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UPCOMING EVENTS



16TH ANNUAL MEETING
November 18 - 22, 2009
Hyatt Regency
San Francisco, CA USA

17TH ANNUAL MEETING
November 17 - 21, 2010
Caribe Royale Hotel &
Conference Center
Orlando, FL USA

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THE RADICAL VIEW

Harry Ischiropoulos, Ph.D.



DOT: Tell us a little about your background and current passions in your professional life.

Ischiropoulos: I was born and raised in Greece and moved to the U.S. in 1981 to attend college. I studied chemistry at Wagner College in Staten Island New York and in 1990 received my PhD in Experimental Pathology from New York Medical College. In 1992, after post-doctoral training at the University of Alabama in Birmingham, I joined the Institute for Environmental Medicine at the University of Pennsylvania. In 1994, I was appointed Research Assistant Professor in the Department of Biochemistry and Biophysics at the University of Pennsylvania.

I moved to the Children's Hospital of Philadelphia in 1998, where I am a Joseph Stokes Jr. Investigator and the Gisela and Dennis Alter Research Professor of Pediatrics and Pharmacology.

DOT: What do you feel were the most important factors that shaped your career?

Ischiropoulos: My mentors definitely helped shape my career. My PhD thesis advisor, Dr. Yutaka Kikkawa, instilled in me the virtues of discipline, organization and a meticulous approach in solving problems. My post-doctoral mentor, Dr. Joe Beckman, introduced me to new scientific endeavors (some of which I still work on) and took the time to engage in stimulating and thought provoking discussions. Both encouraged and harnessed my natural curiosity and enthusiasm and entertained my many questions and research ideas. In many ways I now find myself following the same principles and approaches in training graduate students and post doctoral fellows. I must also mention that I have had the great fortune to work in a new scientific area during my post-doctoral training at UAB where I was surrounded by amazing colleagues. Drs. Freeman, Matalon, Parks and Radi, among many others, created a stimulating and vibrant environment that challenged you to think and inspired you to achieve.

DOT: What was your most exciting discovery in research?

Ischiropoulos: When I first entered Joe Beckman's office to discuss my projects, he flashed a slide on the wall that showed blue and yellow crystals of a protein. I correctly guessed that the blue crystal was of the Cu, Zn superoxide dismutase but did not know what the yellow crystal was. Joe indicated that the yellow crystals were of Cu, Zn superoxide dismutase after it reacted with peroxynitrite. He asked me if I was interested in finding out why the blue crystals turned yellow. A year or so later we realized that it was due to the nitration of tyrosine 108 in the bovine enzyme. That was the origin of our proposal that tyrosine nitration is a biological post translational modification.

DOT: Not only are you a well funded PI, but you also serve as an editor for FRBM and JBC and you serve on the SFRBM council. What is your secret to handling these professional duties as well as your personal responsibilities?

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PRESIDENT'S MESSAGE

Victor Darley-Usmar, Ph.D.

Since the last issue of the *DOT*, SFRBM leadership has been busy starting to implement various programs and initiatives outlined in our new Strategic Plan. The most important of these is a committee structure that will allow more direct member participation in the society. I'm pleased to say that, over the past few weeks, nearly 100 members have come forward and volunteered their time and expertise on one of our 15 standing committees. It's a great start – committee chairs are now charged with contacting volunteers to advise them of goals and action items for 2009 and getting to work.



Planning for the 2009 Annual Meeting in San Francisco is in high gear. Thanks to all members who responded to the Call for Speakers and Sessions, which just ended earlier this month. We received nearly 50 total suggestions for full sessions and individual speakers, with topics all along the spectrum of scientific interest shown by our society members.

The next stage will be to review the proposals with the Program Committee (composed of council members and members at large) to achieve the best representation of research in free radical biology with broadest interest to us all – no small feat! Remember that SFRBM is hosting the SFRR-International meeting in Orlando next year, so we will encourage high quality proposals not selected for 2009 to be re-submitted in 2010.

The pre-conference workshop “Critical Methods for Redox Biology: From the Test Tube to the Clinic” is also taking shape under the leadership of Richard Cohen (Boston University) and Yvonne Janssen-Heininger (University of Vermont). As the title suggests, this workshop will critically evaluate the methodology behind redox cell signaling with talks from the leading experts in the field. Once the scientific program is chosen by the Program Committee, the Free Radical School - one of the most important features of our meeting - will be designed to complement both the full scientific program and workshop. This will be coordinated by the Free Radical School Committee, under the direction of co-chairs Raman Kalyanaraman (Medical College of Wisconsin) and Alicia Kowaltowski (University of São Paulo). Other areas of focus early this year include an effort to increase our representation on grant review bodies related to free radical biology. SFRBM's Marketing/PR Committee, led by Henry Forman (UC-Merced) will be conducting a member-wide survey in this area very soon, so please take a few minutes to provide your important input when requested.

