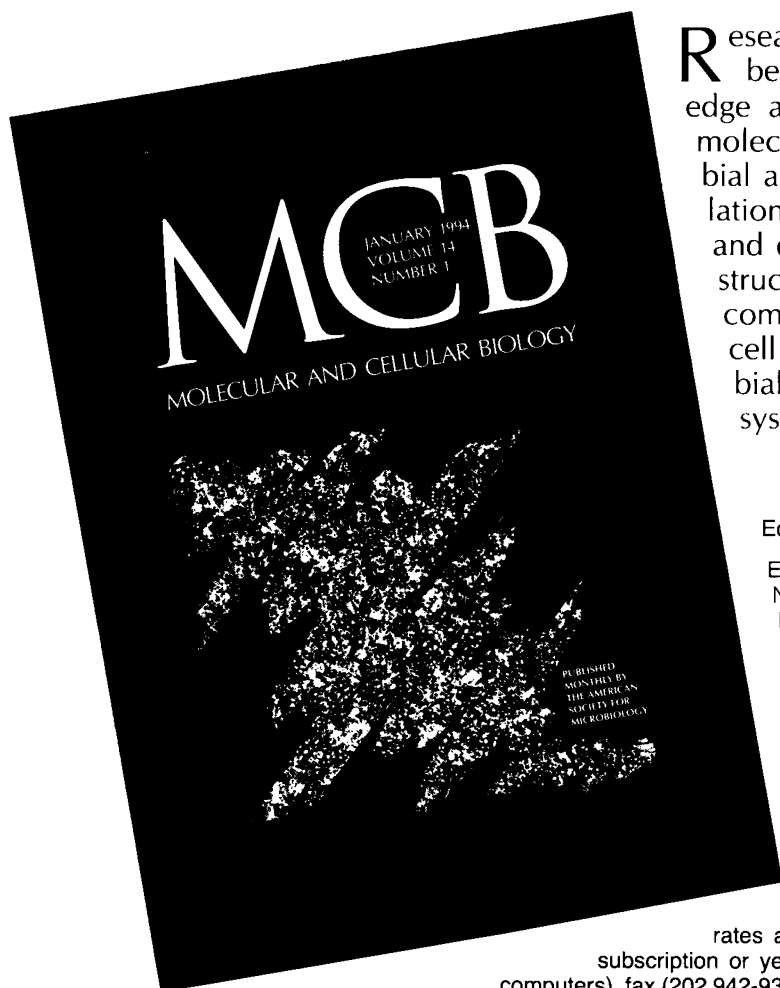


# MOLECULAR AND CELLULAR BIOLOGY...

## INDISPENSABLE



Researchers find *Molecular and Cellular Biology* to be an authoritative source of fundamental knowledge and new developments in all aspects of the molecular biology of eukaryotic cells of both microbial and higher organisms. The scope includes regulation of gene expression, transcription, cell growth and development, oncogenesis, cell and organelle structure and assembly, DNA replication and recombination, chromosome structure, and somatic cell genetics. The journal publishes work on microbial as well as higher organisms and on viral systems where the emphasis is clearly on the cell.

Editor in Chief: Alan M. Weiner

Editors: James C. Alwine, James R. Broach, Lawrence A. Chasin, Nouria Hernandez, Anita K. Hopper, Tom Kadesch, Robert E. Kingston, Adrian R. Krainer, Douglas R. Lowy, Charles J. Sherr, Nahum Sonenberg, George F. Sprague, Jr., Shirley M. Tilghman, Jonathan R. Warner, Michael J. Weber, Elton T. Young, and Kenneth S. Zaret.

ISSN 0270-7306. 8,200 pages/year. Monthly. Members of ASM may subscribe at \$80 (U.S.A.) (Canadians add 7% GST); \$105 (other countries). Subscriptions start with the January issue.

