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|                      | <b>H.J. Singh</b>     |

# FAO P S

## N E W S L E T T E R

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### FAOPS/MSPPP WORKSHOP ON IMMUNOASSAY TECHNIQUES

A workshop on immunoassay techniques co-organized by FAOPS and the Malaysian Society of Pharmacology and Physiology (MSPP) was held from 4-6 November, 1996 at the Department of Physiology, Faculty of Medicine, University of Malaya, Kuala Lumpur. Major funding for the workshop was kindly provided by a grant from Brain Science Foundation and The Japanese Physiological Society. The FAOPS workshop Advisory Committee consisted of J.A. Young, R. Pack, M. Lin and H.J. Singh. The local organizing committee were S.H. Cheah (chairman), H.J. Singh (hon. secretary), Ruby Husain (treasurer), Rosnah Ismail and K.H. Kim.

A total of 20 participants from several FAOPS affiliated countries were represented. They included Iran (2), India (2), Vietnam (2), Sri Lanka

(2), Thailand (3), and the rest from various institutions in Malaysia (9). The organizers were able to provide full financial assistance for 2 participants from each country.

The instructors for the workshop were Dr. A. Takagi from Dainabot Co., Japan and Prof. S. L. Ch'ng of the University of Malaya. Dr. Takagi has had over 20 years experience in the development of immunoassays and kits, and had provided all the kits (from Abbott) used in the workshop. Prof. Ch'ng is the senior consultant in Pathology at the University Hospital, University of Malaya, and has lectured and conducted workshops on immunoassays all over the world under the auspices of the International Atomic Energy Agency.

The workshop was officially opened by the Deputy Dean of the Faculty of Medicine, Professor Amir Khir.

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Group photograph of instructors, organizing committee and participants. Prof. Ch'ng and Dr. Takagi in ties, Assoc. Prof. Cheah on the right of Prof. Ch'ng, Assoc. Profs. Ruby Husain and Rosnah Ismail standing in 2<sup>nd</sup> row, extreme right of picture.

# Minutes of the 5th FAOPS Council Meeting

October 19-20, 1996

Royal Cliff Beach Resort, Pattaya, Thailand

The meeting was called open at 13.30 pm.

## **Agenda 1:**

### **Greeting from the President and agenda setting**

President Ito gave a warm welcome greeting to all council members and asked for apologies for Profs. Nayar, Pack and Young who were unable to come.

## **Agenda 2:**

### **Report from the Secretary**

The Secretary reported that the Pakistan Physiological Society had applied for an associate member of FAOPS. This would make the total number of 17 adhering bodies (12 regulars, 5 associates) to FAOPS. The Secretary Office played a central role in the communication between FAOPS and other academic communities such as IUPS, Federation of the European Physiological Societies (FEPS) and Federation of the Asian and Oceanic Neuroscience Societies (FAONS).

The Secretary Office had published FAOPS Newsletter vol. 4, 1995 and was preparing vol. 5 to be due by the end of 1996. Publication of the newsletter was faced with two major problems, i. e. the rising cost of postage for mailing and the lack of contributions for news and articles from the adhering bodies. After discussion, the Council insisted that the publication of the newsletter should be continued and suggested that a new column of information concerning computer assisted teaching should be included. The council members should assist the editor in obtaining news and/or articles from the affiliated societies. Meanwhile the deadline for submission of the manuscripts should be clearly indicated.

The possibility for setting up FAOPS homepage on the Internet was discussed. The Secretary and Prof.

Rahamimoff were asked to explore the possibility and the cost using the university based facilities in Thailand compared to Israel.

## **Agenda 3:**

### **Report from the Treasurer and the Fund Raising Commission**

Prof. Chai reported that from May 1, 1992 to September 30, 1996 the Treasurer Office had a total income mainly from the membership dues of US\$54,390.54 and the expenses to support all FAOPS activities totaling US\$44,353.41. There was a balance of US\$10,037.13 in the Treasurer account. This and a reserve of US\$ 10,290.68 in the Secretary account made a total reserve for FAOPS of US\$20,327.81.

The Treasurer had prepared the current status of membership dues which revealed that a number of societies had failed to pay dues one of which since 1990. The councilors had committed to assist the Treasurer in asking for the back payment and the regular annual dues from their affiliated societies.

In the capacity of the chairman of the Fund Raising Commission, Prof. Chai admitted that there were difficulties in fund raising activities partly due to the current recession of the economy in many countries. The Council agreed that all members will ask for donations from their societies and/or local organizations. It was recommended that each member of the Fund Raising Commission should be responsible for raising US\$4,000, and the target was US\$20,000 per annum.

## **Agenda 4:**

### **Reports from the Commission on Research & Education**

#### **1. Workshop on Immunoassay Techniques in Kuala Lumpur**

On behalf of Prof. Young who is the chairman of the commission,

Prof. Singh reported that the commission had worked out the program for the workshop which will be held on November 4-6, 1996. The workshop will be sponsored by Brain Science Foundation in Tokyo and the Japanese Physiological Society. Registered participants will be from India, Iran, Malaysia, Myanmar, Sri Lanka, Thailand and Vietnam totaling 19 persons. All attendees except one from Thailand will be fully financially supported.