As always, this is your society so please let us know any suggestions and comments that you have.

LITERATURE REVIEW

Readers interested in nominating a paper or providing a short editorial review (less than 150 words), should contact Ashleigh Bates at abates@hp-assoc.com.

Adaptive Antioxidant Methionine Accumulation in Respiratory Chain Complexes Explains the Use of a Deviant Genetic Code in Mitochondria. *Bender et al.; Proc Natl Acad Sci U S A. (2008)105:16496-501. PMID: 18946048*

Sometimes evidence for the importance of antioxidant defense comes from unexpected quarters. A case in point is the paper by Bender and co-workers, who ask the question why AUA, which codes for isoleucine in nuclear DNA, has been reassigned to methionine in the mitochondria of most animal species. Based on bioinformatic information from over 400 species, they demonstrate that the mitochondrially encoded proteomes from organisms with the reassigned AUA codon contain 3 times more Met than nuclear proteomes or mitochondrial proteomes from species which decode AUA as Ile. They also show for several protein examples that the high Met content is largely located in transmembrane domains at the protein surface. Mitochondrial codon reassignment is thought to be driven by evolutionary pressure, and on first appraisal it seems counterintuitive that increasing the content of an oxidant-sensitive amino acid in an oxidant-rich environment would be an advantage. The authors hypothesize an antioxidant function. They propose that the Met residues are well placed to mop up oxidants generated in the mitochondrial membrane. In combination with methionine sulfoxide reductase activity (as initially suggested by Stadtman and coworkers), this would provide a reversible mechanism for oxidant removal and protection of the mitochondria against oxidative injury. Proof is more difficult to come by. However, the reported findings that a hydrophobic methionine analogue is cytoprotective in several experimental systems are at least compatible with this intriguing hypothesis.

Review by Christine Winterbourn, University of Otago.

Metabolomics Reveals a Novel Vitamin E Metabolite and Attenuated Vitamin E Metabolism upon PXR Activation.

Cho et al.; Journal of Lipid Research (2009) Jan 20. [Epub ahead of print]

Vitamin E is one of the few fat-soluble vitamins that does not accumulate to "toxic" levels in the body. Hepatic xenobiotic metabolism is critical for regulating both the forms and amounts of vitamin E retained by the body. This study reports using highly sophisticated techniques, e.g. ultra-performance liquid chromatography coupled with electrospray time-of-flight mass spectrometry, as well as metabolomic

analysis and a pregnane X receptor null mouse model, to identify a new vitamin E metabolite, gamma-carboxyethyl hydroxychroman (CEHC) glucoside. Previously, glucuronidated and sulfated CEHCs have been described.

Review by Maret Traber, Linus Pauling Institute.

Trans-4-hydroxy-2-hexenal is a Neurotoxic Product of Docosahexaenoic (22:6; n-3) Acid Oxidation. *Long E.K. et al; Journal of Neurochemistry (2008) 105: pp714-724. DOI: 10.1111/j.1471-4159.2007.05175.x*

More and more data is accumulating which suggest that lipid peroxidation produces multiple neurotoxic species and more importantly that such species are elevated in several neurodegenerative diseases including Alzheimer's disease, Parkinson's disease and ALS. However, little is known regarding the toxicity of the newer reactive aldehydes have in cellular systems. This paper shows convincing data that HHE (Trans-4-hydroxy-2-hexenal) the reactive aldehyde formed from DHA oxidation is similar to the more popular reactive aldehyde HNE using primary cultures of cerebral cortical neurons. In addition, multiple proteins appear to be targeted for HHE-mediated adduction in the cultured neuron model using a novel antibody. This paper suggests that HHE is a neurotoxic aldehyde that has properties that are unique as was as similar to HNE.

Review by Lee Ann MacMillan-Crow and Piotr Zimniak, University of Arkansas for Medical Sciences.

Nanoparticle-Mediated Delivery of Superoxide Dismutase to the Brain: An Effective Strategy to Reduce Ischemia-Reperfusion Injury. *Reddy and Labhasetwar. FASEB Journal (2009) [Epub ahead of print]. PMID: 19124559.*

New strategies are needed to reduce the damage caused by reperfusion following cerebral ischemia (stroke). This paper used a novel approach to deliver SOD1 to the brain using biodegradable nanoparticles (NP). Interestingly, animals treated with the SOD-NP (10,000 U/kg of SOD1) at the time of reperfusion (following 1 hr ischemia) survived longer, sustained less brain injury, and showed improved neurological symptoms compared to animals receiving control nanoparticles. The authors showed that the SOD-NP maintained blood-brain barrier integrity, prevented edema, reduced ROS generation, and apoptosis. Excitingly, the protective effects were evident as early as 6 hr of reperfusion and appeared to last up to 28 days post ischemia with one injection of SOD-NP given via the carotid artery. In summary, this type therapy appears to have promise in reducing stroke related damage following cerebral ischemia.

