INSIDE

FAOPS NEWSLETTER

Vol. 9 No. 1, 2000 ISSN 0858-4354 **http://www.adinstruments.com/FAOPS**

Special Interest Groups within FAOPS

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Background:

Following the combined societies meeting in Brisbane in 1998, an internet exchange followed between members of the Council of FAOPS and contact persons about how FAOPS could increase its activities for the benefit of the membership. One suggestion was that it should form special interest groups (SIG). These would disseminate information between scientists with common interests; including research ideas or viewpoints, career opportunities and/or general chitchat, much like the interest groups of the UK Physiological Society.

SIG have been in existence for many years in the UK. Their main role is to organise sessions at scientific meetings. Each has a moderator and all communication to the group are directed through them. The moderator has an editorial role and decides how frequently the group exchanges information. Some groups put out a monthly information E-mail. Others only communicate when there is need to do so; for example, if they are organising a scientific session. The average group size in the UK is 70 members. The Physiological Society offers support for the SIG to organise web pages. However, most seem to choose not to do so.

The Plan:

The Special Interest groups in FAOPS should have a similar structure to that which has operated successfully in the UK.

Once established, the SIG should be autonomous. Each group moderator decides how frequently group internet exchange occurs and what other activities are undertaken.

Whilst, at present, no funding is provided for web pages for the SIG, these are to be encouraged.

The Procedure:

All communication regarding SIG should be directed through me (R.J.Pack@massey.ac.nz) in the first instance. Individuals wishing to act as moderators should include “moderator” in the title of their message.

Since groups are not likely to be very effective with less than 10 members, it is suggested that would be moderators explore potential interest of their proposed SIG before putting themselves

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Editorial

This is the first issue of the new millennium and it features an article by Prof. Praporn Wilairat at the Department of Biochemistry, Faculty of Science, Mahidol University, who proposed a working hypothesis for the link between mutation of the anion exchanger (AE1) gene and the endemic diseases in Southeast Asia such as distal renal tubular acidosis, Southeast Asian Ovalocytosis and malaria. This paper is the summary of the "Dithi Chungcharoen Lecture" given by him at the 29th Annual meeting of the Physiological Society of Thailand on May 11, 2000. The disclosure of complete sequence of human genome in June this year would undoubtedly resolve this and many other questions related to genetic disorders at an accelerated pace.

The initiative idea of the FAOPS Council to form "Special Interest Groups" is included. The detail of which is written by Dr. Rodger Pack. Meanwhile, Dr. Robert E. Kemm reports the setup of a web page on physiology teaching. Finally, I am grateful to Mr. Graeme Withell of the ADInstruments who keeps updating and improving the FAOPS Newsletter web site, and others who contribute to this issue.

Have you visit our web site? http://www.adinstruments.com/faops

Chumpol Pholpramool
Editor
June 2000

Special Interest Groups (From page 1)

forward.

Professor Chumpol Pholpramool, as editor of the FAOPS Newsletter and its web site, has agreed to post the titles of SIG and their moderators' E-mail addresses on the Newsletter web site. However, those wishing to join or communicate with a group should contact the moderator directly.They should **NOT** communicate with either the FAOPS Newsletter or its editor.

To get the ball rolling, I will act as moderator for a SIG on Respiration. Individuals wishing to join this group should include "respiration" in the title of their message to me.

Outcomes:

The initiative to establish

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IBRO School of Brain Functions
December 3-17, 2000, Hong Kong, China

IBRO has decided to set up an Annual Neuroscience School in each of the 4 regions of the world, viz. Asia-Pacific, Africa, Latin America, and Eastern/Central Europe. In December 3-17, 2000, the IBRO School in Neuroscience for the Asia-Pacific region will be held in Hong Kong.

The purpose of the School is to provide a platform for senior PhD students and junior post-doctoral fellows in the Asia-Pacific region to meet together in an environment where they can acquire knowledge of both theoretical and technological advances in key areas of neuroscience research. The level of funding from IBRO will enable 20 students (from outside Hong Kong) to attend this 2-week School. The return airfare (home city - HK) as well as room and board for the 2 weeks will be funded by the School.

Application form can be down-loaded from the following websites:

http://www.ibro.org
http://dsmallpc2.path.unimelb.edu.au/FAONS/Newslet.htm
http://medicine.org.hk/hksn

Closing date for applications for selection is July 15, 2000. Return the completed application forms by both email (e.mclachlan@unsw.edu.au) and airmail to:

Professor Elspeth M. McLachlan,
Chair, IBRO Asian-Pacific Regional Committee,
Prince of Wales Medical Research Institute,
Randwick, NSW 2031,
Australia.

For further information, please contact Professor Y.S. Chan of The University of Hong Kong (Fax: 852-28559730; Email: yschan@hkucc.hku.hk).

Renal Tubular Acidosis, Anion Exchanger 1 (AE1) Mutations, Southeast Asian Ovalocytosis: A Malaria Connection?