Join the American Society for Microbiology and subscribe at the **LOW MEMBER RATES** shown above for 1994. Limit is one personal subscription per member. For **NONMEMBER** rates and for information and pricing on CD-ROM versions (monthly subscription or yearly archival, for both MS-DOS and Macintosh personal computers), fax (202 942-9346) or write to the Subscriptions Unit at the address given below.

# MOLECULAR AND CELLULAR BIOLOGY

VOLUME 14 • JUNE 1994 • NUMBER 6

**Alan M. Weiner, Editor in Chief** (1995)  
*Yale University*

**James C. Alwine, Editor** (1998)  
*University of Pennsylvania School of  
Medicine*

**James R. Broach, Editor** (1995)  
*Princeton University*

**Lawrence A. Chasin, Editor** (1995)  
*Columbia University*

**Nouria Hernandez, Editor** (1998)  
*Cold Spring Harbor Laboratory*

**Anita K. Hopper, Editor** (1994)  
*The Milton S. Hershey Medical Center  
Pennsylvania State University*

**Tom Kadesch, Editor** (1996)  
*University of Pennsylvania School  
of Medicine*

**Robert E. Kingston, Editor** (1997)  
*Massachusetts General Hospital*

**Adrian R. Krainer, Editor** (1998)  
*Cold Spring Harbor Laboratory*

**Douglas Lowy, Editor** (1998)  
*National Institutes of Health*

**Charles J. Sherr, Editor** (1995)  
*St. Jude Children's Research Hospital*

**Nahum Sonenberg, Editor** (1998)  
*McGill University*

**George F. Sprague, Jr., Editor** (1998)  
*University of Oregon*

**Shirley M. Tilghman, Editor** (1998)  
*Princeton University*

**Jonathan R. Warner, Editor** (1998)  
*Albert Einstein College of Medicine*

**Michael J. Weber, Editor** (1997)  
*University of Virginia Medical  
School*

**Elton T. Young, Editor** (1998)  
*University of Washington*

**Kenneth S. Zaret, Editor** (1998)  
*Brown University*

## EDITORIAL BOARD

Frederick W. Alt (1996)  
Albert Baldwin (1996)  
Claudio Basilio (1994)  
Susan Berget (1996)  
Elizabeth H. Blackburn (1994)  
Helen M. Blau (1994)  
Jef D. Boeke (1994)  
Joseph Bolen (1996)  
Allan Bradley (1996)  
Marjorie C. Brandriss (1994)  
Rodrigo Bravo (1995)  
John B. E. Burch (1994)  
Kathryn Calame (1994)  
Judith Campbell (1995)  
John A. Carbon (1996)  
Marian Carlson (1995)  
Nam-Hai Chua (1994)  
Charles Cole (1996)  
Jonathan A. Cooper (1995)  
Gerald R. Crabtree (1996)  
Elizabeth A. Craig (1994)  
Thomas Curran (1994)  
Melvin L. DePamphilis  
(1995)  
Thomas Donahue (1995)  
Daniel J. Donoghue (1996)  
Robert N. Eisenman (1994)  
Sarah C. R. Elgin (1994)

Scott Emr (1994)  
Douglas Engel (1995)  
Beverly Errede (1996)  
Stanley Fields (1994)  
Thomas D. Fox (1996)  
Bruce Futcher (1995)  
Michael Gilman (1995)  
Stephen P. Goff (1995)  
Paula J. Grabowski (1994)  
Jack F. Greenblatt (1994)  
Rudolf Grosschedl (1995)  
Mark Groudine (1996)  
Christine Guthrie (1995)  
Joyce L. Hamlin (1996)  
Hidesaburo Hanafusa (1995)  
Edward Harlow (1996)  
Nathaniel Heintz (1994)  
Steven Henikoff (1994)  
Alan Hinnebusch (1994)  
Peter M. Howley (1994)  
Stephen H. Hughes (1995)  
James N. Ihle (1995)  
Alexander Johnson (1996)  
Mark Johnston (1994)  
Katherine A. Jones (1995)  
James T. Kadonaga (1995)  
Michael Karin (1994)  
Randall Kaufman (1994)

