_\_\_  
AACR Member Number

Name(s) and Title(s) \_\_\_\_\_

Institution \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

**AVAILABILITY FOR INTERVIEWS AT AACR ANNUAL MEETING**

I \_\_\_ plan \_\_\_ do not plan to attend the AACR Annual Meeting in Orlando.

Dates available for interviews: \_\_\_ May 19 \_\_\_ May 20 \_\_\_ May 21 \_\_\_ May 22

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**ADVERTISEMENT** (Please type a short description of the position in the box below. If received by January 25, 1993, your advertisement will be printed in the 1993 *Proceedings*. All advertisements will appear in the September 1, and December 1, 1993, issues of *Cancer Research*.)

**SAMPLE:**

Asst. Prof. (tenure track) in Mol. Biol. Postdoc. and teaching exp. Conduct independent res. on oncogenes, chimeric antibodies, and mol. biol. of tumor antigens. Limited medical/grad. teaching. Avail. Sept. 1993. \$30,000-\$35,000. Contact Dr. A. C. Brown, Dept. of Mol. Biol., Smith Univ., Chicago, NY.







# AMERICAN ASSOCIATION FOR CANCER RESEARCH

## GUIDELINES FOR APPLICATION FOR ACTIVE AND CORRESPONDING MEMBERSHIP

### BENEFITS OF MEMBERSHIP

The American Association for Cancer Research (AACR) is a scientific society consisting of laboratory and clinical cancer researchers. It was founded in 1907 "to bring together active investigators of the cancer problem for presentation and discussion of new or significant observations; and to foster research in cancer and other phenomena of growth." Members of the AACR enjoy the following benefits:

1. subscriptions to the journals *Cancer Research*, *Cell Growth & Differentiation*, and *Cancer Epidemiology, Biomarkers & Prevention* at the reduced member rate;
2. the privilege of sponsoring an abstract for presentation at the AACR annual meeting;
3. an advance copy of the Program and *Proceedings* pertaining to each annual meeting;
4. a reduced registration rate at all scientific meetings;
5. early notification of events in the AACR's series of special conferences;
6. subscriptions to any future AACR journals at reduced member rates;
7. reduced rates for the AACR Employment Register;
8. the benefit of AACR's public education activities;
9. the receipt of AACR newsletters, meeting announcements, and an up-to-date membership directory.

### QUALIFICATIONS FOR MEMBERSHIP

Active membership in the AACR is open to investigators who live in the Americas, and who have conducted two years of meritorious research that has resulted in publications relevant to cancer. If a candidate is working in a research area not directly related to the cancer field but has conducted research of exceptional scientific merit, he or she may also qualify for membership.

Corresponding membership is open to qualified persons who are not residents of the Americas. The requirements for corresponding membership are the same as those for active membership. Visiting scientists from outside the Americas who intend to return to their countries of origin soon after submitting their applications should apply for corresponding membership. All other individuals should apply for active membership and transfer to corresponding status at a later date if they should leave the Americas.

### PROCEDURES FOR APPLICATION

There are three deadlines for receipt of a membership application: March 1, July 1, and October 1 of each year. The Membership Committee will review all complete applications for active membership that have been received by these deadlines and will submit recommendations on each candidate to the Board of Directors which formally elects all members. The same procedure is followed by the Special Memberships Committee which receives applications for corresponding membership. Candidates will be notified according to the following schedule:

<u>Receipt of Application in AACR Office</u>	<u>Notification of Candidate</u>
March 1	May
July 1	September
October 1	December

A complete application consists of the following material:

1. 6 copies of the form on the opposite side of this page, with all requested information provided.

2. 5 copies of the candidate's most current curriculum vitae and bibliography.
3. 5 copies of a letter of recommendation from a nominator who is an active, emeritus, or honorary member of the AACR (at least one copy must be a signed, original letter). This letter should describe the candidate's achievements in laboratory research, clinical investigations, or epidemiological research, and it should affirm that this research adheres to accepted ethical standards.—OR—The nominator may supply the responses requested at the bottom of the application form in the section entitled "STATEMENT OF SUPPORT" (at least one copy of the form must be the signed original).
4. 5 copies of a letter of recommendation as described in Item 3 above from a seconder who is an active, emeritus, or honorary member of the AACR (at least one copy must be a signed, original letter).—OR—The seconder may supply the responses requested at the bottom of the application form in the section entitled "STATEMENT OF SUPPORT" (at least one copy of the form must be the signed original).
5. 5 reprints of each of two publications on which the candidate appears as author.