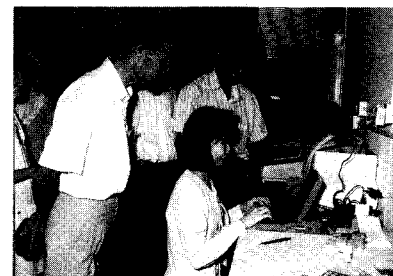
#### **2. CAT Workshop in Brisbane**

On behalf of Dr. Robert E. Kemm who was asked to organize the workshop as a pre-congress activity of FAOPS in 1998, Prof. Pholpramool reported that the proposal for the workshop had been prepared and submitted to IUPS for financial support. The workshop was planned for 50 participants with two levels of skills, novices in CAL and advance level. A shortfall of approximately US\$35,000 was anticipated for supporting 50 attendees to both the workshop and the main congress.

The sources for the support had been discussed at length by the Council and the following recommendations were made;

1. A support of US\$10,000 may be obtained from the IUPS.

2. Another US\$20,000 may be donated from Brain Science Foundation



Participants at the Workshop on Immunoassay are watching Miss Suthada Lortinan (Ph.D. student from Thailand) analyzing data.

in Tokyo.

3. The remaining US\$18,000 should be provided by FAOPS.

4. Fund raising from the local agencies should be made as much as possible.

Prof. Rahamimoff added that besides the Apple Macintosh, IBM compatible PCs should also be available for those who are not familiar with or have no access to the Apple computers.

**Agenda 6:**

**XXXIII IUPS Congress in 1997**

President Ito informed the Council that a satisfactory progress for the preparation of the XXXIII IUPS Congress in St. Petersburg in 1997 had been made. The final announcement in which IUPS Fellowships for young scientists from all parts of the world was announced had been distributed to all IUPS members. Prof. Ito will be responsible for raising US\$100,000 for the Fellowships to be allocated to the applicants from Asia. The selection and approval of these fellowships will be made by FAOPS. With the consent of the Council it was agreed that there should be upto 50 such fellowships distributed to the scientists from the following countries based on the lack of local financial supports and the numbers of scientists; China (10), India (10), Iran (6), Israel (1), Jordan (2), Korea (2), Malaysia (4), Myanmar (1), Sri Lanka (1), Taipei (4), Thailand (5), Vietnam (3). The IUPS will forward all applications from Asia to Prof. Pholpramool for screening the qualified applicants. Final decisions will be made by the societies in the aforementioned countries. The remaining fellowships will be handled by Prof. Pholpramool in case there are qualified applicants from other Asian countries.

**Agenda 7:**

**4th FAOPS Congress in 1998**

This agenda was postponed to October 20 since Prof. McLachlan, who was asked by Prof. Young to present on his behalf, would not be available until then.

**Agenda 8:**

**Revision of the Constitution & By Laws (membership fees)**

Because of the constraint on the financial situation of FAOPS the Council felt that one way of solving this problem is to increase the membership fees. It was agreed that the Secretary and the Fund Raising Committee would make a draft of proposal for the revision of the Constitution & By Laws regarding membership fees submitted to the General Assembly in 1998. Further, each member of the Council should request his/her affiliated society to submit a plan for increasing its supports to FAOPS.

**Agenda 9:**

**Application for a new member**

The Secretary reported that the Pakistan Physiological Society had applied for an associate member of FAOPS. This society was founded in 1987 and has about 150 members. The Pakistan society requested a waive for fees during the 5 years period after which they will apply for a regular member. According to the Constitution, the application must be approved by the General Assembly upon recommendation by the Council. The application was warmly welcome and accepted by the Council. This application will be recommended to the General Assembly in Brisbane in 1998.

**Agenda 10:**

**Appointment of a Nominating Committee for the Council during 1998-2002**

Since the present Council will be termed by 1998, a new Council must be elected at the General Assembly in 1998. FAOPS Constitution requires that a list of candidates must be prepared for the General Assembly by a Nominating Committee appointed by the present Council. After discussion it was agreed that members of the Nominating Committee should be representatives from 5 majors societies, i.e., Australia, China, India, Japan and Korea. Then the Council asked Prof. Ito to temporarily leave the meeting room so as to have free discussion in his absence, and asked Prof. Yang to take the chair. In view of the present rules many Officers (President, Treasurer and Secretary) in the Council had served for two consecutive terms and cannot run as Officers for another term. However, the Council felt that FAOPS would still need helps from these passing officers for continuation of many policies and activities. It was therefore agreed that Prof. Ito should represent Japan and serve as the Chairman of the Nominating Committee, and that there should be a new position called as "Past President". The Past President should be a member of the Council, in the capacity of past president, for one term (4 years).

*(Continued on next page)*



**5th FAOPS Council Meeting in Pattaya, Sitting: (From left) X.L. Yang, M. Ito  
Standing: (From left) S.H. Lee, C. Pholpramool,  
C.Y. Chai, F. Motamedi, H.J. Singh and R. Rahamimoff**

This requires a revision of the Constitution & By Laws accordingly. The revision will be proposed to the General Assembly in 1998. Prof. Ito then joined in the meeting and accepted to take the chair of the Nominating Committee. He will make contacts with officers in the aforementioned societies to propose the names of their representatives for the Committee.

There were no other matters for discussion and the meeting was closed at 17.30 pm.

The meeting was called open again on October 20 at 10.00 am

### **Agenda 1: Financial plan**

The financial plan for the activities from 1997 to 1998 was discussed at length and the following conclusion was made;

	<i>Anticipated Expenditures (US\$)</i>		<i>Expected Incomes (US\$)</i>	
<b>1997</b>				
	IUPS Fellowships	100,000	IUPS	100,000
	FAOPS Exec. meeting (St. Petersburg)	2,000	FAOPS	2,000
<b>1998</b>				
	CAT Workshop	34,800	IUPS	10,000
	FAOPS Council meet.	10,000	FAOPS	4,800
	FAOPS Fellowships	10,000	Brain Sci. F.	20,000

A deficit of US\$20,000 was anticipated. This amount of money must be raised by the Fund Raising Committee and be obtained partly from membership dues.

