

January 25, 1993

VOLUME 268

NUMBER 3

ISSN 0021-9258
JBCHA3 268(3) 1501-2268 (1993)

NO - AGRICULTURAL
LIBRARY
FEB 1 1993
UNIVERSITY OF CALIFORNIA
LIBRARY

THE Journal of Biological Chemistry

Published by the American Society for Biochemistry
and Molecular Biology

FOUNDED BY CHRISTIAN A. HERTER

DOCKET
A L A R M

Find authenticated court documents without watermarks at docketalarm.com.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

FOUNDED BY CHRISTIAN A. HERTER AND SUSTAINED IN PART BY THE CHRISTIAN A. HERTER MEMORIAL FUND

PUBLISHED BY THE AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY, INC.

EDITORIAL BOARD/1993

Herbert Tabor, *Editor*

Ralph A. Bradshaw, *Associate Editor*
John H. Exton, *Associate Editor*
Quentin H. Gibson, *Associate Editor*
Alan G. Goodridge, *Associate Editor*
Richard W. Hanson, *Associate Editor*
Robert L. Hill, *Associate Editor*
C. H. W. Hirs, *Associate Editor*
Edward D. Korn, *Associate Editor*
Edwin G. Krebs, *Associate Editor*

I. Robert Lehman, *Associate Editor*
Jerry B. Lingrel, *Associate Editor*
Alton Meister, *Associate Editor*
Stephen M. Prescott, *Associate Editor*
Robert T. Schimke, *Associate Editor*
Robert D. Simoni, *Associate Editor*
Kensal E. van Holde, *Associate Editor*
Martha Vaughan, *Associate Editor*

William S. Allison
Paul M. Anderson
Mario Ascoli
Joseph Avruch
Bernard M. Babiou
Jacques U. Baenziger
Robert A. Bambara
Heinz Baumann
Joseph A. Beavo
William T. Beck
Vann Bennett
Dale J. Benos
Merton Bernfield
Kenneth I. Berns
Stephen M. Beverley
Michael Blackburn
Perry J. Blackshear
Kenneth M. Blumenthal
Stephen Bocckino
James W. Bodley
Gary M. Bokoch
Mark Bothwell
Barry J. Bowman
Alan R. Brash
David L. Brautigam
Joan Heller Brown
George J. Broze
Joseph Bryan
Peter M. J. Burgers
Kevin P. Campbell
John R. Cann
Roderick A. Capaldi
Gerald M. Carlson
George M. Carman
John E. Casnellie
Kevin Catt
William A. Catterall
Richard A. Cerione
Lawrence Chan
Moses V. Chao
William W. Chin
P. Boon Chock
Frank C. Church
Mary Sue Coleman
J. D. Corbin
Michael M. Cox
Richard L. Cross
Dennis D. Cunningham
Norman P. Curthoys
Michael E. Dahmus
Larry W. Daniel
Roger J. Davis
Glyn Dawson

Robert Deschenes
Murray P. Deutscher
J. Fred Dice
Jack E. Dixon
Michael G. Douglas
William Dowhan
George R. Dubyak
Peter A. Edwards
Duane C. Eichler
Alan D. Elbein
Marshall Elzinga
Jeffrey D. Esko
Charles T. Esmon
Alexandre Fabiato
Peter H. Fishman
Frank A. Fitzpatrick
Michael Forgac
Minoru Fukuda
David L. Garbers
Robert L. Geahlen
Marvin C. Gershengorn
Donald L. Gill
Reid Gilmore
Mark H. Ginsberg
Alexander N. Glazer
Claiborne V. C. Glover III
Irwin J. Goldstein
Myron F. Goodman
Jeffrey I. Gordon
Daryl K. Granner
Donald J. Graves
Owen W. Griffith
Richard W. Gross
Lawrence Grossman
Lorraine J. Gudas
F. Peter Guengerich
Gordon Hager
Harry T. Haigler
Sen-itiroh Hakomori
Yusuf A. Hannun
Robert A. Harris
Gerald W. Hart
Frederick C. Hartman
G. Wesley Hatfield
Gary B. Henderson
Susan A. Henry
Mark A. Hermodson
Harvey R. Herschman
John W. B. Hershey
Ronald W. Holz
M. Marlene Hosey
Billy G. Hudson
James B. Hurley

