



---

**EDITOR-IN-CHIEF:** Robert R. Rich

**MANAGING EDITOR:** M. Michele Hogan

**PUBLICATION DIRECTOR:** Kaylene J. Kenyon

**DEPUTY EDITORS**

Barbara E. Bierer  
Jeremy M. Boss  
Pamela J. Fink  
Jeffrey A. Frelinger  
Jerry R. McGhee  
Robert L. Modlin  
Hidde L. Ploegh  
Linda A. Sherman  
Thomas F. Tedder

**SECTION EDITORS**

Maria-Luisa Alegre	David M. Mosser
A. Dean Befus	Christian Munz
Francisco Borrego	Peter J. Murray
Wendy C. Brown	Gabriel Núñez
Robert H. Carter	Eugene M. Oltz
Esteban Celis	Suzanne Ostrand-Rosenberg
Youhai H. Chen	Anna Karolina Palucka
Sean P. Colgan	Bali Pulendran
Peter B. Ernst	Michael K. Racke
Thomas F. Gajewski	Charles R. Rinaldo
Nicholas R. J. Gascoigne	Mohamed H. Sayegh
Wayne W. Hancock	Liisa K. Selin
Ann B. Hill	David V. Serreze
Cory M. Hogaboam	Hao Shen
David A. Hume	Joyce C. Solheim
Gary W. Hunninghake	Herman F. Staats
Lionel B. Ivashkiv	Gregory L. Stahl
Stephen C. Jameson	Steffen Stenger
Dragana Janković	William Stohl
Mark H. Kaplan	Jill Suttles
Jay K. Kolls	Luc Van Kaer
Paul Kubes	Charles S. Via
Klaus Ley	Matthias G. von Herrath
Paul E. Love	Teizo Yoshimura
Jean S. Marshall	Juan Carlos Zúñiga-Pflücker
Penelope A. Morel	



THE JOURNAL OF  
IMMUNOLOGY

ASSOCIATE EDITORS

- |                      |                        |                         |
|----------------------|------------------------|-------------------------|
| Toru Abo             | David Dombrowicz       | Shiv Pillai             |
| Edward Abraham       | George R. Dubyak       | Seth H. Pincus          |
| Maria T. Abreu       | Mark A. Exley          | Hanspeter Pircher       |
| Adam J. Adler        | Giamila Fantuzzi       | Stephen B. Pruett       |
| Devendra K. Agrawal  | David R. Fitzpatrick   | Jennifer A. Punt        |
| Carla Jo Aldrich     | David M. Frucht        | Raghavan Raju           |
| Hydar Ali            | David A. Fruman        | Barbara Rehermann       |
| Julio Aliberti       | Dmitry I. Gabrilovich  | Mercedes Rincón         |
| Juan Anguita         | Ricardo T. Gazzinelli  | Paul F. Robbins         |
| Rui Appelberg        | Daniel E. Geraghty     | John R. Rodgers         |
| Sergei P. Atamas     | Gabriele Grunig        | Nikolaus Romani         |
| Alan G. Baxter       | Hamida Hammad          | John J. Ryan            |
| Gabrielle T. Belz    | Laura Haynes           | Subash Sad              |
| Cornelia C. Bergmann | You-Wen He             | Shimon Sakaguchi        |
| Avinash Bhandoola    | William H. Hildebrand  | Padmini Salgame         |
| Holly H. Birdsall    | Robert J. Hogan        | Stephen P. Schoenberger |
| Christian Bogdan     | Samithamby Jeyaseelan  | David M. Segal          |
| Stefan Brocke        | Dieter Kabelitz        | Luis J. Sigal           |
| Laurent Brossay      | Susan M. Kaech         | Mark K. Slifka          |
| Lisa H. Butterfield  | Pawel Kalinski         | Michael N. Starnbach    |
| James J. Campbell    | Mariana J. Kaplan      | Freda K. Stevenson      |
| Ennio Carbone        | Peter D. Katsikis      | Georg Stingl            |
| Francis R. Carbone   | Michael P. Keane       | Alexander J. Szalai     |
| Marco A. Cassatella  | Barbara L. Kee         | Philippe A. Tessier     |
| David M. Center      | Masato Kubo            | Wayne R. Thomas         |
| Andrea Cerutti       | Liwu Li                | David F. Tough          |
| Lucienne Chatenoud   | Robin G. Lorenz        | David M. Underhill      |
| Lieping Chen         | Frances E. Lund        | Derya Unutmaz           |
| Bobby J. Cherayil    | Joaquín Madrenas       | Jos A. G. van Strijp    |
| Hilde Cheroutre      | Markus Y. Mapara       | Donata Vercelli         |
| Anita S.-F. Chong    | Larry S. McDaniel      | Stanislav Vukmanovic    |
| Wen-Ming Chu         | Kingston H. Mills      | Craig M. Walsh          |
| Edward J. Collins    | Steven B. Mizel        | Stephen G. Ward         |
| Fabio Cominelli      | Atsushi Mizoguchi      | Andrew D. Wells         |
| David B. Corry       | Mansour Mohamadzadeh   | E. John Wherry          |
| Randy Q. Cron        | Lyle L. Moldawer       | Ifor R. Williams        |
| Tyler J. Curiel      | Bethany B. Moore       | Bridget S. Wilson       |
| George S. Deepe, Jr. | Muriel Moser           | Reen Wu                 |
| Frank R. DeLeo       | William J. Murphy      | Jian Zhang              |
| Alexander L. Dent    | Christopher C. Norbury | Steven F. Ziegler       |
| Raffaele De Palma    | Giorgio Parmiani       | Weiping Zou             |
| Andreas Diefenbach   | Stanford L. Peng       |                         |

THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS

OFFICERS

PRESIDENT  
Olivera J. Finn

VICE PRESIDENT  
Arthur Weiss

SECRETARY-TREASURER  
Steven J. Burakoff

PAST PRESIDENT  
Lewis L. Lanier

COUNCILLORS

Betty A. Diamond    Jeffrey A. Frelinger    Leslie J. Berg    Gail A. Bishop

EXECUTIVE DIRECTOR  
M. Michele Hogan

PUBLICATIONS COMMITTEE

CHAIRPERSON: Judy M. Teale

Judith A. Appleton  
Avery August  
Victor H. Engelhard  
JoAnne L. Flynn  
Yvonne Paterson  
Robert D. Schreiber  
Arlene H. Sharpe



THE JOURNAL OF  
IMMUNOLOGY

*Information for Subscribers*

*The Journal of Immunology* was first published in 1916. It is currently published twice per month by The American Association of Immunologists, Inc.

*Annual Subscription Rates:* See <http://www.jimmunol.org/subscriptions/> for our subscription rates.

*Change of Address:* AAI member subscribers must notify AAI 60 days in advance. Non-member subscribers must notify *The Journal of Immunology* 60 days in advance of their changes. AAI is not responsible for undeliverable issues. Duplicates can be obtained, if available, from *The Journal of Immunology* at the regular price of single issues.

*New Subscriptions and Renewals:* New subscriptions and renewals begin January 1, and expire one year later.

*AAI Member Subscribers:* For questions regarding receipt of *The Journal of Immunology* as part of your membership, please contact: AAI Membership Office, 9650 Rockville Pike, Bethesda, MD 20814-3994; phone 301-634-7195; fax 301-634-7733; email: [members@aai.org](mailto:members@aai.org).

*Microfilm:* For availability, contact: *The Journal of Immunology*, 9650 Rockville Pike, Bethesda, MD 20814-3994.

*Reprints:* Reprints of individual articles are available only from authors.

**Cadmus Communications, a Cenveo Company**

COLUMBIA, MARYLAND 21046 U.S.A.