### **Agenda 2: 4th FAOPS Congress in 1998**

Prof. Elspeth McLachlan was invited to the meeting to report the progress in planning the 4th FAOPS Congress in 1998 on behalf of Prof. John A. Young, the chairman of the organizing committee. Prof. Ito informed her that the Council had decided to support 50 persons to attend both CAT Workshop and the main FAOPS Congress in 1998. She then reported that the date of the congress will be between September 27 to October 1, 1998. The venue will be at the Hilton Hotel in Brisbane. The congress will be concurrently organized with the 2nd Congress of the Federation of Asian and Oceanic Neuroscience Societies (FAONS) and the Annual Meeting of the Australian Physiological and Pharmacological Society, and in association with the Australian Neuroscience Society and the Physiological Society of New Zealand. The Scientific Program Committee consisting of physiologists and neuroscientists was being formulated. There will be only one scientific program for the meetings. It was anticipated that the congresses will attract about 500 participants. The Australian will contribute to approximately 350 attendants. A draft of nice and attractive advertisement sheet has been prepared. Few samples of which were circulated to the Council.

Prof. Ito thanked everyone who joined the meeting and it was closed at 11.40 am.

## **FAOPS/MSPP WORKSHOP ON IMMUNOASSAY TECHNIQUES**

*From Page 1*

Professor Ito was unable to be present, and his message was read out by the FAOPS representative from Malaysia, Assoc. Prof. Harbindar Jeet Singh. Prof Ito in his message stressed on the need for members of FAOPS to get together periodically in order to instill a sense of unity and camaraderie among the widely flung FAOPS affiliated societies. This is particularly important for the younger physiologists of the region. It is hoped that FAOPS will be able to organize periodic workshops of this nature to raise the standards and skills of physiologists in this region. Dr. Nafeeza Mohd Ismail, the President of MSPP also welcomed the participants to Malaysia and touched upon the need for closer relations among affiliated societies of FAOPS.

During the workshop participants were introduced via lectures and hands-on instruction different types of immunoassays, including assays for TSH (IRMA), T3 (RIA) and Hepatitis B antigen (EIA). A newly developed quick qualitative assay for hepatitis B screening was also demonstrated. Very importantly the participants were given tips and pointers based on the personal experiences of the instructors on how to obtain good and consistent assays, something the participants will not be able to get from text books. Participants were also exposed to various ways of handling data, from manual techniques to using computer software. All in all the workshop was conducted smoothly and a profitable and fruitful time was enjoyed by all.



## Minutes of the 5th FAOPS Executive Committee Meeting October 19, 1996 Royal Cliff Beach Resort, Pattaya, Thailand

The Meeting was called open at 09.05 am.

### **Agenda 1:**

#### **Greeting from the President and agenda setting**

President Ito welcomed all Executive committees who were able to attend the meeting and an apology was made for Prof. Young, who was absent because of his illness. Then the President reported the followings;

1. The President was able to raise fund from Brain Science Foundation in Tokyo (US\$33,000) to support FAOPS Workshop on Immunoassay Techniques in Kuala Lumpur proposed by the Commission on Research and Education.

2. Progress in the planning of IUPS Congress in 1997:-

- final announcement has been published and distributed,

- the Congress will provide fellowships for young scientists from all continents. FAOPS will be responsible for the allocations of the fellowships to the applicants from Asia,

- new IUPS Council will be elected at the General Assembly in 1997. A list of candidates has been proposed by the nominating committee.

3. There will be a special FAOPS Council meeting in 1997 in St. Petersburg.

### **Agenda 2.**

#### **Reports from the Secretary and the Treasurer**

##### **Report from the Secretary:**

The Secretary reported that Pakistan Physiological Society had recently applied for an associated member of FAOPS. Problems concerning the lack of contributions for news and articles for FAOPS Newsletter had been raised. The possibility for using an electronic super highway such as Internet for rapid and economic mode of communication and informationalization was discussed. A suggestion for preparing a directory of e-mail addresses of the key persons in FAOPS, adhering bodies and councilors had been made. The Executive Committee agreed to have next meeting during the IUPS Congress in St. Petersburg.

##### **Report from the Treasurer:**

The Treasurer reported that the account in his office as of September 30, 1996 was in a balance of US\$10,037.13. Another account in the Secretary Office had a reserve of US\$10,290.68 making the total reserve for FAOPS of US\$20,327.81.

### **Agenda 3:**

#### **Nominating Committee for the Council 1998-2002**

Since the present council members will be termed by 1998, a new Council has to be elected at the General Assembly (GA) in 1998. According to the FAOPS Constitution & By-Law, a list of candidates must be proposed to the GA by a Nominating Committee. It was agreed by the Executive Committee that members of the Nominating Committee should be representatives from 5 major countries such as Australia, China, India, Japan and Korea.

