

# FLUORIDE

Quarterly Journal of The International Society for Fluoride Research Inc.

[www.fluorideresearch.org](http://www.fluorideresearch.org)

[www.fluorideresearch.com](http://www.fluorideresearch.com)

[www.fluorideresearch.net](http://www.fluorideresearch.net)

Owned & published by THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INCORPORATED © 2011. All rights reserved.

## Editor:

Professor Emeritus Albert W Burgstahler. Lawrence, KS, USA. E-mail: [awburg@ku.edu](mailto:awburg@ku.edu)

## Associate Editors:

Professor Dariusz Chlubek. Dept. of Biochemistry and Chemistry, Pomeranian Medical University, Szczecin, Poland.

Associate Professor Hardy Limeback. University of Toronto, Toronto, ON, Canada.

Professor Emeritus Gene W Miller. Utah State University, Logan, UT, USA.

Christopher Neurath. American Environmental Health Studies Project, Lexington, MA, USA.

Associate Professor Jashwanti D Sharma. Dept. of Zoology, University of Rajasthan, Jaipur, India.

Professor Dianjun Sun. Chinese Research Center for Endemic Disease Control, Harbin Medical University, Harbin, China.

Associate Professor Masashi Tsunoda. Kitasato University School of Medicine, Sagamihara, Japan.

Professor Emeritus Ming-Ho Yu. Western Washington University, Bellingham, WA, USA.

## Editorial Assistants:

Bill Wilson. North Shore City, New Zealand.

Peter Meiers. Saarbrücken, Germany.

## Managing Editor:

Dr Bruce Spittle. Dunedin, New Zealand. E-mail: [spittle@es.co.nz](mailto:spittle@es.co.nz)

## EDITORIAL

- 1–6..... FLUORIDE AND DENTAL CARIES: SECOND THOUGHTS IN VIEW OF RECENT EVIDENCE FROM GERMANY  
Peter Meiers. Saarbrücken, Germany.

## GUEST EDITORIAL

- 7–8..... EXCESS FLUORIDE INTERFERENCE WITH CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR (CFTR)  
Carole Clinch. Waterloo, Ontario, Canada.

## PHOTOGRAPHS

- 9–13..... PHOTOGRAPHS FROM THE XXIXTH CONFERENCE OF THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH  
Mashashi Tsunoda. Sagamihara, Japan.

## RESEARCH REPORTS

- 14–20..... ALLEVIATION OF FLUORIDE-INDUCED HEPATIC AND RENAL OXIDATIVE STRESS IN RATS BY THE FRUIT OF *LIMONIA ACIDISSIMA*  
Rupal A Vasant, AVR L Narasimhacharya. Vallabh Vidyanagar, Gujarat, India.
- 21–26..... MAGNESIUM HYDROXIDE FOR PROTECTION AGAINST FLUORIDE TOXICITY IN RABBITS  
Arjun Khandare, Uday Kumar, Shanker Rao. Hyderabad, India.
- 27–29..... EVALUATION OF THE WATER DEFLUORIDATING POTENTIAL OF BRUSHITE-CALCITE AND TWO INDIGENOUS BIOADSORBENT MATERIALS  
Nagesh Lakshminarayan, Anjan Giriraju. Davangere, Karnataka, India.
- 30–36..... EFFECT OF PINEAL PROTEINS AND MELATONIN ON CERTAIN BIOCHEMICAL PARAMETERS OF RATS EXPOSED TO HIGH-FLUORIDE DRINKING WATER  
Vijay K Bharti, RS Srivastava. Izatnagar, India.
- 37–41..... HIGH FLUORIDE WATER IN THE GILGIL AREA OF NAKURU COUNTY, KENYA  
Enos W Wambu, GK Muthakia. Nairobi, Kenya.

## ABSTRACTS

### DIURNAL PLASMA FLUORIDE LEVELS

- 42..... DAILY VARIATIONS IN HUMAN PLASMA FLUORIDE CONCENTRATIONS  
Cardoso VES, Whitford GM, Aoyama H, Buzalaf MAR. Bauru, SP, Brazil.

