



GETA NEWSLETTER

Vol. 25, No. 3

October 2004

*A publication of the Genetic and Environmental Toxicology
Association (GETA) of Northern California*

FALL

SYMPOSIUM

Toxicity to the Developing Brain: Recent Research and Mechanisms of Effect

Tuesday, November 9, 2004

**Elihu Harris State Building, Room 11
1515 Clay Street, Oakland, CA
(Near the 12th Street BART Station)**

1:00 pm to 5:00 pm

***Reception to Follow at the Golden Bear Cafe
2nd Floor, Elihu Harris State Building***

The Genetic and Environmental Toxicology Association (GETA) of Northern California is pleased to host this conference on neurodevelopmental toxicity. This half-day scientific conference will highlight research being conducted in California on how early life exposures to very different chemicals alter proper brain development. Chemicals to be discussed include organophosphate pesticides, PCBs and manganese. Researchers are trying to understand the underlying mechanisms of toxicity to help determine if early-life chemical exposures in humans are involved in outcomes such as hearing loss, attention deficit hyperactivity disorders, autism or other long-term learning and perception deficits.

Distinguished speakers include Frank Crinella, Ph.D. (University of California, Irvine), Tal Kenet, Ph.D. (University of California, San Francisco), Isaac N. Pessah, Ph.D. (University of California, Davis), and Gary Quistad, Ph.D. (University of California, Berkeley). Don't miss this informative meeting!

Registration Deadline & Reception RSVP is November 5th!

Toxicity to the Developing Brain: Recent Research and Mechanisms of Effect

Meeting Agenda

- 1:00 pm Welcome and GETA News
Karen L. Steinmetz, Ph.D., GETA President, Associate Director, SRI International
- Presentations – Research on Toxicity to the Developing Brain**
Meeting chair: T. McDonald
- 1:10 pm Introduction
Thomas A. McDonald, Ph.D., GETA Program Chair, and Staff Toxicologist, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency
- 1:20 pm Soy Consumption, Manganese Toxicity, and Studies of Hyperactivity
Frank Crinella, Ph.D., Clinical Professor of Pediatrics, University of California, Irvine
- 2:10 pm Genetic Susceptibility to Neurotoxic Non-coplanar PCBs
Isaac N. Pessah, Ph.D., Professor of Toxicology, University of California, Davis
- 3:00 pm BREAK
- 3:20 pm The Influence of Environmental Factors on Critical Period Auditory Plasticity in Rats
Tal Kenet, Ph.D., Postdoctoral Fellow, Keck Center for Integrative Neurosciences, University of California, San Francisco
- 4:10 pm Organophosphate Toxicology: Secondary Nonacetylcholinesterase Targets
Gary Quistad, Ph.D., Research Toxicologist and Co-director Environmental Chemistry and Toxicology Laboratory (ECTL), University of California, Berkeley
- 5:00 pm **Catered reception in the Golden Bear Café, 2nd floor of the State Building.**

2004 GETA Executive Board

The Executive Board is given the responsibility of determining all policy and business related to the Association. To this end, you are urged to contact any Board member with any suggestions you may have, concerns, meeting topics, and general business to be considered.

Officers (*Program Chair)

		Phone	FAX	E-Mail
President	Karen Steinmetz	650-859-4145	650-859-3444	karen.steinmetz@sri.com
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Past President	Melanie Marty	510-622-3154	510-622-3210	mmarty@oehha.ca.gov
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Steering Committee

At-Large	Moire Creek	925-948-2965	925-948-2901	Moire.Creek@valent.com
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Government	Karen Dingley	925-423-8156	925-422-2282	dingley1@llnl.gov
Student/Postdoc	Elaine Khan	530-752-4174	530-752-3394	emkhan@ucdavis.edu

DIRECTIONS TO MEETING

MEETING LOCATION

The Elihu M. Harris, State of California office building is located at 1515 Clay Street, in Oakland, California. The building sits one block West of Oakland City Hall, between 16th and 14th Streets (to the North and South), and Clay and Jefferson Streets (to the East and West). The building is easily accessible by the BART light-rail system, AC transit buses and AMTRAK.

