

EDITORIAL BOARD

Editor-in-Chief

Naoyuki TANIGUCHI (Suita)

Editors

<i>JB Reviews</i>	Sen-itiroh HAKOMORI (Seattle) Atsushi MIYAJIMA (Tokyo)
<i>Biochemistry</i>	Gerald W. HART (Baltimore) Seiki KURAMITSU (Toyonaka) Bettie Sue MASTERS (San Antonio) Akemi SUZUKI (Hiratsuka)
<i>Molecular Biology</i>	Walter NEUPERT (München) Yoshihide TSUJIMOTO (Suita)
<i>Cell</i>	Frank D. BÖHMER (Jena) Kohei MIYAZONO (Tokyo)
<i>Biotechnology</i>	Chris Y. H. TAN (Vancouver, Canada) Takuya UEDA (Tokyo)

Managing Editors

Ikuko HARA-NISHIMURA (Kyoto) Yoshinobu NAKANISHI (Kanazawa)

Associate Editors

<i>JB Reviews</i>	Anindya DUTTA (Charlottesville) Tatsuro IRIMURA (Tokyo) Shigeaki KATO (Tokyo)	Hisao MASAI (Tokyo) Hiroshi OHNO (Yokohama)
<i>Biochemistry</i>	Fumio ARISAKA (Yokohama) Vytas A. BANKAITIS (Chapel Hill) Junichi FUJII (Yamagata) Yuji GOTO (Suita) Koichi HONKE (Nankoku) Shoichi ISHIURA (Tokyo) Johannis P. KAMERLING (Utrecht)	Nobuo KAMIYA (Osaka) Makoto KIMURA (Fukuoka) Ken KITAJIMA (Nagoya) Katsuyuki TANIZAWA (Ibaraki) Masato UMEDA (Uji) Yuriko YAMAGATA (Kumamoto) Takehiko YOKOMIZO (Fukuoka) Pradman K. QASBA (Frederick) Takashi SUDA (Kanazawa) Takeshi TODO (Suita)
<i>Molecular Biology</i>	Yukio FUJIKI (Fukuoka) Kenji KOHNO (Ikoma) Bok Luel LEE (Busan) Shoko NISHIHARA (Hachioji) Suk-Chul BAE (Gaesindong) Nils BROSE (Göttingen) Yutaka HATA (Tokyo) Shigeki HIGASHIYAMA (Toon) Takeshi IWATSUBO (Tokyo) Akira KIKUCHI (Hiroshima)	Eunjoon KIM (Daejeon) Tohru KOZASA (Chicago) Aristidis MOUSTAKAS (Uppsala) Atsuko SEHARA-FUJISAWA (Kyoto) Toshiyuki TAKAI (Sendai)
<i>Cell</i>	Yo KIKUCHI (Toyohashi) Sunghoon KIM (Seoul) Włodzimierz J. KRZYŻOSIAK (Poznan) Keiko MIZUTA (Higashihiroshima)	Ken-ichi NISHIYAMA (Tokyo) Kouhei TSUMOTO (Kashiwa) Kazuo YAMAMOTO (Tokyo)
<i>Biotechnology</i>		

