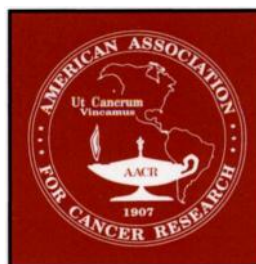


An Official Journal  
of the  
American Association  
for  
Cancer Research



# Clinical Cancer Research

July 1998 • Volume 4 Number 7  
PP. 1583-1824 • ISSN 1078-0432

AACR SPECIAL CONFERENCE IN CANCER RESEARCH

# Gene Regulation and Cancer

10th Anniversary of the AACR Special Conferences

October 14-18, 1998

The Homestead

Hot Springs, VA



*Supported by a Major Educational Grant from Janssen Pharmaceutica and Janssen Research Foundation*

## CONFERENCE CO-CHAIRPERSONS

**Phillip A. Sharp** / Cambridge, MA  
**Jacqueline A. Lees** / Cambridge, MA  
**Steven L. McKnight** / Dallas, TX

## CONFERENCE PROGRAM

### Keynote Address

Leland H. Hartwell / Seattle, WA

### Control of Cell Division and Gene Expression

Jacqueline A. Lees / Cambridge, MA  
Scott W. Lowe / Cold Spring Harbor, NY  
Nikola P. Pavletich / New York, NY

### Mechanisms of Transcriptional Regulation

Jerry L. Workman / University Park, PA  
Marian Carlson / New York, NY  
David H. Price / Iowa City, IA

### Growth Control and Chromatin Acetylation

C. David Allis / Rochester, NY  
Kevin Struhl / Boston, MA  
Robert N. Eisenman / Seattle, WA  
Michael Grunstein / Los Angeles, CA

### Regulation of Cell Death

Albert S. Baldwin / Chapel Hill, NC  
Craig B. Thompson / Chicago, IL

### Developmental Biology and Gene Regulation

Beverly M. Emerson / La Jolla, CA  
Katia Georgopoulos / Cambridge, MA  
Frank G. Grosveld / Rotterdam, The Netherlands

### Signal to Transcription

Steven L. McKnight / Dallas, TX  
David J. Mangelsdorf / Dallas, TX  
Gregg L. Semenza / Baltimore, MD

### Gene Expression Technology

Stephen H. Friend / Seattle, WA

### Additional Speakers to be Announced

**Application Deadline: July 31, 1998**

### Information and Application Forms:

American Association for Cancer Research  
Public Ledger Building, Suite 826  
150 South Independence Mall West  
Philadelphia, PA 19106-3483  
215-440-9300 215-440-9313 (FAX)  
E-mail: [meetings@aacr.org](mailto:meetings@aacr.org)  
Website: <http://www.aacr.org>



**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. Pusztay

**Staff Editors**

Michael J. Beveridge

Kathleen C. Assenmacher

Pamela R. Arnold

Ronald M. Vitale

Carolina Miranda

**Staff Assistant**

Mary Ellen Pirring

**Senior Editorial Assistant**

Theresa A. Griffith

**Editorial Assistants**

Cecilia Gallo

Brenda Roberson

**Marketing Coordinator**

Robert B. O'Malley

**Administrative Staff**

**Director of Administration**

Adam D. Blistein

**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

**AACR Publications Department**

Public Ledger Building, Suite 826

150 South Independence Mall West

Philadelphia, PA 19106-3483

Phone: (215) 440-9300

FAX: (215) 440-9354

**Editor-in-Chief**

John Mendelsohn

*Growth factors, hormones, cell growth;  
radiation therapy, surgery, subspecialty investigation*

**Deputy Editor**

Wau Ki Hong

*Clinical trials targeted at specific malignancies, chemoprevention*

**Senior Editors**

Bruce A. Chabner

*Clinical pharmacology and pharmacokinetics,  
drug metabolism, drug sensitivity and resistance,  
drug interactions*

Michael B. Kastan

*Cell cycle regulation, cell death*

Lance A. Liotta

*Pathology, metastasis*

David Sidransky

*Molecular pathogenesis, molecular correlates*

**Associate Editors**

Martin D. Abeloff

Carmen J. Allegra

Laurence H. Baker

Charles M. Balch

Barthel Barlogie

Robert C. Bast, Jr.