Jack D. Keene (1996)  
Daniel Klessig (1995)  
Monty Krieger (1995)  
Elisabeth Lacy (1996)  
Alan Lambowitz (1996)  
Lester F. Lau (1995)  
Michael Lenardo (1994)  
Arthur D. Levinson (1996)  
David Levy (1995)  
John T. Lis (1995)  
James Manley (1995)  
Kunihiro Matsumoto (1994)  
Frank McCormick (1995)  
N. Ronald Morris (1995)  
Paul Neiman (1995)  
Joseph R. Nevins (1996)  
Carol Newlon (1994)  
Eric N. Olson (1995)  
Harvey L. Ozer (1994)  
Mary Lou Pardue (1994)  
David Patterson (1994)  
Marvin R. Paule (1996)  
Tony Pawson (1994)  
Scott Powers (1994)  
John R. Pringle (1994)  
Randall R. Reed (1995)  
Robin Reed (1996)  
Steven I. Reed (1994)

Danny Reinberg (1994)  
Jasper D. Rine (1994)  
Naomi E. Rosenberg (1994)  
Nadia Rosenthal (1995)  
Matthew P. Scott (1995)  
Bart Sefton (1995)  
Harinder Singh (1995)  
Stephen Smale (1994)  
Frank Solomon (1994)  
Allan C. Spradling (1994)  
Karen U. Sprague (1995)  
Nat L. Sternberg (1995)  
Tom H. Stevens (1995)  
Bruce Stillman (1994)  
Kevin Struhl (1995)  
Bill Sugden (1994)  
Kelly G. Tatchell (1995)  
Lawrence H. Thompson (1994)  
Lex H. T. van der Ploeg (1994)  
Geoffrey Wahl (1995)  
Randolph Wall (1995)  
Peter Walter (1996)  
Jean Y. J. Wang (1996)  
Lewis T. Williams (1994)  
Fred Winston (1994)  
Richard Young (1995)  
Virginia A. Zakian (1995)  
Richard S. Zitomer (1994)

**Barbara H. Iglewski, Chairman, Publications Board**  
**Kenneth April, Production Editor**

**Linda M. Illig, Director, Journals**  
**Thomas R. May, Assistant Production Editor**

*Molecular and Cellular Biology*, a publication of the American Society for Microbiology (ASM), 1325 Massachusetts Ave., N.W., Washington, DC 20005-4171, is devoted to the advancement and dissemination of fundamental knowledge concerning the molecular biology of eukaryotic cells, of both microbial and higher organisms. Instructions to authors are published in the January issue each year; reprints are available from the editors and the Journals Division. The journal is published monthly, one volume per year. The nonmember print subscription prices are \$379 (U.S.) (Canadians add 7% GST) and \$485 (other countries) per year; single copies are \$43 (Canadians add 7% GST). The member print subscription prices are \$80 (U.S.) (Canadians add 7% GST) and \$105 (other countries); single copies are \$11 (Canadians add 7% GST). For prices of CD-ROM versions, contact the Subscriptions Unit, ASM. Correspondence relating to subscriptions, defective copies, missing issues, and availability of back issues should be directed to the Subscriptions Unit, ASM; correspondence relating to reprint orders should be directed to the Reprint Order Unit, ASM; and correspondence relating to disposition of submitted manuscripts, proofs, and general editorial matters should be directed to the Journals Division, American Society for Microbiology, 1325 Massachusetts Ave., N.W., Washington, DC 20005-4171. Phone: (202) 737-3600.

Claims for missing issues from residents of the United States, Canada, and Mexico must be submitted within 3 months after publication of the issues; residents of all other countries must submit claims within 6 months of publication of the issues. Claims for issues missing because of failure to report an address change or for issues "missing from files" will not be allowed.

Second-class postage paid at Washington, DC 20005, and at additional mailing offices.

POSTMASTER: Send address changes to *Molecular and Cellular Biology*, ASM, 1325 Massachusetts Ave., N.W., Washington, DC 20005-4171.

Made in the United States of America. Printed on acid-free paper.

