

The Journal of Steroid Biochemistry and Molecular Biology

Volumes 89–90, Numbers 1–5

2004

CONTENTS

Preface

R. Bouillon, A.W. Norman and J.R. Pasqualini

1 Twelfth Workshop on Vitamin D

Chemistry of Vitamin D Steroids

Gary H. Posner, Kenneth R. Crawford,
Hong Woon Yang, Mehmet Kahraman,
Heung Bae Jeon, Hongbin Li, Jae Kyoo Lee,
Byung Chul Suh, Mark A. Hatcher,
Tanzina Labonte, Aimee Usera,
Patrick M. Dolan, Thomas W. Kensler,
Sara Peleg, Glenville Jones, Anqi Zhang,
Bozena Korczak, Uttam Saha and
Samuel S. Chuang

5 Potent, low-calcemic, selective inhibitors of CYP24 hydroxylase: 24-sulfone analogs of the hormone $1\alpha,25$ -dihydroxyvitamin D_3

Pawel Grzywacz, Lori A. Plum, Wanda Sicinska,
Rafal R. Sicinski, Jean M. Prah and
Hector F. DeLuca

13 2-Methylene analogs of 1α -hydroxy-19-norvitamin D_3 : synthesis, biological activities and docking to the ligand binding domain of the rat vitamin D receptor

Iván Cornella, Rosa M. Suárez, Antonio Mouriño,
José Pérez Sestelo and Luis A. Sarandeses

19 Stereoselective convergent synthesis of 24-substituted metabolites and analogues of vitamin D

Agnieszka Glebocka, Rafal R. Sicinski and
Hector F. DeLuca

25 New derivative of $1\alpha,25$ -dihydroxy-19-norvitamin D_3 with 3'-alkoxypropylidene moiety at C-2: synthesis, biological activity and conformational analysis

Kazuya Takenouchi, Ryo Sogawa, Kenji Manabe,
Hiroshi Saitoh, Qingzhi Gao,
Daishiro Miura and Seiichi Ishizuka

31 Synthesis and structure-activity relationships of TEL-9647 derivatives as Vitamin D_3 antagonists

Hubert Maehr, Milan R. Uskokovic,
G. Satyanarayana Reddy and Luciano Adorini

35 Calcitriol derivatives with two different side chains at C-20: 24-Hydroxy derivatives as metabolic products and molecular probes for VDR exploration

Metabolism of Vitamin D Steroids

Maya Kamao, Syuichiro Tatsumatsu,
Natsumi Sawada, Toshiyuki Sakaki,
Susumi Hatakeyama, Noboru Kubodera and
Toshio Okano

39 Cell specificity and properties of the C-3 epimerization of Vitamin D_3 metabolites

Anne-Marie Kissmeyer,
Jeanet Løgsted Nielsen and Lise Binderup

43 The tissue-specific distribution of 3H -seocalcitol (EB 1089) and 3H -calcitriol in rats

M.A. Tryfonidou and H.A.W. Hazewinkel

49 Different effects of physiologically and pharmacologically increased growth hormone levels on cholecalciferol metabolism at prepubertal age

Continued on next page

CONTENTS
direct

This journal is part of **ContentsDirect**, the **free** alerting service which sends tables of contents by e-mail for Elsevier books and journals. You can register for **ContentsDirect** online at: <http://contentsdirect.elsevier.com>

J. Steroid Biochem. Molec. Biol. is indexed/abstracted in BIOSIS Database; BIOMED Database; CAB International; Elsevier BIOBASE/CURRENT Awareness in Biological Sciences; Cam. Sci. Abstr.; Chem. Abstr. Serv.; Curr. Cont. Life Sci.; EMBASE/Excerpta Medica; Index Medicus; MEDLINE; PASCAL-CNRS Database; Research Alert; S.C.I., SCISEARCH

ISSN 0960-0760

89–90(1–5) 1–634 (2004)