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Renal tubular acidosis (RTA) is a generic name for a heterogeneous group of nonuremic disorders in which there is a hyperchloremic metabolic acidosis with a normal value in the anion gap in plasma (anion gap is defined as the difference between plasma cations and anions) and a reduced rate of net acid secretion (1). The cause can be both renal and extrarenal. In the latter case, this may result from administration of HCl-generating compounds (viz. ammonium chloride, lysine, arginine) or from loss of bicarbonate resulting from diarrhea or bowel ileus.

Depending on the location of the defect, RTA can be classified as being proximal (pRTA) or distal (dRTA). In pRTA, the defect resides in proximal tubule and results in excessive bicarbonate loss in the urine but urinary acidification is normal. The defect has been attributed to reduced bicarbonate reaborption, and in some cases, pRTA has been found to be associated with familial carbonic anhydrase II deficiency (2). On the other hand, dRTA results in abnormal urinary acidification and produces clinical manifestation. Patients cannot lower urine pH below 5.5, and present chronic acidosis. Adults with dRTA have metabolic acidosis and hypokalemia; in children, there is stunted growth due to rickets. Hospital visits are often triggered by paralysis of all extremities.

Distal renal tubular acidosis is highly prevalent in Northeast Thailand and has been given the name endemic dRTA (3). In a survey of five villages around Khon Kaen, out of a population of 3013 who were examined for urine citrate concentration and their ability to lower urine pH under acid loading condition, 2.8% were unable to acidify their urine and 0.8% had serum potassium level below the lower limit of normal range. A large number of villagers (33.4%) showed low urine citrate levels and there was a high prevalence of renal stone.

The etiology of endemic dRTA in Northeast Thailand remains an enigma (4). Suggested possible environmental insults include low dietary potassium intake and high vanadium in soil which correlates with elevated urine vanadium in patients when compared with controls in the same region.

Familial dRTA inherited in an autosomal dominant form has been reported in a number of Caucasian families (5). It is associated with a defect in the anion exchanger (AE1) of the distal renal collecting duct intercalated cell type A (ICA). This transporter is a product of the same gene (AE1) as the erythrocyte anion exchanger, band 3, but is NH2-terminally truncated due to loss of exons 1-3 of the erythroid band 3 due to initiation of transcription from a promoter region within intron 3 of AE1 gene. In ICA the transporter is located at the basolateral membrane (see Figure 1) and exchanges chloride from plasma with intracellular bicarbonate which remains following the transport of proton into the tubular lumen by the apical H^+-ATPase pump. Protons are produced by the hydration of carbon dioxide by carbonic anhydrase II. Chloride brought into ICA by kidney AE1 leaves the cell through chloride-selective channels.

Table AE1 Mutations Associated With Familial Distal Renal Acidosis

Mutation	Reference
Dominant Form	
R589H	(5)
R589C	(5)
R589S	(5)
S613F	(5)
Recessive Form	
R602H	(12)
G701D	(13)

Studies of genomic DNA from families with dominant form of dRTA have shown, both by genetic linkage studies and by DNA sequencing, that affected individuals are heterozygous for mutations in AE1 gene (see Table) whilst unaffected members of the family have normal band 3 sequence. However, functional studies of band 3 in red cells (sulfate uptake measurements) of affected subjects indicated only slight decrease in activity (80% of control) in those with mutations in R589, and an increase of about 2.5 times in red cells from subjects with mutation S613F. Expression of both the

erythroid and kidney isoforms of the mutant AE1 proteins in Xenopus laevis oocytes have shown that they retain chloride transport activity. It is suggested that the disease in the dRTA families results from the misdirection of mutant AE1 to the apical membrane of ICA in which case bicarbonate efflux into the lumen would neutralize protons pumped by the apical H^+-ATPase so that there is no net transfer of protons.

Autosomal recessive form of dRTA has been seen in association with familial elliptocytosis (6,7) and in a subject with Southeast Asian ovalocytosis (SAO) (8). SAO is a hereditary anemia that is widespread in parts of Southeast Asia and Melanesia. The abnormal shaped red cell results from a truncated erythroid band 3 (deletion of nine amino acids in exon 11) which affects its interaction with the membrane cytoskeleton (9). Sequencing of the SAO AE1 gene revealed the presence of two linked mutations: deletion of codons 400 to 408 and a point mutation in the first position of codon 56 (K56E), the Memphis I polymorphism (10). Red cells from SAO individuals (who are always heterozygotes as the homozygous state is believed to be lethal) have only half of the sulfate uptake activity of normals indicating that SAO band 3 lacks activity.

As endemic dRTA is seen in children in Northeast Thailand, we considered whether there may not be a familial form of dRTA present as well. The mode of inheritance would be autosomal recessive. Although a strong candidate for study is AE1, there was no a priori evidence that this gene was affected among the endemic dRTA population of Northeast Thailand.