Click on the blue rectangles for press quality pdf copies (larger file sizes and slower to load but better quality) and on the red rectangles for smallest file size pdf copies (smaller file sizes and faster to load but lower quality)

- FLUORIDE-INDUCED APOPTOSIS IN RAT LEUKOCYTES**
- 42..... EXPOSURE TO SODIUM FLUORIDE PRODUCES SIGNS OF APOPTOSIS IN RAT LEUKOCYTES  
Gutiérrez-Salinas J, Morales-González JA, Madrigal-Santillán E, Esquivel-Soto J, Esquivel-Chirino C, García-Luna y González-Rubio M, Suástegui-Domínguez S, Valadez-Vega C. México, DF, México.
- NANOMOLAR LEVEL COLORIMETRIC FLUORIDE ION SENSOR**
- 43..... FLUORIDE ION SENSING BY AN ANION— $\pi$  INTERACTION  
Guha S, Saha S. Tallahassee, FL, USA.
- 43..... EDITOR'S NOTE.
- DENTAL HEALTH AND NATURAL FLUORIDE IN DRINKING WATER**
- 43–44..... INFLUENCE OF NATURAL FLUORIDE CONCENTRATION IN DRINKING WATER ON DENTAL HEALTH OF FIRST CLASS PUPILS IN AN AREA WITH ENHANCED FLUORIDE CONTENT AT THE BEGINNING OF THE 21ST CENTURY  
Steinmeyer R. Koblenz, Germany.
- MODEL FOR DENTAL ENAMEL APATITE DEPTH PROFILING**
- 44..... ELEMENTAL DEPTH PROFILING OF FLUORIDATED HYDROXYAPATITE: SAVING YOUR DENTITION BY THE SKIN OF YOUR TEETH?  
Müller F, Zeitz C, Mantz H, Ehses KH, Soldera F, Schmauch J, Hannig M, Hüfner S, Jacobs K. Saarbrücken, Germany.
- RELIEF OF F-INDUCED OXIDATIVE STRESS BY PINEAL PROTEINS AND MELATONIN**
- 45..... FLUORIDE-INDUCED OXIDATIVE STRESS IN RAT'S BRAIN AND ITS AMELIORATION BY BUFFALO (*BUBALUS BUBALIS*) PINEAL PROTEINS AND MELATONIN  
Bharti VK, Srivastava RS. Izzatnagar, Bareilly, Uttar Pradesh, India.
- DENTAL FLUOROSIS INCREASED BY LEAD PLUS F**
- 45–46..... EXPOSURE TO LEAD EXACERBATES DENTAL FLUOROSIS  
Leite GAS, Sawan RMM, Teófilo JM, Porto IM, Sousa FB, Gerlach RF. SP, Brazil.
- ROLE OF FLUORIDE IN CORONARY ARTERY ECTASIA**
- 46..... CHRONIC FLUORIDE EXPOSURE HAS A ROLE IN ETIOLOGY OF CORONARY ARTERY ECTASIA:  
SIALIC ACID / GLYCOSAMINOGLYCAN RATIO  
Dede O, Varol E, Altınbas A, Varol S. Isparta, Turkey.
- STANDARDIZATION OF ISE FLUORIDE ANALYSIS**
- 46–47..... DEVELOPMENT OF GOLD STANDARD ION-SELECTIVE ELECTRODE-BASED METHODS FOR FLUORIDE ANALYSIS  
Martínez-Mier EA, Cury JA, Heilman JR, Katz BP, Levy SM, Li Y, Maguire A, Margineda J, O'Mullane D, Phantumvanit P, Soto-Rojas AE, Stookey GK, Villa A, Wefel JS, Whelton H, Whitford GM, Zero DT, Zhang W, Zohouri V. Indianapolis, IN, USA.
- FLUORIDE RECOMMENDATIONS FOR RECONSTITUTED INFANT FORMULA**
- 47..... EVIDENCE-BASED CLINICAL RECOMMENDATIONS REGARDING FLUORIDE INTAKE FROM RECONSTITUTED INFANT FORMULA AND ENAMEL FLUOROSIS: A REPORT OF THE AMERICAN DENTAL ASSOCIATION COUNCIL ON SCIENTIFIC AFFAIRS  
Berg J, Gerweck C, Hujuel PP, King R, Krol DM, Kumar J, Levy S, Pollick H, Whitford GM, Strock S, Aravamudhan K, Frantsve-Hawley J, Meyer DM. Chicago, IL, USA.