- BART's 12th Street/Oakland City Center station is a short, two-block walk from the building.
- AC Transit buses stop at many locations close to the building.
- AMTRAK's Jack London Village terminal is a short bus ride away.

PARKING

Parking for the public is not available in the building garage, however, two-hour, metered parking is available on the streets around the building. Meters accept quarters and debitcards. There are also several public parking garages in the area. The closest garages are:

- *Clay Street Garage*, entrance directly across the street, on Clay, between 14th and 16th Street.
- *Dalziel Building Garage*, entrance around the corner, on 16th St., between Clay and San Pablo.
- *City Center Garage*, entrance one block away, on 14th Street, between Clay and Broadway.

DRIVING DIRECTIONS

From Sacramento or North of Oakland

1. Take the Interstate-80 West towards San Francisco/Los Angeles.
2. Just before Berkeley, Interstate-80 merges with Interstate-580 East. Continue straight for 4.35 miles on Interstates-80/580, toward Oakland/San Francisco.
3. When you see the University or Ashby Avenue exits, move into the second lane from the left. It will put you onto the Interstate 580 East ramp, towards Downtown Oakland. (Be Careful! The far left lane is a diamond lane that will take you across the Bay Bridge into San Francisco.)
4. Take the Interstate-580 East ramp towards Downtown Oakland/Hayward/Stockton.
5. Move toward the right lanes and follow Interstate-580 East for 1.34 miles
6. Merge onto Interstate-980 West towards Downtown Oakland. Follow Interstate-980 for 0.2 miles.
7. Exit Interstate-980 at 14th - 18th Street. (The exit will merge you onto Brush Street).
8. Follow Brush Street to 2 blocks to 17th Street.
9. Turn left onto 17th Street.
10. Follow 17th Street 4 blocks to Clay Street.
11. Turn right onto Clay Street.
12. Follow Clay Street 1 block across 16th Street.
13. We are in the, State of California building, on the right.

From Contra Costa or East of Oakland

1. Take Hwy 24 West or Hwy 580 West (Toward San Francisco)
2. Merge onto Hwy 980 (toward downtown Oakland)
3. Exit at 18th/14th Street.
4. Merge onto Brush Street.
5. Cross 18th Street.
6. Turn left onto 17th Street.
7. Follow 17th Street to Clay Street.
8. Turn right onto Clay Street.
9. We are in the, State of California building, on the right.