Copyright © 1994, American Society for Microbiology. All Rights Reserved.

ISSN 0270-7306

CODEN: MCEBD4

The code at the top of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal use or for personal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per-copy fee through the Copyright Clearance Center Inc., 222 Rosewood Drive, Danvers, MA 01923, for copying beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

# Author Index

- Abrams, Charles S., 3752  
Akhavan-Niaki, Haleh, 3742  
Alarcon, Clara M., 3971  
Albertyn, Jacobus, 4135  
Alexander, David, 3683  
Alexandropoulos,  
Konstantina, 3676  
Alitalo, Kari, 4032  
Amendt, Brad A., 3960  
Arbuckle, Melissa, 3863  
Armand, Philippe, 4145  
Arndt, Karen M., 3719  
Attisano, Liliana, 3810  
Avni, Dror, 3822
- Bachelier, Jean-Pierre, 4044  
Bachurski, Cindy J., 4076  
Bae, Young Seuk, 4173  
Baeuerle, Patrick A., 3981  
Ballester, Roymarie, 3707  
Bardwell, A. Jane, 3569  
Bardwell, Lee, 3569  
Baron, Margaret H., 3763  
Baserga, Renato, 3604  
Beach, David, 4032  
Bhushan, Anil, 4280  
Bilyeu, Timothy, 3949  
Blackwell, Leonard J., 3993  
Bolen, Joseph B., 3729  
Bondurant, Maurice C., 4183  
Bootsma, Dirk, 4126  
Borowiec, James A., 3993  
Bosch, Anne, 4126  
Braun, Richard, 3668  
Bray, Sarah J., 4020  
Broach, J. R., 3634  
Broek, Daniel, 3707
- Calame, K. L., 4286  
Camier, Sylvie, 3842  
Camonis, Jacques, 3707  
Cantley, Lewis C., 3550  
Cárcamo, Juan, 3810  
Carlin, Cathleen, 3695  
Carraway, Kermit L., III,  
3550  
Cavallé, Jérôme, 4044  
Chang, Dau-Yin, 3949  
Chang, Lung-Ji, 3960  
Chen, Jane-Jane, 3906  
Chen, Lihua, 4203  
Cheng, Cheng, 3842  
Chida, Kazuhiro, 3782  
Chien, Kenneth R., 4269  
Cleveland, Don W., 4076  
Cole, Michael D., 4145  
Coppola, Domenico, 3604  
Coulson, Richard M. R., 4076  
Coutavas, Elias, 4216  
Cox, Adrienne D., 4108  
Cressman, Drew E., 3752  
Crosby, John S., 3906  
Curran, Tom, 4295
- Daley, John, 3884  
Dang, Chi V., 4097  
Darlington, Gretchen J., 3949  
Davey, John, 3895  
Davide, Joseph P., 4193  
DeAngelis, Tiziana, 3604  
Dellavalle, Robert P., 3646  
DePamphilis, Melvin L., 4258  
Der, Channing J., 4108
- deSolms, S. Jane, 4193  
D'Eustachio, Peter, 4108,  
4216  
Deveaud, Catherine, 3604  
Diamond, Robert H., 3752  
Didonato, Joseph A., 3915  
Dombek, Kenneth M., 3842  
Donelson, John E., 3971  
Dorshkind, Kenneth, 4087  
Drivas, George, 4108  
Drummond, Iain A., 3800  
Dufort, Daniel, 4251  
Dumenil, Guillaume, 3604  
Dunstan, Heather M., 3588,  
3596  
Dyer, Michael A., 3763
- Efstratiadis, Argiris, 3604  
Eilers, Martin, 3853, 4032  
Eki, Toshihiko, 4173  
English, Milton A., 4057  
Espinás, Maria Lluisa, 4116  
Evans, Sylvia M., 4269
- Feaver, William J., 3569  
Finke, Kerstin, 4032  
Fischer, Utz, 4160  
Flick, Jeffrey S., 3834  
Foster, David A., 3676  
Fox, Jonathan C., 4244  
Friedberg, Errol C., 3569
- Gaubatz, Stefan, 3853  
Gauen, Lisa K. Timson, 3729  
German, Michael S., 4067  
Ghysdael, Jacques, 4116  
Gibbs, Jackson B., 4193  
Gillespie, Susan K. H., 3559  
Giuliani, Elizabeth A., 4193  
Graham, Samuel L., 4193  
Graham, Suzanne M., 4108  
Grange, Thierry, 4116  
Green, Wayne F., 4183  
Grossel, Martha, 4057  
Gullick, W. G., 3550
- Hadjiolov, Asen A., 4044  
Hadjiolova, Krassimira V.,  
4044  
Hall, Ted, 3971  
Hanna-Rose, Wendy, 4057  
Hansen, Ulla, 4057  
Hehl, Adrian, 3668  
Henderson, A. J., 4286  
Hengst, Ludger, 3683  
Hesslein, David, 3960  
Hicks, Geoffrey G., 4183  
Hilton, Douglas J., 3535  
Hinrichs, Steven H., 4233  
Hirosawa, Kazushige, 3782  
Hirsch, Alec J., 4145  
Hoeijmakers, Jan H. J., 4126  