Thomas L. Innerarity
Paul A. Insel
Ravi Iyengar
Susan Jaken
Leonard S. Jefferson
Eric F. Johnson
Suresh K. Joseph
Laurie S. Kaguni
Joseph Katz
Randal Kaufman
Yoshito Kaziro
Thomas J. Kelly, Jr.
Robert G. Kemp
Byron Kemper
Michael S. Kilberg
Randall L. Kincaid
David G. Klapper
Joseph S. Krakow
Thomas A. Kunkel
Michael M. C. Lai
J. David Lambeth
Y. C. Lee
Jonathan Leis
Warren J. Leonard
John D. Lipscomb
Darrell T. Liu
Mark O. Lively
Timothy M. Lohman
Martin G. Low
John B. Lowe
Kenneth L. Luskey
Philip W. Majerus
Craig C. Malbon
James L. Maller
Peter C. Maloney
James M. Manning
Thomas F. J. Martin
Marino Martinez-Carrion
Joan Massagué
Kathleen S. Matthews
Richard A. Maurer
J. Denis McGarry
Thomas M. McIntyre
G. Stanley McKnight
Gerhard Meissner
John P. Merlie
Alfred H. Merrill, Jr.
Richard J. Miller
Keith Moffat
William T. Morgan
Dale W. Mosbaugh
Deane F. Mosher
Joel Moss

Angus C. Nairn
Neil M. Nathanson
Michael E. Nesheim
Richard R. Neubig
Christopher B. Newgard
J. Wylie Nichols
Timothy W. Nilsen
John H. Nilson
Jerrold M. Olefsky
Eric N. Olson
Merle S. Olson
Steven T. Olson
Charles P. Ordahl
Mulchand S. Patel
John T. Penniston
Roger M. Perlmutter
Suzanne R. Pfeffer
Michael D. Pierschbacher
Linda J. Pike
Paul F. Pilch
Simon J. Pilgis
Bryce V. Plapp
Susan Powers-Lee
Richard L. Proia
Christian R. H. Raetz
Martin C. Rechsteiner
John P. Reeves
Sue Goo Rhee
Robert E. Rhoads
John P. Richardson
Jeffrey Robbins
Anita B. Roberts
Janet D. Robishaw
Thomas E. Roche
Paul R. Rosevear
Richard A. Roth
Lucia B. Rothman-Denes
Harry Roy
Peter Rubenstein
David W. Russell
John C. Saari
J. Evan Sadler
Lawrence E. Samelson
David Samols
Charles E. Samuel
Carl Schildkraut
Verne Schirch
Keith K. Schlender
Robert D. Schreiber
Nancy B. Schwartz
James R. Sellers
Ganes C. Sen
Alan E. Senior

Jules A. Shafer
Joel H. Shaper
Stephen B. Shears
Thomas J. Silhavy
S. Stoney Simons
Randal A. Skidgel
Carolyn W. Slayman
Donald M. Small
William L. Smith
Martin D. Snider
Arthur A. Spector
Allen M. Spiegel
Linda L. Spemullli
E. Richard Stanley
James V. Staros
Donald F. Steiner
Howard M. Steinman
Paul C. Sternweis
Richard L. Stevens
Gary L. Stiles
Jeffry B. Stock
Daniel R. Storm
JoAnne Stubbe
James T. Stull
Kathleen J. Sweadner
Howard S. Tager
Alan R. Tall
Marvin L. Tanzer
John M. Taylor
Palmer Taylor
Kenneth A. Thomas
Larry S. Tobacman
Douglas M. Tollefsen
Howard C. Towle
James Travis
Robert B. Trimble
Frederic A. Troy II
Roger Y. Tsien
Salvatore J. Turco
Axel Ullrich
Richard B. Vallee
Dennis E. Vance
Joseph J. Villafranca
Dennis R. Voelker
B. Moseley Waite
John L. Wang
Michael R. Waterman
Paul H. Weigel
William W. Wells
Morris F. White
James P. Whitlock, Jr.
Savio L. C. Woo
Henry C. Wu

Biological Chemistry

Copyright © 1993 by the American Society for Biochemistry and Molecular Biology, Inc.
428 East Preston St., Baltimore, MD 21202 U.S.A.