All material should be collated into five complete sets with the original application form as a covering document and sent to the address given below. Questions regarding procedures for membership application may also be directed to the following address:

American Association for Cancer Research  
Public Ledger Building  
620 Chestnut St.  
Suite 816  
Philadelphia, PA 19106-3483  
215/440-9300

### RESPONSIBILITIES OF MEMBERSHIP

Candidates should be aware of the following responsibilities of membership in the AACR. Active members must pay annual dues, a major portion of which is designated for a subscription to at least one of the AACR's publications. Newly elected members of the AACR who have already purchased subscriptions to *Cancer Research*, *Cell Growth & Differentiation*, or *Cancer Epidemiology, Biomarkers & Prevention* at the higher, nonmember rate will receive reimbursement of the unused portion of those subscriptions once their first year's membership dues are paid in full.

All corresponding members elected after May 23, 1985, are required to pay an annual assessment in lieu of dues. This assessment, which is equivalent to that portion of the regular dues that pertains to support of activities other than publications, is imposed to defray the cost of sending AACR publications to members outside the Americas. Corresponding members may, if they wish, subscribe to *Cancer Research*, *Cell Growth & Differentiation*, or *Cancer Epidemiology, Biomarkers & Prevention* at the reduced member rate.

Applicants elected in May will be responsible for payment of that year's dues; applicants elected in September and December will pay dues in the following year. Applicants elected in May and September will be eligible to sponsor an abstract for the next annual meeting. Every effort will be made to afford the same opportunity to applicants elected in December.

Margaret Foti  
Executive Director





# AMERICAN ASSOCIATION FOR CANCER RESEARCH

## GUIDELINES FOR APPLICATION FOR ASSOCIATE MEMBERSHIP

### QUALIFICATIONS FOR MEMBERSHIP

Associate membership is open to graduate students, medical students, postdoctoral fellows, and physicians in training who live in the Americas and who are following a course of study or who are working in a research program relevant to cancer.

### BENEFITS OF MEMBERSHIP

The American Association for Cancer Research (AACR), a scientific society consisting of laboratory and clinical cancer researchers, was founded in 1907 "to bring together active investigators of the cancer problem for presentation and discussion of new or significant observations; and to foster research in cancer and other phenomena of growth." Associate members of the AACR enjoy the following benefits:

1. the privilege of sponsoring an abstract for presentation at the AACR annual meeting provided that (a) the associate member is the presenter of the abstract and (b) an active member in good standing of the AACR also signs the abstract in support of the work (In this instance, the active member who cosigns the abstract does not lose his or her own sponsorship privilege.);
2. an advance copy of the Program and (if one has been purchased by the associate member) the *Proceedings of the American Association for Cancer Research* which contains abstracts of all papers being presented at each annual meeting;
3. the privilege of registering for the annual meeting at the low student rate (This rate is otherwise available only to predoctoral students.);
4. preferred access to the AACR Employment Register;
5. optional subscriptions to the journals *Cancer Research*, *Cell Growth & Differentiation*, and *Cancer Epidemiology, Biomarkers & Prevention* at the reduced member rate;
6. subscriptions to any future AACR journals at reduced member rates;
7. early notification of events in the AACR's new series of small scientific meetings on timely scientific topics;
8. the receipt of AACR newsletters, meeting announcements, and an up-to-date membership directory; and
9. the facilitation of informal scientific exchange with leading researchers in the cancer field.

### PROCEDURES FOR APPLICATION

Persons wishing to apply for associate membership must use the official application form on the reverse side of these instructions. Each candidate for associate membership must be nominated by an active member in good standing of the AACR. Three completed copies of the form should be submitted; at least one of these copies must carry the original signatures of both the candidate and the active member nominator. The application form may be submitted to the Association Office at any time.

