



SOCIETY FOR FREE RADICAL
RESEARCH
(Australasia)



NEWSLETTER March, 2004

<p><i>President</i></p> <p>IAN DAWES Dept. of Biochemistry and Molecular Genetics University of New South Wales NSW, 2052 AUSTRALIA Phone: +61-2 9385-2089 Fax: +61-2-9385-1050 E-mail: i.dawes@unsw.edu.au</p>	<p><i>Treasurer</i></p> <p>DES RICHARDSON Children's Cancer Institute Australia PO Box 81, High St, Randwick, NSW, 2031 AUSTRALIA Phone: +61-2-9382-1813 Fax: +61-2-9382-1850 E-mail: d.richardson@ccia.org.au</p>
<p><i>Secretary</i></p> <p>CLARE HAWKINS The Heart Research Institute 145 Missenden Road Camperdown, NSW 2050 AUSTRALIA Phone: +61-2-9550-3560 Fax: +61-2-9550-3302 E-mail: c.hawkins@hri.org.au</p>	<p><i>President-Elect</i></p> <p>KEVIN CROFT Dept. of Medicine and Pharmacology University of Western Australia GPO Box X2213, Perth, WA, 6847. AUSTRALIA Phone: +61-8-9224-0275 Fax: +61-8-9224-0246 E-mail: kcroft@cyllene.uwa.edu.au</p>

The Executive would like to thank all those who have contributed to this issue of the Newsletter. Special mention should be made to the efforts of Japanese and Australasian members of the Organising committee for the successful **FFFR2003 Joint Meeting**: details and reports on the event are enclosed in this Newsletter. As always, the Executive will continue to keep members informed of recent and upcoming events in Australasia and elsewhere around the globe via the current 2004 "Diary". Please feel free to submit relevant articles to the Secretary if you wish the information to be made available to the members of SFRR(A).

A few final words from the outgoing president Mike Davies

As my term of office as president has now come to an end I thought I'd leave you with a brief summary of some of the key items that the society is currently dealing with or progressing. Over the last couple of years the society has progressed from a non-incorporated organization to an incorporated body with its own public liability insurance, ABN number and GST-exempt status. The merger with the old Sydney Free Radical Group Inc., which facilitated this change has also resulted in a significant boost to the societies finances which, together with surpluses from the last two meetings in Australia and New Zealand, has given the organization a sound financial basis for future developments. The current financial report from the Treasurer is included elsewhere in this Newsletter.

Joint meeting with SFRR(Japan), Kyoto, Dec 2003

The joint meeting with the Japanese society which has just occurred in Kyoto was attended by about 20 delegates from our society. I think all who attended had a very enjoyable and productive time, due to the fabulous hospitality afforded by our Japanese hosts, and I'm sure I'm not the only person who decided my liver needed a long rest on my return. I hope others got an much out of the meeting as I did, with the presentations by the large number of younger Japanese scientists being highly informative and beneficial to future collaborations.

Future meetings of SFRR(Australasia)

The society is well advanced with the planning of our next two meetings. In 2004, the society will be meeting in Christchurch from the 3-5th December with this meeting being organised by Tony Kettle. In 2005, we will be returning to the other side of the Tasman for a meeting on the Gold Coast, which is being put together by Jirka Neuzil and Tony Perkins. This meeting will be organised in collaboration with the Japanese society, who are very keen to continue the links our series of successful joint ventures. A preliminary decision has also been taken to hold the 2006 meeting in Perth.

International meetings and discounts

With regard to the bigger picture, the 12th Biennial meeting of our international umbrella organization SFRR(International), is being held in Buenos Aires from May 5-9th 2004 (see <http://www.sfrrbuenosaires.org/> for more information), and the 13th meeting will be held in Davos in

Switzerland in 2006. The international committee has also been progressing a number of other items on business including the compilation of an international membership data base, a new international website (www.sfrr.org), and proposals for a series of new international awards. As a result of the creation of the new membership database, the SFRBM (formally Oxygen Society) have decided to re-institute the reduced registration rates for members of other SFRR regions at SFRBM meetings. This should allow SFRR(A) members to obtain significant discounts (far in excess of the cost of SFRR(A) membership), if you attend this meeting or other SFRR meetings (e.g. in Europe, where similar discounts apply), and is a very good incentive to maintain your membership of SFRR(A).

New membership scheme

At the recent AGM of the society held during the conference in Kyoto, a proposal was adopted to change the method of collecting membership monies for the society. As a result of this, anyone who attends the meeting in New Zealand at the end of 2004 will automatically become a member of the society for 2005 (i.e. your membership fee will be rolled in to the meeting registration costs). Non attendees at the meeting will be able to renew their membership as before. Hopefully this will help with the collection of membership subscriptions and reduce the significant costs associated with moving monies between NZ and Australia. This will only come into effect for 2005, so please do renew your membership for 2004 !

