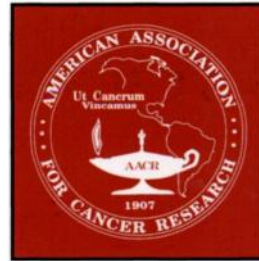


An Official Journal  
of the  
American Association  
for  
Cancer Research



# Clinical Cancer Research

November 1996 • Volume 2 Number 11  
PP. 1811-1913 • ISSN 1078-0432

AACR/ASCO JOINT CONFERENCE

# Basic and Clinical Aspects of Lymphoma



January 10-14, 1997

Renaissance Esmeralda Resort  
Indian Wells (Palm Springs), CA



Supported by a Generous Educational Grant from the  
Cure For Lymphoma Foundation

(Corporate Support to be Listed in Future Announcements)

## CONFERENCE CO-CHAIRPERSONS

**Joseph R. Bertino** / New York, NY     **James O. Armitage** / Omaha, NE

## HONORARY CHAIRPERSON

**Saul A. Rosenberg** / Stanford, CA

## PROGRAM COMMITTEE

**Franco G. Cavalli** / Bellinzona, Switzerland     **Bruce A. Chabner** / Boston, MA  
**Raju S. K. Chaganti** / New York, NY     **Richard I. Fisher** / Maywood, IL  
**Thomas M. Grogan** / Tucson, AZ     **Alexandra M. Levine** / Los Angeles, CA  
**Ronald Levy** / Stanford, CA     **Sharon B. Murphy** / Chicago, IL

## CONFERENCE PROGRAM

### Keynote Address

**Saul A. Rosenberg** / Stanford, CA

### The New Entities and Classification

**Nancy L. Harris** / Boston, MA  
**Dennis D. Weisenburger** / Omaha, NE  
**James O. Armitage** / Omaha, NE  
**Richard I. Fisher** / Maywood, IL

### Lymphomagenesis and Etiology

**Franco G. Cavalli** / Bellinzona, Switzerland  
**Richard F. Ambinder** / Baltimore, MD

### Lymphoma Associated with Immunodeficiency

**Daniel Knowles** / New York, NY  
**Lode J. Swinnen** / Maywood, IL  
**Alexandra M. Levine** / Los Angeles, CA

### Genetic Abnormalities in Lymphoma

**Raju S. K. Chaganti** / New York, NY  
**Riccardo Dalla-Favera** / New York, NY  
**Stephan W. Morris** / Memphis, TN  
**Diane C. Louie** / New York, NY

### Cell Adhesion and Cell Signaling/ Molecular and Homing Receptors

**Thomas M. Grogan** / Tucson, AZ  
**Douglas R. Green** / San Diego, CA

### Can We Improve Outcome with Available Therapies?

**Sharon B. Murphy** / Chicago, IL  
**Joseph R. Bertino** / New York, NY  
**John H. Glick** / Philadelphia, PA

### New Therapies

**Bruce A. Chabner** / Boston, MA  
**Oliver W. Press** / Seattle, WA  
**Ronald Levy** / Stanford, CA  
**Richard J. O'Reilly** / New York, NY  
**Finbarr E. Cotter** / London, England

### *Additional Speakers to be Announced*

Applicants are encouraged to submit abstracts for oral and poster presentation.

Application Deadline: November 25, 1996

### Information and Application Forms:

American Association for Cancer Research  
Public Ledger Building, Suite 816  
150 South Independence Mall West  
Philadelphia, PA 19106-3483  
215-440-9300     215-440-9313 (FAX)  
World Wide Web: <http://www.aacr.org>

# Clinical Cancer Research



An Official Journal  
of the  
American Association  
for  
Cancer Research

## 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

**Senior Staff Editor**

Lisa A. Chippendale

### Staff Editors

Michael J. Beveridge

Kathleen C. Assenmacher

Pamela R. Arnold

Laurie B. Baker

### Staff Assistant

Mary Ellen Purring

### Administrative Coordinator

Holly M. Haskins

### Senior Editorial Assistant

Theresa A. Griffith

### Editorial Assistants

Valerie L. Samuel

Andrea Conrad

Bethann Massarella

### Administrative Staff

#### Director of Administration

Adam D. Blistein

#### Controller

Joan D. Ritchie

#### Coordinator, Financial

##### Operations

George L. Moore

#### 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. Pickles

#### 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 816  
150 South Independence Mall West  
Philadelphia, PA 19106-3483  
Phone: (215) 440-9300;  
FAX: (215) 440-9354

## Editor-in-Chief

John Mendelsohn

*Cell proliferation and death—preclinical, and clinical trials;  
radiation therapy, surgery, and subspecialty investigation*

## Senior Editors

Waun Ki Hong, Deputy Editor

*Clinical trials targeted at  
specific malignancies,  
chemoprevention*

Lance A. Liotta

*Pathology, metastasis*

## Associate Editors

Martin D. Abeloff

David S. Alberts

Carmen J. Allegra

James O. Armitage

Laurence H. Baker

Charles M. Balch

Barthel Barlogie

Robert C. Bast, Jr.