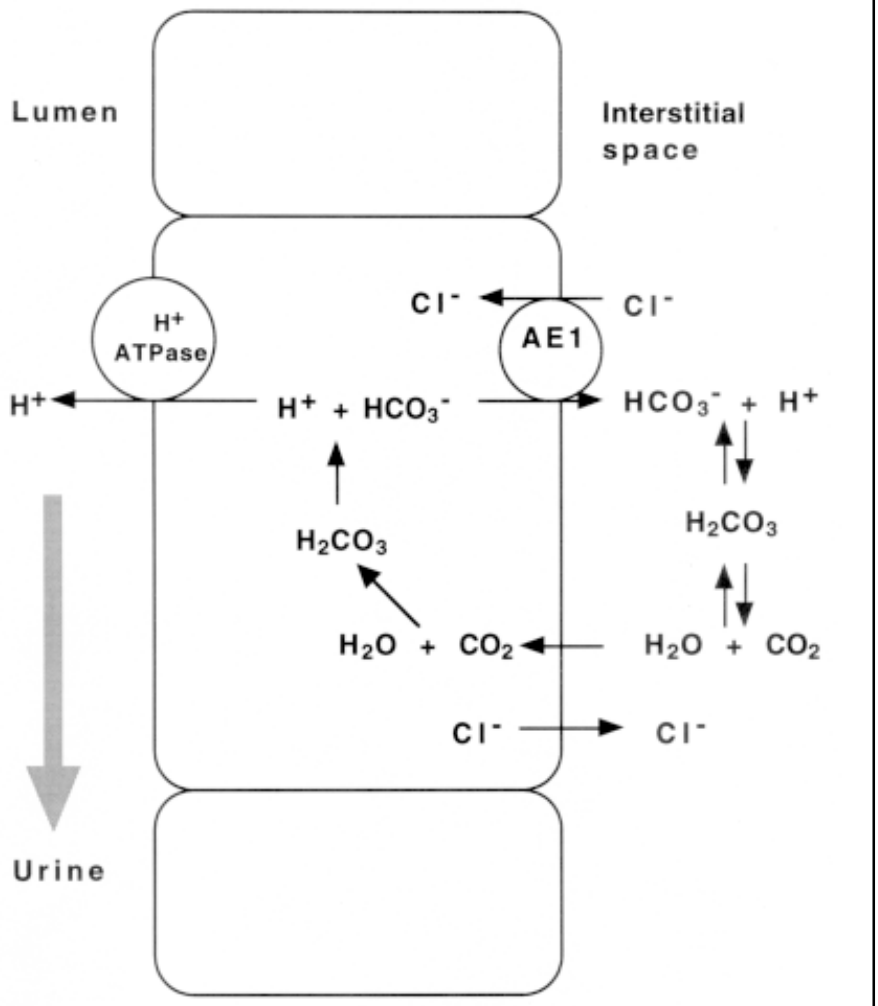
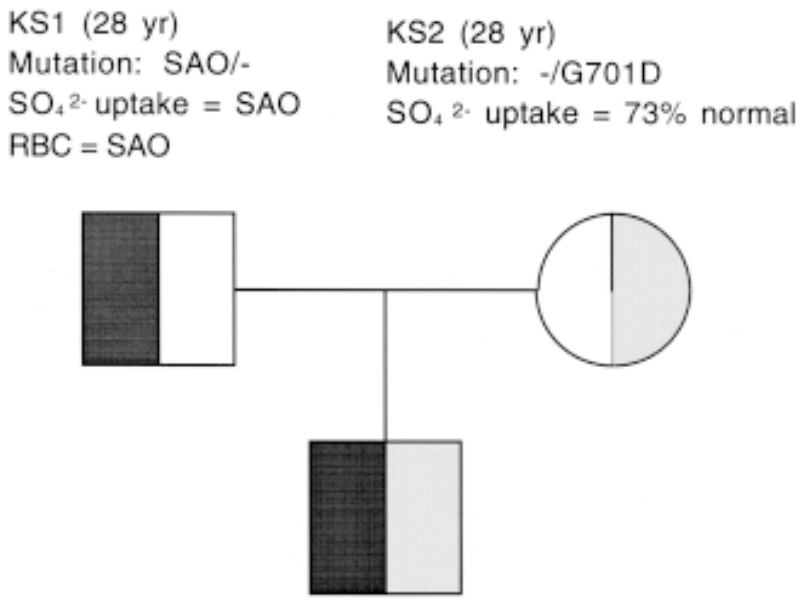


Figure 1 Role of anion exchanger 1 (AE1) in acid secretion by the renal intercalated cell type A