CONTENTS*

MINIREVIEW

- 1501 **The MARCKS family of cellular protein kinase C substrates.** *Perry J. Blackshear*

COMMUNICATIONS

- 1505 **Promoter activity of human renin 5'-flanking DNA sequences is activated by the pituitary-specific transcription factor Pit-1.** *Jidong Sun, Carole Oddoux, Amy Lazarus, Matthew T. Gilbert, and Daniel F. Catanzaro*
- 1509 **Cloning and expression of a mammalian Na⁺/amino acid cotransporter with sequence similarity to Na⁺/glucose cotransporters.** *Cheng-Te Kong, Shaw-Fang Yet, and Julia E. Lever*
- 1513 **Disruption of potential sites for N-linked glycosylation does not impair hormone binding to the lutropin/choriogonadotropin receptor if Asn-173 is left intact.** *Xuebo Liu, David Davis, and Deborah L. Segaloff*
- 1517 **Small heat shock proteins are molecular chaperones.** *Ursula Jakob, Matthias Gaestel, Katrin Engel, and Johannes Buchner*
- 1521 **The biological relevance of the binding of calcium ions by inositol phosphates.** *Brian M. Luttrell*

ARTICLES

- 1525 **Conformational, thermodynamic, and stability properties of *Manduca sexta* apolipoprotein III.** *Robert O. Ryan, Kim Oikawa, and Cyril M. Kay*
- 1531 **Evidence that energization of the chloroplast ATP synthase favors ATP formation at the tight binding catalytic site and increases the affinity for ADP at another catalytic site.** *Jun-Mei Zhou and Paul D. Boyer*
- 1539 **Studies on the mechanism of oxidative phosphorylation. Different effects of F₀ inhibitors on unisite and multisite ATP hydrolysis by bovine submitochondrial particles.** *Akemi Matsuno-Yagi and Youssef Hafeji*
- 1546 **Evidence for specific base catalysis in N-dealkylation reactions catalyzed by cytochrome P450 and chloroperoxidase. Differences in rates of deprotonation of aminium radicals as an explanation for high kinetic hydrogen isotope effects observed with peroxidases.** *Osamu Okazaki and F. Peter Guengerich*
- 1553 **pH-dependent stability and membrane interaction of the pore-forming domain of colicin A.** *Arturo Muga, Juan M. Gonzalez-Manas, Jeremy H. Lakey, Franc Pattus, and Witold K. Surewicz*
- 1558 **Slow binding of ATP to noncatalytic nucleotide binding sites which accelerates catalysis is responsible for apparent negative cooperativity exhibited by the bovine mitochondrial F₁-ATPase.** *Jean-Michel Jault and William S. Allison*
- 1567 **Cell penetration of diphtheria toxin. Reduction of the interchain disulfide bridge is the rate-limiting step of translocation in the cytosol.** *Emanuele Papini, Rino Rappuoli, Marta Murgia, and Cesare Montecucco*
- 1575 **Genetic and immunological analyses of the cyanobacterium *Synechocystis* sp. PCC 6803 show that the protein encoded by the *psbJ* gene regulates the number of photosystem II centers in thylakoid membranes.** *Lisbet K. Lind, Vipula K. Shukla, Karin J. Nyhus, and Himadri B. Pakrasi*