Colin B. Begg

Joseph R. Bertino

Clara D. Bloomfield

Ronald H. Blum

George J. Bosl

Paul A. Bunn, Jr.

Michael A. Caligiuri

Alfred E. Chang

Paul B. Chapman

Bruce D. Cheson

Michaele C. Christian

Curt I. Civin

Ronald Crystal

William S. Dalton

Albert B. Deisseroth

Patricia 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

Philip D. Greenberg

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

Michael B. Kastan

S. B. Kaye

David P. Kelsen

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

Monica Morrow

James L. Mulshine

Sharon B. Murphy

Charles E. Myers

Larry Norton

Richard J. O'Reilly

Robert F. Ozols

David R. Spriggs

*Preclinical pharmacology,  
pharmacological clinical  
trials*

Jeffrey M. Trent

*Genetics, cytogenetics*

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.

*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 *Clinical Cancer Research*, P.O. Box 3000, Denville, NJ 07834 [Telephone: (800) 875-2997 or (201) 627-2427; FAX: (201) 627-5872], 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 2 (1996) of *Clinical Cancer Research* at the rate of \$95 U.S./\$135 foreign. *Clinical Cancer Research* is only available to institutions as a combined subscription with *Cancer Research*. The combined 1996 institutional subscription price of \$595 U.S./\$725 foreign includes \$90 for a subscription to *Clinical Cancer Research*. 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 816, 150 South Independence Mall West, Philadelphia, PA 19106-3483. Nonmember subscribers should send changes of address to: *Clinical Cancer Research*, P.O. Box 3000, Denville, NJ 07834. Copies of the journal which are undeliverable because of address changes will be destroyed. Through the kind assistance of the Japanese Cancer Association, accelerated mailing of all AACR journals to AACR members in Japan is fully supported by a generous grant from the Banyu Pharmaceutical Company, Tsukuba, Japan.



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

Officers for 1996-1997

*President:* Louise C. Strong, UT M. D. Anderson Cancer Center, Houston, TX 77030

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

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

*Executive Director:* Margaret Foti, AACR, Public Ledger Bldg., Suite 816, Philadelphia, PA 19106-3483

---

### Annual Dues

The annual dues of active members of the American Association for Cancer Research are \$160, \$40 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, American Association for Cancer Research, Public Ledger Bldg., Suite 816, 150 South Independence Mall West, Philadelphia, PA 19106-3483; Telephone: (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 and Senior Editors.

---

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

Copies of back stock of the journal may be ordered from *Clinical Cancer Research*, P.O. Box 3000, Denville, NJ 07834 [Telephone: (800) 875-2997 or (201) 627-2427; FAX: (201) 627-5872]. As long as supplies permit, single copies will be sold by this company at \$12.50/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., 155 South White Horse Pike, 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 [Telephone: (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*, and *Current Contents (Clinical Medicine)*.

---

*Clinical Cancer Research* (ISSN 1078-0432) is published monthly by the American Association for Cancer Research, Inc., Public Ledger Bldg., Suite 816, 150 South Independence Mall West, Philadelphia, PA 19106-3483 for \$40 annually for members and \$95 for individual nonmembers. *Clinical Cancer Research* is only available to institutions as a combined subscription with *Cancer Research*. The combined 1996 institutional subscription price of \$595 includes \$90 for a subscription to *Clinical Cancer Research*. Periodicals postage paid at Philadelphia, PA and additional mailing offices. POSTMASTER: Send address changes to *Clinical Cancer Research*, P.O. Box 3000, Denville, NJ 07834. Copyright 1996 by the American Association for Cancer Research, Inc. Printed on acid-free paper in the U.S.A.