Structure-Function Relationships

Fabrice Ciesielski, Natacha Rochel,
Andre Mitschler, Alexander Kouzmenko and
Dino Moras

Pierre J. De Clercq, Ibrahim Murad,
Ling-Jie Gao, Yong-Jun Chen, Dirk Van Haver,
Maurits Vandewalle, Annemieke Verstuyf,
Lieve Verlinden, Christel Verboven and
Roger Bouillon

Hector F. DeLuca

Masato Shimizu, Keiko Yamamoto,
Mika Mihori, Yukiko Iwasaki,
Daisuke Morizono and Sachiko Yamada

Alejandra Acevedo, Ludmilla Stoyanova,
Karen Davis, Ramona Solórzano and
Elaine D. Collins

Toshie Fujishima, Atsushi Kittaka,
Masaaki Kurihara, Nozomi Saito,
Shinobu Honzawa, Seishi Kishimoto,
Takayuki Sugiura, Keizo Waku and
Hiroaki Takayama

M. Nguyen, C.L. Trubert, M. Rizk-Rabin,
V.K. Rehan, F. Besançon, Y.E. Cayre and
M. Garabédian

Christopher J. Olivera, Craig M. Bula,
June E. Bishop, Luciano Adorini,
Percy Manchand, Milan R. Uskokovic and
Anthony W. Norman

Wanda Sicinska, Piotr Rotkiewicz and
Hector F. DeLuca

Vitamin D Hydroxylase

Paul H. Anderson, Peter D. O'Loughlin,
Brian K. May and Howard A. Morris

Euclides Avila, Lorenza Díaz, Ali Halhali and
Fernando Larrea

Rosemary Bland, Danijela Markovic,
Claire E. Hills, Susan V. Hughes,
Susan L.F. Chan, Paul E. Squires and
Martin Hewison

Lilin Wang, John N. Flanagan,
Lyman W. Whitlatch, Daniel P. Jamieson,
Michael F. Holick and Tai C. Chen

L. Esteban, M. Vidal and A. Dusso

Ivanka Hendrix, Paul Anderson,
Brian May and Howard Morris

Ulrike Hügel, Lutz Weber, Jörg Reichrath,
Otto Mehls and Günter Klaus

55 Structural investigation of the ligand binding domain of the zebrafish VDR in complexes with $1\alpha,25(\text{OH})_2\text{D}_3$ and Gemini: purification, crystallization and preliminary X-ray diffraction analysis

61 Biological activity and conformational analysis of C20 and C14 epimers of CD-ring modified *trans*-decalin $1\alpha,25$ -dihydroxyvitamin D analogs

67 Therapeutic potential of the 2-alkyl and 2-alkylidene-19-nor-(20S)-modified analogs of $1\alpha,25$ -dihydroxyvitamin D₃

75 Two-dimensional alanine scanning mutational analysis of the interaction between the vitamin D receptor and its ligands: studies of A-ring modified 19-norvitamin D analogs

83 Role of residues 143 and 278 of the human nuclear Vitamin D receptor in the full-length and $\Delta 165$ -215 deletion mutant

89 2,2-Functionalized analogues of $1\alpha,25$ -dihydroxyvitamin D₃, the potent inducers of cell differentiation

93 $1,25$ -Dihydroxyvitamin D₃ and fetal lung maturation: immunogold detection of VDR expression in pneumocytes type II cells and effect on fructose 1,6 bisphosphatase

99 Characterization of five 19-nor-analogues of $1\alpha,25(\text{OH})_2$ -Vitamin D₃ with 20-cyclopropyl-modified side-chains: implications for ligand binding and calcemic properties

107 Model of three-dimensional structure of VDR bound with Vitamin D₃ analogs substituted at carbon-2

111 Determinants of circulating $1,25$ -dihydroxyvitamin D₃ levels: the role of renal synthesis and catabolism of vitamin D