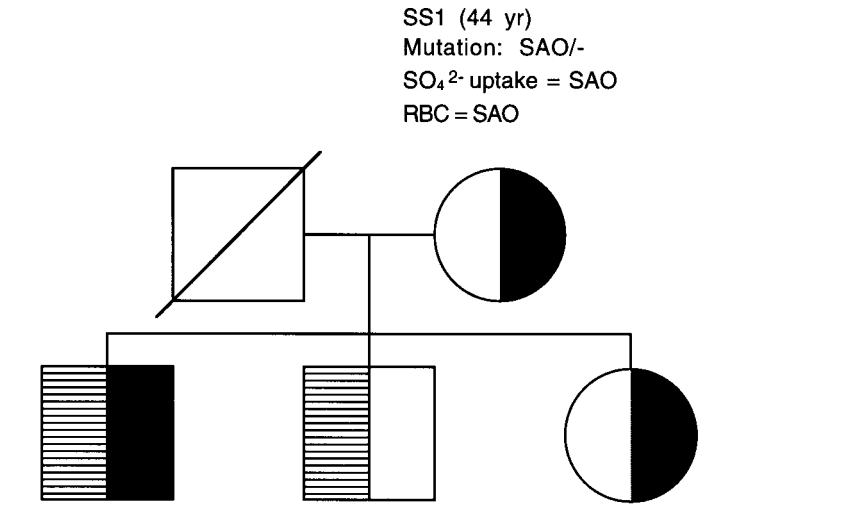
However, as SAO is prevalent in South Thailand and dRTA has previously been reported to be associated with this syndrome (8), we postulated that SAO individuals with familial dRTA would have mutations in the other AE1 allele, and that this mutant allele would be inherited in an autosomal recessive mode.

From about 30 individuals with SAO, three families (KS, SS, YA) were identified with at least one SAO member who had been diagnosed with early onset of dRTA (see Figures 2-4 for pedigree). From these probands and family members genomic DNA were obtained for mutation analysis and red cells for sulfate uptake measurements. Exons 4-20 of AE1 gene were analyzed for sequence mutations using single-stranded conformational polymorphism (SSCP) followed by sequencing of the mutant exon and confirmation of the identified mutation by restriction enzyme digestion of the amplified DNA fragment. The presence of SAO mutation and Memphis I polymorphism were verified by detecting



KS3 (5 yr) **dRTA onset 1 1/12 yr**
Mutation: SAO/G701D
SO_4^{2-} uptake = SAO

Figure 2 Pedigree of Family KS



SS2 (24 yr)
dRTA onset 5 yr
Mutation: SAO/R602H
SO_4^{2-} uptake = 1/2 SAO
RBC = SAO

SB3 (22 yr)
Mutation: -/R602H
SO_4^{2-} uptake = 70% normal
RBC = normal

SS4 (20 yr)
Incomplete dRTA
Mutation: SAO/R602H
SO_4^{2-} uptake = 1/2 SAO
RBC = SAO

Figure 3 Pedigree of Family SS

the 27 base pair deletion in exon 11 and sequencing exon 4 of AE1 gene, respectively.

Probands KS3 and YA3 were compound heterozygotes for SAO and G701D (Figure 2 and 4) (11). KS3 inherited the SAO allele from his father and the G701D allele from the mother; the mother of YA3 was heterozygous for SAO and the father heterozygous for G701D. However, proband SS2 presented a different mutation (R602H) in trans to SAO (Figure 3) (12). Presumably this R602H mutation was inherited from the father whose DNA was not available for study. Interestingly, proband's sister SS4 with the same compound heterozygosity in AE1 was diagnosed as having incomplete dRTA (no clinical manifestation but with inability to acidify urine under acid loading test) indicating that there may be other factors that can ameliorate the clinical outcome of dRTA. Studies of red blood cell sulfate uptake from probands and family members showed that G701D mutations had no affect on transport activity whereas that of R602H was reduced by about one half.

If these mutant AE1 proteins have normal transport activity (or if reduced, has not adversely affected red cell function), the mutations cannot account for disease in the kidney. However, two Thai siblings with dRTA and hemolytic anemia have earlier been shown to be homozygous for G701D in AE1 gene and having normal red blood cell anion transport (13). Expression of both the erythroid and kidney isoforms of the mutant AE1 gene in Xenopus laevis oocytes showed the mutant proteins are unable to be expressed at the oocyte plasma membrane unless the red blood cell membrane pro-