Advisory Board

<i>Biochemistry</i>	Junken AOKI (Sendai) Jin Won CHO (Seoul) Catherine E. COSTELLO (Boston) Jeffrey D. ESKO (La Jolla) Jianguo GU (Sendai) Yann GUÉRARDEL (Villeneuve d'Ascq) Robert S. HALTZWANGER (Stony Brook) Toshiharu HASE (Suita) Yasuhiro HASHIMOTO (Fukushima) Kihachiro HORIIKE (Otsu) Yoshizumi ISHINO (Fukuoka) Makoto ITO (Fukuoka) Kenji KADOMATSU (Nagoya)	Reiji KANNAGI (Nagoya) Shun-ichiro KAWABATA (Fukuoka) Ikuro KAWAGISHI (Koganei) Gota KAWAI (Narashino) Hiroshi KITAGAWA (Kobe) Masayasu KOJIMA (Kurume) Hiroki KONDO (Izuka) Michiko KONNO (Tokyo) Yasunori KOZUTSUMI (Kyoto) Ryoji MASUI (Toyonaka) Catharina Taiko MIGHTA (Yamaguchi) Toru NAKAYAMA (Sendai) Hisashi NARIMATSU (Tsukuba)	Takeshi NIKAWA (Tokushima) Haruko OGAWA (Tokyo) Toshihisa OHSHIMA (Fukuoka) Michael PIERCE (Athens) Yoshihiro SAMBONGI (Higashi-Hiroshima) Ryo TAGUCHI (Tokyo) Yoshinao WADA (Izumi) Keisuke WAKASUGI (Tokyo) Akihiko YOSHIMURA (Fukuoka) Tohru YOSHIMURA (Nagoya) Junn YANAGISAWA (Tsukuba)
<i>Molecular Biology</i>	Masato ENARI (Tokyo) Toshiya ENDO (Nagoya) Masatoshi FUJITA (Tokyo) Tetsuro KOKUBO (Yokohama) Won-Jae LEE (Seoul) Roland LILL (Marburg)	Katsuyoshi MIHARA (Fukuoka) Masayuki MIURA (Tokyo) Masamichi MURAMATSU (Kanazawa) Kazuhiro NAGATA (Kyoto) Kunihiro OHTA (Tokyo) Takashi OSUMI (Hyogo)	Kazuhiro SAKAMAKI (Kyoto) Shigeomi SHIMIZU (Tokyo) Kaoru SUGASAWA (Kobe) Minoru TAKATA (Kyoto) Tohru YOSHIIHISA (Nagoya)

Cell

Tomoichiro ASANO (Hiroshima)
Mitsunori FUKUDA (Sendai)
Masato HASEGAWA (Tokyo)
Thorsten HEINZEL (Jena)
Hidenori ICHJO (Tokyo)
Yasuki ISHIZAKI (Maebashi)
Bong-Kiun KAANG (Seoul)
Dimitris KARDASSIS (Heraklion)

Michael KLAGSBRUN (Boston)
Hitoshi KUROSE (Fukuoka)
Noboru MIZUSHIMA (Tokyo)
Tatsushi MUTA (Sendai)
Hideaki NAGASE (London)
Koh-ichi NAGATA (Kasugai)
Kazuhisa NAKAYAMA (Kyoto)
Hitoshi OHMORI (Okayama)

Chie SAKANAKA (South San Francisco)
Takuya SASAKI (Tokushima)
Kiyotoshi SEKIGUCHI (Suita)
Roger K. SUNAHARA (Ann Arbor)
Kazuma TANAKA (Sapporo)
Keiko UDAKA (Nankoku)
Tamotsu YOSHIMORI (Suita)

Biotechnology

Toshihiko EKI (Toyoashi)
Yoshihisa HAGIHARA (Ikeda)
Jun HIRABAYASHI (Tsukuba)

Mitsuhiro ITAYA (Tsuruoka)
Yasushi KAWATA (Tottori)
Katsumi MAENAKA (Fukuoka)

Makoto MAKISHIMA (Tokyo)
Tomoaki MATSUURA (Suita)
Hiroshi UEDA (Tokyo)

This JOURNAL, devoted to publication of original papers in the fields of biochemistry, molecular biology, cell, and biotechnology, was founded in 1922.

The JOURNAL is published monthly, with two volumes per annum.

All correspondences concerning this JOURNAL should be addressed to: The Japanese Biochemical Society, Ishikawa Building-3f, 25-16, Hongo 5-chome, Bunkyo-ku, Tokyo 113-0033, Japan. Tel. +81-3-3815-1913, Fax. +81-3-3815-1934

Subscription

Annual subscription rate (Volume 143 and Volume 144, 2008)

Print and Online £231.00/ \$439.00/ €347.00

Online Only £219.00 /\$416.00 /€329.00

Print Only £219.00 /\$416.00/ €329.00

Methods of Payment

- (1) By cheque in £ sterling drawn on a UK bank, € Euro drawn on a European bank, or in \$ US drawn on a US bank. Cheques should be made payable to Oxford Journals. All orders should be accompanied by full payment and sent to your nearest Oxford Journals office.
- (2) By bank transfer to Barclays Bank Plc, Oxford Group Office, Oxford (bank sort code: 20-65-18) (UK). Overseas only: SWIFT BARC GB 22.
 - GB £ Sterling to a/c no 70299332 – IBAN GB89BARC20651870299332
 - US \$ Dollars to a/c no 66014600 – IBAN GB27BARC20651866014600
 - EU € Euros to a/c no 78923655 – IBAN GB16BARC20651878923655Please quote our renewal/invoice number and subscriber (if known) when making payment.
- (3) By MasterCard, Switch/Maestro, Visa, or American Express.
- (4) By charge card: automatic annual charge to either Visa or MasterCard is available. Please contact us for further details.