- PROTECTIVE EFFECT OF PINEAL PROTEINS AGAINST HIGH FLUORIDE INTAKE**
- 48..... EFFECT OF PINEAL PROTEINS AT DIFFERENT DOSE LEVEL ON FLUORIDE-INDUCED CHANGES IN PLASMA BIOCHEMICALS AND BLOOD ANTIOXIDANTS ENZYMES IN RATS  
Bharti VK, Srivastava RS. Izatnagar, UP, India.
- CYSTIC FIBROSIS AND DENTAL FLUOROSIS**
- 49..... EXCESS FLUORIDE INTERFERES WITH CHLORIDE-CHANNEL-DEPENDENT ENDOCYTOSIS IN AMELOBLASTS  
Duan X, Mao Y, Wen X, Yang T, Xue Y. Xi'an, Shaanxi, China.
- CYSTIC FIBROSIS AND DEFECTIVE DENTAL ENAMEL**
- 49–50..... THE CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR (CFTR) IS EXPRESSED IN MATURATION STAGE AMELOBLASTS, ODONTOBLASTS, AND BONE CELLS  
Bronckers A, Kalogeraki L, Jorna HJ, Wilke M, Bervoets TJ, Lyaruu DM, Zandieh-Doulabi B, Denbesten P, de Jonge H. Amsterdam, The Netherlands.
- URINARY F AND IQ IN INNER MONGOLIA**
- 50..... THE CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR (CFTR) IS EXPRESSED IN MATURATION STAGE AMELOBLASTS, ODONTOBLASTS, AND BONE CELLS  
Ding YG, Gao Y, Sun H, Han H, Wang W, Ji X, Liu X, Sun D. Harbin, Heilongjiang, China.
- GUIDELINES FOR AUTHORS**
- 51–56..... SUBMITTING MANUSCRIPTS TO FLUORIDE. GUIDELINES FOR AUTHORS—REVISED JANUARY-MARCH 2011

## THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INC.

The International Society for Fluoride Research was founded in 1966, at a meeting in Detroit of the American Society for Fluoride Research, to promote the sharing of scientific information on all aspects of inorganic and organic fluorides. This is done by publication of the peer-reviewed quarterly journal *Fluoride* and sponsoring international conferences. The first ISFR conference was held in Frankfurt, Germany in 1967 and subsequent conferences have been held in Spain, Austria, the Netherlands, England, the United States of America, Switzerland, India, Japan, Hungary, China, Poland, New Zealand, and Canada. The XXXth ISFR conference will be hosted by Professor Dariusz Chlubek in Szczecin, Poland, in 2012, the XXXIst conference is planned for Chiang Mai, Thailand in 2014 with Dr Sunsanee Rajchagool the host, and the XXXIInd conference in 2016 is planned for Hyderabad, India, with Dr Arjun Khandare the host. *Fluoride* is an open access journal available free on the internet at <http://www.fluorideresearch.org>, .com, and .net, in full text without an embargo period. Subscription to *Fluoride* in hardcopy and attendance at the conferences are welcomed for all interested in fluoride research. *Bona fide* fluoride researchers are invited to apply for Membership in the ISFR.

The Society does not hold an official position on issues such as water fluoridation but encourages, through its conferences, and the publication of papers, commentaries, and letters to the editor, a critical examination of the scientific basis of the views which are held by individuals and organizations.

### MEMBERS OF THE ISFR INC. ADVISORY BOARD 2011

**President:**

Associate Professor Jashwanti D Sharma. Dept. of Zoology, University of Rajasthan, Jaipur, India

**First Vice President:**

Professor Dariusz Chlubek. Pomeranian Medical University, Szczecin, Poland.

**Second Vice President:**

Dr Sunsanee Rajchagool. Director of Intercountry Centre for Oral Health, WHO Collaborating Centre for Promoting Community-based Oral Health, Chiang Mai, Thailand.

**Co-Secretaries:**

Professor Dariusz Chlubek. Pomeranian Medical University, Szczecin, Poland.  
Associate Professor Masashi Tsunoda. Kitasato University School of Medicine, Sagamihara, Japan.