115 Regulation of 25-hydroxyvitamin D₃ 1α -hydroxylase, $1,25$ -dihydroxyvitamin D₃ 24-hydroxylase and vitamin D receptor gene expression by 8-bromo cyclic AMP in cultured human syncytiotrophoblast cells

121 Expression of 25-hydroxyvitamin D₃- 1α -hydroxylase in pancreatic islets

127 Regulation of 25-hydroxyvitamin D- 1α -hydroxylase by epidermal growth factor in prostate cells

131 1α -Hydroxylase transactivation by γ -interferon in murine macrophages requires enhanced C/EBP β expression and activation

139 Regulation of gene expression by the CYP27B1 promoter—study of a transgenic mouse model

143 Rat growth plate chondrocytes express low levels of 25-hydroxy- 1α -hydroxylase

- Sonoko Masuda, Martin Kaufmann,
Valarie Byford, Mian Gao, René St-Arnaud,
Alice Arabian, Hugh L.J. Makin,
Joyce C. Knutson, Stephen Strugnell and
Glenville Jones
- Elizabeth Ramos Lopez, Karoline Regulla,
Michael A. Pani, Maren Krause,
Klaus-H. Usadel and Klaus Badenhoop
- J.L. Omdahl, N. Swamy, R. Serda, A. Annalora,
M. Berne and R. Rayb
- Jörg Reichrath, Leyla Rafi, Martin Rech,
Viktor Meineke, Wolfgang Tilgen and
Markus Seifert
- Keiko Yamamoto, Hiroyuki Masuno,
Natsumi Sawada, Toshiyuki Sakaki,
Kuniyo Inouye, Masaji Ishiguro and
Sachiko Yamada
- Vitamin D Receptor*
- Shigeaki Kato, Ryoji Fujiki and
Hirochika Kitagawa
- Paul N. MacDonald, Diane R. Dowd,
Chi Zhang and Chun Gu
- André G. Uitterlinden, Yue Fang,
Joyce B.J. van Meurs, Hans van Leeuwen and
Huibert A.P. Pols
- David J. Bettoun, Jianfen Lu, Berket Khalifa,
Ying Yee, William W. Chin and Sunil Nagpal
- Gema Nieto, Yolanda Barber,
Maria Carmen Rubio, Manuel Rubio and
Joan Fibla
- J.M. Quesada, A. Casado, C. Díaz, L. Barrios,
R. Cuenca-Acevedo and G. Dorado
- Paul L. Shaffer and Daniel T. Gewirth
- Meggan E. Valrance and JoEllen Welsh
- Gene Regulation by 1 α ,25(OH) $_2$ D $_3$*
- Carsten Carlberg
- Edith M. Gardiner, Luis M. Esteban,
Colette Fong, Susan J. Allison,
Judith L. Flanagan, Alexander P. Kouzmenko
and John A. Eisman
- John H. White
- Claire M. Banwell, Laura P. O'Neill,
Milan R. Uskokovic and Moray J. Campbell
- Lyndon M. Gommersall, Farhat L. Khanim,
Donna M. Peehl, Alan H. Doherty and
Moray J. Campbell
- 149 Insights into Vitamin D metabolism using cyp24 over-expression and knockout systems in conjunction with liquid chromatography/mass spectrometry (LC/MS)
- 155 CYP27B1 polymorphisms variants are associated with type 1 diabetes mellitus in Germans
- 159 Affinity labeling of rat cytochrome P450C24 (CYP24) and identification of Ser57 as an active site residue
- 163 No evidence for amplification of 25-hydroxyvitamin D-1 α -OHase (1 α -OHase) or 1,25-dihydroxyvitamin D-24-OHase (24-OHase) genes in malignant melanoma (MM)
- 167 Homology modeling of human 25-hydroxyvitamin D $_3$ 1 α -hydroxylase (CYP27B1) based on the crystal structure of rabbit CYP2C5
- 173 Vitamin D receptor (VDR) promoter targeting through a novel chromatin remodeling complex
- 179 Emerging insights into the coactivator role of NCoA62/SKIP in Vitamin D-mediated transcription
- 187 Vitamin D receptor gene polymorphisms in relation to Vitamin D related disease states
- 195 Ligand modulates VDR-Ser/Thr protein phosphatase interaction and p70S6 kinase phosphorylation in a cell-context-dependent manner
- 199 Association between AIDS disease progression rates and the *FokI* polymorphism of the *VDR* gene in a cohort of HIV-1 seropositive patients
- 209 Allele-frequency determination of *BsmI* and *FokI* polymorphisms of the *VDR* gene by quantitative real-time PCR (QRT-PCR) in pooled genomic DNA samples
- 215 Structural analysis of RXR-VDR interactions on DR3 DNA
- 221 Breast cancer cell regulation by high-dose Vitamin D compounds in the absence of nuclear Vitamin D receptor
- 227 Ligand-mediated conformational changes of the VDR are required for gene transactivation
- 233 Vitamin D receptor B1 and exon 1d: functional and evolutionary analysis
- 239 Profiling 1,25-dihydroxyvitamin D $_3$ -regulated gene expression by microarray analysis
- 245 Targeting 1 α ,25-dihydroxyvitamin D $_3$ antiproliferative insensitivity in breast cancer cells by co-treatment with histone deacetylation inhibitors
- 251 Epigenetic repression of transcription by the Vitamin D $_3$ receptor in prostate cancer cells