The meeting was closed at 12.00 hr



## MEETING CALENDAR

### **June, 1996**

30-3 July :  
12th Annual Meeting of  
the European Society of Human  
Reproduction and Embryology,  
Hamburg, Germany  
ESHRE Central Office  
c/o Bruno van den Eede  
AZ-VUB  
Laarbeeklaan 101,  
1090 Brussels, Belgium  
Tel: 32-2-4775761  
Fax: 32-2-4776727

### **October, 1996**

2-6: 7th International Symposium:  
The Pain Clinic, Istanbul,  
Turkey Dilan Tur Congress  
International Ltd.  
Emlak Kredi Bloklari

A-2 Blok, K:5, D:2  
80620 Levent, Istanbul, Turkey  
Tel: 90-212-2801475-6  
90-212-2835337-8  
Fax: 90-212-2801477

1-20: 1996 Intensive Workshop in  
Neuroscience, Nakorn Pathom,  
Thailand  
Dr. Naipinich Kotchabhakdhi  
Neuro-Behavioural  
Biology Center  
Mahidol University, Salaya  
Nakorn Pathom 73170,  
Thailand

Tel: 66-2-4419321  
Fax: 66-2-4419743  
e-mail:scnkc@mucc.mahidol.ac.th

20-23; 1st Pan Asian Oceanic Congress  
of Neuroscience, Pattaya,  
Thailand.

Dr. Pavich Tongroach  
c/o Department of Physiology,  
Faculty of Pharmaceutical  
Sciences,  
Chulalongkorn University,  
Bangkok 10330, Thailand.  
Fax: 66-2-5610791  
e-mail: pavich@chulkn.chula.ac.th  
20-25: The 3rd Dead Sea Conference:  
Potentiating Health and the  
Crisis of the Immune System,  
Tel Aviv, Israel  
Dan Knassim Ltd.  
P.O. Box 1931  
Ramat Gan 52118, Israel  
Tel: 972-3-6133340  
Fax: 972-3-6133341

(Continued on page 8)

# *Psychobiological Effects of Lithium in Mood Disorders*

*Lithium relieves both mania and depression which are opposite states to each other. Because of its close similarity to ions like sodium, potassium, calcium and magnesium, lithium is said to exert its therapeutic action by affecting the neuronal function through its effect on ion distribution.*

## **Historical**

Lithium is the lightest of alkali metals belonging to Gr. Ia in the periodic table of elements. Sir Humphrey Davy first isolated lithium metal in the year 1818. It was then introduced into medicine by Alexander Ure in 1840 for the treatment of bladder stones. Garrod in England (1859) and William Hammond in USA in 1870, used lithium salts for the treatment of gout and other related diseases, manic-depressive illness. Cade in Australia while looking for toxic nitrogenous substances in the urine of patients, injected lithium urate in animals in an attempt to solubilize urates but observed lethargy in these animals. Cade<sup>1</sup> then administered lithium carbonate to several agitated patients and found it effective in controlling manic episodes. But it took nearly two decades to get the approval of FDA (1970) for regular use in the treatment of mood disorders.

## **Lithium**

Lithium is currently available as carbonate capsules and tablets,  $\text{Li}_2\text{CO}_3$  (Eskalith, Litho tab, Lithane, Lithobid). Both regular-release and slow-release and as lithium citrate syrup (Cibalith 5). Once administered lithium is rapidly absorbed from the gut and diffuses quickly throughout the body penetrating the cells displacing both sodium and potassium out of them. It is found quite effective in controlling manic depressive disorders like acute manic episodes as well as endogenous depression. It sounds paradoxical that lithium relieves

both mania and depression which are opposite states to each other. Despite its long term use in the treatment of mood disorders, its mechanism of action is still obscure. Because of its close similarity to ions like sodium, potassium, calcium and magnesium, lithium is said to exert its therapeutic action by affecting the neuronal function through its effect on ion distribution<sup>2-3</sup>.

## **Biology of manic and depressive states**

Neuronal excitability is intimately linked with relative concentration of ions across the cell membrane<sup>4</sup>.

The excitation, metabolism and synaptic transmission are all affected by lithium<sup>5</sup>. The stabilization of electrochemical equilibrium across the cell membrane, the storage and release of neurotransmitters are all controlled by

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***The interactions of lithium with magnesium ions - the second messengers in controlling the "signal transduction", mechanism-seems to be the most appropriate way to explain the therapeutic action of lithium. Lithium still remains a drug of choice for effectively controlling the manic-depressive episodes despite its side effects.***

.....

**Dr. Venkatraman Srinivasan**

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PSG Institute of Medical Sciences  
Peelamedu Coimbatore 641004  
Tamil Nadu, India.

magnesium ions<sup>6</sup>. Magnesium deficiency manifests itself in the form of neuromuscular dysfunction, hyperirritability and psychotic behaviour<sup>7</sup>. An unstable state of central nervous system in the form of hyperexcitability with intrinsic hyperactivity underlies both manic and depressive episodes, "an unbraced drum of melancholy may reflect an overbraced central nervous system<sup>8</sup>" This has been confirmed by many neurophysiological studies undertaken in both depressives and manics who exhibited similar patterns of sleep disturbances like increased number of spontaneous awakenings and difficulty in falling asleep in the early hours of morning<sup>9</sup>.

## **Mechanism of action**

Since its introduction in the practice of psychiatry, because of its neuropharmacological effects, lithium has been advocated in controlling either manic or depressive states, and the effects were found to be diverse in nature. Since the concentration of serotonin in the brain of depressives is rather low, the antidepressant effects of lithium has been suggested to be due to its action on serotonin metabolism. Lithium increases both CSF concentration of 5-hydroxy tryptamine metabolites and platelet uptake of serotonin in depressive<sup>10</sup>. The antimanic effects of lithium has been attributed to its effect on acetylcholine, dopamine or gamma amino-butyric acid metabolism in the brain<sup>11</sup>.