- 1580 **Growth factors that repress myoblast differentiation sustain phosphorylation of a specific site on histone H1.** *Francesca Cole, Thomas M. Fasy, Sunkara S. Rao, Mary Anne de Peralta, and D. Stave Kohtz*
- 1586 **Histamine induces a gene-specific synthesis regulation of secretogranin II but not of chromogranin A and B in chromaffin cells in a calcium-dependent manner.** *Johann W. Bauer, Rudolf Kirchmair, Claudia Egger, and Reiner Fischer-Colbrie*
- 1590 **Mutations of the molecular chaperone protein SecB which alter the interaction between SecB and maltose-binding protein.** *Pamela M. Gannon and Carol A. Kumamoto*
- 1596 **The number of amphipathic α -helical segments of apolipoproteins A-I, E, and A-IV determines the size and functional properties of their reconstituted lipoprotein particles.** *Ana Jonas, Armin Steinmetz, and Lisa Churgay*
- 1603 **Chemical modification of bacteriophage T4 deoxynucleotide kinase. Evidence of a single catalytic region.** *George S. Brush and Maurice J. Bessman*
- 1610 **Effects of intracellular amino acid concentrations, cyclic AMP, and dexamethasone on lysosomal proteolysis in primary cultures of perinatal rat hepatocytes.** *Pietjan J. E. Blommaert, Duco Zonneveld, Alfred J. Meijer, and Wouter H. Lamers*
- 1618 **α - and β -xylosides alter glycolipid synthesis in human melanoma and Chinese hamster ovary cells.** *Hudson H. Freeze, Deepak Sampath, and Ajit Varki*
- 1628 **Identification of vicinal thiols of phosphoenolpyruvate carboxykinase (GTP).** *Cristina T. Lewis, Jerome M. Seyer, Robert G. Cassell, and Gerald M. Carlson*
- 1637 **Horseradish peroxidase-catalyzed two-electron oxidations. Oxidation of iodide, thioanisoles, and phenols at distinct sites.** *Robert Z. Harris, Sherri L. Newmyer, and Paul R. Ortiz de Montellano*
- 1646 **The *Streptococcus sanguis* platelet aggregation-associated protein. Identification and characterization of the minimal platelet-interactive domain.** *Pamela R. Erickson and Mark C. Herzberg*
- 1650 **Repair of individual DNA strands in the hamster dihydrofolate reductase gene after treatment with ultraviolet light, alkylating agents, and cisplatin.** *Alfred May, Rodney S. Nairn, Diane S. Okumoto, Karsten Wassermann, Tinna Stevnsner, Jennifer C. Jones, and Vilhelm A. Bohr*
- 1658 **Phycobilins of cryptophycean algae. Novel linkage of dihydrobiliverdin in a phycoerythrin 555 and a phycocyanin 645.** *David E. Wemmer, Gary J. Wedemayer, and Alexander N. Glazer*
- 1670 **Uptake of high density lipoprotein cholesterol ester by HepG2 cells involves apolipoprotein E localized on the cell surface.** *Lorraine Leblond and Yves L. Marcel*
- 1677 **Isozyme-specific modules on human aldolase A molecule. Isozyme group-specific sequences 1 and 4 are required for showing characteristics as aldolase A.** *Kiyohisa Motoki, Yoshihiko Kitajima, and Katsuji Hori*
- 1684 **Precise location of the Cu(II)-inhibitory binding site in higher plant and bacterial photosynthetic reaction centers as probed by light-induced absorption changes.** *Inmaculada Yruela, Miguel Alfonso, Iñaki Ortiz de Zarate, Guillermo Montoya, and Rafael Picorel*