Finally I would like to thank all the members of the SFRR(A) executive for their help and support over the last few years, with particular thanks being due to Paul Witting for having served three terms as secretary. I'm sure he'll be glad of the rest ! I'd also like to welcome all the new committee members, and wish them an enjoyable term of office.

Mike Davies

Past-president !

Minutes from the 2003 AGM

Convened Sunday, December 9 2003 at the Kyoto Park Hotel, Kyoto Japan with 10 members in attendance.

Meeting opened at 6.00 pm –

The President Mike Davies welcomed all delegates attending the XII annual meeting of the SFRR(A) and thanked those attending the meeting for giving their time to attend the AGM. The President proposed that the meeting follow the agenda he detailed in his opening statement.

1. Apologies.

- Roland Stocker
- Christine Winterbourn
- Tony Kettle
- Roger Dean

2. Matters arising from the previous minutes as published in the March 2003 issue of the Newsletter.

- None
- President called for a general acceptance that the minutes were a true and accurate account of the events from the previous AGM.
- Member accepting - Kevin Croft
- Second – Des Richardson

3. Presidents Report

Mike congratulated the committed members of SFRR(A) for attending the Japanese meeting – our region contributed 12 major talks (with members contributing in bar one session of the meeting), 7 posters, and overall 19 delegates. This degree of representation is a positive affirmation of the high standard of science being carried out by members of the Society. He encouraged the membership to continue to support both the branch and International meetings of SFRR as this is important to ensure a high profile for researchers in our region.

Mike then went on to canvas the members present at the AGM in search of a custodian to regularly update the newly appointed web-site. After some further discussion the matter was not resolved and the issue will be investigated at a later date.

Mike also outlined how a number of other scientific societies currently include the membership of the society within the attendance fees for their annual meetings. Those who do not attend the meeting are still able to renew their membership in the normal manner. This method would appear to have significant advantages in reducing the amount of time and paperwork involved in getting members to renew their membership. It would also eliminate a current problem with converting currencies that can be very costly for the society. The cost of membership would remain the same.

He then proposed that this model be adopted by the Society, with effect from 2004 (i.e. those who attend the 2004 meeting in New Zealand will have their membership for 2005 included in the conference fee). In the meantime payment of membership for 2003/4 financial year will be deferred to the New Zealand Meeting.

Seconded – Kevin Croft – proposal accepted unanimously by members present.

4. Secretary's Report

- I would like to formally announce my retirement from the Executive after 3 consecutive terms as Secretary. Also, I would like to take the time to acknowledge the various Executive members I have worked with over that time including the last 3 Presidents of SFRR(A) Mike Davies, Tony Kettle and Roland Stocker.
- During this time we have moved to a completely electronic medium for contacting the membership with news and events. I have also maintained a data-base of past, present and possible members throughout Australasia (some 220 e-mail addresses) and this information will be passed to the new Secretary.
- Since the last AGM, I have collated electronic versions of past Newsletters and have this information archived together with other publications from SFRR(A) for posting onto the web-site.
- Finally, I would like to endorse the new Executive for the 2004 year and beyond (President – Ian Dawes, President-elect – Kevin Croft, Treasurer – Des Richardson and Secretary - Clare Hawkins) and wish them all the best for the future.

5. Treasurers Report

Summary of Accounts as of 2nd December, 2003

Opening Balance: (from last Treasurer's report of 23/8/02) = \$ 59,051.36

Current Financial Members: 33 Australians and 12 New Zealander's

Income:

1. Deposits in Cheque Account Bearing Interest

Subscriptions : \$915 (majority of NZ subscriptions yet to be banked – see note #1 below)

Interest on Cheque Account Bearing Interest: \$111.58

Surplus from SFRR(A) Wollongong Conference -\$8750.75

Total: \$14,076.53 (as of 2/12/2003)

2. Term Deposit of \$10,000

Interest Accrued to 7/11/2003 = \$468.02

Total : \$10,468.02

3. Term Deposit of \$30,000

Interest Accrued to present: \$944.11

Total: \$30,944.11

Current Balance of all accounts (Including Term Deposits) as of 2/12/03: \$55,488.66

Expenditure:

Awards at SFRR(A) Wollongong meeting: \$2490

Insurance for SFRR(A): \$1314.99

SFRR International Dues (2002, 2003): \$505

ASMR affiliated membership (2002, 2003): \$400.19

SFRR(A) website work: \$185

SFRR(A) International Travel Award to Ph.D student, Natalie Ward: \$2000

9 Travel awards of \$1000 each for FFR 2003: \$9000

Account Service Fees: \$25.85

Comments:

1. Bank fees of \$10 AUS are charged for each subscription in New Zealand dollars. This needs to again be examined. This problem was noted in my last four Treasurer reports
2. Memberships should be paid by cheque or money order. Cash will not be accepted.
3. A total of \$40,000 is in Term Deposit Accounts. This is to take advantage of the far greater interest offered. The money can be withdrawn at any time for a small fee.