From Hayward or South of Oakland

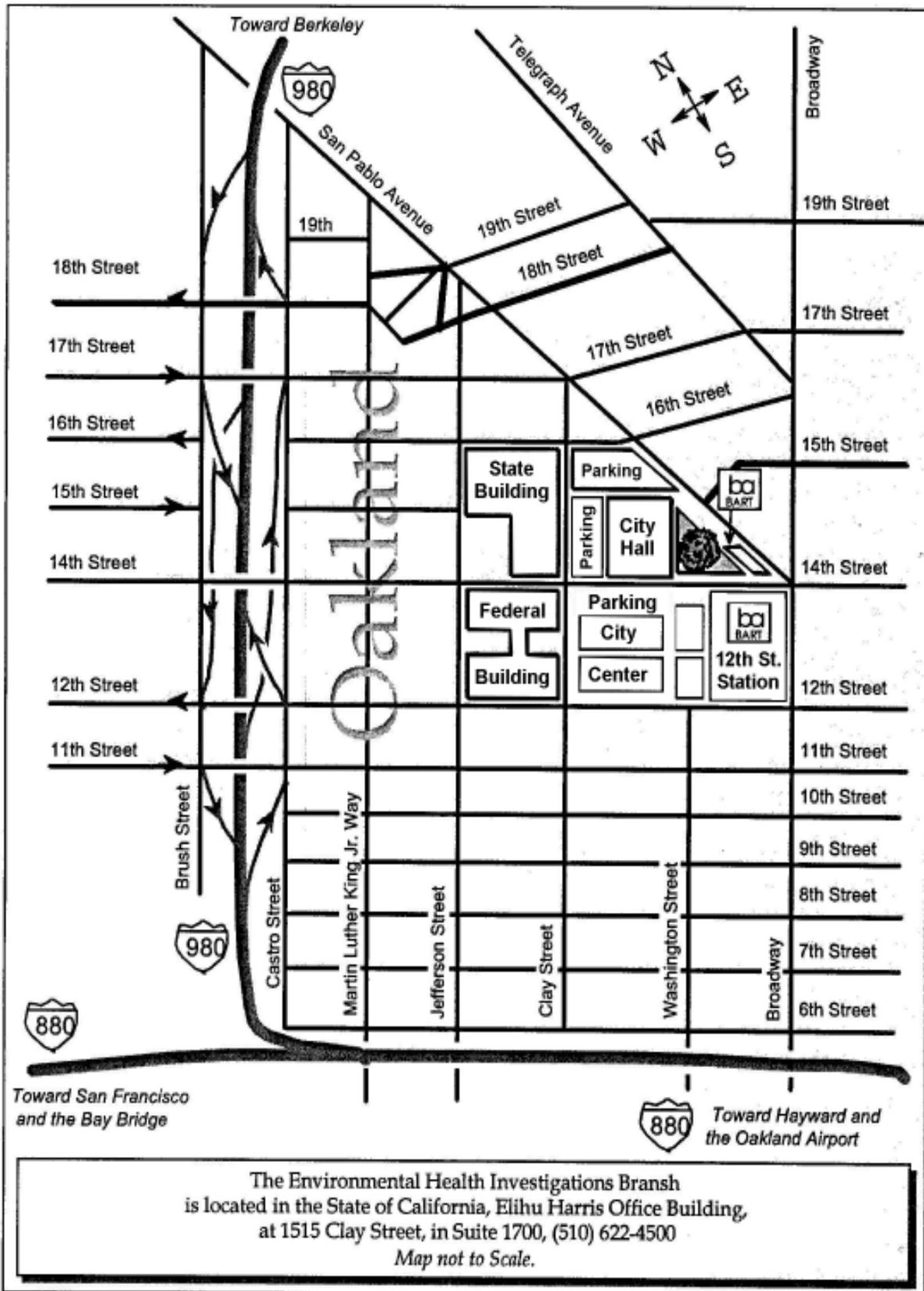
1. Take Hwy 880 North (toward Sacramento).
2. Merge onto Hwy 980 (towards Walnut Creek).
3. Exit at 17th Street/San Pablo Avenue.
4. Turn right onto 17th Street.
5. Turn right onto Clay Street.
6. We are in the, State of California building, on the right.

From San Francisco or West of Oakland

1. Go east across the Bay Bridge.
2. Follow the signs to Hwy 580 East (toward Hayward).
3. Merge onto Hwy 980 (toward downtown Oakland).
4. Exit at 18th/14th Street.
5. Merge onto Brush Street.
6. Cross 18th Street.
7. Turn left onto 17th Street.
8. Follow 17th Street to Clay Street.
9. Turn right onto Clay Street.
10. We are in the, State of California building, on the right.



Map of the Oakland City Center Area





President's Comments

.... *by Karen Steinmetz*

Greetings GETA Members

We close 2004 with our upcoming ½-day meeting highlighting "Toxicity to the Developing Brain." For those of us who have children, this topic hits very near and dear to our hearts. I applaud Tom McDonald who has done a superior job of putting together exciting and interesting symposia throughout this year—the Spring meeting on Parkinson's disease, the Winter meeting on nanoparticles (co-sponsored with the Nanotech Forum), and the current meeting. Also, who could forget GETA's Silver Jubilee where we honored the Association and the Past-Presidents? These are the reasons why I joined GETA and continue to be active.

On a related topic: immediately prior to the Fall meeting which begins at 1:15 p.m., I request that any interested members

attend an informal 'All-Members' discussion beginning at 12:15 p.m. The topic of this discussion will be the immediate future of GETA. As those of us on the Board can attest, it is becoming increasingly challenging to find interested GETA members who wish to serve on the Board—particularly as President-Elect. Together with decreased attendance to the meetings in recent years compared to earlier years, I, together with my Board, would like to gauge the membership's interest in continuing the Association. Please join me in discussing the potential alternatives for the future of GETA and its members. If you prefer, you may wish to express your opinions on this matter to me directly at geta_karen@hotmail.com

GETA Job

GETA provides selected Bay Area job listings as a service to its members. If you would like to post a position, contact Janet Baulch jebaulch@ucdavis.edu. For additional job listings we encourage you to check out the Placement Service on the EMS website at www.ems-us.org.