After review of applications for associate membership, the Executive Director will notify candidates of their election or deferral within one month of the receipt of the application form. A check in the amount of \$20, which represents one year's dues payment, must accompany the application. This fee will be refunded to any candidate deemed to be ineligible for associate membership. Checks should be in U.S. currency, made payable to AACR, Inc., and drawn on a U.S. bank. Send the three copies of the application form and the \$20 dues payment to:

American Association for Cancer Research  
Public Ledger Building  
620 Chestnut St.  
Suite 816  
Philadelphia, PA 19106-3483  
215/440-9300

### RESPONSIBILITIES OF MEMBERSHIP

Associate members must pay annual dues in an amount to be determined by the AACR Board of Directors. Dues for 1992 have been set at \$20 per year. If an application is submitted by August 31, the accompanying dues payment will be credited to the current year. Candidates submitting applications between September 1 and December 31 may indicate whether they wish their dues payments credited to the current or forthcoming year. Candidates should be aware, however, that associate members may sponsor an abstract for the annual meeting only if their dues for the current year are paid. For example, an associate member submitting an abstract in December 1991 for the forthcoming annual meeting must have paid dues for 1991. Any newly elected associate members of the AACR who have already purchased subscriptions to *Cancer Research*, *Cell Growth & Differentiation*, or *Cancer Epidemiology, Biomarkers & Prevention* at the higher, nonmember rate will receive a refund for the unused portion of that subscription upon receipt of their payment for a member's subscription.

Each Fall the AACR will send to current associate members an invoice for dues for the forthcoming year. Payment of this invoice must be accompanied by a statement signed by the associate member's current registrar, dean, or department head, verifying the member's current academic status. The Association's By-Laws state that dues are payable for each year in advance on or before January 1 of the year to which they should be applied. An individual may be an associate member for a maximum of five years. Each year in which an individual pays dues will count as one full year of associate membership. Thus, an associate member who pays dues for 1991 may retain associate membership until December 31, 1995. The Board of Directors may terminate the membership of an associate member whose dues are in arrears for two years:

Margaret Foti,  
Executive Director



# AMERICAN ASSOCIATION FOR CANCER RESEARCH EIGHTY-FOURTH ANNUAL MEETING

May 19-22, 1993  
Orange County Convention Center  
Orlando, Florida

## ADVANCE REGISTRATION FORM

(Please print or type)

NAME: \_\_\_\_\_  
Last Name First Name/Middle Initial AACR Member Number

TITLE: \_\_\_\_\_ ADDRESS: \_\_\_\_\_  
Institution

Street, Building, or Post Office Box

City State or Province Zip/Postal Code Country (if not U.S.)

TELEPHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

Check this box if you have a physical disability and special requirements for transportation, hotel accommodations, or other facilities connected with the meeting. A member of the Association Staff will contact you.

WHAT IS YOUR PRIMARY FIELD OF RESEARCH (Please check only one):

- <sup>1</sup>Biochemistry and Biophysics  <sup>2</sup>Biostatistics  <sup>3</sup>Carcinogenesis  <sup>4</sup>Cellular Biology & Genetics  <sup>5</sup>Clinical Investigations  
 <sup>6</sup>Endocrinology  <sup>7</sup>Epidemiology  <sup>8</sup>Immunology  <sup>9</sup>Molecular Biology  
 <sup>10</sup>Preclinical Pharmacology & Experimental Therapeutics  <sup>11</sup>Virology  <sup>12</sup>Other (please specify): \_\_\_\_\_

ARE YOU THE PRESENTER OF AN ABSTRACT SUBMITTED FOR THE 1993 AACR MEETING?  Yes  No

ON WHICH DAYS WILL YOU ATTEND THE 1993 AACR ANNUAL MEETING?

- Wednesday, May 19  Thursday, May 20  Friday, May 21  Saturday, May 22

WILL YOU ATTEND THE ASCO MEETING IN ORLANDO?  Yes  No

ON WHICH DAYS WILL YOU ATTEND THE 1993 ASCO ANNUAL MEETING?