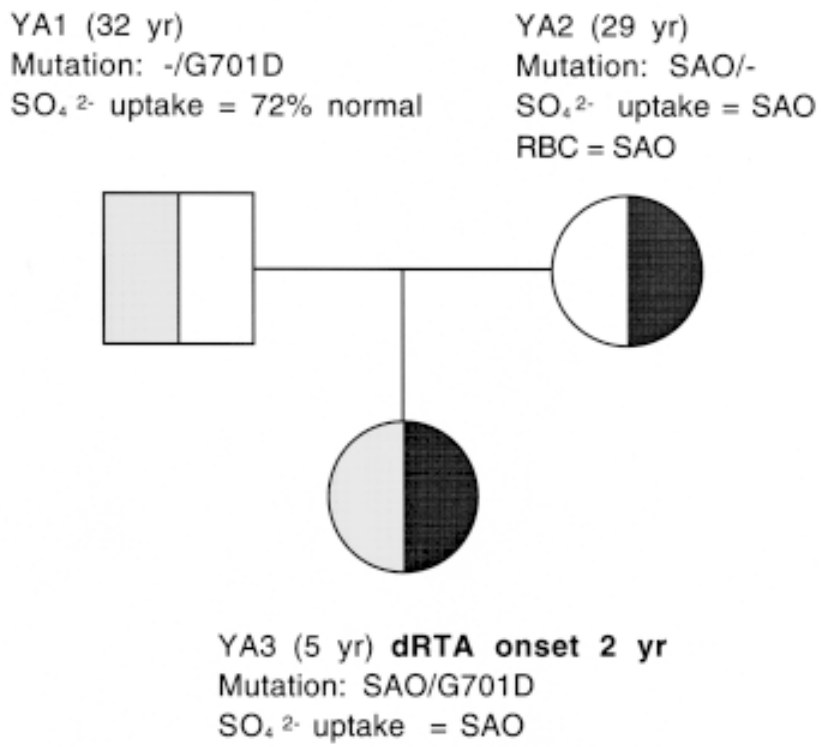


Figure 4 Pedigree of Family YA

tein glycophorin A (gpA) is also co-expressed. Kidney ICA cells lack gpA and this accounts for the renal pathology. A similar phenomenon presumably takes place in the kidney of SAO subjects with co-inheritance of G701D mutation. It is not clear whether this also is the case with R602H AE1 protein. Both mutations, H602 and D701, are located on the cytoplasmic side of the transmembrane AE1.

The presence of 3 families with AE1 mutations from random screening of 30 Thai SAO individuals suggests that AE1 mutants, other than SAO, is polymorphic in South Thailand. Among 21 Malay subjects with dRTA, including 3 pairs of siblings, SAO was detected in 16 patients (14). Polymorphism of SAO in Southeast Asian and Melanesian populations has been ascribed to the protection SAO provides against malaria. Cerebral malaria is not found in Papua New Guinea among SAO children (15). The mechanism proposed is that the deletion in band 3 perturbs its interaction with the red cell membrane cytoskeleton which alters the formation of cytoadherance sites on the malaria-infected red cell surface and thereby compromises its attachment to the endothelial surface of brain capillaries. A similar mechanism may be acting to select other AE1 mutants which have properties similar to SAO band 3. In a malaria endemic area, homozygosity or compound heterozygosity of these AE1 mutants will thus manifest in familial dRTA.

Acknowledgments

The studies described would not have been possible without the unstinting assistance of the following colleagues: Peti Thuwajit (Department of Biochemistry, Faculty of Medicine, Khon Kaen University); Pa-thai Yenchitsomanus and Prida Malasit (Medical Molecular Biology Unit, Faculty of Medicine Siriraj Hospital, Mahidol University); Somkiat Vasuvattakul and Sumalee Nimmannit (Renal Unit, Faculty of Medicine Siriraj Hospital, Mahidol University); Prayong Vachuanichsanong, Charoen Kaitwatcharachai and Vichai Laosombat (Songklanakarin Hospital, Prince of Songkla University). PW and PM are Senior Research Scholars of The Thailand Research Fund.

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5. Karet FE, Gainza FJ,

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MEETING CALENDAR

9th International Conference of Environmental Ergonomics (The integrative physiological, biomedical & engineering approach), Ruhr-University Bochum, Germany
30 July-4 August 2000
Contact : Prof. Werner.
Tel : +49-234-7005442,
Fax : +49-234-7094117
Email : icee2000@biomed.ruhr-uni-bochum.de
http ://www.biomed.ruhr-uni-bochum.de/icee2000.html

World Congress of Pediatric Gastroenterology, Hepatology and Nutrition, Boston, MA
5-9 August 2000
Contact : World Congress of Pediatric Gastroenterology, Hepatology and Nutrition,
6900 Grove Road, Thorofare, NJ 08086.
Tel : 856-848-1000, X252 ; 856-848-5274
Email : naspgn@slackinc.com
http ://www/naspgn.org

Joint Congress of the Scandinavian Physiological Society and the American Physiological Society, Stockholm, Sweden
16-19 August 2000
Contact : APS Conferences Meeting Office
9650 Rockville Pike
Besthesda, MD 20814-3998, USA
Tel : 301-530-7010,
Fax : 301-571-5752
http://www.scandphys.org

APS conference: Baroreceptor and Cardiopulmonary Receptor Reflexes, Iowa City, Iowa, USA
23-27 August 2000
Contact : APS Conferences Meeting Office
9650 Rockville Pike
Bethesda, MD 20814-3998, USA
Tel : 301-530-7010,
Fax : 301-571-5752
Email : meetings@aps.faseb.org