# CELL SIGNALING AND CANCER TREATMENT



An American Association for Cancer Research Special Conference  
in Collaboration with  
Austrian Cancer Society, British Association for Cancer Research,  
German Cancer Society and the Austrian Biochemical Society

February 23-28, 1997  
Interalpen-Hotel Tyrol  
Telfs-Buchen, Austria

## CONFERENCE CHAIRPERSONS

**Hans H. Grunicke** / Innsbruck, Austria  
**Garth Powis** / Tucson, USA  
**Paul Workman** / Macclesfield, England

## PROGRAM COMMITTEE

**Sara A. Courtneidge** / Redwood City, USA  
**Sylvie Gisselbrecht** / Paris, France  
**Bernd Groner** / Freiburg, Germany  
**Adrian L. Harris** / Oxford, England  
**Peter A. Herrlich** / Karlsruhe, Germany  
**Axel Ullrich** / Munich, Germany  
**Peter Hilgard** / Frankfurt, Germany  
**Alex Matter** / Basel, Switzerland  
**Frank P. McCormick** / Richmond, USA  
**Laurent Meijer** / Roscoff, France  
**Michael J. Morin** / Groton, USA

## SCIENTIFIC PROGRAM

### Keynote Address

**Paul Workman** / Macclesfield, England

### Growth Factor Antagonists and Growth Factor Receptor Blockers

**Enrique Rozengurt** / London, England  
**Nancy E. Hynes** / Basel, Switzerland  
**Bernd Groner** / Freiburg, Germany  
**Nicholas Lydon** / Basel, Switzerland

### Receptor and Post Receptor Signaling: Mechanisms and Targets in Cancer Chemotherapy

**Sara A. Courtneidge** / Redwood City, USA  
**Frank P. McCormick** / Richmond, USA  
**Nicholas K. Tonks** / Cold Spring Harbor, USA  
**Garth Powis** / Tucson, USA  
**Ulf R. Rapp** / Würzburg, Germany  
**Alan K. Hall** / London, England  
**Axel Ullrich** / Munich, Germany

### Cell Cycle and Cancer

**Laurent Meijer** / Roscoff, France  
**Christian Brechot** / Paris, France  
**Rolf Müller** / Marburg, Germany  
**J. Wade Harper** / Houston, USA

### Cytokine Signaling

**Sylvie Gisselbrecht** / Paris, France  
**Atsushi Miyayima** / Tokyo, Japan  
**Ian M. Kerr** / London, England  
**Gennaro Ciliberto** / Rome, Italy

### Programmed Cell Death: Role in Oncogenesis and Tumor Therapy

**Gerard I. Evan** / London, England  
**Caroline Dive** / Manchester, England  
**Douglas R. Green** / La Jolla, USA  
**Donald W. Nicholson** / Pointe-Claire-Dorval, Quebec, Canada

### Invasion and Metastasis

**Max M. Burger** / Basel, Switzerland  
**Louis F. Reichardt** / San Francisco, USA  
**John G. Collard** / Amsterdam, The Netherlands  
**Helmut Ponta** / Karlsruhe, Germany

### Angiogenesis

**Adrian L. Harris** / Oxford, England  
**Kari K. Alitalo** / Helsinki, Finland  
**Isaiah J. Fidler** / Houston, USA

*Applicants are encouraged to submit abstracts for poster presentation.*

---

### Information and Application Forms

American Association for Cancer Research  
Public Ledger Building, Suite 816  
150 South Independence Mall West  
Philadelphia, PA 19106-3483  
215-440-9300 215-440-9313 (FAX)  
E-mail: aacr@aol.com

MEETING ANNOUNCEMENT

**6<sup>TH</sup> BIENNIAL  
SYMPOSIUM ON  
MINORITIES,  
THE MEDICALLY  
UNDERSERVED &  
CANCER**

**April 23-27, 1997  
HYATT REGENCY  
WASHINGTON, D.C.  
ON CAPITOL HILL**

**THE ONLY NATIONAL MULTICULTURAL FORUM  
ADDRESSING THE CANCER CRISIS IN OUR COMMUNITIES!**

Offering scientific and educational general sessions, technical assistance and demonstration workshops, student mentoring programs, educational exhibits, library and resources center, awards programs, & networking opportunities.

**TOPICS...** Major Cancer Sites Research, Prevention and Treatment Updates, Health and Lifestyle Issues, Health Services Research, Information Technologies, Managed Care, Survivorship, Model Intervention Programs, Public Policy, & Educational Materials.

**CALL FOR ABSTRACTS DEADLINE:  
DECEMBER 16, 1996**

**Oral and Poster Presentations**

Abstracts should address the special needs of minorities and medically underserved populations.