Thomas W. Dunlop, Sami Väisänen, Christian Frank and Carsten Carlberg	257	The genes of the coactivator TIF2 and the corepressor SMRT are primary $1\alpha,25(\text{OH})_2\text{D}_3$ targets
Pamela Renate Moll, Alfred Klausegger, Helmut Hintner, Wolfgang Reischl, Michael Breitenbach and Klaus Richter	261	Identification of vitamin D target genes in human keratinocytes by subtractive screening
Roberto Paredes, Gloria Arriagada, Fernando Cruzat, Juan Olate, Andre van Wijnen, Jane Lian, Gary Stein, Janet Stein and Martin Montecino	269	The Runx2 transcription factor plays a key role in the $1\alpha,25$ -dihydroxy Vitamin D_3 -dependent upregulation of the rat osteocalcin (OC) gene expression in osteoblastic cells
Yuko Oda, Carina Sihlbom, Robert J. Chalkley, Lan Huang, Christophe Rachez, Chao-Pei Betty Chang, Alma L. Burlingame, Leonard P. Freedman and Daniel D. Bikle	273	Two distinct coactivators, DRIP/mediator and SRC/p160, are differentially involved in VDR transactivation during keratinocyte differentiation
Sami Väisänen, Thomas W. Dunlop, Christian Frank and Carsten Carlberg	277	Using chromatin immunoprecipitation to monitor $1\alpha,25$ -dihydroxyvitamin D_3 -dependent chromatin activity on the human CYP24 promoter
<i>Rapid Responses to $1\alpha, 25(\text{OH})_2\text{D}_3$</i>		
Ilka Nemere, Susan E. Safford, Benjamin Rohe, Mary M. DeSouza and Mary C. Farach-Carson	281	Identification and characterization of $1,25\text{D}_3$ -membrane-associated rapid response, steroid ($1,25\text{D}_3$ -MARRS) binding protein
Ana M. Rossi, Daniela A. Capiati, Gabriela Picotto, Silvia Benassati and Ricardo L. Boland	287	MAPK inhibition by $1\alpha,25(\text{OH})_2$ -Vitamin D_3 in breast cancer cells. Evidence on the participation of the VDR and Src
G. Santillán, C. Baldi, S. Katz, G. Vazquez and R. Boland	291	Evidence that TRPC3 is a molecular component of the $1\alpha,25(\text{OH})_2\text{D}_3$ -activated capacitative calcium entry (CCE) in muscle and osteoblast cells
Claudia Gentili, Susana Morelli and Ana Russo de Boland	297	$1\alpha,25(\text{OH})_2\text{D}_3$ and parathyroid hormone (PTH) signaling in rat intestinal cells: activation of cytosolic PLA2
<i>A) Biological Actions: Intestine, Kidney</i>		
Stan F.J. van de Graaf, Inge Boullart, Joost G.J. Hoenderop and René J.M. Bindels	303	Regulation of the epithelial Ca^{2+} channels TRPV5 and TRPV6 by $1\alpha,25$ -dihydroxy Vitamin D_3 and dietary Ca^{2+}
B.D. Boyan, E.G. Jennings, L. Wang and Z. Schwartz	309	Mechanisms regulating differential activation of membrane-mediated signaling by $1\alpha,25(\text{OH})_2\text{D}_3$ and $24R,25(\text{OH})_2\text{D}_3$
Julian R.F. Walters, Natalie F. Barley, Mohammed Khanji and Orli Rhodes-Kendler	317	Duodenal expression of the epithelial calcium transporter gene <i>TRPV6</i> : is there evidence for Vitamin D-dependence in humans?
<i>B) Biological Actions: Bone, Cartilage</i>		
Noriyoshi Kurihara, Seiichi Ishizuka, Anne Demulder, Cheikh Menaa and G. David Roodman	321	Paget's disease—A VDR coactivator disease?
Olivier Dardenne, Josée Prud'homme, Francis H. Glorieux and René St-Arnaud	327	Rescue of the phenotype of CYP27B1 (1α -hydroxylase)-deficient mice
Seiichi Ishizuka, Noriyoshi Kurihara, Daishiro Miura, Kazuya Takenouchi, Jillian Cornish, Tim Cundy, Sakamuri V. Reddy and G. David Roodman	331	Vitamin D antagonist, TEI-9647, inhibits osteoclast formation induced by $1\alpha,25$ -dihydroxyvitamin D_3 from pagetic bone marrow cells
Toshio Okano, Naoko Tsugawa, Atsushi Morishita and Shigeaki Kato	335	Regulation of gene expression of epithelial calcium channels in intestine and kidney of mice by $1\alpha,25$ -dihydroxyvitamin D_3
Dalia Somjen, Sara Katzburg, Merav Baz, Naftali Stern and Gary H. Posner	339	Modulation of the response to estradiol- 17β of rat vascular tissues by a non calcemic vitamin D analog
Hiroyuki Tanaka and Yoshiki Seino	343	Direct action of $1,25$ -dihydroxyvitamin D on bone: VDRKO bone shows excessive bone formation in normal mineral condition