**Editor of *Fluoride*:**

Professor Emeritus Albert W Burgstahler. University of Kansas, Lawrence, KS, USA.

**Members at Large:**

**Asia**

Professor Koichi Kono. Osaka Medical College, Osaka, Japan.  
Professor Emeritus AK Susheela. Fluorosis Research & Rural Develop Foundation, New Delhi, India.  
Professor Guifan Sun. China Medical University, Shenyang, China.  
Professor Emeritus Humio Tsunoda. Iwate Medical University, Morioka, Japan.

**Europe**

Professor Miklós Bély. Hungarian Academy of Science, Budapest, Hungary.  
Professor Jürgen Franke. Rehaklinik an der Salza, Bad Langensalza, Germany.  
Professor Emeritus Zygmunt Machoy. Pomeranian Medical Academy, Szczecin, Poland.  
Professor Jörg Spitz. Society for Medical Information and Prevention, Wiesbaden, Germany.

**North America**

Professor Emeritus Gene W Miller. Utah State University, Logan, UT, USA.

**Treasurer and Managing Editor of *Fluoride*:**

Dr Bruce Spittle. Dunedin, New Zealand.

## MEMBERS OF THE ISFR INC. EDITORIAL BOARD 2011

### Editor of *Fluoride*:

Professor Emeritus Albert W Burgstahler. University of Kansas, Lawrence, KS, USA

### Associate Editors:

Prof. Dariusz Chlubek. Dept of Biochemistry & Chemistry, Pomeranian Medical University, Szczecin, Poland.

Professor Hardy Limeback. University of Toronto, Toronto, ON, Canada.

Professor Emeritus Gene W Miller. Utah State University, Logan, UT, USA.

Christopher Neurath. American Environmental Health Studies Project, Canton, NY, USA.

Associate Professor Jashwanti D Sharma. Dept. of Zoology, University of Rajasthan, Jaipur, India.

Prof. Dianjun Sun. Chinese Research Center for Endemic Disease Control, Harbin Med. Uni., Harbin, PR China.

Associate Professor Masashi Tsunoda. Kitasato University School of Medicine, Sagamihara, Japan.

Professor Emeritus Ming-Ho Yu. Western Washington University, Bellingham, WA, USA.

### Editorial Board Members:

Dr Miklos Bély. Hungarian Academy of Science, Budapest, Hungary.

Dr Russell L Blaylock. Ridgeland, Mississippi, USA.

Assoc. Prof. Andrzej Bohatyrewicz. Dept. of Orthopedics & Traumatology, Pom. Med. Uni., Szczecin, Poland.

Professor Masahiko Chikuma. Osaka University of Pharmaceutical Sciences, Osaka, Japan.

Professor Edward Czerwinski. Jagiellonian University, Kraków, Poland.

Dr Mark Diesendorf. Sustainability Centre, Box 521, Epping, NSW 1710, Australia.

Professor J Franke. Rehaklinik an der Salza, Bad Langensalza, Germany.

Assistant Professor Toshitaka Horiuchi. Nihon University School of Dentistry at Matsudo, Japan.

Associate Professor Kazuyoshi Itai. Iwate Medical University, Morioka, Iwate, Japan.

Professor K Kono. Osaka Medical College, Osaka, Japan.

Professor Jerzy Krechniak. Medical University, Gdańsk, Poland.

Professor Emeritus C James Lovelace. Humbolt State University, Arcata, CA, USA.

Dr Boguslaw Machaliński. Pomeranian Academy of Medicine, Szczecin, Poland.

Professor Emeritus Zygmunt Machoy. Pomeranian Medical Academy, Szczecin, Poland.

Professor F Murray. Murdoch University, Murdoch, WA, Australia.

Professor Masayuki Okazaki. Hiroshima University, Hiroshima, Japan.

Dr James C Pushnik. California State University, Chico, CA, USA.

Professor Masashi Shimahara. Osaka Medical College, Takatsuki City, Osaka, Japan.

Professor Jörg Spitz. Society for Medical Information and Prevention, Wiesbaden, Germany.

Professor Anna Strunecká. Charles University, Prague, Czech Republic.