Environmental Chemist/Toxicologist Faculty Position. Dept. of Environmental Toxicology UC, Davis. A tenure-track position is available for an Assistant Professor and Assistant Environmental Chemist/Toxicologist in the Agricultural Experiment Station. This is an academic year appointment; fiscal-year (11-month) term employment will be offered and continued based on academic personnel review.

We are especially interested in individuals who have, or will establish, a strong and innovative research program in environmental toxicology. Areas of interest include, but are not limited to, chemical mechanisms of environmental fate, reactivity and transport, as well as mechanisms of toxicant-macromolecule interactions using genomics, proteomics, metabolomics and/or other approaches. The successful applicant is expected to have or to develop an independent, internationally recognized and well-funded research program, to teach undergraduate and graduate courses in the Environmental Toxicology curriculum, train and supervise undergraduate and graduate students, and to collaborate with established programs within the university. In addition, faculty members who

hold an AES appointment have a responsibility to conduct research and outreach relevant to the mission of the California Agricultural Experiment Station. For application or inquires, please visit our website at:

www.envtoxRecruitment.ucdavis.edu or contact Professor Marion Miller, Search Committee Chair, Department of Environmental Toxicology, University of California, Davis, CA 95616-8588. Phone: (530) 754-8982. Email: envtoxrecruitment@ucdavis.edu. This position will remain open until filled. However, to ensure full consideration applications should be postmarked by December 1, 2004. The University of California, Davis, and the Environmental Toxicology Department are interested in candidates who are committed to the highest standards of scholarship and professional activities, and to the development of a campus climate that supports equality and diversity. The University of California is an affirmative action/equal opportunity employer. Diane Wilson, Environmental Toxicology, (530)752-4516 Office, (916)802-6290 Cell Phone.

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SPEAKER BIOS

Francis Crinella, Ph.D.

Clinical Professor of Pediatrics, University of California, Irvine

Dr. Crinella is Clinical Professor of Pediatrics, Psychiatry and Human Behavior, Physical Medicine and Rehabilitation, and Environmental Analysis and Design. He practices and teaches at the University of California, Irvine, College of Medicine, Department of Pediatrics. Dr. Crinella holds a B.S. in Sociology from the University of Notre Dame and a M.S. in Psychology from the San Francisco State College. He received his Ph.D. in Neuropsychology from Louisiana State University in 1962. His research interests include brain-behavior relationships, specifically, brain systems that mediate attention, memory, and learning, in animal models as well as in humans. He is a member of several professional societies related to neuroscience. His laboratory's recent research has focused in part on the neurological effects of manganese exposure in rodents.

Tal Kenet, Ph.D.

Postdoctoral Fellow, University of California, San Francisco

Dr. Kenet is a Postdoctoral Fellow at the Keck Center for Integrative Neurosciences, University of California San Francisco, working with Professor Michael Merzenich. She received her bachelor's degree in astronomy and physics from the University of Toronto, and a master's degree in theoretical physics from Ben-Gurion University of the Negev, Israel. Dr. Kenet received a Ph.D. in visual neuroscience in 2001 from the Weizmann Institute of Science, Rehovot, Israel. Dr. Kenet was the recipient of the Rothschild Fellowship Post-Doctoral Award in 2001 and has published several papers on the intricacies of brain development.

Dr. Gary Quistad

Research Toxicologist and Co-director Environmental Chemistry and Toxicology Laboratory (ECTL) University of California, Berkeley

Dr. Quistad has been in the ECTL with Professor John E. Casida for the last 12 years. His research emphasizes mechanisms of pesticide toxicology to mammals with special attention to organophosphorus insecticides. Recent advances include identification of neuropathy target esterase, the target for delayed paralysis in humans, as a lysophospholipase. Current investigations explore inhibition of other nonacetylcholinesterase serine hydrolases as potential sources of mammalian toxicity. Prior to his arrival in Berkeley, Dr. Quistad was a scientist at Sandoc/Zoecon for 19 years in Palo Alto, studying the metabolic and environmental fate of candidate pesticides and identifying insecticidal natural products (e.g. from spider venom). Dr. Quistad has a Ph.D. in Organic Chemistry from UCLA which followed a B.S. in Biochemistry/Entomology from U.C. Riverside.