A search has been made to identify a common mechanism of action that may perhaps explain the therapeutic actions of lithium since the drug has been found to be of value in controlling both mania and depression. It has been found that lithium treatment in-

creases plasma magnesium levels in both depressive as well as manic depressive patients<sup>12-14</sup>. The significance of lithium magnesium theory to explain mode of action of lithium depends on the fact that a number of similar processes are magnesium dependent and lithium has close resemblance to magnesium ion in the ionic radius as well as in other properties<sup>15</sup>. Lithium's effect on magnesium metabolism has been suggested to be due to its action on phosphate metabolism<sup>12</sup>. Lithium is found to inhibit the hydrolysis of inositol phosphate into inositol and thereby decreases brain inositol concentration. The phosphoinositide dependent receptors hyperactivity has been suggested as the possible cause for exaggerated mood and lithium improves the clinical status of the patients perhaps by attenuating the response of these receptors<sup>16</sup>. Lithium inhibits coupling of neurotransmitter receptors to 'G' proteins and decreases beta adrenoceptor mediated adenylyl cyclase activity<sup>17</sup>.

The interactions of lithium with magnesium ions-the second messengers in controlling the "signal transduction" mechanism-seems to be the most appropriate way to explain the therapeutic action of lithium. Further research into these mechanisms is required before a complete understanding on the mechanism of action of lithium in manic and depressive states is reached, and to delineate the therapeutic effects of this drug from its possible psycho-pharmacological actions.

**Treatment with lithium: study of side effects**

Since the therapeutic and toxic dose of lithium are very close, it is absolutely essential to measure the plasma lithium concentrations frequently (at least once in a month) during treatment. Before putting the patient on lithium therapy a routine physical and laboratory examination is essential. Measurement of serum creatinine level, 24 hour creatinine clearance, thyroid function tests (T<sub>3</sub>&T<sub>4</sub>), complete blood cell count and ECG re-

cordings should be done<sup>18</sup>.

In the western psychiatric clinics 750 - 1500 mgm lithium in equally divided doses per day is being prescribed. The serum lithium levels were found to be between 0.7 to 1.2 mmoles/liter. A lower value that has been found adequate between 0.5 to 0.8 mmoles/liter has been suggested<sup>19</sup> by Srinivasan & Hullin<sup>19</sup>, and this has been found suitable by many other investigators including studies undertaken by Prof. Venkoba Rao, Lithium Clinic, Madurai. Treatment with this dosage has been found adequate in reducing the frequency, severity and duration of both manic and depressive episodes<sup>20</sup>. Side effects of lithium vary from mild, moderate to severe depending upon the duration and dose of lithium administered. Table 1 presents some of the frequent side effects of lithium. Since lithium displaces intracellular potassium in the myocardial cells, reversible ECG changes with 'T' wave flattening and widening or inver-

sion of QRS complex occurs during treatment. Polyuria and polydipsia are seen in a significant number of lithium treated patients, but glomerular filtration and renal acidification functions remain unaltered in these patients who were on long term lithium therapy<sup>21</sup>. Pathological changes in the renal tubules and glomeruli, and development of nephrogenic diabetes insipidus like syndrome have been observed in some patients during lithium treatment when the plasma lithium levels were found to be very high 2.0 mmoles/liter<sup>22</sup>. Interference with thyroid function and hypothyroidism have been noted in lithium treated women patients<sup>23</sup>. Ataxia, poor co-ordination of limb movements, extrapyramidal symptoms including tarditive dyskinesia, slurred speech and confusion have been the most serious toxic effects associated with lithium treatment therapy, which needs emergency medical attention with immediate discontinuation of lithium therapy.

**Conclusions**

Despite the introduction of many other anti-manic or thymoleptic drugs like carbamazepine, calcium channel blockers, buprobion ( MAOI), lithium still remains a drug of choice for effectively controlling the manic-depressive episodes despite its side effects. At times it requires concomitant administration of other neuroleptic drugs or benzodiazepines. The cost of lithium treatment is comparatively cheaper when viewed from the patient's angle, particularly of patients living in the third world countries and it has become a boon to manic depressives. Lithium thus still enjoys the central role and will continue to enjoy the status for the years to come in the treatment of mood disorders.

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*(Continued on next page)*

**Table 1.**

<b>Side effects of lithium</b>
<ul style="list-style-type: none"> <li>● Hand tremor</li> <li>● Muscle weakness</li> <li>● Nausea</li> <li>● Polydipsia</li> <li>● Polyuria</li> <li>● Reversible ECG changes</li> <li>● Slurred speech</li> <li>● Dysarthria</li> <li>● Coarse tremor</li> <li>● Tarditive dyskinesia</li> </ul>
<p>* Serious toxic effects : (serum lithium level more than 2.0 mmoles/liter) requiring immediate discontinuation of therapy.</p> <ul style="list-style-type: none"> <li>● Ataxia</li> <li>● Extrapyramidal symptoms</li> <li>● Convulsions</li> <li>● Impaired renal functions</li> <li>● Disorientaion</li> <li>● Confusion</li> <li>● Impaired consciousness</li> </ul>

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### Dedication

The paper is dedicated to the lotus feet of Bhagawan Sri Sathya Sai Baba, who is spreading the message of Universal love, peace and brotherhood of man.