Hoffman, Patricia, 3695  
Hohmann, Stefan, 4135  
Hough, Heather, 3863  
Hsu, Anna Y., 4244  
Hsu, Karl, 3949  
Hu, Qile, 3729  
Huang, Danyang, 4233
- Ikeda, Hideo, 4173  
Iyer, Narayan, 3569  
Jacobs, Yakop, 4087
- Jiang, Hong, 3676  
Jochensen, Aart G., 4126  
Johnston, Mark, 3834  
Jones, Peter A., 4225  
Jung, Vincent, 3707
- Kacherovsky, Nataly, 3842  
Kaltschmidt, Barbara, 3981  
Kaltschmidt, Christian, 3981  
Kamps, Mark P., 3938  
Karin, Michael, 3915  
Kawasaki, Ichiro, 4173  
Kelley, Linda L., 4183  
Kim, Yoshie, 4173  
Kingston, Robert E., 4097  
Kintner, Chris R., 4280  
Kjærulff, Søren, 3895  
Klausner, Richard D., 3729  
Knapp, Anita C., 4145  
Kohl, Nancy E., 4193  
Kornberg, Roger D., 3569  
Koury, Mark J., 4183  
Kretzschmar, Marcus, 3927  
Kunsch, Charles, 3772  
Kuroki, Toshio, 3782
- Laz, Thomas M., 3752  
Lee, Karen, 3906  
Lee, Mi-Ock, 4311  
Lefebvre, Paul A., 4011  
Leiden, J., 4286  
Letourneur, François, 3729  
Licht, Jonathan D., 4057  
Lin, Herbert Y., 4280  
Lindquist, Susan, 3646  
Lockhart, Shawn R., 3623  
Lodish, Harvey F., 3535, 4280  
London, Irving M., 3906  
Lopez-Guisa, Jesus M., 3800  
Loreni, Fabrizio, 3822  
Lu, Qiang, 3938  
Lu, Ying, 3971  
Lührmann, Reinhard, 4160
- Ma, Libin, 4126  
Mackman, Nigel, 3772  
Madden, Stephen L., 3800  
Magewu, A. Nozibusiso, 4225  
Majumder, Sadhan, 4258  
Maraia, Richard J., 3949  
Massagué, Joan, 3810  
Matis, Louis A., 3729  
Mazan, Sylvie, 4044  
McDougall, S., 4286  
McGowan, Clare H., 3742  
McKeithan, Timothy W., 3915  
McKune, Keith, 4155  
Meichle, Albrecht, 3853  
Meisterernst, Michael, 3927  
Meyuhas, Oded, 3822  
Mi, Sha, 3707  
Miao, Graham G., 4295  
Miura, Masahiko, 3604  
Murakami, Akiko, 3782  
Myers, Martin G., Jr., 3577
- Nantermet, Pascale, 3772  
Nelson, Bergen, 3949  
Nelson, Christian, 4087  
Nelson, Julie A. E., 4011  
Nepveu, Alain, 4251  
Neumann, Harald, 3981  
Newton, Cathy B., 4269
- Nickoloff, Jac A., 3863  
Nielsen, Olaf, 3895  
Nishizawa, Masafumi, 3791  
Normann, Andrea, 4044
- Oeth, Paul A., 3772  
Ohno, Shigeo, 3782  
Oliff, Allen, 4193  
Orten, Dana J., 4233  
Osada, Shin-ichi, 3782
- Pan, Chin-Huei, 3683  
Papoulas, Ophelia, 4097  
Parry, Graham C. N., 3772  
Patterton, Hugh-G., 4002  
Petersen, Robert, 3646  
Pexton, Terry, 3834  
Pfahl, Magnus, 4311  
Philipp, Angelika, 4032  
Phizicky, E. M., 3634  
Pictet, Raymond, 4116  
Pierce, Jacalyn H., 3577  
Plessel, Gabriele, 4160  
Prendergast, George C., 4193  
Prigent, S. A., 3550  
Prior, Bernard A., 4135  
Prystowsky, Michael B., 4233
- Rauscher, Frank J., III, 3800  
Ray, Alpina, 4324  
Ray, Bimal K., 4324  
Reddy, Josina C., 4057  
Reddy, Leekala V., 3971  
Reed, Steven I., 3683  
Ren, Mindong, 4216  
Rhim, Edwin, 3842  
Ricupero-Hovasse, Stephanie,  
3719  
Ro, Marguerite, 4057  
Robinson, M. K., 3634  
Roditi, Isabel, 3668  
Roeder, Robert G., 3927  
Rohwer-Nutter, Patricia, 3800  
Rosen, Craig A., 3772  
Roux, Jeanne, 4116  
Rubin, Raphael, 3604  
Ruley, H. Earl, 4183  
Rupprecht, Harald D., 3800  
Rush, Mark G., 4108, 4216  
Russell, Paul, 3742  
Rymond, Brian C., 3623
- Sagara, Hiroshi, 3782  
Salbert, Gilles, 4311  
Savereide, Paul B., 4011  
Schlessinger, Joseph, 3577  
Schneider, Andreas, 4032  
Schöler, Anja, 3613  
Schüller, Hans-Joachim, 3613  
Schürch, Nadia, 3668  
Schwartz, Roland, 3884  
Sell, Christian, 3604  
Shaknovich, Rita, 4057  
Shama, Silvan, 3822  
Shapiro, Theresa A., 3660  
Shaw, Andrey S., 3729  
Shiozaki, Kazuhiro, 3742  
Shipman-Appasamy, Pierrette  
M., 4233  
Simpson, Robert T., 4002  
Slingerland, Joyce M., 3683  
Smith, Heidi M., 3884  
Soltoff, Stephen P., 3550