- Sunday, May 16  Monday, May 17  Tuesday, May 18

### PAYMENT OF REGISTRATION

Fees may be paid by check or with a MasterCard, VISA, American Express, or Eurocard account. All payments must be made in U.S. currency, and all checks must be drawn on a U.S. bank. Payment must accompany this form; purchase orders will not be accepted as payment. Honorary and emeritus members may register gratis.

FEES	On or Before	After	METHOD OF PAYMENT
	Mar. 29	Mar. 29	
<input type="checkbox"/> Active/Corresponding Member Rate	\$ 90	\$115	<input type="checkbox"/> Check payable to AACR, Inc. in U.S. currency, drawn on a U.S. bank
<input type="checkbox"/> Honorary/Emeritus Member Rate	\$ 0	\$ 0	
<input type="checkbox"/> Nonmember Rate (includes a copy of AACR <i>Proceedings</i> )	\$185	\$210	Person/Institution Issuing Check _____ Check No. _____
<input type="checkbox"/> Associate Member/Student Rate* (does not include a copy of AACR <i>Proceedings</i> )	\$ 45	\$ 55	<input type="checkbox"/> MasterCard <input type="checkbox"/> VISA <input type="checkbox"/> American Express <input type="checkbox"/> Eurocard
<input type="checkbox"/> AACR <i>Proceedings</i> *	\$ 35	\$ 35	
<input type="checkbox"/> Overseas Airmail Surcharge <sup>†</sup>	\$ 22	N/A	
Total Enclosed or Charged _____			Account Number and Expiration Date _____
			Signature _____

**THE DEADLINE FOR REDUCED REGISTRATION FEES IS MARCH 29, 1993. Registration by mail will be accepted until April 16. Registration will also be possible at the Orange County Convention Center from May 18-22.**

\*Students must enclose a statement, signed by the registrar, dean, or department head of their university or college on official letterhead, confirming their status. **Postdoctoral fellows or physicians in training do not qualify for the student registration rate** unless they are associate members of the AACR. An application for associate membership may accompany this form, but these should be submitted well before the March 29 deadline as review of the associate membership application may delay registration.

+AACR members with paid-up subscriptions to an AACR journal and registrants who pay the nonmember fee receive the *Proceedings* automatically. If these members or nonmembers check this box and pay the \$35 fee, they will receive an **additional** copy of the *Proceedings*.

<sup>†</sup>Optional payment for registrants outside of the U.S. and Canada only. Registrants paying this surcharge will receive meeting publications via air mail-printed matter before the annual meeting.

Mail all advance registration forms with applicable fees to Annual Meeting Registration, American Association for Cancer Research, Inc., Public Ledger Building, 620 Chestnut Street, Suite 816, Philadelphia, PA 19106-3483. FAX: 215-440-9313. Badges and receipts will be sent to you in April or early May. AACR members in good standing will receive copies of the Program and *Proceedings* prior to the meeting. Nonmember and student registrants who meet the March 29 deadline will also receive the Program and (if they have purchased it) the *Proceedings* prior to the meeting. Nonmembers and students who do not meet the deadline must pick up publications at the meeting site.

### REFUND POLICY

Refunds on registration fees will be granted on written request received in the AACR Office by May 12, 1993. Requests received after this date will not be honored. Receipts and badges (if they have been mailed) must be returned to the AACR Office with the refund request. A cancellation fee of \$25 will be deducted from all refunds to cover administrative costs.

(This form may be reproduced.)



## AMERICAN ASSOCIATION FOR CANCER RESEARCH SCIENTIFIC CONFERENCES: 1992-1994

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**FEBRUARY 1-6, 1993**

***Oncogenes and Antioncogenes in  
Differentiation, Development, and  
Human Cancer***

Chairperson: Carlo M. Croce, Philadelphia, PA  
Big Sky Resort, Big Sky, MT

**MARCH 15-20, 1993**

***Mechanism of Action of Retinoids,  
Vitamin D, and Steroid Hormones***

Chairpersons: Michael B. Sporn, Bethesda, MD;  
Ronald M. Evans, San Diego, CA; David  
Mangelsdorf, San Diego, CA  
Banff Centre, Banff, Alberta, Canada