MEDICINE AND NURSING (Continued)

### November, 1996

- 16-20: 2nd Asian and Oceanic Congress of Andrology, Chandigarh, India  
Dr. N.R. Kalla  
Department of Biophysics  
Panjab University  
P.O. Box 1204  
Chandigarh, 160014, India  
Tel: 172-541441  
ext. 1354, 1364  
172-543570  
Fax: 172-541409
- 20-22: 4th International Congress on Endocrine Disorders: Thyroid, Tehran, Iran  
P.O. Box 19395-4763  
Tehran, I.R. Iran  
Tel: 98-21-2402463  
Fax: 98-21-2401935  
98-21-2400052
- 25-28: 2nd International Symposium on Ergonomics, Occupational Health, Safety and Environment, New Delhi, India  
Defence Institute of Physiology and Allied Sciences  
Lucknow Road, Timarpur  
Delhi, 110054, India

### December, 1996

- 9-13: 2nd International Conference on Environment and Industrial Toxicology, Bangkok, Thailand  
ICEIT II  
Chulabhorn Research Institute  
Office of Scientific Affairs  
Vipavadee Rangsit Highway  
Bangkok, 10210, Thailand  
Tel: 66-2-2471900  
66-2-2475757  
Fax: 66-2-2471222  
66-2-5740616

### January, 1997

- 12-14: xxiii Annual Meeting of the International Embryo Transfer Society, Nice France  
Dr. Steph J. Dieleman  
1997 IETS Programme  
Chairman  
Dept. of Herd Health & Reproduction  
Faculty of veterinary Medicine  
Utrecht University  
Yalelaan 7  
3584 CL Utrecht  
The Netherlands  
Tel: 31-30-2531243  
Fax: 31-30-2521887  
e-mail: DIELEMAN@BDV. DGK.RUU. NL

### September, 1997

- 21-25: Workshop on "Neurosciences: Theory and Practice"  
The Aga Khan University,  
Faculty of Health Sciences  
Khalid M. Khan, Ph.D.  
Department of anatomy  
Tel: [9221] 493-0051 ext.2154  
Fax: [9221] 493-4294  
e-mail: Km Khan@ akuc. edu

### October, 1997

- 20-22: 3rd Asian Congress for Microcirculation, Bangkok, Thailand  
Suthiluk Patumraj, Ph.D.  
The Secretariat ACM' 97  
The Physiological Society of Thailand  
Department of Physiology  
Faculty of Medicine  
Chulalongkorn University  
Bangkok 10330, Thailand  
Tel: 66-2-2564267  
Fax: 66-2-2524963

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## *Tribute to the memory of the late Professor Hisao Iwane*

Professor Iwane passed away because of brain injury early in the morning of October 9th 1996, at age 64.

After he graduated from Tokyo Medical College in 1958, Professor Iwane majored in cardiology and became the director of the Department of Cardiology, Tokyo Medical College Hachioji Medical Center in 1980. He held the position of the vice director of this center in 1986 and 1987. In 1987, he took up his post as the professor of the Department of Preventive Medicine and Public Health, Tokyo Medical College, where he was in charge of the education and studies of health promotion.

When the Department of Preventive Medicine and Public Health, Tokyo Medical College was selected as a WHO Collaborating Center for Health Promotion through Research and Training in Sports Medicine in 1991, Prof. Iwane became the director of the center. He also inaugurated his position as the President of the Japanese Society of Physical Fitness and Sports Medicine in the same year. In April 1993, he was appointed to be the director of Tokyo Metropolitan Health Promotion Center, which had been opened as a model facility for health promotion by Tokyo Metropolitan Government. He was also a member

of the executive committee of FIMS in charge of WHO liaison. He made contributions to the development of health science and sports science not only in Japan but also in other countries.

Professor Iwane proposed the movement for health promotion, which was a new idea in the field of sports medicine at that time and promoted the movement of health promotion in the Asian region.

Professor Iwane had also been taking the lead in studying sports medicine and exercise physiology, starting his study on the physical influence of long endurance exercise at the Hawaiian Ironman triathlon race in 1981, research which continues even now. Some of the subjects of this research were lipid metabolism, endocrinology, free radical, cardiac function, and mental stress and the data obtained have been utilized not only for the health management of athletes and the development of safe measures for many sports, but also for general health promotion.

At the time, Prof. Iwane had been leading the world in the fields of sports medicine and exercise physiology, dealing with the most up-to-date biophysical techniques such as magnetic resonance spectroscopy and near

infrared spectroscopy. Some of his major scholarly achievements in these fields were: the explication of the change in muscle energy metabolism caused by ageing, the explication of the change in muscle metabolism as a result of physical training, the establishment of a simple evaluation of working capacity by near infrared spectroscopy, and the explication of the relationship between local oxygen consumption and muscle metabolism.

Without his broad and perspective view for the future, these achievements would have not been possible. It is with great regret that we observe the sudden passing of Professor Iwane who, at 64 were still such an active post of society.

Dear Professor Iwane, please rest peacefully, and watchover us and our society, and the development of sports medicine in Asian region.

*January, 1997  
Toshihito Katsumura  
Associate Professor,  
Department of Preventive Medicine and  
Public Health, Tokyo Medical College  
E mail add: kats@tokyo.med.ac.jp.*

# Tribute to Professor John Ingram Hubbard

(1.12.1930-1.10.1995)