Colin B. Begg

Joseph R. Bertino

Ronald H. Blum

George J. Bosl

Paul A. Bunn, Jr.

Michael A. Caligiuri

Alfred E. Chang

Paul B. Chapman

Michaële C. Christian

Curt I. Civin

Ronald Crystal

William S. Dalton

Albert B. Deisseroth

Patricia K. Donahoe

Ross C. Donehower

Timothy J. Eberlein

Merrill J. Egorin

Frederick R. Eilber

Robert M. Elashoff

Paul F. Engstrom

Eric R. Fearon

Isaiah J. Fidler

Richard M. Fox

Michael A. Friedman

Zvi Y. Fuks

Stephen L. George

Giuseppe Giaccone

Luca Gianni

Anna Giuliano

Eli Glatstein

David W. Golde

Mark R. Green

Jerome E. Groopman

William N. Hait

Adrian L. Harris

Curtis C. Harris

Sandra J. Horning

William J. Hoskins

Janet A. Houghton

Stephen B. Howell

Daniel C. Ihde

John T. Isaacs

Robert B. Jenkins

David H. Johnson

V. Craig Jordan

Barton A. Kamen

S. B. Kaye

David P. Kelsen

Paul Sondel

*Immunotherapy and cytokines—preclinical, and  
clinical trials*

Beverly A. Teicher

*Experimental therapeutics, preclinical  
pharmacology, combined modality regimens,  
animal therapy models*

Jeffrey M. Trent

*Genetics, cytogenetics*

David Khayat

John M. Kirkwood

Donald W. Kufe

Steven M. Larson

John S. Lazo

Victor A. Levin

Allen Lichter

Marc E. Lippman

Edison T. Liu

Patrick J. Loehrer, Sr.

Dan L. Longo

Michael T. Lotze

Maurie Markman

William P. McGuire III

Roland Mertelsmann

Frank L. Meyskens, Jr.

John D. Minna

Bruce Minsky

Monica Morrow

James L. Mulshine

Sharon B. Murphy

Charles E. Myers

Larry Norton

Richard J. O'Reilly

Robert F. Ozols

Ira Pastan

William P. Peters

Herbert M. Pinedo

Philip A. Pizzo

William K. Plunkett

Jerome B. Posner

Derek Raghavan

Mark J. Ratain

John C. Reed

Ralph A. Reisfeld

Jerome Ritz

Jack A. Roth

Eric B. Rowinsky

Edward A. Sausville

Howard I. Scher

Richard L. Schilsky

Richard M. Simon

John F. Smyth

Jeffrey A. Sosman

Michael B. Sporn

Louise C. Strong

Masaaki Terada

Daniel D. Von Hoff

Raymond P. Warrell, Jr.

Jane Weeks

Ralph R. Weichselbaum

Theresa L. Whiteside

Leonard A. Zwelling

**Editorial Office**

Colleen M. Hubona, *Executive Editor*, Department of Educational Publishing Services—227, The University of Texas M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, Texas 77030. Phone: (713) 792-6014; Fax: (713) 792-6016.

**Accelerated mailing of all AACR journals to AACR members in Japan is supported by a generous grant from the Banyu Pharmaceutical Company, Tsukuba, Japan. One-year subscriptions to *Clinical Cancer Research* are made available to third-year hematology/oncology fellows in the United States through the generous support of Rhône-Poulenc Rorer Oncology.**

*Clinical Cancer Research* is published monthly, one volume per year, 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 [Phone: (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. Individuals who are not AACR members may subscribe to Volume 4 (1998) of *Clinical Cancer Research* at the rate of \$120 U.S./\$160 foreign. *Clinical Cancer Research* is only available to institutions as a combined subscription with *Cancer Research*. The combined 1998 institutional subscription price of \$795 U.S./\$925 foreign includes \$210 U.S./\$250 foreign for a subscription to *Clinical Cancer Research*. (Foreign subscription cost includes cost of 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: AACR Member Services, 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.





