MOLECULAR CANCER RESEARCH

Defining the Molecular Basis of Malignancy and Progression

AN OFFICIAL JOURNAL OF THE

American Association for Cancer Research

Deputy Editors
Massimo Loda
Steffi Oesterreich

Senior Editors
Lawrence H. Boise
Robert G. Bristow
Jason S. Carroll
Jose R. Conejo-Garcia
Yves A. DeClerck
Francesca Demichelis
J. Alan Diehl
Heide L. Ford
W. Lee Kraus
James J. Manfredi
Steven B. McMahon
Mark A. Rubin
Toshiyasu Taniguchi
Scott A. Tomlins
Jean Y.J. Wang
Ashani T. Weeraratna

Editorial Staff
Associate Editor
Lucas J. Brand

Associate Managing Editor
Jen Zimmerman

Editorial Associate
Karen Quann

Special Content Manager
Chris Vesci

Senior Production Editor
Gregory Cosby

Editorial Board
Andrew E. Aplin
Steven E. Artandi
Rene Bernards
Houjian Cai
Carlos Caldas
George A. Calin
Charles E. Chalfant
Junjie Chen
Edwin Cheung
Scott D. Cramer
James A. DeCaprio
James V. DeGregori
Dolores Di Vizio
Yali Dou
Giulio F. Draetta
Donald L. Durden
Martin Ellers
Christine M. Eschen
Alessandro Fatatis
Felix Y. Feng
Gen-Sheng Feng
Michelangelo Fiorentino
Elsa R. Flores
Christopher A. French
Serge Y. Fuchs
Frank B. Furnari
Todd R. Golub
Joe W. Gray
H. Leighton Grimes

Thomas Helleday
Elizabeth P. Henske
Mien-Chie Hung
Jos Jonkers
Sumin Kang
Scott H. Kaufmann
Khandan Keyomarsi
Joseph L. Kissil
Ralf Kittler
Steven J. Kriedel
Natalia Kyprianou
Xiaole Shirley Liu
Gregory D. Longmore
David MacPherson
Christopher A. Maher
Maureen E. Murphy
Senthil K. Muthuswamy
Michael Ohlh
Joseph T. Opferman
Renata Pasqualini
Charles W.M. Roberts
Ze'ev A. Ronai
Martine F. Roussel
Kevin Ryan
William P. Schiemann
Felix Y. Feng
Gen-Sheng Feng
Michelangelo Fiorentino
Elsa R. Flores
Christopher A. French
Serge Y. Fuchs
Frank B. Furnari
Todd R. Golub
Joe W. Gray
H. Leighton Grimes

Molecular Cancer Research [ISSN: 1541-7786 (Print); 1557-3125 (Online)] is published monthly, one volume per year, by the American Association for Cancer Research, Inc., 615 Chestnut Street, 17th Floor, Philadelphia, PA 19106-4404. Periodicals postage paid at Philadelphia, PA, and additional mailing offices. POSTMASTER: Send address changes to Molecular Cancer Research, Member Services, AACR, 615 Chestnut Street, 17th Floor, Philadelphia, PA 19106-4404 or E-mail: membership@aacr.org. Copyright 2021 by the American Association for Cancer Research, Inc. The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).
Molecular Cancer Research publishes articles describing novel basic cancer research discoveries of broad interest to the field. Studies must be of demonstrated significance, and the Journal prioritizes analyses performed at the molecular and cellular level that reveal novel mechanistic insight into pathways and processes linked to cancer risk, development, and/or progression. Areas of emphasis include all cancer-associated pathways (including cell-cycle regulation; cell death; chromatin regulation; DNA damage and repair; gene and RNA regulation; genomics; metabolism; oncogenes and tumor suppressors; signal transduction; and tumor microenvironment), in addition to studies describing new molecular mechanisms and interactions that support cancer phenotypes.

Molecular Cancer Research is abstracted and/or indexed in Current Contents/Clinical Medicine, MEDLINE, Science Citation Index, Scopus, and Web of Science.

Submission of Manuscripts
Online manuscript submission is welcomed at https://mcr.msubmit.net. Before submitting a manuscript, please read the Instructions for Authors, which is available from the Journal’s home page at https://mcr.aacrjournals.org.

Publication Charges
Articles will be published with the understanding that the author(s) will pay both a publication fee plus a display item fee. For more detail, please see the Publication Fees and Reprints page which is available at https://aacrjournals.org/content/authors/publication-fees-and-reprints.

Subscription Information
AACR Members
AACR members may opt to receive either a print subscription with online access to content or an online-only subscription. Contact membership@aacr.org or visit the membership page at https://aacr.org for more information.

Nonmember Individuals
Subscriptions include online access only. Contacts listed below are for nonmember individual subscriptions.

USA and Rest of World (excluding Japan)
American Association for Cancer Research, 615 Chestnut Street, Philadelphia, PA 19106; 1-855-744-4667; pubsales@aacr.org.

Japan
e-support@maruzen.co.jp; journal@kinokuniya.co.jp; usaco@usaco.co.jp

Site Licenses
For information about institutional site licenses, contact pubsales@aacr.org.

Single Issue Sales/Claims
Due to the impact of COVID-19, the AACR has discontinued single issue orders and fulfillment of claims through December 31, 2021.

Advertising Information
For information about advertising in AACR journals, contact The Walchli Tauber Group, Inc., 2225 Old Emmorton Road, Suite 201, Bel Air, MD 21015; 443-512-8899; maura.paoletti@wt-group.com.

Copyright and Permissions
Content printed in or disseminated by Molecular Cancer Research is protected by copyright. Authors publishing in Molecular Cancer Research may either formally transfer copyright to the AACR or may select the Open Access option and publish the article under one of two Creative Commons Attribution licenses – Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) or Attribution 4.0 International (CC BY 4.0) – depending on funder requirements. Please visit https://aacrjournals.org/content/authors/copyright-permissions-and-access.