- 1690 **Cooperative phenomena in binding and activation of *Bordetella pertussis* adenylate cyclase by calmodulin.** Ahmed Bouhss, Evelyn Krin, Hélène Munier, Anne-Marie Gilles, Antoine Danchin, Philippe Glaser, and Octavian Bârzu
- 1695 **Characterization of a synthetic calmodulin-binding peptide derived from *Bacillus anthracis* adenylate cyclase.** Hélène Munier, Francisco J. Blanco, Bénédicte Précheur, Eric Diesis, José L. Nieto, Constantin T. Craescu, and Octavian Bârzu
- 1702 **Purification and characterization of membrane-bound chitin synthase.** Sachiko Machida and Michihiko Saito
- 1708 **Mechanism of reaction of fatty acid hydroperoxides with soybean peroxygenase.** Elizabeth Blée, Allan L. Wilcox, Lawrence J. Marnett, and Francis Schubert
- 1716 **Influenza hemagglutinin-mediated membrane fusion does not involve inverted phase lipid intermediates.** Toon Stegmann
- 1723 **A luteinizing hormone receptor with a severely truncated cytoplasmic tail (LHR-ct628) desensitizes to the same degree as the full-length receptor.** Xi Zhu, Thomas Gudermann, Mariel Birnbaumer, and Lutz Birnbaumer
- 1729 **Physiological role of NhaB, a specific Na⁺/H⁺ antiporter in *Escherichia coli*.** Elhanan Pinner, Yaniv Kotler, Etana Padan, and Shimon Schuldiner
- 1735 **Hydrolysis of short acyl chain inositol lipids by phospholipase C- δ_1 .** Mario J. Rebecchi, Robert Eberhardt, Tracy Delaney, Shaikat Ali, and Robert Bittman
- 1742 **Cumulative effect of double-site mutations of human epidermal growth factor on receptor binding.** Stephen R. Campion, Mary K. Geck, and Salil K. Niyogi
- 1749 **Ca²⁺-dependent and Ca²⁺-independent isozymes of protein kinase C mediate exocytosis in antigen-stimulated rat basophilic RBL-2H3 cells. Reconstitution of secretory responses with Ca²⁺ and purified isozymes in washed permeabilized cells.** Koichiro Ozawa, Zoltan Szalasi, Marcelo G. Kazanietz, Peter M. Blumberg, Harald Mischak, J. Frederic Mushinski, and Michael A. Beaven
- 1757 **An N-terminal glycosylation signal on cytochrome P450 is restricted to the endoplasmic reticulum in a luminal orientation.** Elzbieta Szczesna-Skorupa and Byron Kemper
- 1763 **The prohormone convertases PC1 and PC2 mediate distinct endoproteolytic cleavages in a strict temporal order during proopiomelanocortin biosynthetic processing.** An Zhou, Brian T. Bloomquist, and Richard E. Mains
- 1770 **Insulinomimetic effect on glucose transport by epidermal growth factor when combined with a major histocompatibility complex class I-derived peptide.** Jan Stagsted, Søren Ziebe, Shinobu Satoh, Geoffrey D. Holman, Samuel W. Cushman, and Lennart Olsson
- 1775 **Direct analysis of the binding of the *abl* Src homology 2 domain to the activated epidermal growth factor receptor.** Guochang Zhu, Stuart J. Decker, Bruce J. Mayer, and Alan R. Saltiel
- 1780 **Isolation and properties of adenovirus type 2 proteinase.** Karoly Tihanyi, Martin Bourbonnière, Alain Houde, Claudine Rancourt, and Joseph M. Weber
- 1786 **Differential regulation of adenylate cyclases in vegetative and gametic flagella of chlamydomonas.** Yuhua Zhang and William J. Snell
- 1792 **Topology of P-glycoprotein as determined by epitope mapping of MRK-16 monoclonal antibody.** Elias Georges, Takashi Tsuruo, and Victor Ling
- 1799 **A second *groEL*-like gene, organized in a *groESL* operon is present in the genome of *Synechocystis* sp. PCC 6803.** Csaba Lehel, Dmitry Los, Hajime Wada, János Györgyi, Ibolya Horváth, Eszter Kovács, Norio Murata, and László Vigh
- 1805 **Binding of DNA quenches tyrosine fluorescence of RecA without energy transfer to DNA bases.** Svante Eriksson, Bengt Nordén, and Masayuki Takahashi