John Hubbard, Professor of Neurophysiology since 1972 in the Department of Physiology, University of Otago Medical School, Dunedin, New Zealand, died at home in his sleep from the respiratory consequences of motor neurone disease. He was 64 and was due to retire at the end of the year after a long and distinguished academic career. Only 5 weeks earlier he had actively participated in a Symposium "From Synapse to Brain" held in Queenstown, NZ, in honour of his impending retirement and hosted by the Physiological Society of New Zealand and the Australasian Winter Conference on Brain Research. Colleagues and past students from New Zealand and overseas came to celebrate his achievements and present their latest research. Among these were Professor Masao Ito from Japan and Professor Robert Schmidt from Germany who were with John Hubbard in Sir John Eccles' laboratory in Canberra, Australia, in the 1960s. Also present were Professor Peter Gage, John Hubbard's first postgraduate student in Canberra, and Drs Mike Miyamoto, Mike Laskowki and Gene Silinsky who were among his postgraduate students at Northwestern University in Chicago in the 1970s. John's Otago B Med Sci, postgraduate and postdoctoral students were also aplenty including Dr Paiboon Buranarugsa of Thailand, current members of Otago staff Dr Roly Mills, Dr Brian Hyland, Dr Rod Sayer, Dr Cynthia Darlington and Dr Elizabeth Dennett and John current PhD student, Nali Lin. The pride and satisfaction that John felt during their presentations was apparent to all and, true to form, his questions sowed the seeds for their future endeavours.

Born in Wellington and educated at Palmerston North Boys High School, John began his MBChB degree in 1948 at the University of Otago Medical School. In 1951 intrigued by the field of neurophysiology, John undertook a year of research for a Bachelor of Medical Science in the Department of Physiology under the guidance of Professor A.K. McIntyre and Sir John Eccles. John Hubbard then became the first New Zealander to win an Oxford University clinical scholarship completing a BA with first class honours in Physiology in 1954 and an MA, Bachelor of Medicine and Surgery in 1957. Still fascinated by neurophysiology, John returned to the southern hemisphere in 1958 as a PhD student supervised by Sir John Eccles

the founding professor of Physiology at the John Curtin School of Medical Research at the Australian National University in Canberra who in 1963 was awarded the Nobel Prize. After achieving his PhD in 1961 John remained in Canberra holding successive positions as Research Fellow, Fellow and Senior Fellow before moving in 1967 to the United States to a top academic appointment as Professor of Biological Sciences and Engineering Sciences at Northwestern University, Chicago, USA, and serving as chairman of that department from 1970 to 1972. In 1968 John was awarded a Doctor of Medicine by Oxford University based on his pioneering work, published in journals such as *Nature* and *Journal of Physiology, London*, on the mechanism of signal transmission from nerves to skeletal muscle. This research had culminated in demonstration that under conditions of rapid transmitter release synaptic vesicles were reduced in number.

In 1972 John Hubbard was attracted back to the University of Otago's Department of Physiology to a new position as the first Professor of Neurophysiology, a position he held until his untimely death. John served three terms as Head of Department (1973, 1975-1980, and 1987-1991), became the first Medical School staff member to hold the University of Otago position of Pro-Vice Chancellor (1981-1983) and served on numerous University committees. John's greatest contribution to teaching at Otago was the innovative preclinical neurology course for third year medical students which started in 1974 and integrated the contributions of staff from all the relevant departments. In the last ten years John has developed a number of computer-based teaching programmes some of which are commercially available. Throughout his period at Otago John's open-door policy, ability to penetrate quickly to the core of the problem and come up with solutions were much appreciated by his colleagues and students.

In the first years back in Otago John's research focussed on trophic factors and their transport within the nerve axon. He then became interested in the control of water balance and the mechanisms producing thirst that involved angiotensin II, the subfornical organs and the limbic system. John's research collaborator at Otago, other than his research student, were Drs John Bray and Nancy Sirett. Later research extended to the theory that alcoholism is a form of learned behavior and finally to the

study of the effects of vasopressin on water transport by cells cultured from the intramedullary collecting duct of the kidney. John's international collaborations continued through his sabbatical leaves which were spent at the National Institute of Medical Research at Mill Hill in London (6 months in 1979), at the Department of Neurobiology and Anatomy, University of Texas, USA (6 months in 1980), and at the Department of both Pharmacology (1985) and Physiology (1991), Dartmouth Medical School, USA. Over the years John published nearly 150 original papers and reviews in international journals, as well as a number of scientific books, including *The Biological Basis of Mental Activity* published by Addison-Wesley (1975).

John has been an active and nurturing member of many professional societies, including the Physiological Society of New Zealand (PSNZ) which he founded in 1973 and served as its national secretary until 1979 and for the period 1983-1989; the Federation of Asian and Oceanian Physiological Societies (FAOPS) to whose foundation council he was elected in 1989; the Australian Physiological and Pharmacological Society (APPS) serving terms as a council member and as archivist; the Australian Neuroscience Society serving on its council from 1988-1991; the New Zealand Neurological Society; the Australasian Winter Brain Research Organisation as committee member (1979-1990) and president (1990), the International Brain Research Organisation (IBRO) and archivist for the International Union of Physiological Science (IUPS). Elected as a Fellow of the Royal Society of New Zealand in 1977, John served on its council from 1988 onward becoming international secretary in 1990. In 1978 the Royal Australasian College of Physicians also bestowed on John the honour of Fellow. Through his role on the preclinical assessing committee (1975-1982) of the Medical Research Committee of New Zealand, John has helped create the preclinical research directions of the country.

John will be remembered fondly and with enormous respect by all his colleagues and student. His contributions to the field of neurophysiology internationally and to physiology within New Zealand and the South Pacific will remain a lasting legacy.

PA Cragg  
National Secretary,  
Physiological Society of New Zealand,  
Department of Physiology,  
University of Otago,  
P.O. Box 913, Dunedin, New Zealand.



## New Members of Council



**Dr. Rodger J Pack**

Rodger Pack is currently a Senior Lecturer in The Department of Physiology and Anatomy, The Veterinary Faculty, Massey University, Palmerston North, New Zealand. He has dual British and New Zealand nationality and is married with three children. He graduated with a first class honours degree in Physiology from London University, England in 1973. Following a Ph.D. studying arterial chemoreceptors he then worked on various aspects of the cardiorespiratory system with Professors J.G. Widdicombe and A. Howe in London University.