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

Officers for 1998-1999

*President:* Webster K. Cavenee, Ludwig Institute for Cancer Research, La Jolla, CA 92093-0660

*President-Elect:* Daniel D. Von Hoff, Institute for Drug Development, San Antonio, TX 78245

*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, \$50 of which may be applied to a subscription to *Clinical Cancer Research*. 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; Phone: (215) 440-9300; FAX: (215) 440-9313.

---

### Submission of Manuscripts

*Clinical Cancer Research*, a journal of the American Association for Cancer Research, publishes original articles describing clinical research on the cellular and molecular characterization, prevention, diagnosis, and therapy of human cancer. Its focus is on innovative clinical research and translational research which bridges the laboratory and the clinic. *Clinical Cancer Research* is especially interested in clinical trials evaluating new treatments for cancer; research on molecular abnormalities that predict incidence, response to therapy, and outcome; and laboratory studies of new drugs and biological agents that will lead to clinical trials in patients. All submissions undergo peer review. Papers should be sent directly to an appropriate Senior Editor or to the Editor-in-Chief for review. See "Instructions for Authors" (page ii of this issue) for complete mailing addresses of the Editor-in-Chief, Deputy Editor, and Senior Editors.

---

### 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 [Phone: (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/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 on approximately the 1st day of the month of issue. Inquiries about advertising should be directed to: M. J. Mrvica Associates, Inc., 2 West Taunton Ave., Berlin, NJ 08009 [Telephone: (609) 768-9360; FAX: (609) 753-0064].

---

### Copyright and Permissions

Authors who wish to publish in *Clinical Cancer Research* must formally transfer copyright to the proprietor of the journal, the American Association for 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 the American Association for

Cancer Research, 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 American Association for Cancer Research, 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 [Phone: (215) 440-9300; FAX: (215) 440-9354].

---

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

---

*Clinical Cancer Research* is abstracted and/or indexed in *Cancer Lit*, *Chemical Abstracts*, *Current Contents/Clinical Medicine*, and *Index Medicus/MEDLINE*.

---

*Clinical Cancer Research* (ISSN 1078-0432) 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 \$50 annually for members and \$120 for individual nonmembers. *Clinical Cancer Research* is only available to institutions as a combined subscription with *Cancer Research*. The combined 1998 institutional subscription price of \$795 includes \$210 for a subscription to *Clinical Cancer Research*. 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 on acid-free paper in the U.S.A.

# NEED HUMAN SPECIMENS FOR RESEARCH?

**The NCI Cooperative Human Tissue Network (CHTN)** provides normal, benign, pre-cancerous and cancerous human tissue to the scientific community for basic and developmental studies in many areas of cancer research. Contact the CHTN website at: <http://www-chn.ims.nci.nih.gov>, or Ms. Marianna Bledsoe, NCI, (301) 496-7147; e-mail: [mb80s@nih.gov](mailto:mb80s@nih.gov).

**The NCI AIDS Malignancy Bank (AMB)** is a collection of tissue and biological fluids with associated clinical and follow-up data from patients with HIV-related malignancies. The specimens and clinical data are available for research studies, particularly those that translate basic research findings to clinical application. Contact the AMB website at: <http://cancernet.nci.nih.gov/amb/amb.html>, or Dr. Ellen Feigal, NCI, (301) 496-6711; e-mail: [ef30d@nih.gov](mailto:ef30d@nih.gov).



**The Cooperative Family Registry for Breast Cancer Studies (CFRBCS)** provides biological specimens with associated family history, clinical, demographic and epidemiologic data from participants with a family history of breast cancer, breast/ovarian cancer, or Li-Fraumeni syndrome, and their relatives. The CFRBCS's repository is particularly suited to support interdisciplinary and translational breast cancer research. Contact the CFRBCS website at: <http://www-dceg.ims.nci.nih.gov/cfrbcs>, or Dr. Daniela Seminara, NCI, (301) 496-9600; e-mail: [seminard@epndce.nci.nih.gov](mailto:seminard@epndce.nci.nih.gov).