- 1811 **Role of tyrosine residue 264 of RecA for the binding of cofactor and DNA.** Svante Eriksson, Bengt Nordén, Katsumi Morimatsu, Toshihiro Horii, and Masayuki Takahashi
- 1817 **Removal of stable tyrosine radical D⁺ affects the structure or redox properties of tyrosine Z in manganese-depleted photosystem II particles from *Synechocystis* 6803.** Renee J. Boerner, Kathryn A. Bixby, Anh P. Nguyen, George H. Noren, Richard J. Debus, and Bridgette A. Barry
- 1824 **Cloning and sequencing of a cDNA encoding *Saccharomyces cerevisiae* carnitine acetyltransferase. Use of the cDNA in gene disruption studies.** Gyula Kispal, Balazs Sumegi, Klaus Dietmeier, Ildiko Bock, Gabriella Gajdos, Tihamer Tomcsanyi, and Attila Sandor
- 1830 **Cold adaptations in *Drosophila*. Qualitative changes of triacylglycerols with relation to overwintering.** Takashi Ohtsu, Chihiro Katagiri, Masahito T. Kimura, and Samuel H. Hori
- 1835 **Cloning and functional expression in yeast of two human isoforms of the outer mitochondrial membrane channel, the voltage-dependent anion channel.** Elizabeth Blachly-Dyson, E. Brygida Zambonics, Wei Hong Yu, Volker Adams, Edward R. B. McCabe, John Adelman, Marco Colombini, and Michael Forte
- 1842 **Pteridine biosynthesis in human endothelial cells. Impact on nitric oxide-mediated formation of cyclic GMP.** Gabriele Werner-Felmayer, Ernst R. Werner, Dietmar Fuchs, Arno Hausen, Gilbert Reibnegger, Kurt Schmidt, Günter Weiss, and Helmut Wachter
- 1847 **The structural motif glycine 190-valine 202 of the fibrinogen γ chain interacts with CD11b/CD18 integrin ($\alpha_M\beta_2$, Mac-1) and promotes leukocyte adhesion.** Dario C. Altieri, Janet Plescia, and Edward F. Plow
- 1854 **The glucocorticoid receptor and a putative repressor protein coordinately modulate glucocorticoid responsiveness of the mouse mammary tumor virus promoter in the rat hepatoma cell line M1.19.** Hirotohi Tanaka, Yu Dong, Jacqueline McGuire, Sam Okret, Lorenz Poellinger, Isao Makino, and Jan-Åke Gustafsson
- 1860 **Polypeptide composition of the α -latrotoxin receptor. High affinity binding protein consists of a family of related high molecular weight polypeptides complexed to a low molecular weight protein.** Alexander G. Petrenko, Victoria D. Lazaryeva, Martin Geppert, Tatyana A. Tarasyuk, Carolyn Moomaw, Andrei V. Khokhlatchev, Yuri A. Ushkarov, Clive Slaughter, Igor V. Nasimov, and Thomas C. Südhof
- 1868 **Translational regulation of mitochondrial differentiation in neonatal rat liver. Specific increase in the translational efficiency of the nuclear-encoded mitochondrial β -F₁-ATPase mRNA.** Ana M. Luis, José M. Izquierdo, Luciana K. Ostronoff, Matilde Salinas, Juan F. Santarén, and José M. Cuezva
- 1876 **Control of protein traffic between distinct plasma membrane domains. Requirement for a novel 108,000 protein in the fusion of transcytotic vesicles with the apical plasma membrane.** Elizabeth Sztul, Maria Colombo, Philip Stahl, and Reba Samanta
- 1886 **Cross-competition for binding of α_1 -antitrypsin (α_1 AT)-elastase complexes to the serpin-enzyme complex receptor by other serpin-enzyme complexes and by proteolytically modified α_1 AT.** Gregg Joslin, Art Wittwer, Steve Adams, Douglas M. Tollefsen, Anna August, and David H. Perlmutter
- 1894 **Cloning of a novel surface antigen from the insect stages of *Trypanosoma brucei* by expression in COS cells.** David G. Jackson, Dean K. Smith, Colin Luo, and John F. Elliott
- 1901 **ATP induces a conformational change of the 90-kDa heat shock protein (hsp90).** Péter Csermely, Judit Kajtár, Miklós Hollósi, George Jalsouzszy, Sándor Holly, C. Ronald Kahn, Péter Gergely, Jr., Csaba Söti, Katalin Mihály, and János Somogyi