Agencies

Oxford University Press
Journals Subscription Department
Great Clarendon Street
Oxford, OX2 6DP, UK

Japan Publications Trading Co., Ltd.
P.O. Box 5030, Tokyo International,
2-1, Sarugaku-cho 1-chome, Chiyoda-ku,
Tokyo 101-0064, Japan

Maruzen Co., Ltd.
P.O. Box 5050, Tokyo International,
100-3199, Japan

All back issues of the *Journal of Biochemistry* from Volume 1, 1922, are available from our agency: TOA BOOK EXPORTS, INC., Ikebukuro 4-13-4, Toshima-ku, Tokyo 171-0014, Japan. Tel. +81-3-3985-4701, Fax. +81-3-3985-4703

Copyright © 2008, by the Japanese Biochemical Society

Published in association with Oxford University Press

Notice on photocopying With the exception of cases permitted by the Copyrights Law, such as the photocopying services provided by the libraries duly designated by government ordinance and photocopying for lectures by teachers at educational institutions, the photocopying of any part of this publication without explicit consent of the relevant author is a violation of the law. To legally photocopy any part of this publication, the person wishing to photocopy, or the corporation or organization employing such person, is recommended to enter into a comprehensive copyright approval agreement with the following trustee of copyrights from the authors:

(Except in the U.S.A.) The Copyright Council of the Academic Societies, 41-6, Akasaka 9-chome, Minato-ku, Tokyo 107-0052, Japan. Phone: 3-3475-4621, Fax: 3-3403-1738

(In the U.S.A.) Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, U.S.A. Phone: 978-750-8400, Fax: 978-646-8600

NOTES TO CONTRIBUTORS

The JOURNAL OF BIOCHEMISTRY publishes contributions written in English and submitted in the form of (1) Regular paper or (2) Rapid communication, covering materials requiring prompt publication.

The submission of a manuscript implies that the work has not been published previously, that it is not under consideration for publication elsewhere, and that if it is accepted for publication, the author(s) will grant an exclusive license to publish to the Japanese Biochemical Society.

Manuscripts should be succinct. No length limit is set for a Regular paper, whereas a Rapid communication must not exceed 3.5 printed pages. Author charges consist of Color Charge and Offprint Charge, but there are no Page Charges.

Submission should be made through the online submission system at <<http://mc.manuscriptcentral.com/jb>>. We no longer handle submission by post. For further information on online submission, please see: Instructions for Online Submission <http://www.oxfordjournals.org/jbchem/for_authors/auth1.html>.

Reprints can be purchased, in lots of 50 copies, at cost prices. The orders should be submitted with the returned proof.

When submitting manuscripts, authors are asked to select one of the following four categories and its topic under which the submission should be reviewed. Please indicate this selection on the title page of the manuscript. Authors may suggest names and addresses of persons suitable for reviewing their submitted works.

Fields and topics to be selected:

Fields: Topics

Biochemistry: Biochemistry General

- Protein Structure
- Protein Interaction and Recognition
- Biomolecular Structures
- Nucleic Acid and Peptide Biochemistry
- Glycobiology and Carbohydrate Biochemistry
- Lipid Biochemistry
- Enzymology
- Enzyme Inhibitors
- Biochemistry of Proteolysis
- Metabolism and Bioenergetics
- Reactive Oxygen and Nitrogen Species
- Biochemistry in Cell Membranes
- Biochemistry in Diseases and Aging
- Neurochemistry
- Immunochemistry
- Physiological Chemistry
- Biochemical Pharmacology
- Analytical Biochemistry

Molecular Biology: Molecular Biology General

- Genes and Other Genetic Materials
- Replication and Recombination
- Gene Expression
- Protein Synthesis
- DNA-Protein Interaction
- RNA Processing
- Genetic Engineering
- Genetic Diseases
- Molecular Genetics
- Molecular Evolution
- Bioinformatics

Fields: Topics

Cell: Cell General

Biomembranes, Organelles, and Protein Sorting
Muscles
Cytoskeleton, Cell Motility, and Cell Shape
Extracellular Matrices and Cell Adhesion Molecules
Cell Cycle
Receptors and Signal Transduction
Stress Proteins and Molecular Chaperones
Cell Death
Differentiation, Development, and Aging
Neurobiology
Tumor and Immunology