**The NCI Cooperative Breast Cancer Tissue Resource (CBCTR)** can provide researchers with access to approximately 8,000 cases of formalin-fixed, paraffin-embedded primary breast cancer specimens, with associated pathology and clinical data. The collection is particularly well-suited for validation studies of diagnostic and prognostic markers. Contact CBCTR's website at: <http://www-cbctr.ims.nci.nih.gov>, or Ms. Sherrill Long, Information Management Services, Inc., (301) 680-9770; e-mail: [sherrill@ims.nci.nih.gov](mailto:sherrill@ims.nci.nih.gov).

**The Gynecologic Oncology Group (GOG) Tissue Bank** can provide malignant, benign, and normal ovarian, and cervical tissue with associated clinical information. The bank was established to provide carefully preserved specimens needed for molecular biology studies of gynecologic tumors. Contact the GOG Tissue Bank, Children's Hospital, Columbus, OH, (614) 722-2890.

**The NCI-NAPBC Breast Cancer Specimen and Data Information System** can provide additional information on breast cancer tissue resources (<http://www-napbc.ims.nci.nih.gov>).

**Other human specimen resources** for cancer research may be available through collaborative arrangements. For further information, please contact Ms. Marianna Bledsoe, NCI, (301) 496-7147, e-mail: [mb80s@nih.gov](mailto:mb80s@nih.gov).

## PROGRAM ADMINISTRATOR

for the American Association for Cancer Research, Inc.  
in Philadelphia, PA

*An exciting career opportunity in a dynamic and rapidly growing scientific society in the forefront of basic, clinical, and translational cancer research.*

*The American Association for Cancer Research (AACR) is a professional society of 14,000 scientists and physicians worldwide based in Philadelphia, PA. It serves its members, the greater scientific community, and the general public by publishing four prestigious scientific journals; organizing scientific meetings that present state-of-the-art findings in cancer research; offering unique training opportunities to young investigators; providing outstanding venues for networking, career development, and informal communication; and communicating developments in the field to the lay public.*

**Responsibilities:** Depending on previous experience and skills, the successful applicant will be responsible for one or more of the following areas:

1. Support for the organizers of meetings, conferences, and training workshops in the development of the scientific program
2. Support for committees, task forces, and member interest groups and implementation of their initiatives
3. Preparation of grant proposals and submission of reports to funding agencies
4. Evaluation of programs
5. Communication with other scientific societies

### **Skills/Qualifications required:**

1. Seven to ten years' work experience in biomedical research (preferably cancer research) and/or administration (preferably nonprofit association management)
2. Graduate degree
3. Excellent written and oral communication skills
4. Versatility, accuracy, computer literacy, energy
5. Excellent analytical, administrative, and organizational skills
6. Familiarity with needs and practices of the scientific community

### **Competitive salary and excellent benefits package**

**Replies:** Covering letter including description of qualifications for the position, salary history, c.v., and writing sample(s) to

Adam D. Blistein, Ph.D.  
Director of Administration  
American Association for Cancer Research  
Public Ledger Building, Suite 826  
150 S. Independence Mall West  
Philadelphia, PA 19106-3483

*No telephone calls will be accepted.  
The AACR is an equal employment opportunity employer.*

## AMERICAN ASSOCIATION FOR CANCER RESEARCH

The American Association for Cancer Research (AACR) is a professional society of over 11,000 scientists and physicians involved in all aspects of basic, clinical, and translational cancer research. Members of the AACR enjoy

- subscriptions to *Cancer Research, Cell Growth & Differentiation (CG&D), Cancer Epidemiology, Biomarkers & Prevention, and Clinical Cancer Research* at reduced member rates
- reduced registration rates at the AACR Annual Meeting, Special Conferences, and International Meetings
- Employment Register, Directory of Members, public education activities, and many other benefits

Special programs to provide enhanced career development opportunities for minority scientists include

- **Session on Career Development at Annual Meeting**
- **Mentorship Program**
- **Travel Awards to Scientific Meetings**

### **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

### 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*