C) Biological Actions: Neural Tissue, Skin, Muscle

D.D. Bikle, S. Chang, D. Crumrine, H. Elalieh,
M.-Q. Man, O. Dardenne, Z. Xie, R.St. Arnaud,
K. Feingold and P.M. Elias

D.D. Bikle, Y. Oda and Z. Xie

Gregory E. Weitsman, Amiram Ravid,
Uri A. Liberman and Ruth Koren

M. Tetich, A. Kutner, M. Leskiewicz,
B. Budziszewska and W. Lason

Eva Lohem-Heinrichs, Boris Görg, Axel Schleicher,
Christoph Redeker, Otto W. Witte, Karl Zilles and
Hans-J. Bidmon

Markus Seifert, Martin Rech, Viktor Meineke,
Wolfgang Tilgen and Jörg Reichrath

Amina Errazahi, Michèle Lieberherr,
Zhor Bouizar and Marthe Rizk-Rabin

D) Biological Actions: Other Targets

Yan Chun Li, Guilin Qiao, Milan Uskokovic,
Wei Xiang, Wei Zheng and Juan Kong

Dalia Somjen, Sara Katzburg, Orly Sharon,
Alvin M. Kaye, Batya Gayer, Fortune Kohen,
David Hendel and Gary H. Posner