**FOCUS...**

- 1) Basic to applied research including laboratory, clinical, and behavioral
- 2) Community-based program research and evaluation

**CONTINUING EDUCATION OPPORTUNITIES**

For abstract and registration information contact:

**RUTH SANCHEZ • 6<sup>TH</sup> BIENNIAL SYMPOSIUM**

1720 Dryden, Suite C • Houston, Texas 77030

Tel (713) 798-5383, Fax (713) 798-3990

e-mail: [symposium@bcm.tmc.edu](mailto:symposium@bcm.tmc.edu)

AFTER OCT. 1 ON WORLD WIDE WEB: <http://icc.bcm.tmc.edu/symposium/>

*PRESENTERS TO DATE:* Baylor College of Medicine • UT MD Anderson Cancer Center • Howard University Hospital • American Cancer Society • Susan G. Komen Breast Cancer Foundation • Leukemia Society of America • National Marrow Donor Program • Cancer Research Foundation of America • Kellogg Company • Bristol-Myers Squibb Company • Zeneca Pharmaceuticals • In association with the *Intercultural Cancer Council* • Centers for Disease Control and Prevention • DHHS/Office of Minority Health • Environmental Protection Agency • National Institutes of Health and a large network of national and community-based Symposium partners.



**Hit our Home Page on the World Wide Web!**

**<http://www.aacr.org>**

***Our web site features:***

**[AACR scientific meeting schedule](#)**

**[Table of Contents of AACR journals](#)**

**[Instructions for Authors](#)**

**[Information about AACR Research Fellowships and Travel Awards](#)**

***Plus . . . The latest AACR newsletter, and much more!***

# GROWTH FACTORS, SIGNALLING AND CANCER

9th Lorne Cancer Conference  
Joint Special Conference with the  
American Association for Cancer Research (AACR)

Major Sponsor: The Australian Cancer Society



February 13-16, 1997  
Erskine House  
Lorne, Victoria, Australia



## CONFERENCE CHAIRPERSONS

**Antony W. Burgess** / Melbourne, Australia  
**Webster K. Cavenee** / La Jolla, USA  
**Robert J. Coffey, Jr.** / Nashville, USA  
**Ashley R. Dunn** / Melbourne, Australia

## CONFERENCE SPEAKERS

**Allan Balmain** / Glasgow, Scotland  
**Mina J. Bissell** / Berkeley, USA  
**David Bowtell** / Melbourne, Australia  
**Webster K. Cavenee** / La Jolla, USA  
**Robert J. Coffey, Jr.** / Nashville, USA  
**Carlo M. Croce** / Philadelphia, USA  
**Phillip Crosier** / Auckland, New Zealand  
**Roger Daly** / Sydney, Australia  
**James E. Darnell** / New York, USA  
**Raymond N. DuBois** / Nashville, USA  
**Elaine V. Fuchs** / Chicago, USA  
**Jennifer Gamble** / Adelaide, Australia  
**Alan Harris** / Melbourne, Australia  
**Douglas Hilton** / Melbourne, Australia  
**Bruce Kemp** / Melbourne, Australia  
**Martin Lavin** / Brisbane, Australia  
**Jin-Ping Liu** / Melbourne, Australia  
**Tak W. Mak** / Toronto, Canada  
**Frank P. McCormick** / Richmond, USA  
**Harold L. Moses** / Nashville, USA  
**Matthew O'Connell** / Melbourne, Australia  
**Arthur B. Pardee** / Boston, USA  
**Anthony J. Pawson** / Toronto, Canada  
**Leanna Read** / Adelaide, Australia  
**Ruth Sager** / Boston, USA  
**David S. Salomon** / Bethesda, USA  
**Richard J. Simpson** / Melbourne, Australia

**Robert Sutherland** / Sydney, Australia  
**Fiona M. Watt** / London, England  
**H. Steven Wiley** / Salt Lake City, USA

*Applicants are encouraged to submit abstracts for presentation.*

---

### **Information and Application Forms (outside Australia)**

American Association for Cancer Research  
Public Ledger Building, Suite 816  
150 S. Independence Mall West  
Philadelphia, PA 19106-3483  
(215) 440-9300 (215) 440-9313 (FAX)  
Email: [aacr@aol.com](mailto:aacr@aol.com)  
AACR Website: <http://www.aacr.org>

### **In Australia:**

Mrs. Jacqui Laird  
Austin & Repatriation Medical Centre  
Repatriation Campus  
West Heidelberg, Victoria 3081  
Australia  
+(61-3) 9496-2582 +(61-3) 9496-2095 (FAX)  
Email: [jacqui@austin.unimelb.edu.au](mailto:jacqui@austin.unimelb.edu.au)