- Song, Jianguo, 3676  
Soupène, Eric, 4044  
Sprague, Karen U., 3588, 3596  
Stampfer, Martha R., 3683  
Staunton, Jane E., 3876  
Stelzer, Gertraud, 3927  
Stoltzfus, C. Martin, 3960  
Struhl, Kevin, 3719  
Sukhatme, Vikas P., 3800  
Sun, Xiao Jian, 3577  
Suzuki, Yasutoshi, 3782  
Suzuki, Yuriko, 3791  
Svejstrup, Jesper Q., 3569  
Swain, Judith L., 4244  
Sweeney, Rosemary, 4203  
Sweetser, Douglas B., 3863  
Tai, Li-Jung, 4269  
Tan, Valerie P., 4269  
Taub, Rebecca, 3752  
Tedder, Thomas F., 3884  
Theodorakis, Nicholas G., 4076  
Thevelein, Johan M., 4135  
Thompson, Christopher R. L., 4020  
Thukral, Sushil K., 3842  
Trepicchio, William L., 3763  
Uv, Anne E., 4020  
Van Aelst, Linda, 3707  
van der Eb, Alex J., 4126  
van Zyl, W. H., 3634  
Vásrik, Imre, 4032  
Vassella, Erik, 3668  
Ventura, Francesc, 3810  
Waldschmidt, Thomas J., 3884  
Wang, Juehu, 4067  
Wang, Ling-Mai, 3577  
Wasserman, Steven A., 3559  
Watowich, Stephanie S., 3535  
Weaver, David T., 3876  
Wechsler, Daniel S., 4097  
Weeda, Geert, 4126  
Wei, Wen, 3707  
Weis, Frances M. B., 3810  
Wekerle, Hartmut, 3981  
Westbroek, Antonia, 4126  
Whelden, Jennifer F., 3863  
White, Morris F., 3577  
Wieschaus, Eric F., 4145  
Wieser, Rotraud, 3810  
Wigler, Michael, 3707  
Winston, Fred, 3719  
Wobbe, C. Richard, 3719  
Woychik, Nancy A., 4155  
Wrana, Jeffrey L., 3810  
Wright, Dwaine D., 3938  
Xin, Xue-Qin, 4087  
Xiong, Yue, 4032  
Yao, Meng-Chao, 4203  
Yenush, Lynne, 3577  
Young, Elton T., 3842  
Young, Lisa S., 3588, 3596  
Zhang, Qiang, 3915  
Zhang, Xiao-kun, 4311  
Zhang, Yitao, 3577  
Zhou, Liang-Ji, 3884  
Zhu, Yuexin, 3729