**APRIL 13-17, 1993**

***Genetic Control of Cell Growth***  
Supported by a Generous Grant  
from the General Motors Cancer  
Research Foundation

Chairpersons: Leland H. Hartwell, Seattle, WA;  
Peter K. Vogt, Los Angeles, CA; George F.  
Vande Woude, Frederick, MD  
San Luis Hotel, Galveston, TX

**MAY 19-22, 1993**

***84th Annual Meeting***

Chairperson: Michael B. Sporn, Bethesda, MD  
Orange County Convention Center, Orlando, FL

**OCTOBER 17-21, 1993**

***Cell Death and Cancer***

Chairperson: Alan R. Eastman, Hanover, NH  
Chatham Bars Inn, Chatham (Cape Cod), MA

**NOVEMBER 7-11, 1993**

***Molecular Approaches to  
Cancer Immunotherapy***

Chairperson: Ralph A. Reisfeld, San Diego, CA  
Grove Park Inn, Asheville, NC

**NOVEMBER 9-13, 1993**

***Interactions of Cancer Susceptibility  
Genes and Environmental Carcinogenesis***

Joint Meeting with International Association  
for Research on Cancer

Chairpersons: Frederick P. Li, Boston, MA, and  
Ruggero Montesano, Lyon, France  
IARC, Lyon, France

**DECEMBER 5-9, 1993**

***Cell Signalling and Cancer Treatment***

Joint Meeting with British Association for  
Cancer Research and European  
Organisation for Research and Treatment of  
Cancer (PAM Group)

Chairperson: Garth Powis, Tucson, AZ  
El San Juan Hotel, San Juan, PR

**JANUARY 17-22, 1994**

***Risk Assessment in Environmental  
Carcinogenesis***

Chairpersons: Phillip C. Hanawalt, Berkeley, CA;  
James A. Swenberg, Chapel Hill, NC  
Whistler Resort and Conference Center, Whistler,  
B.C., Canada

**JANUARY 31-FEBRUARY 5, 1994**  
***Molecular Genetics of Progression  
and Metastasis***

Chairperson: Lance A. Liotta, Bethesda, MD  
Big Sky Resort, Big Sky, MT

**FEBRUARY 21-26, 1994**

***Genomic Instability and Cancer***

Chairpersons: Thea D. Tlsty and Lawrence A.  
Loeb, Banff Springs Hotel, Banff, Alberta, Canada

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AACR members will receive brochures on the  
above special conferences as soon as they are  
available. Nonmembers should call or write:

American Association for Cancer Research  
Public Ledger Building  
620 Chestnut Street, Suite 816  
Philadelphia, PA 19106-3483  
215-440-9300 • 215-440-9313 (FAX)

**Guidelines for Submitting Disks  
to  
American Association for Cancer Research Publications**

The word processing packages that we prefer are as follows:

XyWrite III Plus (for the IBM)	Microsoft Word (for the IBM)
WordPerfect 4.2, 5.0, 5.1 (for the IBM)	Microsoft Word Macintosh (Versions 1-4) 400/800K
WordPerfect (for the Mac)	Wang OIS (WPS)
Wordstar (for the IBM)	

Also acceptable:

Apple II DOS 3.3	Display Write 4
Apple with Appleworks Software	IBM Displaywriter Word Processor 6580
Apple III Plus DOS 3.3	Lanier Business One Step
Apple Macintosh 400K Disc/ MacWrite 2.2 (text)	Lanier No Problem
Apple Macintosh Plus 800K Disc/ MacWrite 4.5 (text)	Lanier Super No Problem
CPT 8000	MASS-11 PC
DEC WPS-8	Multimate
DEC Decmate II	PC Write
DEC Decmate III	PFS Professional Write
Display Write 3	Volkswriter 4.0

New releases of word processing software are not always immediately available for conversion. In addition, because of the file structures and internal coding, we cannot accept disks created on desktop publishing systems or those created on proprietary typesetting systems. We also cannot guarantee that all special characters can be translated. Tabular and mathematical material, such as equations, will not be captured from the disk but will be rekeyed.