6. Future Meetings

2004 – Christchurch NZ. Organiser: Dr Tony Kettle – Date: 3 – 5 December

2005 – Gold Coast. Local Organising committee: Drs Jirka Neuzil and Tony Perkins

Organising for both meetings was underway with a A\$10K start up float secured from Griffith University for the 2005 meeting.

7. Other business

1) Mike indicated that there was some desire from the Executive of SFRR(International) that the SFRR(I) meeting follow the sequence Buenos Aries (2004), Switzerland (2006) and Australasia region (2008). A general discussion developed along the lines whether we should accept this proposal. However, those members present indicated that an Australian bias was present as there were no New Zealanders available to comment on this proposal. Mike canvassed those present looking for volunteers to accept the job as chief Organisers for the 2008 meeting. Des Richardson tentatively announced his willingness to help out as an Organiser of the International meeting however there were no other volunteers. A general agreement was finalised that we seek some input from Tony Kettle and Christine Winterbourn and then make a decision to accept or decline the proposal.

2) Mike indicated that SFRR(I) also wished to generate an international data base of SFRR members from all branches. Des Richardson agreed to forward a list of current members including contact details and research interests.

3) The SFRR(A) and AFRR(J) Executive had a joint meeting to discuss future conferences. It was decided that the 2004 Christchurch meeting would be organised by SFRR(A), but the 2005 Gold Coast meeting would be held by SFRR(A) in conjunction with AFRR(J).

4) Ian Dawes the new President of SFRR(A) expressed his thanks to the immediate past President Mike Davies and his Executive. He also thanked those members that attended the Kyoto Meeting. Kevin Croft the new President-elect echoed Ian's praise and wished the out going President and Secretary all the best.

Meeting was adjourned at 6.35 pm.

Paul Witting (Immediate past Secretary)

Reports from the 2003 Food Factors and Free Radicals (FFFR)2003

Conference overview : Juliana Kwok

I attended the International Joint Meeting on Food Factors and Free Radicals in Health and Disease (FFFR2003) held in December, in Kyoto, Japan. This would not have been possible without the generous support from the SFRR(A) in the form of a Travel-in-Aid Grant. The conference was a very educational experience, both in terms of science and culture. Not being an expert in free radical research, I found it very interesting and stimulating to learn about the potential protective effects of a range of natural food products. This included studies such as examining the anti-oxidant effects of fermented herb juices and the Yamagata safflower, Mogami-benibana. This type of research is very applicable to daily life and contributes to improved health and wellbeing for the general community without requiring major disruption to quality of life. I thank the committee for their proficiency in organising the conference. The scientific sessions proceeded very smoothly and the dinners were a cultural experience with the many types of traditional Japanese cuisine, and of course, the entertainment provided by the maiko girls. And finally, I would also like to thank the committee very much for taking such interest in our work, and for presenting me with the Poster Prize. Overall, it was a very productive and enjoyable conference, and I look forward to the next meeting.

Conference overview : Ralph Watts

What a nicer place could there be to hold the co-joint meeting of the Societies for Free Radical Research Australasia and Japan, than in Kyoto Japan. The city was a mixture of both modern and old style buildings, and the streets were clean of litter, despite the apparent lack of noticeable garbage bins. The venue, Kyoto Park Hotel, was a pleasant location, especially the Japanese koi pond in the garden. On the first day, registration was in the evening, allowing some sight seeing before sitting down for the rest of the conference. After the official opening speeches, dinner was served, which was a mixture of Japanese (for the more adventurous), and Western cuisine. The next two and a half days were full with oral presentations and posters over lunch time. The seminars were a mixed variety of topics from the benefits of drinking wine and eating chocolate to reduce oxidative stress, to the detection of reactive oxygen species (ROS) using various techniques. Two of the main seminar that stood out were Prof. Cesar Fraga and his scientific reasoning for eating chocolate, and Prof. Masayasu Inoue whose seminar was very in depth about the theories of the roles of ROS and reactive nitrogen species in evolution and species survival. There were many posters presented and the majority were of excellent quality. Five prizes were awarded out of 46 posters, two were from the Australian contingent, while the remaining were from the Japanese contingent of the conference. On the final day of the conference, the closing remarks were

given and a final reminder about the up-and-coming International SFRR conference in Buenos Aires was made. Then the posters came down, the rooms were cleaned and the afternoon was spent either readying for the trip home or some last minute sight seeing and souvenir hunting.

Research Group Highlight

The Cell Biology Unit The Heart Research Institute,
145 Missenden Road, Camperdown, NSW 2050, Sydney, Australia.