# 1994 APPLICATION FOR FULL MEMBERSHIP IN THE AMERICAN SOCIETY FOR MICROBIOLOGY

1325 Massachusetts Ave. NW • Washington, DC 20005-4171 • (202) 942-9319 • FAX (202) 942-9347

**Eligibility** ASM welcomes to full membership anyone who is interested in its objectives and has a minimum of a bachelor's degree or equivalent in microbiology or a related field.

**Initiation** Memberships are initiated and renewed in January each year. **Unless there are directions to the contrary**, membership nominations received prior to September 1 are credited to the current year. **Nominations received after September 1 will become effective the following January.**

NAME MISS DR. MS. MRS. MR. \_\_\_\_\_  
(CIRCLE ONE) FIRST INITIAL LAST  
 MAIL NAME \_\_\_\_\_  
AS YOU WANT IT TO APPEAR ON YOUR MAILING LABEL  
 ADDRESS \_\_\_\_\_  
WHERE YOU WANT TO RECEIVE YOUR SUBSCRIPTIONS  
 \_\_\_\_\_  
 \_\_\_\_\_  
 STATE/PROVINCE ZIP/POSTAL CODE COUNTRY  
 PHONE (\_\_\_\_) \_\_\_\_\_ FAX (\_\_\_\_) \_\_\_\_\_ YEAR OF BIRTH \_\_\_\_\_ SEX \_\_\_\_\_  
 HIGHEST DEGREE \_\_\_\_\_ SUBJECT AREA \_\_\_\_\_ YEAR EARNED \_\_\_\_\_  
 EMPLOYER \_\_\_\_\_ PRESENT POSITION \_\_\_\_\_  
 SIGNATURE OF APPLICANT \_\_\_\_\_ DATE \_\_\_\_\_  
 \*NOMINATED BY \_\_\_\_\_ MEMBER # \_\_\_\_\_  
SIGNATURE OF ASM MEMBER

\*If you are not associated with an ASM nominating member, you can still apply for membership and we will contact you if there is a problem

**Member Information** How did you first learn about the ASM? (Check one):  
 A colleague     An ASM journal     An ASM Branch     Direct mail inquiry  
 A professor     A workshop, conference or meeting     An advertisement in ASM journal

**Dues** Annual dues for 1994 are \$75. Dues include ASM News (monthly) and a \$51 credit which may be deducted from the total cost of the journal(s) you purchase at the special membership rates indicated below.