World Congress of Lung Health and 10th European Respiratory Society Congress, Florence, Italy.
30 August- 3 September
Contact : ERS Headquarters
Luasanne, 1, boulevard de grancy,
CH-1006 Luasanne, Switzerland.
Tel : +41-21-613-0202,
Fax : +41-21-617-2865
Email : congres@ersnet.org or scientif@ersnet.org

XIth International Vascular Biology Meeting, Geneva, Switzerland
5-10 September 2000
Contact : IVBM 2000, c/o MCI Group SA,
Rue de Lyon 75,1211 Geneva 13, Switzerland.
Tel : +41-22-345-3600,
Fax : +41-22-240-2363
Email : anne-lise@mcitravel.com

2000 Pre-Olympic Congress, International Congress on Sports Science, Sports Medicine and Physical Education, Brisbane, Australian
7-13 September 2000
Contact : Amanda Costin,
2000 Pre-Olympic Congress,
C/-Queensland University of Technology, Human Movement Studies,
Locked Bag 2, Red Hill,
Queenland 4059, Australia.
Tel : +61-7-3864-5824 ,
Fax : +61-7-3864-9690
Email : a.costin@qut.edu.au.

XIV Congress of the Cardiovascular System Dynamics Society, Baltimore, Maryland, USA.
14-17 September 2000
Contact : David A. Kass,M.D.or J. Yasha Kresh, Ph.D.,
Johns Hopkins Medical Institutions, Baltimore, MD.
Email : dkass@bme.jhu.edu or j.yasha.kresh@drexel.edu
http ://www.hopkinscme.org/CSDS

APS conference : The Integrative Biology of Exercise, Portland, Maine, USA
20-23 September 2000
Contact : APS Conferences Meeting Office
9650 Rockville Pike
Besthesda, MD 20814-3998, USA
Tel : 301-530-7010,
Fax : 301-571-5752
Email : meetings@aps.faseb.org

Molecular and Cellular Mechanism of Brain Repair, Turin, Italy
11-14 October 2000
Contact : Biotecnology Foundation,
Villa Gualino, Viale Settimio Severo 63,
10133 Turin, Italy.
Tel : +39-011-6600187,
Fax : +39-011-6600708
Email : mail@fobiotech.org
http ://www.fobiotech.org

Frontiers in Modelling and Control of Breathing (8th Oxford Conference), Cape Cod, MA
11-15 October 2000
Contact : Chi-Sang Poon, Ph.D.,

Division of Health Sciences and Technology,
Harvard University Massachusetts Institute of Technology,
Rm. 20A-126, Cambridge, MA 02139.
Tel : 617-258-5405,
Fax : 617-258-7906
Email : cpoon@mit.edu

2nd International Conference on Experimental and Clinical Reproductive Immunobiology, Amsterdam, The Netherlands
15-18 November 2000
Contact : Conference Secretariat
Elsevier Science
The Boulevard, Langford Lane
Kidlington, Oxford OX51GB, UK
Tel : +44(0)1865-843721
Fax : +44(0)1865-853950
Email : e.reed@elsevier.co.ulc
http ://www.elsevier.nl/locate/jri2000

13th Asian Colloquium in Nephrology and Advanced Course in Nephrology, Bali, Indonesia.
21-25 November 2000
Contact : Secretariat, PO BOX 888,
JAT 13000, Jakata, Indonesia.
Tel : +62-21 3149208 or 3141203,
Fax : +62-21 3155551 or 3152278
Email : yagina@commerce.net.id.

FAONS Symposium 2000 and The 20th Scientific Meeting of the Hong Kong Society of Neurosciences, Hong Kong
7-10 December 2000
Contact: FAONS 2000/ 20thHKSN
Conference Secretariat
c/o Department of Physiology
Faculty of medicine
The University of Hong Kong
5 Sassoon Road, Hong Kong
China
http://www.ibro.org

Renal Tubular Acidosis
(From page 6)

Gyory AZ, Unwin RJ, Wrong O, Tanner MJA, Nayir A, Alpay H, Santos F, Hulton SA, Bakkaloglu A, Ozen S, Cunningham MJ, Di Pietro A, Walker WG, Lifton RP. Mutations in the chloridebicarbonate exchanger gene AE1 cause autosomal dominant but not autosomal recessive distal renal tubular acidosis. Proc Natl Acad Sci USA 1998; 5: 6337-42.