Leader Dr Ken Rodgers (k.rodgers@hri.org.au)

Current Research Group (HRI) Rachael Dunlop, PhD student
Peter Hume, Research Assistant

Co-supervised positions Jingmin Zeng, PhD student (Free Radical Group)
MSc student, Faculty of Pharmacy, University of Sydney.
Honours student (Faculty of Pharmacy)

Research Interests

Our main objectives are to understand why oxidised proteins accumulate in cells and tissues. Damaged proteins are usually broken down by cells and replaced, but in ageing and in many age-related diseases this process fails. Our research focuses both on the cellular pathways involved in recognising and removing oxidised proteins and on how the accumulation of damaged proteins can prevent cells from functioning properly and can eventually cause cell death.

The cellular proteolysis of oxidised proteins – a new approach

The most important component of the defence against the cellular accumulation of oxidised proteins is complete proteolytic digestion to constituent components (amino acids and oxidised amino acids), and excretion [1, 2]. One of the difficulties in studying these processes has been in devising a way to generate oxidised proteins without damaging cells and modifying other biological molecules such as DNA and lipids. We have developed a new approach in which we supply oxidised amino acids (oxAAs) to cells in culture and allow the cells to incorporate the oxAAs into newly synthesised proteins. This

biosynthetic incorporation approach has allowed us to perform unique experiments and has improved our understanding of the cellular handling of oxidatively modified proteins [3].

Changes in gene expression and protein synthesis

Using the incorporation approach outlined above, we have generated proteins containing the oxAAs commonly found in proteins in pathological tissues. This has allowed us to examine changes in gene expression (using microarrays) and changes in protein synthesis (using proteomics) in response to these modified proteins. We have identified a number of genes which are consistently upregulated when oxAA-containing proteins are present in the cell. This data is currently being supported by protein data generated using 2-dimensional gel electrophoresis and MALDI-TOF analysis. This work is providing a broad picture of the effects of these modified proteins on the cell and has the advantage of avoiding a generalised oxidative stress.

Oxidised amino acid incorporation in vivo

We are currently investigating the in vivo incorporation of the oxAA DOPA (3,4 dihydroxyphenylalanine) when used to treat Parkinson's disease. DOPA and protein-bound DOPA are of particular interest as they are reactive and can transfer damage to other biological molecules [4].

Selected publications

[1] Recent Developments in the Intracellular Degradation of Oxidised Proteins. Dunlop, R.A. Rodgers K.J. and Dean, RT. *Free Radical Biology and Medicine*, 33(7), 894-906, 2002 [2] Proteolytic 'defences' and the accumulation of oxidized polypeptides in cataractogenesis and atherogenesis. Dean, RT, Dunlop, RA, Hume, P and Rodgers K.J. *Biochemical Society Symposium on Proteases in Health and Disease*. J. Saklatvala, H. Nagase and G. Salvesen. London, Biochemical Society: 135-146, 2003. [3] Biosynthetic incorporation of Oxidised Amino Acids into Proteins and their Cellular Proteolysis. Rodgers K. J., Wang, HJ and Dean, RT. *Free Radical Biology and Medicine* 32(8), 766-775, 2002. [4] Metabolism of Protein-bound DOPA in Mammals. Rodgers K.J. and Dean R.T. *The International Journal of Biochemistry and Cell Biology* 32: 945-955, 2000

For Your Diary

- April 14-18, 2004. 7th International Conference on Plasma Membrane Redox Systems and their Role in Biological Stress and Disease, Asilomar, California, Information: prunck@pharmacy.purdue.edu
 - May 5-9, 2004. XII Biennial meeting of the International Society for Free Radical Research, Buenos Aires, Argentina, For more information visit: www.congresosint.com.ar/sfrr2004/
 - September 12-15, 2004. Third International Conference on Metal Toxicity and Carcinogenesis National Institute for Occupational Safety and Health., Morgantown, West Virginia, USA, For further details, please contact Xianglin Shi, Ph.D., Tel: (304) 285 6158, Fax: (304) 285 5938, Email: xshi@cdc.gov
 - November 17-21, 2004. 11th Annual Meeting, Society for Free Radical Biology and Medicine, Sheraton Frenchman's Reef and Morningstar Resort, St. Thomas, Virgin Islands. Abstract submission period: May 1 - September 3, 2004 on-line at www.sfrbm.org. For more information, visit www.sfrbm.org or contact The Oxygen Society via email at info@sfrbm.org or (925) 472-5904.
 - December 3-5, 2004. Annual Meeting, SFRR(A), Christchurch, New Zealand. For more details contact Dr Tony Kettle, Email tony.kettle@chmeds.ac.nz
 - December 2005. Annual Meeting, SFRR(A) and AFRR(J), Gold Coast, Australia. For more details contact Dr Jirka Neuzil, Email J.Neuzil@mailbox.gu.edu.au
-