Isaac N. Pessah, Ph.D.

Professor of Toxicology, University of California, Davis

Dr. Pessah is currently Professor of Toxicology at the University of California, Davis. He is a researcher at the M.I.N.D. Institute and Director of the NIEHS Center for Children's Environmental Health and Disease Prevention. He received his B.S. in Biological Sciences from Cornell University (1977), a Ph.D. at the University of Maryland (1983), and postdoctoral training at U.C. Berkeley. During this time Dr. Pessah discovered the ryanodine receptor, a macromolecular complex that resides within the endoplasmic/sarcoplasmic reticulum of most mammalian cells. The ryanodine receptor represents a major convergence point for generating meaningful calcium signals within cells.

Dr. Pessah joined U.C. Davis November of 1988 where he has developed and taught professional and graduate students in the areas of receptors, ion channels, cellular signaling, and insecticide toxicology. His research focuses on molecular and cellular Ca²⁺ signaling events in muscle and nerve cells. His laboratory uses a multidisciplinary approach that involves integration of unique molecular, biophysical, and cellular approaches to better address both fundamental and applied aspects of Ca²⁺ signaling.

GETA Job Continued from page 5

Post-Doctoral Research Fellow Positions in Cellular/Molecular Biology, Massachusetts General Hospital/Harvard Medical School. Several post-doctoral positions are available immediately to study cellular responses to localized oxidative stress from ionizing radiation, photoactive agents, and chemically produced reactive oxygen species. Studies will be conducted as part of a multi-institutional collaboration between the Department of Radiation Oncology at MGH, Wellman Center for Photomedicine at MGH, Department of Environmental and Radiological Health Science at Colorado State University, and the Gray Cancer Institute in the UK. Research will use state-of-the-art laser light exposures, time-lapse and time-resolved fluorescence microscopy, and unique ionizing radiation microbeam facilities. The positions will suit individuals with a background in mammalian cell culture, molecular biology, DNA damage measurements, apoptosis assays, and/or assessment of cellular oxidative stress. Strong skills in fluorescence microscopy would be useful for at least one of the positions. To apply, send a curriculum vitae and names and contact information for three references to: Kathryn D. Held, Ph.D., Department of Radiation Oncology, Cox 302, Massachusetts General Hospital, Boston, MA 02114. email: kheld@partners.org. (Massachusetts General Hospital/Harvard Medical School is an Affirmative Action/Equal Opportunity Employer.)



Symposium Review

...by Tom McDonald

As you have all read in the news, nanotech is hot. This was further evident by the fact that, even on a beautiful sunny Friday, more than 200 individuals attended the day-long conference on ultrafine particle toxicity and nanomaterial safety, held May 7, 2004 in Oakland, California. The meeting was jointly hosted by The Genetic and Environmental Toxicology Association (GETA) of Northern California and the MIT-Stanford-UC Berkeley Nanotechnology Forum. Attendees represented a diverse group including scientists from national research laboratories, academia, state government, and industry, including many from technology companies in the San Francisco Bay Area.

As highlighted in the conference, research and development of nanotechnology is proceeding at an incredible pace. Federal funding for research in nanotechnology is estimated to be approximately 1 billion dollars for fiscal year 2004, with overall state funding likely to rival federal research monies. Unfortunately, a very small proportion of the overall efforts are being focused on the potential environmental and public health impacts that may be associated with this new technology.

The conference specifically explored common toxicological concerns between two areas of research, namely research on ultrafine particles as air pollutants and research on nanoparticles being developed for pharmaceutical and technology applications. Two of the speakers of the conference, Dr. John Froines, Professor and Director of the UCLA Center for Occupational and Environmental Health, Southern California Particle Center and Supersite, and Dr. Kent Pinkerton, Ph.D., Professor and Director of the Center for Health and the Environment, University of California at Davis, discussed current research on ultrafine particles. Ultrafine particles (generally defined as particles of less than 0.1 micron in diameter) and are produced in many processes including fuel combustion and welding. They presented research demonstrating that these tiny particles readily enter cells where they elicit immune responses and cellular effects such as oxidative stress and cell death. The findings suggest that ultrafine particles may be potential risk factors in some air pollution-related diseases.