- 1908 **Expression of the nitric oxide synthase gene in mouse macrophages activated for tumor cell killing. Molecular basis for the synergy between interferon- γ and lipopolysaccharide.** Robert B. Lorschach, William J. Murphy, Charles J. Lowenstein, Solomon H. Snyder, and Stephen W. Russell
- 1914 **Coupling of cytosolic protein synthesis and mitochondrial protein import in yeast. Evidence for cotranslational import *in vivo*.** Masaaki Fujiki and Keith Verner
- 1921 **Activating and inhibitory mutations in the regulatory domain of CheB, the methyltransferase in bacterial chemotaxis.** Richard C. Stewart
- 1931 **DNA repair by eukaryotic nucleotide excision nuclease. Removal of thymine dimer and psoralen monoadduct by HeLa cell-free extract and of thymine dimer by *Xenopus laevis* oocytes.** Daniel L. Svoboda, John-Stephen Taylor, John E. Hearst, and Aziz Sancar
- 1937 **Sequence analysis of lens β -crystallins suggests involvement of calpain in cataract formation.** Larry L. David, Thomas R. Shearer, and Marjorie Shih
- 1941 **The motif Tyr-X-X-hydrophobic residue mediates lysosomal membrane targeting of lysosome-associated membrane protein 1.** Frank G. Guarnieri, Linda M. Arterburn, Margaret B. Penno, Ying Cha, and J. Thomas August
- 1947 **Binding of the RNA polymerase I transcription complex to its promoter can modify positioning of downstream nucleosomes assembled *in vitro*.** Philippe Georgel, Borries Demeler, Chris Terpening, Marvin R. Paule, and Kensal E. van Holde
- 1955 **Point mutagenesis of carboxyl-terminal amino acids of cholesteryl ester transfer protein. Opposite faces of an amphipathic helix important for cholesteryl ester transfer or for binding neutralizing antibody.** Suke Wang, Xingbo Wang, Liping Deng, Eric Rassart, Ross W. Milne, and Alan R. Tall
- 1960 **Phosphorylation and activation of a high molecular weight form of phospholipase A₂ by p42 microtubule-associated protein 2 kinase and protein kinase C.** Raphael A. Nemenoff, Sim Winitz, Nan-Xin Qian, Vicki Van Putten, Gary L. Johnson, and Lynn E. Heasley
- 1965 **Characterization of a DNA polymerase from the hyperthermophile archaea *Thermococcus litoralis*. Vent DNA polymerase, steady state kinetics, thermal stability, processivity, strand displacement, and exonuclease activities.** Huimin Kong, Rebecca B. Kucera, and William E. Jack
- 1976 **A 40-kDa epidermal growth factor/transforming growth factor α -binding domain produced by limited proteolysis of the extracellular domain of the epidermal growth factor receptor.** Daisuke Kohda, Masafumi Odaka, Irit Lax, Hiroshi Kawasaki, Koichi Suzuki, Axel Ullrich, Joseph Schlessinger, and Fuyuhiko Inagaki
- 1982 **A myristoylated pseudosubstrate peptide, a novel protein kinase C inhibitor.** Thomas Eichholtz, Dries B. A. de Bont, John de Widt, Rob M. J. Liskamp, and Hidde L. Ploegh
- 1987 **Angiotensin II regulates parathyroid hormone-related protein expression in cultured rat aortic smooth muscle cells through transcriptional and post-transcriptional mechanisms.** Carlos J. Pirola, Hai-mei Wang, Amin Kamyar, Siaoxing Wu, Hiro Enomoto, Behrooz Sharifi, James S. Forrester, Thomas L. Clemens, and James A. Fagin
- 1995 **Enhancement by protein kinase C of prostacyclin receptor-mediated activation of adenylate cyclase through a calmodulin/myristoylated alanine-rich C kinase substrate (MARCKS) system in IC2 mast cells.** Tohru Sawai, Manabu Negishi, Nobuhiro Nishigaki, Tadao Ohno, and Atsushi Ichikawa
- 2001 **Role of endoplasmic reticular calcium in oligosaccharide processing of α_1 -antitrypsin.** Galina Kuznetsov, Margaret A. Brostrom, and Charles O. Brostrom
- 2009 **Proteolytic processing of human amyloid β protein pre-**
- 2013 **Evidence for an extended structure of the T-cell receptor CD8 α as deduced from the hydrodynamic properties of soluble forms of the extracellular region.** Jean Philippe Boursier, Andres Alcover, Frederique Herve, Isabelle Laisney, and Oreste Acuto