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Physiology Teaching

International Workshop on Physiology Teaching, Karachi 1999

The workshop was held during 5-8 April, 1999 in Karachi, Pakistan. The event was organized under the auspices of the IUPS, Pakistan Physiological Society and the Aga Khan University. Other major sponsors include Islamic Development Bank, Islamic Educational Science and Cultural Organization, Third World Academy of Science and Pakistan Science Foundation. Dr. Arif Siddiqui, General Secretary of the Pakistan Physiological Society and the key organizer, reported that over 80 physiologists and medical educationists from 19 countries had gathered to discuss novel methods of teaching and learning of science in medical schools. The main theme of the workshop was 'Interactive Teaching'. Other topics of discussion were ' The Role of Basic Scientist in Physiology Teaching', 'Evaluation and Assessment', 'Problem-Based Learning', 'Integrated Lecture', 'Usefulness of Experiments in Lectures' and 'Computer-Assisted Learning'. Four working groups leaded by experts Dr. Ann Sefton, Chairperson of the commission on Teaching Physiology, IUPS, Australia; Dr. Robert G. Carroll, East Carolina University, USA; Dr. Usha Nayar, Arabian Gulf University, Bahrain; Dr. G Holsgrove, Cambridge Medical Education Consultants, UK proposed recommendations for improving the quality of physiology teaching in Pakistan and other developing countries of the region. It was recommended that a teacher must be a facilitator not a resource person. The students should be oriented to understand the role of the teacher and how to search for information. A great deal of work on planning for an interactive learning program is needed. The problem of large groups could be solved by allowing senior students to teach and coach students in junior classes. Individuals identified as **mentors** are recommended to help out the students in their personal and academic matters. Job security and other incentives are necessary for the motivation of teachers whereas the students could be motivated by allowing them to participate in the program. The selection of proper teaching staff is of great importance because changes in attitudes cannot always be easily brought about. A proper mix of assessing methods such as objective structured practical examination and multiple choice questions etc. can be used to assess the student's competence. The students should be trained to learn many of the topics themselves. This is the strategic shift from teacher-centered to student-centered learning. The students can be expected to learn if they are given access to good libraries, the Internet and research journals etc. The workshop also highlighted the importance of extending proper guidance of self-learning, which is the trend for modern teaching and learning methods in sciences.

Reference

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NEWS in Physiology Education for FAOPS

A WEB Page on Teaching Resources

One of the proposals arising from the successful FAOPS/ FAONS teaching workshop on Computer-assisted Learning in Brisbane was a plan to seek funds for establishing a Teaching Web Page for FAOPS covering Teaching Resources for Physiology and Pharmacology (TRIPPS), or its alternative name Teaching Resources in Medical Sciences (TRIMS). Unfortunately we have not been able to find such funds.

However, now that ADInstruments have agreed to host and develop Web Pages for FAOPS, we have the potential to provide such information on Education Resources for our members. This will mean that we need to rely on our members to provide the information for the Web-Master to include them in WEB pages on the FAOPS site.

The idea of these WEB pages is to provide members with the following information, without replicating what is already available in a number of sites around the world, such as that currently

under development by the American Physiological Society at http://www.faseb.org/aps/Education.html

At the Brisbane Workshop it was felt that following information would help our members to locate and obtain resources useful for their own particular style of teaching.

A forum for people to report their experiences with introducing specific computer assisted learning packages, or to seek information from others on what might be available in a particular area of physiology.

What they have tried on which students? What worked and what was ineffective, and possible reasons for its success for otherwise? Such information is particularly important as evaluation with students is the real test of usefulness, more so than just relying on reviews by other academics who may have different criteria.

Where are there useful WebSites with list of resources and other links, such as the APS and other societies' WebSites.

Web-Sites with teaching material that is available to download free of charge.

Location of lists and reviews of relevant teaching software can be useful as an initial guide, but teaching software that is available for trial before buying is preferable. Standalone teaching programs, web-based resources and text-books with their supporting multimedia resources (such as Overheads, WebSites and CDs) would all be of interest. If not already included on other WebSites, we may be able to encourage such information to be included.

Where and how teaching software can be purchased in different countries, since there appears to be some difficulties in locating sales agents.

I will be happy to coordinate the efforts and liaise with ADInstruments' WebMaster, but I will need help from others. I will be approaching representatives of the various countries that attended the workshop in Brisbane so that we can get information from all our member countries as well as their assistance in locating and collating relevant information.

Ultimately the success of the pages will depend on members' interests and submissions of their experiences, so I look forward to your emails.

WORKSHOPS on Modern Practical Physiology

One of the aims of the FAOPS and IUPS workshops on Education issues has been to assist people to modernise teaching practices in practical physiology, although time has usually restricted the scope of such activities to about half a day. However, a recent initiative at the University of Western Australia will be interesting to many members. They are offering residential workshops on modern approaches to teaching practical physiology, with hands-on experience over a week. The first of these will be held at about the time that you read this article, but they plan to hold additional workshops in the future. It will be of interest to all those contemplating or currently embarking on an up-grade of their laboratories, since the workshop will be dealing with a wide range of monitoring and analytical equipment. The sessions include all aspects of organising and running physiology practical classes. It looks a very effective way to get hands on experience to design physiology experiments for the digital age.