Dr. Wasiq Bokari, a Partner at Quantum Insight, provided a nice introduction to the field of nanotechnology. This was followed by Dr. David B. Warheit, a Research Fellow at DuPont, who presented his research on the toxicity of carbon nanotubes

as well as ultrafine and nanoparticles of titanium dioxide and quartz. (Nanoparticles are at the lower end of the ultrafine-particle spectrum.) The findings indicate that on a per mass basis, inhaled ultrafine particles are more inflammatory, fibrogenic and tumorigenic than chemically identical larger fine particles in the lungs of rats. However, nanoparticles of quartz and titanium dioxide were equal or less toxic than equivalent ultrafine particles, suggesting that evaluation on a case-by-case basis may be needed. Additionally, Dr. Barbara Karn of the U.S. Environmental Protection Agency discussed federal EPA's efforts and funding towards nanotechnology.

Many of the conference attendees noted that the information presented at the meeting was very interesting and timely. However, it was clear to all that research on nanomaterial safety is in its infancy and additional research is critically needed.

The conference also featured a student poster session. Congratulations go to two students, Esther Ubick and Sylvia Ahn, for their research conducted in association with the Lawrence Livermore National Laboratory.

As a fitting end to a wonderful conference, GETA held a "Silver Jubilee" event to celebrate 25 years since the founding of the society. The event was held at the Oakland Art Gallery and featured delicious Japanese cuisine. Many past presidents of the society were in attendance; all seemed to have a great time reminiscing. The GETA Fall meeting will be announced soon.



GETA Past Presidents gathered at the 25th anniversary celebration at the Oakland Art Museum. Left to right: Jim Felton (1985), Ann Burrell (1988), Steve Dizio (2001), Melanie Marty (2002 & 2003), Georg Alexeff (1995), Janice Yager (1999), Charles Salocks (1991), Regina Goth-Goldstein (1989), Colette Rudd (1994), Rob Scofield (1997), Karen Steinmetz (2004), Tom McDonald (Pres-elect (2005))

Registration Form
GETA FALL MEETING

Tuesday, November 9, 2004
Elihu Harris State Building, Room 11

Name: _____
Address: _____

Phone: _____
Fax: _____
E-mail: _____

GETA Member? **Yes** **No** **(circle one)**

All Registrations includes Reception!

Students \$10
GETA Members \$20
Non-Members \$35 (includes 1-year membership)

TOTAL ENCLOSED: = _____

Send this completed registration form and check made payable to **GETA** to:

GETA
c/o Marina Chiarappa-Zucca
Forensic Science Center
Lawrence Livermore National Laboratory
PO Box 808, L-178
Livermore, CA 94551-0808
Phone: 925-422-2144

You may also make reservations by **E-mail: chiarappazucca1@llnl.gov**
Please bring your check to the meeting.

*You will be billed if you fail to attend the meeting, unless you
cancel before Friday, November 5, 2004.*



GETA MEMBERSHIP

(New or Renewing Members)

Name _____

Title _____

Affiliation _____

Address _____

Business Phone _____

FAX Number _____

E-Mail Address _____

Please give the above information as you would like it to appear in the On-Line Membership Directory.

RENEWING MEMBERS PLEASE TAKE A MINUTE TO UPDATE YOUR ADDRESS!!

New Member _____ Renewal _____ Check here if above address is new _____

Regular Member, 1 year	\$15
Regular Member, 2 year	\$25 (<i>save 5 bucks!</i>)
Regular Member, 3 year	\$35 (<i>save 10 bucks!!</i>)
Student/Postdoc, 1 year	\$ 7

Total Enclosed _____

Please send this completed form and check made payable to **GETA** to:

GETA Membership
c/o Laurie Monserrat
1369 7th Avenue
Sacramento, CA 95818

Phone: 916-443-2358
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**GETA Newsletter
c/o Linda Rausch
SRI International PN-169
333 Ravenswood Ave
Menlo Park, CA 94025**

RENEW YOUR MEMBERSHIP FOR 2005!