Professor Dianjun Sun, Harbin Medical University, Harbin, P.R. China.

Professor Guifan Sun. China Medical University, Shenyang, China.

Professor Emeritus AK Susheela. Fluorosis Research & Rural Development Foundation, New Delhi, India.

Professor Satoshi Takizawa. Dept. of Urban Engineering, Graduate School of Engineering, University of Tokyo.

Professor Emeritus SPS Teotia. Institute of Higher Medical Sciences, Whitefield, India.

Professor Emeritus Humio Tsunoda. Iwate Medical University, Morioka, Japan.

Prof. Jundong Wang. College of Animal Science & Veterinary Med., Shanxi Agri. Uni., Taigu, Shanxi, PR China.

Professor Emeritus Zan-Dao Wei. Guiyang Medical College, Guizhou, China.

Professor Emeritus Y Yoshida. Osaka Medical College, Osaka, Japan.

Professor Emeritus NBK Yoshitake. Shiga University of Medical Science, Otsu, Japan.

Prof. Boasham Zheng., Inst. of Geochemistry, Chinese Acad.of Sciences, Guiyang, Guizhou, PR China.

### Editorial Assistants:

Bill Wilson. North Shore City, New Zealand.

Peter Meiers. Saarbrücken, Germany.

### Managing Editor:

Dr Bruce Spittle. Dunedin, New Zealand.

**FLUORIDE QUARTERLY JOURNAL OF THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INC.**

ISSN 0015-4725, is published four times a year (January-March, April-June, July-September, and October-December), and contains peer-reviewed scientific reports on agricultural, analytical, biochemical, biological, chemical, clinical, dental, ecological, environmental, industrial, medical, metabolic, pharmacological, synergistic, toxicological, and veterinary aspects of inorganic and organic fluorides. Publication is usually made towards the end of each quarterly period rather than at the start of the period. The journal does not contain advertising.

**COPYRIGHT.** *Fluoride* is owned and published by the INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INCORPORATED © 2011. All rights reserved.

**ONLINE ACCESS** *Fluoride* is an open access journal available without an embargo period and with free full text at: [www.fluorideresearch.org](http://www.fluorideresearch.org), [www.fluorideresearch.com](http://www.fluorideresearch.com), and [www.fluorideresearch.net](http://www.fluorideresearch.net). Further details are given below in the section on past issues. Articles in *Fluoride* can be searched for using the Google custom search on the website by inserting, in the white box, appropriate key words such as author names, subject key words, and dates, and clicking on the search box. The results can be cleared by clicking on the x to the right of the search box. The search engine covers all articles on the website including the 35-year Cumulative Author and Subject Indexes and subsequent annual indexes. *Fluoride* is also covered by the Chemical Abstracts search engine *SciFinder Scholar* (from Chemical Abstracts Service) and *Web of Science* (from Thomson Corporation for Science Citation Index), but not, at present, through *Index Medicus/PubMed*.

**SUBSCRIPTION TO FLUORIDE IN HARD COPY** for 2011, is available for an annual fee, payable annually in advance, of: US\$51, Canadian\$53, £33, Japan¥4500, €39, Australian\$57, or New Zealand\$72, with a discount of 10% for copies posted to a New Zealand address, which incurs a lower postal cost. No subscription agency discount is available. Payment may be made in any of the currencies above. No journals will be mailed until payment is received for the current subscription or membership period. Apply to Dr Spittle, Managing Editor *Fluoride*, 727 Brighton Road, Dunedin 9035, New Zealand. E-mail: [spittle@es.co.nz](mailto:spittle@es.co.nz). Please indicate if you would like the subscription to start with the calendar year or with a particular issue of the journal. Invoices are sent to subscribers with the last issue of each year, apart from those whose copies are ordered through a subscription agency.