Review by Lee Ann MacMillan-Crow, University of Arkansas for Medical Sciences.

DISCOVERY AWARDS - NOW ACCEPTING APPLICATIONS

SFRBM is now calling for nominations for the Discovery Award, which serves to recognize the most significant advancement in the field over the past ten years. The award includes a featured lecture at SFRBM's 16th Annual Meeting in San Francisco as well as a \$2,500 cash award. Nominations for these awards will be taken through May 4, 2009. For more information, please review the information below.

SFRBM Discovery Award

- For a breakthrough discovery that has had a major impact on the field of free radical biology and medicine.
- Featured plenary lecture at SFRBM 2009 Annual Meeting.
- Travel expenses paid.
- \$2,500 cash award.
- Bronze medal with stand.
- The winner will also be invited to publish a review article for Free Radical Biology and Medicine, SFRBM's journal, celebrating their scientific contributions and the presentation of this award.

Nominations Process

Each submitted nomination should include the following:

- A signed nomination letter by an SFRBM member describing the candidate and their major accomplishment justifying their consideration for this award (self nominations are permitted, but should include a secondary letter of support from an SFRBM member). Please note that nominees do not have to be current SFRBM members.
- Updated CV of candidate.
- A statement that the candidate, if selected, will be present at the SFRBM 2009 Annual Meeting in San Francisco (November 18-22, 2009).
- Completed submissions should be received by SFRBM no later than Monday, May 4, 2009. Submissions should be mailed to: SFRBM, 8365 Keystone Crossing, Suite 107, Indianapolis, IN 46240. Emailed submissions will not be considered.

Winning Recipients

Award winners will be determined by August 1, 2009 upon a vote of the SFRBM Awards Committee. In addition to the cash award and medal listed above:

- Winners will give a plenary lecture at the SFRBM 2009 Annual Meeting in San Francisco, CA, USA.
- Winners will have a one page bio and picture prominently displayed in the SFRBM 2009 Abstract/Program book. This information will also be placed on the SFRBM website with a link to the recipient's home webpage.

ANNUAL MEETING - POWER POINT SLIDE

Giving a talk in the near future? SFRBM has a power point slide with 2009 Annual Meeting information that you can include at the end of your presentation. To request the slide, please email Ashleigh Bates at abates@hp-assoc.com.



Society for Free Radical Biology and Medicine
The premier society for research in redox biology

16th Annual Meeting
November 18 - 22, 2009
Hyatt Regency • San Francisco, CA

- Workshops on cutting edge technology
- Latest advances in free radical research
- Over 50 oral presentations from selected abstracts
- Over 400 poster presentations
- Over 30 travel awards and young investigator awards
- Mentoring and networking opportunities

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2008 Senior Award winner Dr. Irwin Fridovich (right) from Duke University shares a moment with Dr. Etelvino Bechara, University of São Paulo at SFRBM's 2008 Annual Meeting.

2008 YOUNG INVESTIGATOR AWARD WINNERS

S FRBM recognized 15 outstanding student and postdoc members with Young Investigator Awards (YIAs) at the society's Annual Meeting in Indianapolis this past November. Each winner received \$500 cash and a free registration to the association's 2009 or 2010 Annual Meeting.

Udit Agarwal, Cleveland Clinic

Valeria Arciuch, University of Buenos Aires

Adam Case, University of Iowa

Liuji Chen, University of Texas – Health Science Center

Anne Diers, University of Alabama at Birmingham

Alison Groeger, University of Pittsburgh

Nadine Hempel, Albany Medical College

Bradford Hill, University of Alabama at Birmingham

Jean-Claude Honore, University of Montreal

Jessica Houghton, University of California – Davis

Amanda Melilo, Albany Medical College

Joo-Yeun Oh, University of Alabama at Birmingham

Adam Salmon, Univ. of Texas – Health Science Center

Timothy Sweeney, Duke University

Dario Vitturi, University of Alabama at Birmingham

"The 2008 meeting was my first international conference that I have attended as a graduate student, and it did not disappoint in any way. I met many new friends and colleagues in the field of free radical biology, and these collaborative efforts prompted numerous ideas and directions for my project. After the meeting, I feel as though I have a much greater appreciation for the depth of free radical biology and hope to apply many of the techniques discussed at the meeting."