Dalia Somjen, Fortune Kohen, Batya Gayer,
Esther Knoll, Rona Limor, Merav Baz,
Orly Sharon, Gary H. Posner and Naftali Stern

Calbindins

Sylvia Christakos and Yan Liu

Cell Differentiation/Proliferation

Guy Eelen, Lieve Verlinden, Mark Van Camp,
Chantal Mathieu, Geert Carmeliet,
Roger Bouillon and Annemieke Verstuyf

S. Kunakornsawat, T.J. Rosol, G.C. Capen,
J.L. Omdahl, B.E. Leroy and N. Inpanbutr

F. Lézet, A. Coudert, S. Petit, B. Vi-Fane,
D. Hotton, J.L. Davideau, S. Kato, V. Descroix,
L. Pibouin and A. Berdal

I.N. Sergeev

Paul Furigay and Narasimha Swamy

Glendon M. Zinser and JoEllen Welsh

Immunology

Luciano Adorini, Giuseppe Penna,
Nadia Giarratana, Andrea Roncari,
Susana Amuchastegui, Kenn C. Daniel and
Milan Uskokovic

347 Mice lacking 25OHD 1 α -hydroxylase demonstrate decreased epidermal differentiation and barrier function

355 Calcium and 1,25(OH) $_2$ D: interacting drivers of epidermal differentiation

361 The role of p38 MAP kinase in the synergistic cytotoxic action of calcitriol and TNF- α in human breast cancer cells

365 Neuroprotective effects of (24R)-1,24-dihydroxycholecalciferol in human neuroblastoma SH-SY5Y cell line

371 A combined treatment with 1 α ,25-dihydroxy-vitamin D $_3$ and 17 β -estradiol reduces the expression of heat shock protein-32 (HSP-32) following cerebral cortical ischemia

375 Differential biological effects of 1,25-dihydroxyvitamin D $_3$ on melanoma cell lines in vitro

381 PTH-1R responses to PTHrP and regulation by vitamin D in keratinocytes and adjacent fibroblasts

387 Vitamin D: a negative endocrine regulator of the renin-angiotensin system and blood pressure

393 Modulation of response to estrogens in cultured human female bone cells by a non-calcemic Vitamin D analog: changes in nuclear and membranal binding

397 A non-calcemic Vitamin D analog modulates both nuclear and putative membranal estrogen receptors in cultured human vascular smooth muscle cells

401 Biological actions and mechanism of action of calbindin in the process of apoptosis

405 Microarray analysis of 1 α ,25-dihydroxyvitamin D $_3$ -treated MC3T3-E1 cells

409 Effects of 1,25(OH) $_2$ D $_3$, 25OHD $_3$ and EB1089 on cell growth and Vitamin D receptor mRNA and 1 α -hydroxylase mRNA expression in primary cultures of the canine prostate

413 Does Vitamin D play a role on Mx1 homeoprotein expression involving an endogenous antisense mRNA?

419 Calcium as a mediator of 1,25-dihydroxyvitamin D $_3$ -induced apoptosis

427 Anti-endothelial properties of 1,25-dihydroxy-3-epi-vitamin D $_3$, a natural metabolite of calcitriol

433 Effect of Vitamin D $_3$ receptor ablation on murine mammary gland development and tumorigenesis

437 Dendritic cells as key targets for immunomodulation by Vitamin D receptor ligands

Matthew D. Griffin, Nianzeng Xing and Rajiv Kumar

Chantal Mathieu, Evelyne van Etten, Brigitte Decallonne, Annapaula Guilietti, Conny Gysemans, Roger Bouillon and Lut Overbergh

Lut Overbergh, Katinka Stoffels, Dirk Valckx, Annapaula Guilietti, Roger Bouillon and Chantal Mathieu