Biotechnology: Biotechnology General

Biomimetic Chemistry
Biomaterials
Bioactive Substances
Synthetic Peptides and Oligonucleotides
Gene and Protein Engineering
RNA Technology
Glycotechnology
Immunological Engineering
Cell and Tissue Engineering
Transgenic Technology
Gene Delivery Systems
Drug Delivery Systems
Biosensor and Bioelectronics
New Devices in Biotechnology
Environmental Technology

“Instructions to Authors” are printed in the January and July issues of this JOURNAL every year. Please conform to these instructions when submitting manuscripts. Reprint of “Instructions to Authors” is available.

New Announcement (Limited Publication)

JOURNAL OF BIOCHEMISTRY, GENERAL CONTENTS

Volume 37–66 (1950–1969) Cloth Bound
700 page, including Author and Subject
Index US \$90.00

Volume 67–98 (1970–1985) Cloth Bound
1000 page, including Author and Subject
Index US \$120.00

Now available through: TOA BOOK EXPORTS, INC.,
Ikebukuro 4-13-4, Toshima-ku, Tokyo 171-0014, Japan.

Author Index

- Arakawa, T., 363
Asahi, S., 323
- Bhakuni, V., 295
Bhatt, A.N., 295
- Capobianco, L., 389
Cappello, A.R., 389
Carrisi, C., 389
Cenci, G., 389
- Dolce, V., 389
- Fujita, M., 287
Furukawa, H., 393
- Grabowska, J., 409
- Höti, N., 357
Han, M., 313
Hashimoto, S., 335
Hata, K., 279
Hirano, A., 363
Huang, X., 357
- Iacopetta, D., 389
Imaoka, S., 335
Ishihara, Y., 323
Ito, S., 305
Iwasaki, M., 323
- Kinoshita, K., 383
Kinoshita, T., 287
Klumpp, S., 343
Krieglstein, J., 343
Kubo, Y., 349
- Li, Y., 371
- Madeo, M., 389
Maeda, Y., 287
Mazzeo, G., 389
Miltyk, W., 409
Mitsuda, M., 323
Miyagi, T., 279
Morciano, P., 389
- Nagao, T., 399
Nakayama-Hamada, M., 393
- Nishino, N., 371
Nishiura, H., 371
- Oda, Y., 371
Ohba, T., 349
Okada, K., 335
Oshima, T., 383
Ota, Y., 371
- Palka, J.A., 409
Pallast, S., 343
- Rose, K., 343
- Sakai, H., 305
Sami, S., 357
Sato, Y., 399
Shen, Z., 357
Shida, Y., 383
Shimizu, M., 383
Shimizu-Ibuka, A., 305
Shiozaki, K., 279
Shiraki, K., 363
Surazynski, A., 409
Suzuki, A., 393
- Suzuki, Kazuhiro, 399
Suzuki, Kenichiro, 305
Suzuki, T., 399
- Takagi, K., 371
Takahashi, N., 349
Tanabe, S., 399
Taniguchi, K., 371
Tokita, K., 371
- Wada, T., 279
Wada, Y., 323
Wang, C., 313
Watanabe, M., 323
Wen, J.-K., 313
- Xu, H.-M., 357
- Yamada, R., 393
Yamagishi, A., 383
Yamaguchi, K., 279
Yamaguchi, T., 399
Yamamoto, K., 393
Yamamoto, T., 371
- Zhao, X.-M., 313

COVER: More than 100 mammalian proteins are post-translationally modified by glycosylphosphatidylinositol (GPI) at their C-termini and are anchored to the cell surface membrane via the lipid portion. GPI-anchored proteins (GPI-APs) from nucleated cells usually have two saturated chains in the lipid portion whereas those from human erythrocytes have an unsaturated chain in the sn2 position and inositol-linked palmitoyl chain. Biosynthesis of GPI is initiated by transfer of GlcNAc to PI. First two steps occur on the cytoplasmic side of the ER membrane whereas later steps, including GPI-transamidase-mediated attachment to proteins, occur on the luminal side. The lipid portion of GPI-APs is remodeled to have two saturated chains before they become associated with membrane microdomains or membrane rafts enriched in sphingolipids and cholesterol. [See Kinoshita *et al.*; p. 287].