**PAYMENT OPTIONS** for subscription to *Fluoride*, and the purchase of back issues are: bank transfer, cheque, cash, or PayPal. Bank transfers can be made to The Bank of New Zealand, New Lynn Branch, 3029 Great North Road, New Lynn, Auckland, New Zealand; Swift BKNZLN22; Website: [www.bnz.co.nz](http://www.bnz.co.nz); Fax 64 09 827 6806; Account name: International Society for Fluoride Research; Account number 02 0184 0333239 000. Cheques should be made out to the same or to ISFR. Personal cheques, bank cheques or drafts, and cash may be posted to Dr Bruce Spittle, 727 Brighton Road, Ocean View, Dunedin 9035, New Zealand. Personal or bank cheques, and cash, in US\$, Canadian\$, £, €, Australian\$, and NZ\$ are fine. Cash as Japanese Yen is also fine. Please do not send Canadian or British Postal Notes, cheques drawn on Japanese banks, or cheques in US\$ drawn on British banks in the United Kingdom as they cannot be negotiated in New Zealand. PayPal allows payment by Visa or Mastercard directly to an E-mail address in a secure way. It is necessary to first register with PayPal at <http://paypal.com>. The recipient E-mail address for the payment is [spittle@es.co.nz](mailto:spittle@es.co.nz). Just giving the credit card number to the ISFR is not sufficient.

**COPIES OF ARTICLES AND PREVIOUS ISSUES OF FLUORIDE:** Hard copies of all of the previous issues of *Fluoride*, including the 35-year cumulative indexes in *Fluoride* 2002;35(4-Parts 1 and 2), are usually kept in stock and may be ordered directly through the Managing Editor for US\$10 or equivalent per single copy of an issue or part of *Fluoride* including postage. Individual articles can also be downloaded, free in full text, from the ISFR websites at: [www.fluorideresearch.org](http://www.fluorideresearch.org), [www.fluorideresearch.com](http://www.fluorideresearch.com), and [www.fluorideresearch.net](http://www.fluorideresearch.net).

**INSTRUCTIONS TO AUTHORS:** Manuscripts, including reports of original research, papers presented at ISFR conferences, research reviews, discussion papers, and letters to the Editor, are accepted for publication after appropriate evaluation and recommendation by qualified reviewers. The initial version of the manuscript, double-spaced throughout with wide margins, should be submitted, as a Word attachment by E-mail, to Prof Emeritus AW Burgstahler, Editor, *Fluoride*, 1620 Massachusetts Street, Lawrence, KS 66044-4254, USA (E-mail: [awburg@ku.edu](mailto:awburg@ku.edu)). Do not send manuscripts to the Managing Editor. If submission is by post, please send two copies, without a computer disc. Detailed instructions for preparing papers are at [www.fluorideresearch.org](http://www.fluorideresearch.org) and in this issue of *Fluoride* on pages 51-56. **These instructions should be followed meticulously to avoid publication delays.**

The Editorial Officers of *Fluoride* strongly support the maintenance of the highest standards of animal care and the control of discomforts to animals in research. Authors must indicate whether their institutional and national guidelines for the care and use of laboratory animals were followed. When reporting experiments on human subjects, authors should indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA* 2000 Dec 20;284(23):3043-5).

**COMPLIMENTARY COPIES:** Donors wishing to fund gift copies, which will be suitably inscribed, are invited to contact Dr Spittle.

**MEMBERSHIP OF THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INC.** Membership in the ISFR Inc. is invited from *bona fide* fluoride researchers. Membership allows participating in the activities of the Society and voting at business meetings. No membership fee is payable. Application for membership may be made by letter to Dr Spittle, E-mail: [spittle@es.co.nz](mailto:spittle@es.co.nz), including name, postal address, E-mail address, and the area of fluoride research the applicant is involved in.

**CO-SECRETARIES:** Enquiries about ISFR Inc. membership, ISFR Inc. conferences and meetings, and other matters under their jurisdiction may be made to the co-secretaries:

Professor Dariusz Chlubek. Department of Biochemistry and Chemistry, Pomeranian Medical University, al. Powstancow Wlkp. 72, 70-111 Szczecin, Poland. E-mail: [dclubek@pam.szczecin.pl](mailto:dclubek@pam.szczecin.pl)

Associate Professor Masashi Tsunoda, Department of Preventive Medicine and Public Health, Kitasato University School of Medicine, Kitasato 1-15-1, Sagami-hara, Kanagawa, 228-8555, Japan. E-mail: [mtsunoda@med.kitasato-u.ac.jp](mailto:mtsunoda@med.kitasato-u.ac.jp)