Evelyne van Etten, Brigitte Decallonne, Roger Bouillon and Chantal Mathieu

Comparative Effects of Vitamin D

John S. Adams, Hong Chen, Rene Chun, Mercedes A. Gacad, Carlos Encinas, Songyang Ren, Lisa Nguyen, Shaoxing Wu, Martin Hewison and Julia Barsony

Assay Methods

G.D. Carter, C.R. Carter, E. Gunter, J. Jones, G. Jones, H.L.J. Makin and S. Sufi

J.M. Quesada, J.M. Mata-Granados and M.D. Luque de Castro

Climatology

Michael G. Kimlin

Rickets and Osteomalacia

David Goltzman, Dengshun Miao, Dibyendu K. Panda and Geoffrey N. Hendy

David R. Fraser

Osteoporosis

J.C. Gallagher

P.B. Rapuri, J.C. Gallagher, J.A. Knezetic, H.K. Kinyamu and K.L. Ryschon

Renal Osteodystrophy

Adriana Dusso, Mario Cozzolino, Yan Lu, Tetsuhiko Sato and Eduardo Slatopolsky

Cancer

M.H. Pourgholami and D.L. Morris

Donald L. Trump, Pamela A. Hershberger, Ronald J. Bernardi, Sharmilla Ahmed, Josephia Muindi, Marwan Fakih, Wei-Dong Yu and Candace S. Johnson

Britta Diesel, Markus Seifert, Jens Radermacher, Ulrike Fischer, Wolfgang Tilgen, Jörg Reichrath and Eckart Meese

443 Gene expression profiles in dendritic cells conditioned by 1 α ,25-dihydroxyvitamin D₃ analog

449 Vitamin D and 1,25-dihydroxyvitamin D₃ as modulators in the immune system

453 Regulation of 25-hydroxyvitamin D-1 α -hydroxylase by IFN γ in human monocytic THP1 cells

457 NOD bone marrow-derived dendritic cells are modulated by analogs of 1,25-dihydroxyvitamin D₃

461 Response element binding proteins and intracellular vitamin D binding proteins: novel regulators of vitamin D trafficking, action and metabolism

467 Measurement of Vitamin D metabolites: an international perspective on methodology and clinical interpretation

473 Automated method for the determination of fat-soluble vitamins in serum

479 The climatology of Vitamin D producing ultraviolet radiation over the United States

485 Effects of calcium and of the Vitamin D system on skeletal and calcium homeostasis: lessons from genetic models

491 Vitamin D-deficiency in Asia

497 The effects of calcitriol on falls and fractures and physical performance tests

503 Association between Vitamin D receptor polymorphisms and the rate of bone loss in elderly women—importance of adjusting for dietary and lifestyle factors

507 1,25-Dihydroxyvitamin D downregulation of TGF α /EGFR expression and growth signaling: a mechanism for the antiproliferative actions of the sterol in parathyroid hyperplasia of renal failure

513 1,25-Dihydroxyvitamin D₃ in lipiodol for the treatment of hepatocellular carcinoma: cellular, animal and clinical studies

519 Anti-tumor activity of calcitriol: pre-clinical and clinical studies

527 Towards a complete picture of splice variants of the gene for 25-hydroxyvitamin D₃1 α -hydroxylase in brain and skin cancer