He joined the teaching staff of Massey University in the latter part of the 1980s. He is Member of Council of the Physiological Society of New Zealand and The New Zealand Physiological Conference Society inc. and was Secretary of the former between 1990 and 1994. He is also a member of The U.K. Physiological Society.

His research interests continue to be the cardiovascular and respiratory systems with recent work being concerned with the potential cardiac side effects of drugs used in the treatment of asthma. He is also interested in developing teaching techniques and, particularly in distance teaching.



**Dr. Usha Nayar**

Usha Nayar is currently at the Department of Physiology College of Medicine & Medical Sciences, Arabian Gulf University, Manama, Bahrain. She obtained MBBS degree from Lady Hardinge Medical College, New Delhi in 1959, MD degree in 1962 & Ph.D. degree in 1970 from All India Institute of Medical Sciences. She joined as an Assistant Professor at AIIMS in February, 1966 and was awarded the prestigious NIH (USA) Fellowship in 1969-1970, then became a Fellow of National Academy of Medical Science (FAMS) in 1981. She was seconded to King Faisal University, Saudi Arabia in 1980-81 for setting up the UG teaching programme and in 1986-1988 to set up the Ph.D programme. Since 1991, she has been Prof. and Head, Dept. of Physiology, AIIMS.

Her main research interest is Neurophysiology in both basic and applied aspects, nurturing three major thrust areas - regulation of feeding behaviour, development of the brain and mechanisms of pain. In recognition of her outstanding contributions, she has received several awards (B.K. Anand Award, 1976; M.L. Gupta Oration Award, 1984; Hari Om Ashram Alembic Award, 1985; S.L. Bhatia Oration Award, 1989; Sechenov Memorial Award, 1990; ISCA Platinum Jubilee Lecture Oration, 1993).

Dr. Nayar is deeply committed to the cause of Medical Education and Curricular Reforms. She is Officer in charge of K.L. Wig Centre for Medical Education & Technology, Co-ordinator of WHO Project on "Inquiry Driven Strategies for Innovations in Medical Education". On behalf of Government of India she wrote the project report for establishing a 50 seat Medical College and 500 bed hospital, the B.P. Koirala Institute of Health Sciences (BPKIHS), Nepal in 1992 which has been established in 1994. A totally innovative, integrated curriculum has been implemented where students enjoy state of the art contextual learning.



**Dr. Sang Ho Lee**

Sang Ho Lee is currently at the Department of Physiology, College of Medicine, Pusan National University, Pusan, Korea. He was graduated from Pusan National University with MD degree in 1959, and Ph.D. degree in 1967. He is married with 3 children. He joined the Department of Physiology, Pusan National University as an instructor since 1966, and was Associate Professor and Chairman of the Department in 1971. He spent a year as Dr. Henry C. and Bertha H. Buswell Research Fellow at SUNYAB, U.S.A., during 1976-1977. He returned to SUNYAB again as a visiting scholar at the Department of Physiology in 1983. Then he was appointed to the Director of the Institute of Medical Science, Pusan National University in 1985. During 1986-1988 he served as the Dean of the College of Medicine, Pusan National University. He was the President of Korean Physiological Society from 1993 to 1994.

# BRISBANE '98

## FAONS: FAOPS: APPS

Hilton Hotel, Brisbane, Queensland, Australia  
27 September - 1 October 1998

- o 2nd Congress of Federation of Asian and Oceanic Neuroscience Societies
- o 4th Congress of Federation of the Asian and Oceanian Physiological Societies
- o Annual Meeting of Australian Physiological and Pharmacological Societies  
in association with
  - o Australian Neuroscience Society
  - o Physiological Society of New Zealand
- o Tentative Scientific Programme:
  - o Plenary lectures and invited lectures on "hot topic" by renowned scientists
  - o Symposia :- - Gastroenterology
    - Cell Physiology
    - Pain Mechanisms
    - Muscle
    - Physiological role of neuropeptides
    - Developmental / Perinatal Physiology
    - Animal use in Research and Teaching
  - o Workshops - CAT Workshop
    - A Workshop on Hypertension

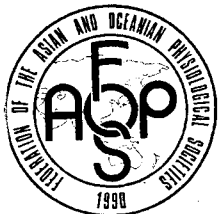
For more information and registration forms, contact the **BRISBANE Secretariat**,  
I.C.M.S., GPO Box 2609, Sydney, New South Wales 2001, Australia  
(Fax: +61-2-9251-3552; Email: [reply@icmsaustcom.au](mailto:reply@icmsaustcom.au))



*BRISBANE '98* will provide an interdisciplinary forum for physiologists and neuroscientists from Asia, Oceania and elsewhere to present their research and receive informative up-dates and diverse topics. Both the scientific programme and the associated events will place special emphasis on strengthening the links between physiologists and neuroscientists in the Asian-Oceanian region.

*BRISBANE '98* will combine plenary lectures by established scientists and young investigators, special symposia, oral communications, poster presentations, and workshops on teaching, animal experimentation and information technology.

A varied social programme for registrants and accompanying persons will introduce our guests to the sub-tropical delights of Brisbane. The state of Queensland is the home of many of Australia's finest tourist attractions, including the Gold Coast and the Sunshine Coast, Fraser Island, the Great Barrier Reef, the Tropical North, and the Outback.



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# F A O P S

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