- 2021 **The D domain of the thyroid hormone receptor $\alpha 1$ specifies positive and negative transcriptional regulation functions.** Youngsook Lee and Vijak Mahdavi
- 2029 **Changes in the structure and catalytic activities of the bovine pituitary multicatalytic proteinase complex following dialysis.** Bo Yu, Maria E. Pereira, and Sherwin Wilk
- 2037 **Regulation of the cystic fibrosis transmembrane conductance regulator Cl⁻ channel by specific protein kinases and protein phosphatases.** Herbert A. Berger, Sue M. Travis, and Michael J. Welsh
- 2048 **Identification of the herpes simplex virus-1 protease cleavage sites by direct sequence analysis of autoproteolytic cleavage products.** Carolyn L. DiIanni, Diana A. Drier, Ingrid C. Deckman, Patrick J. McCann III, Fenyong Liu, Bernard Roizman, Richard J. Colonno, and Michael G. Cordingley
- 2052 **Molecular characterization and expression of the *Drosophila* Ca²⁺/calmodulin-dependent protein kinase II gene. Identification of four forms of the enzyme generated from a single gene by alternative splicing.** Shunji Ohsako, Yasuyoshi Nishida, Haruko Ryo, and Takashi Yamauchi
- 2063 **Aspartyl residue 10 is essential for ATPase activity of rat hsc70.** Shiao-ping Huang, Ming-Ying Tsai, Yuh-Min Tzou, Wen-guey Wu, and Chung Wang
- 2069 **Degradation of entactin by matrix metalloproteinases. Susceptibility to matrilysin and identification of cleavage sites.** Ulrike I. Sires, Gail L. Griffin, Thomas J. Broekelmann, Robert P. Mecham, Gillian Murphy, Albert E. Chung, Howard G. Welgus, and Robert M. Senior
- 2075 **Expression of *Drosophila* Rrp1 protein in *Escherichia coli*. Enzymatic and physical characterization of the intact protein and a carboxyl-terminally deleted exonuclease-deficient mutant.** Miriam Sander, Meryl Carter, and Shu-Mei Huang
- 2083 **The rat liver ecto-ATPase is also a canalicular bile acid transport protein.** C. Jeffrey Sippel, Frederick J. Suchy, M. Ananthanarayanan, and David H. Perlmutter
- 2092 **Novel 8-base pair sequence (*Drosophila* DNA replication-related element) and specific binding factor involved in the expression of *Drosophila* genes for DNA polymerase α and proliferating cell nuclear antigen.** Fumiko Hirose, Masamitsu Yamaguchi, Hiroshi Handa, Yukio Inomata, and Akio Matsukage
- 2100 **Accumulation of 1,2-*sn*-diradylglycerol with increased membrane-associated protein kinase C may be the mechanism for spontaneous hepatocarcinogenesis in choline-deficient rats.** Kerry-Ann da Costa, Elizabeth F. Cochary, Jan K. Blusztajn, Sanford C. Garner, and Steven H. Zeisel
- 2106 **Molecular characterization of four pharmacologically distinct α -aminobutyric acid transporters in mouse brain.** Qing-Rong Liu, Beatriz López-Corcuera, Sreekala Mandiyan, Hannah Nelson, and Nathan Nelson
- 2113 **Site-directed mutagenesis of HIV-1 integrase demonstrates differential effects on integrase functions *in vitro*.** Andrew D. Leavitt, Lily Shiue, and Harold E. Varmus
- 2120 **Structure, organization, and chromosomal mapping of the human macrophage scavenger receptor gene.** Mitsuru Emi, Hitoshi Asaoka, Akiyo Matsumoto, Hiroshige Itakura, Yukiko Kurihara, Yoichiro Wada, Hiroshi Kanamori, Yoshio Yazaki, Ei-ichi Takahashi, Mark Lepert, Jean-Marc Lalouel, Tatsuhiko Kodama, and Tsunehiro Mukai
- 2126 **Charged collagen structure mediates the recognition of negatively charged macromolecules by macrophage scavenger receptors.** Takefumi Doi, Ken-ichi Higashino, Yukiko Kurihara, Yoichiro Wada, Tohru Miyazaki, Haruki Nakamura, Seiichi Uesugi, Takeshi Imanishi, Yoshiki Kawabe, Hiroshige Itakura, Yoshio Yazaki, Akiyo Matsumoto, and Tatsuhiko Kodama

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.