Elizabeth T. Jacobs, Anna R. Giuliano, María Elena Martínez, Bruce W. Hollis, Mary E. Reid and James R. Marshall	533	Plasma levels of 25-hydroxyvitamin D, 1,25-dihydroxyvitamin D and the risk of prostate cancer
István Molnár, Timothy Kute, Mark C. Willingham and Gary G. Schwartz	539	19-Nor-1 α ,25-dihydroxyvitamin D ₂ (paricalcitol) exerts anticancer activity against HL-60 cells in vitro at clinically achievable concentrations
Kimie Nakagawa, Akihiko Kawaura, Shigeaki Kato, Eiji Takeda and Toshio Okano	545	Metastatic growth of lung cancer cells is extremely reduced in Vitamin D receptor knock-out mice
Esther M. John, Darlene M. Dreon, Jocelyn Koo and Gary G. Schwartz	549	Residential sunlight exposure is associated with a decreased risk of prostate cancer
<i>Neonatology/Pregnancy/Development</i>		
Ali Halhali, Antonio R. Villa, Elsie Madrazo, María Celina Soria, Erendira Mercado, Lorenza Díaz, Euclides Avila, Michèle Garabédian and Fernando Larrea	553	Longitudinal changes in maternal serum 1,25-dihydroxyvitamin D and insulin like growth factor I levels in pregnant women who developed preeclampsia: comparison with normotensive pregnant women
John J. McGrath, François P. Féron, Thomas H.J. Burne, Alan Mackay-Sim and Darryl W. Eyles	557	Vitamin D ₃ —implications for brain development
<i>Dermatology</i>		
Bodo Lehmann, Susanne Abraham and Michael Meurer	561	Role for tumor necrosis factor- α in UVB-induced conversion of 7-dehydrocholesterol to 1 α ,25-dihydroxyvitamin D ₃ in cultured keratinocytes
G. Wong, R. Gupta, K.M. Dixon, S.S. Deo, S.M. Choong, G.M. Halliday, J.E. Bishop, S. Ishizuka, A.W. Norman, G.H. Posner and R.S. Mason	567	1,25-Dihydroxyvitamin D and three low-calcemic analogs decrease UV-induced DNA damage via the rapid response pathway
<i>Nutritional Aspects</i>		
Reinhold Vieth	571	Why "Vitamin D" is not a hormone, and not a synonym for 1,25-dihydroxy-vitamin D, its analogs or deltanoids
Reinhold Vieth	575	Why the optimal requirement for Vitamin D ₃ is probably much higher than what is officially recommended for adults
K. Brock, M. Wilkinson, R. Cook, S. Lee and M. Bermingham	581	Associations with Vitamin D deficiency in "at risk" Australians
S. Chennaiah, S.S.Y.H. Qadri, S.V. Rama Rao, G. Shyamsunder and N. Raghuramulu	589	<i>Cestrum diurnum</i> leaf as a source of 1,25(OH) ₂ Vitamin D ₃ improves egg shell thickness
Johein Harmeyer and Christina Schlumbohm	595	Effects of pharmacological doses of Vitamin D ₃ on mineral balance and profiles of plasma Vitamin D ₃ metabolites in horses
P.B. Rapuri and J.C. Gallagher	601	Effect of Vitamin D supplement use on serum concentrations of total 25OHD levels in elderly women
Christina Schlumbohm and Johein Harmeyer	605	Dietary additions of lactose, casein and soy protein exerted only moderate effects on calcium homeostasis in calcitriol deficient piglets
<i>Miscellaneous</i>		
Paul Lips	611	Which circulating level of 25-hydroxyvitamin D is appropriate?
J.L. Davideau, F. Lezot, S. Kato, I. Bailleul-Forestier and A. Berdal	615	Dental alveolar bone defects related to Vitamin D and calcium status
G.D. MacFarlane, J.L. Sackrison, D.L. Ersfeld, A.B. Miller and A. Bucklen	619	Evaluation of 25 OH Vitamin D in chronic renal failure and end stage renal disease subjects

G.D. MacFarlane, J.L. Sackrison Jr., J.J. Body,
D.L. Ersfeld, J.S. Fenske and A.B. Miller

Irina Terenetskaya

Plenary Lecture

Shigeaki Kato, Takahiro Matsumoto,
Hirotaka Kawano, Takashi Sato and
Ken-ichi Takeyama

621 Hypovitaminosis D in a normal, apparently healthy urban European population

623 Two methods for direct assessment of the Vitamin D synthetic capacity of sunlight and artificial UV sources

627 Function of androgen receptor in gene regulations

III List of Contents to Vol. 89-90

XI Subject index to Vol.89-90

XVII Author index to Vol.89-90