To expedite work and for your own security, we do require that you submit a hard copy printout of the disk file. The tables and equations will be keyed from this hard copy. We also need to know the name of the file to be converted, the type of hardware (e.g., IBM PC) on which the files were created, the operating system (e.g., DOS 3.3), and the version of the software (e.g., WordPerfect 5.1) used to create the file.

PLEASE FILL OUT ALL INFORMATION ON REVERSE SIDE AND SUBMIT THIS FORM WITH YOUR DISK.  
DISKS WILL NOT BE PROCESSED WITHOUT THIS INFORMATION.



## DISK SUBMISSION FORM

AACR journals are now using personal computers to copyedit manuscripts accepted for publication. When submitting a revised manuscript, authors are encouraged to submit an electronic disk of the paper along with the required four hard copy printouts. Disks will ultimately be returned to the authors.

See reverse for the word processing packages that can be accepted.

### File preparation

Please be sure that the file you send is the most recent version of the manuscript and that it matches the most recently submitted printed copy. The file should contain all the parts of the manuscript in **one** file. Mathematical and tabular material, however, will be processed in the traditional manner and may be excluded from the disk file.

Note: AACR does not assume responsibility for errors in conversion of customized software, newly released software, or special characters.

Please label the outside of the disk with the journal name, the first author's name, a partial title of the manuscript, and the name of the computer file used to access the manuscript on disk. To process your disk efficiently, we need the following information. Please be sure to provide **ALL** the information.

**Name used to access paper on disk:** \_\_\_\_\_

**Name of computer used (e.g., IBM/PS2):** \_\_\_\_\_

**Operating system and version (e.g., DOS 3.3):** \_\_\_\_\_

**Word processing program and version (e.g., WordPerfect 5.0):** \_\_\_\_\_

[See reverse for acceptable programs.]

**Manuscript number:** \_\_\_\_\_

**First author:** \_\_\_\_\_

**Corresponding author (if different from first author):** \_\_\_\_\_

**Telephone/FAX numbers:** \_\_\_\_\_

AACR SPECIAL CONFERENCE IN CANCER RESEARCH

# MECHANISM OF ACTION OF RETINOIDS, VITAMIN D, AND STEROID HORMONES

March 15-20, 1993  
Banff Centre, Banff, Alberta, Canada



## CONFERENCE CHAIRPERSONS

**Michael B. Sporn** / Bethesda, MD  
**Ronald M. Evans** / San Diego, CA  
**David Mangelsdorf** / San Diego, CA

## PROGRAM COMMITTEE

**Vincent Giguere** / Toronto, Ontario, Canada  
**Morley Hollenberg** / Calgary, Alberta, Canada  
**J. Wesley Pike** / San Diego, CA

## SCIENTIFIC PROGRAM

### Keynote Address

**Robert G. Roeder** / New York, NY

### DNA Binding/Heterodimers

**Kazuhiko Umesono** / San Diego, CA  
**Jeffrey D. Milbrandt** / St. Louis, MO  
**Leonard P. Freedman** / New York, NY  
**Christopher K. Glass** / San Diego, CA  
**Magnus Pfahl** / San Diego, CA

### Three-Dimensional Structure of Receptors and Binding Proteins

**Paul B. Sigler** / New Haven, CT  
**Marcia Newcomer** / Nashville, TN  
**Peter Wright** / San Diego, CA

### Development and Differentiation

**David Mangelsdorf** / San Diego, CA  
**Gregor Eichele** / Houston, TX  
**Anita B. Roberts** / Bethesda, MD

### Vitamin D

**J. Wesley Pike** / San Diego, CA  
**Lise Binderup** / Copenhagen, Denmark  
**Steven L. Teitelbaum** / St. Louis, MO  
**Stavros Manolagas** / Indianapolis, IN

### Genetic Regulation by Retinoids and Steroids

**Lorraine J. Gudas** / New York, NY  
**Vincent Giguere** / Toronto, Canada

### Studies of Disease and Therapy

**Anne Dejean** / Paris, France  
**Bjorn Vennstrom** / Stockholm, Sweden  
**Benjamin G. Neel** / Boston, MA

### Steroids and Related Receptors

**Bert W. O'Malley** / Houston, TX  
**Peter Herrlich** / Karlsruhe, Germany  
**Roger L. Miesfeld** / Tucson, Arizona  
**Herbert H. Samuels** / New York, NY