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News from Societies
(From page 11)

Therapy
Rangsit University
Vipavadee Avenue
Rangsit, Patumthanee

Treasurer: Assoc. Prof. Prakong Tangprapreutkul

Registrar: Assoc. Prof. Penchom Puengwicha

Members:
Chucheep Praputpitaya
Chungchan Chaitatawat
Pawinee Piyachaturawat
Siripan Hiranyachatitada
Supatra Lohsiriwat

Special Interest Groups
(From page 2)

interest groups could be seen as successful if at least one session at the next FAOPS scientific meeting was organised by an Interest Group.

The 2001 IUPS meeting in Christchurch, New Zealand will be the largest and most prestigious physiological congress ever held in the Southern Hemisphere. A SIG input to either the synthesia or satellites of this meeting would be a major triumph for FAOPS.

News from Societies

Australian Physiological and Pharmacological Society (APPS)

Dr. Richard J., NHMRC Senior Research Fellow at Monash University, is the new National Secretary of APPS. His contact address is :
Dr. Richard J. Lang
Department of Physiology
Monash University
PO Box 13 F
Clayton Victoria 38000, AUSTRALIA
Tel: +61(03)9905 2517
Fax: +61(03)9905 2547
Email : Rick.Lang
@med.monash.edu.au

Chinese Physiological Society (CPS)

New members of the executive committee of CPS for 2000-2002 have recently been elected.

President: Prof. T.H. Chiu
Department of Physiology
National Yang-Ming University
155, Sec 2, Li-Nong St., Shih-Pai, Taipei,Taiwan, R.O.C
Tel : 886-2-2826-7084
Fax : 886-2-2826-4049
Email : thchiu@ym.edu.tw

Secretary: Dr. H.F. Pu
(same address as the President)
Tel : 886-2-2826-7000 ext. 5374
Email : thchiu@ym.edu.tw

Members :
J.Y.H Chan
H.I. Chen(Hsing-I Chen)
H.I. Chen (Hsiun-Ing Chen)
W.C. Huang
J.C. Hwang
Y.R. Kao
J.S. Kuo
Y.L. Lai
E.H.Y. Lee
P.S. Li
M.T. Lin
J.T.Pan
C.S. Tung
P.S.Wang

Physiology and Biochemistry Section, The Myanmar Medical Association (MMA)

Executive committee of the Physiology and Biochemistry Section of MMA for 1998-2000 are :

President: Prof. Dr. Nyunt Wai
Department of Physiology Institute of Medicine 1, Pyay Road, Yangon, Myanmar
Tel : +95-01-530955

Vice-President (1): Dr. Sre Min Thien
Vice-President (2): Dr. Myo Win

Secretary: Dr. Khin Myo Chit
Physiology Department Institute of Medicine 2
North Okkalapa, Yangon

Joint-Secretary: Dr.Kyi Kyi Myint

Treasurer: Dr. Yi Yi Myint
Joint-Treasurer: Dr. Myat Thu

Auditor: Dr. Ye Tint Lwin
Joint-Auditor: Dr. Aung Khin

Academic-Secretory: Dr. Myint Aye Mu
Joint-Academic-Secretary: Dr. Myant Thanda

Members:
Prof. Dr. Muang Muang
Dr. Than Oo
Prof. Dr. Htay Htay
Dr. Nyein Nyein Wai
Prof. Dr. Nyo Nyo
Dr. Phyu Phyu Aung
Prof. Dr. Aung San
Dr. (Caption) Khin Cho Aung
Dr. Zin Thet Khine
Dr. Theingi Myint
Dr. Hla Hla Aye

Pakistan Physiological Society (PPS)

During April 3-5, 2000 the 7th Biennial Conference was organized by the Department of Physiology, Univeristy of Karachi. There were 8 plenary lectures (one of which was given by Prof. F. Motamedi, President of the Iranian Society of Physiology and Pharmacology), 33 oral and 24 poster presentations; 2 pre-dinner talks (one by Prof. Engles on “Why PBL”?).

Office bearers during 2000-2002 elected are:

President; Prof. Dr. Masood A. Qureshi,

Vice-President; Dr. Arif Siddiqui,

Secretary-General; Dr. Humayun Ikram,

Treasurer; Dr. Talay Yar,

and 6 Council members from different provinces.

Physiological Society of Thailand (PST)

New members of the Executive Committee (2000-2002) are:

President: Assoc.Prof. Pranee Jaiarj

Secretary-General: Assist. Prof. Prayode Boonsinsuk
Dean, Faculty of Physical

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FEDERATION OF THE ASIAN AND OCEANIAN PHYSIOLOGICAL SOCIETIES FAOPS 1990

Vol. 9 No. 1, 2000
ISSN 0858-4354
http://www.adinstruments.com/FAOPS

FAOPS NEWSLETTER

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