**Journals**     Enclosed is my dues payment (U.S. Dollars only) ..... **\$75**  
 Please send me the following ASM journal(s) at Member Price(s):

|  | U.S.       |             |                | Non-U.S.   |             |                | Airmail | Amount |    |
|--|------------|-------------|----------------|------------|-------------|----------------|---------|--------|----|
|  | Print Only | CD-ROM Only | Print & CD-ROM | Print Only | CD-ROM Only | Print & CD-ROM |         |        |    |
| Antimicrobial Agents & Chemotherapy .....  | \$49       | \$151       | \$174          | \$84       | \$181       | \$239          | \$224   | _____  | AA |
| Applied & Environmental Microbiology ..... | \$50       | \$152       | \$175          | \$86       | \$182       | \$240          | \$221   | _____  | AE |
| Molecular & Cellular Biology .....         | \$80       | \$155       | \$200          | \$105      | \$185       | \$255          | \$445   | _____  | CB |
| Clinical Microbiology Reviews .....        | \$20       | \$75        | \$85           | \$34       | \$90        | \$114          | \$74    | _____  | CM |
| Infection & Immunity .....                 | \$51       | \$153       | \$176          | \$89       | \$183       | \$244          | \$289   | _____  | IA |
| Int'l Journal of Systematic Bact. ....     | \$35       | \$76        | \$95           | \$44       | \$91        | \$119          | \$84    | _____  | IJ |
| Journal of Bacteriology .....              | \$79       | \$154       | \$199          | \$104      | \$184       | \$254          | \$439   | _____  | JB |
| Journal of Clinical Microbiology .....     | \$49       | \$150       | \$174          | \$80       | \$180       | \$235          | \$225   | _____  | JC |
| Journal of Virology .....                  | \$81       | \$156       | \$201          | \$106      | \$186       | \$256          | \$441   | _____  | JV |
| Microbiological Reviews .....              | \$25       | \$79        | \$88           | \$39       | \$94        | \$117          | \$79    | _____  | MR |
| Clinical & Diagnostic Lab. Immunology ..   | \$40       | \$120       | \$135          | \$68       | \$140       | \$183          | \$128   | _____  | LI |
| ASM News .....                             | \$0        | N/A         | N/A            | \$0        | N/A         | N/A            | \$80    | _____  |    |

**Total Journal Fees \$** \_\_\_\_\_  
 Subtract your **\$51 Member Journals Credit**    **- \$51**  
**Subtotal** (if less than zero, enter zero) \$ \_\_\_\_\_  
**Add your \$75 Membership Dues**    **+ 75**  
**Total** (Dues plus Journals). If total is less than \$75.00, enter \$75 \$ \_\_\_\_\_

### PAYMENT IN U.S. DOLLARS MUST ACCOMPANY APPLICATION

A membership card, voting division form, ASM Placement Service Information and the journal(s) of your choice will be sent within 90 days upon completion of processing. ASM dues are tax deductible to the extent permitted by law. ASM designates \$13 of your dues for ASM News. **Rates are for 1994 only.** Applicants **must** remit in U.S. Dollars by check or draft payable to ASM through a U.S. bank located within the Continental U.S. Applicants from Canada may use check made out in U.S. Dollars and drawn on a Canadian bank or applicants may choose to pay with VISA, MasterCard, Eurocard, or American Express. If that is your preference, please fill in the box below.

|                                       |            |  |
|---------------------------------------|------------|--|
| <input type="checkbox"/> VISA #       |            | EXPIRATION DATE: _____                       |
| <input type="checkbox"/> MASTERCARD # | _____      | MO _____ YR _____                            |
| <input type="checkbox"/> AMEX #       | _____      |  |
| <input type="checkbox"/> EUROCARD #   | _____      |  |
| TODAY'S DATE                          | NAME _____ | NAME AS IT APPEARS ON YOUR CREDIT CARD _____ |
| MONTH _____ DAY _____ YEAR _____      |            |  |
| SIGNATURE _____                       |            |  |