### Metabolism of Retinoids

**Joseph F. Grippo** / Nutley, NJ  
**Robert R. Rando** / Boston, MA  
**Richard Heyman** / San Diego, CA

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### Information and Application Forms

American Association for Cancer Research  
Public Ledger Building  
620 Chestnut Street, Suite 816  
Philadelphia, PA 19106-3483  
(215) 440-9300

(215) 440-9313 (FAX)

**AMERICAN ASSOCIATION FOR CANCER RESEARCH**  
**84th Annual Meeting**



**Michael B. Sporn, Program Chairperson**  
**Orange County Civic Center, Orlando, FL**  
**May 19-22, 1993**

***Major Sessions: Titles and Chairpersons***

**Impact of Molecular Biology on Cancer: Its  
Detection, Prevention, and Treatment -  
Joint AACR/ASCO Session - Stephen H. Friend**

**Transgenic Mice as Models for Cancer  
Pathogenesis Owen N. Witte**

**From Bench to Clinic: Concepts in the Design  
and Targeting of New Chemotherapeutic  
Agents Bruce A. Chabner**

**Tumor Invasion, Angiogenesis, and Metastasis  
Robert S. Kerbel**

**Mechanisms of Action of Chemopreventive  
Agents: Basic Science and Clinical  
Applications Martin Lipkin and Anita B.  
Roberts**

**Molecular Mechanisms of Drug Resistance  
June L. Biedler**

**Advances in Molecular Epidemiology of Human  
Cancer Curtis C. Harris**

**Cytokines in the Immunomodulation of Cancer  
Elizabeth A. Grimm**

**The Biology and Therapeutic Application of  
Normal Hematopoietic Stem Cells Malcolm  
A. S. Moore**

**The Restoration of Normal Differentiation and  
Growth to Preneoplastic and Neoplastic  
Cells: Strategies for Differentiation Therapy  
Waun Ki Hong**

**Nitric Oxide and Superoxide: Endogenous  
Mediators of DNA Damage Steven R.  
Tannenbaum**

**The Biology and Pathogenesis of Prostate  
Cancer Maarten C. Bosland**

**Vitamin D and Cancer Michael B. Sporn**

**Mesenchymal Interactions with Normal and  
Neoplastic Epithelial Cells Gerald R. Cunha**

**Proteases in Carcinogenesis and Tumor  
Progression Lynn M. Matrisian**

**Strategies for Utilization of Antisense  
Molecules or Ribozymes as Specific  
Anticancer Agents Jack S. Cohen**

**Biology and Genetics of Human Preneoplastic  
Lesions Walter N. Hittelman**

**Human DNA and Protein Adduct Dosimetry:  
Assessment of Risk for the Development of  
Primary and Secondary Cancers Regina M.  
Santella**

**Biology and Treatment of Pediatric Cancer  
Richard J. O'Reilly**

**Latest Advances in Tumor Suppressor Genes  
Edward E. Harlow**

**Immunologic Approaches to Targeted Therapy  
Ira Pastan**

**Molecular Basis for the Modulation of  
Radiation Sensitivity W. Gillies McKenna**

**Gene Rearrangements in Human Cancer  
Stanley J. Korsmeyer**

**Protein Phosphatases in Carcinogenesis  
Claude B. Klee**

**Protein Kinase C: Modulator of the Cancer  
Phenotype and Target for Chemotherapy  
Peter M. Blumberg**

**The EGF and FGF Receptor Superfamilies:  
Recent Advances in Ligands, Receptors, and  
Signal Transduction Andrew Baird and  
Michael Klagsbrun**

**Workshop: Clinical Trials Methodology  
Brigid G. Leventhal and Steven Piantadosi**

**Workshop: Embryonic Stem Cells and Gene  
Knockouts Thomas C. Doetschman**

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**Further Information:** AACR Office • Public Ledger  
Building • 620 Chestnut Street • Suite 816 •  
Philadelphia, PA 19106-3483  
**TELEPHONE (215) 440-9300 • FAX (215) 440-9313**