- Adam Case

"Attending this year's annual meeting offered me the opportunity to see cutting edge research in free radical biology. This meeting has been and continues to be crucial for my development and training as an academic scientist. Presenting at the meeting is a great educational experience and allowed me the opportunity to have my work critically evaluated by peers and experts in the field. SFRBM always provides great networking opportunities, and I truly enjoyed the great interaction between colleagues at all levels. Overall, this year's meeting exceeded my expectations in quality of work, interactions with other researchers, and breadth of the topics discussed. Looking forward to 2009 in San Francisco!"

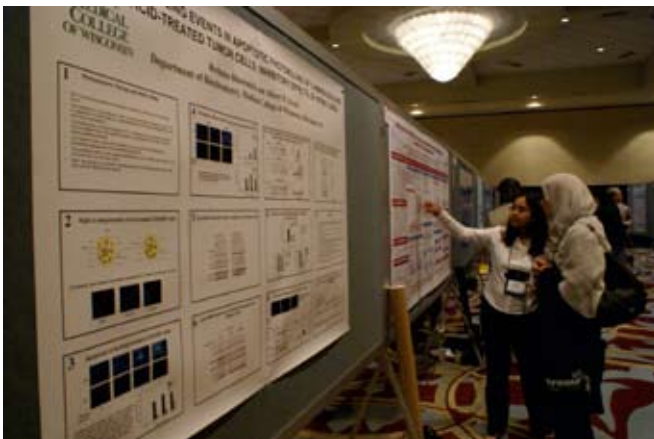
- Anne Diers

"This was my second time at the annual meeting and it was a great honor to be recognized with an award, since I am relatively new to the field of Redox biology. I found the scientific community attending this meeting extremely friendly and welcoming to new members. It is great how the society is so supportive and encouraging of their young scientists. I really enjoyed interacting with familiar faces that I met the year before and meeting new people in the field."

- Nadine Hempel

"The poster sessions were a particularly wonderful place to mingle and communicate with other free radical scientists; because of this I typically stayed at those sessions until they closed. Moreover, I was impressed with the thoroughness of the Free Radical School morning sessions, where I learned more about the nuts and bolts of free radical biology and its implications in physiology and disease. Receiving the Young Investigator award was an added bonus to my experience at the meeting. Needless to say, I'm anxiously looking forward to next year's meeting in San Francisco."

- Bradford Hill



Scientific Interview, *continued from page 1*

Ischiropoulos: Organization, the ability to multi-task and discipline. I have a weekly schedule that I try to faithfully adhere to and execute as much as possible. I have set aside time for editorial duties, for society matters and for institutional administration. I manage my teaching load by preparing in advance and I have also set aside time to meet with my lab in small groups for discussions and updates. Having a great group in the lab, an assistant, a business manger and great administrative support also helps enormously.

DOT: *How do you achieve balance between your personal and professional life?*

Ischiropoulos: No work once we arrive at home (a rule instituted by my wife Patti, a full time practitioner of obstetrics/gynecology). It is family time and we adhere to it most of the time- I do some work when grant datelines are looming. We rarely miss [our sons'] band concerts, fencing tournaments, soccer or basketball games. I still find some time to get out and play soccer but certainly not as much as I used to or like to.

DOT: *What advice would you give to young researchers entering the field?*

Ischiropoulos: Strive to achieve excellence in science. It is the measure by which all other accomplishments are achieved.

*DOT reporter, Lee Ann MacMillian-Crow
University of Arkansas for Medical Sciences*



DR. COLIN CHIGNELL

SFRBM would like to recognize the scientific contribution of Dr. Colin Chignell who passed away in July 2008 in a tragic drowning accident. Dr. Chignell was a chemist and a principal investigator in the Photosensitization Reactions Group in the NIEHS Laboratory of Pharmacology at the time of his death. "He was a highly principled person and a beloved figure at NIEHS who will be greatly missed by his many friends and colleagues," said Thomas Eling and Ronald Mason, who were friends and colleagues of Dr. Chignell. "Colin was an accomplished professional, a dedicated scientist, an effective mentor, and a talented organizer," said Mason.



(Photo & information courtesy of Ronald Mason).



SFRBM WELCOMES NEW STAFF MEMBER



SFRBM would like to welcome Ashleigh Bates as the new Administrative Manager. Ashleigh was previously Operations Manager for the Carmel Chamber of Commerce. She is a graduate of Indiana University with a degree in English Literature. Contact her at abates@hp-assoc.com.



SFRBM's 16th Annual Meeting
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Hyatt Regency Embarcadero
San Francisco, California

SFRBM has secured a special room rate of \$150 per night. On-line registration information will be available June 2009.

Abstract submission information will be available May 2009 and all abstracts will be due September 1.

