



Texas A&M University Faculty of Toxicology News & Reviews

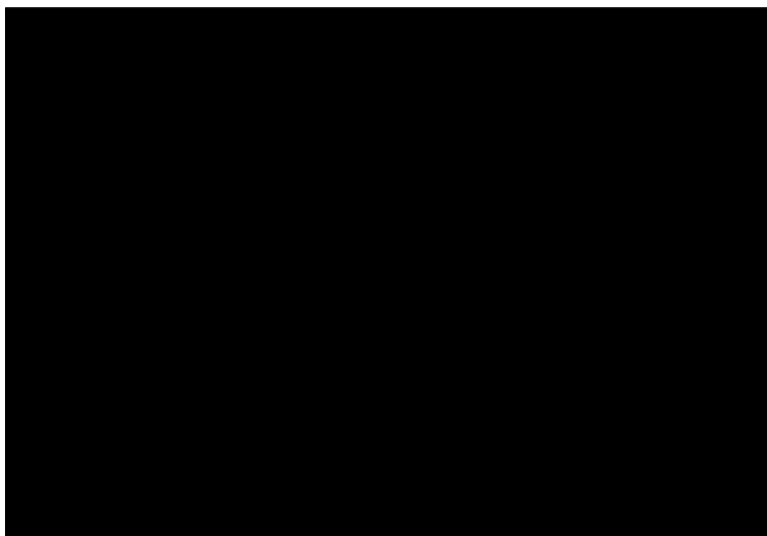
Volume 7, Number 1

May 1996

Announcements

Forty graduate students, six postdoctoral fellows and six faculty from Texas A&M University attended the Society of Toxicology meeting in Anaheim, California on March 10-14. The abstracts presented are listed on pages 4-6.

Weston Porter, a doctoral student in Steve Safe's laboratory, received the Procter & Gamble Company Graduate Student Fellowship Award. **Alan Parrish**, a doctoral student in Ken Ramos's laboratory, received First Place in the Mechanism Specialty Section. **Weili Wang**, from Steve Safe's laboratory, was awarded Second Place in the Mechanism Specialty Section. **Cody**



Patick Grant, Kathy Schrope, Tim Phillips, Weston Porter, John Miggins, Carrie Vyhldal, Scott McKenzie and Matt Reed at

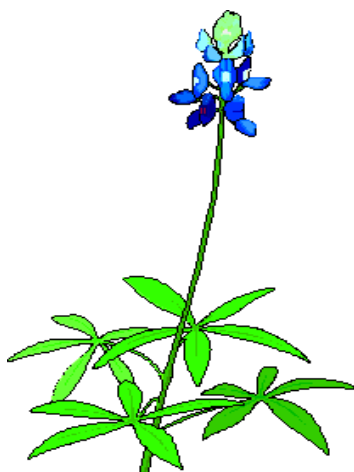
Wilson and Feng Zhao, from Steve Safe's and Tim Phillips's laboratories, respectively, received travel awards from the Society of Toxicology to attend the meeting.

Dr. Ken Ramos received the Achievement Award at the Society of Toxicology meeting. The award honors a young scientist who has made a significant contribution to toxicology.

Alan Parrish and **Cody Wilson** presented their research at the annual meeting of the American Association for Cancer Research in Washington, DC in April.

Dr. James Wild and his graduate students **Shane Gold, Marjorie Hong** and **Barbara Kuhlmann**, and **Sandra Hong**, doctoral student in Evelyn Tiffany-Castiglioni's

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laboratory, attended the "NATO Advanced Research Workshop: Chemical and Biological Technologies for the Detection, Destruction, and Decontamination of Chemical Warfare Agents" in Moscow on May 12-16. Dr. Wild was an organizer for the meeting. Shane, Marjorie, Sandra and Barbara presented posters.

Clynn Wilker, doctoral candidate from Larry Johnson's laboratory, presented a poster entitled "Perinatal Exposure to Indole-3-Carbinol Alters Reproductive Development Similar to TCDD in Sprague-Dawley Rats" (CE Wilker, SH Safe and L Johnson) at the 15th International Symposium on Chlorinated Dioxins and Related Compounds in Edmonton, Alberta Canada. Clynn received an award for

the outstanding poster presentation.

Mike Moore, a PhD graduate from Steve Safe's laboratory, accepted a staff position at Pit Environmental Services in Bellevue, Washington.

Yu Fang Lu, from Steve Safe's laboratory, will receive her PhD in toxicology this month. Yu Fang began a postdoctoral position at the University of Chicago.

Clynn Wilker will receive his PhD in toxicology this month.

Eddy Reed, toxicology student from CS Giam's laboratory in Galveston, will graduate with his PhD in May. Eddy completed his coursework in College Station, then moved to Galveston, where he

conducted his research.

The following doctoral students completed their preliminary exams this semester:

<u>student</u>	<u>advisor</u>
Maxene Dwyer	Tim Phillips
Scott McKenzie	Tim Phillips
Cody Wilson	Steve Safe

Jane Thomsen and **Weston Porter**, from Steve Safe's laboratory, presented their research at the Keystone Symposia on the Steroid/Thyroid/Retinoic Acid Gene Family in Lake Tahoe, CA on March 17-22.

Several toxicology students were honored at the 1996 College of Veterinary Medicine Honors Convocation. **Alan Parrish** received the George T. Edds award for an outstanding toxicology student. **Cody Wilson** received the Michael Szabuniewicz award. **Kristie Willett** received the TAMU Veterinary Faculty Auxiliary Graduate Student award.

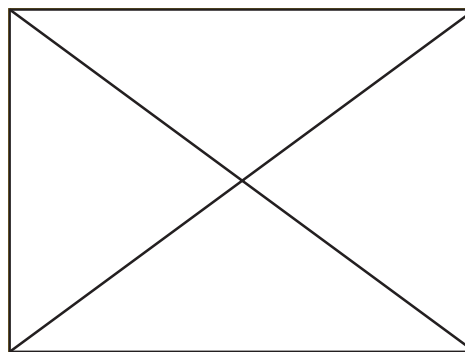
Dr. Patricia Pietrantonio joined the Faculty of Toxicology. Dr. Pietrantonio recently began her position as Assistant Professor of Insect Toxicology in the Entomology Department.



Superfund News

The NIEHS-funded Superfund Basic Research Program (SBRP) has been carrying on its research program despite the continuing political uncertainties. The status of the overall E.P.A. program and its Superfund authorization has been under scrutiny by several congressional committees and there is still hope that the SBRP will survive with only minimal changes. Nevertheless our research program has been progressing and we will have a site visit by our External Advisory Board and NIEHS staff on July 9. Some current research highlights include:

- A diverse spectrum of non-additive (antagonistic) interactions between TCDD and PCBs have been observed in the chick embryo model; this will have implications for risk assessment of these compounds.
- Recent results have shown that in vivo exposure to soil extract from a Superfund wood-preserving waste site induces oxidative DNA damage in target tissue via formation of free radicals. This effect will need to be considered in risk assessment of toxic waste sites, in addition to adduct formation via metabolic activation of carcinogens.
- Investigation of the interactions of benzo(a)pyrene (BAP) & trinitrotoluene (TNT) in mutagenicity assays indicated that TNT inhibited the mutagenicity of BAP. Fluorescence imaging of cells exposed to the two chemicals indicates that the UV fluorescence of BAP in the cell completely disappears when TNT is added to the media.
- Separation procedures have been utilized to isolate 5 fractions from a complex coal tar mixture. Mutagenicity analyses indicate that although both the 4-ring and 5-ring fractions were genotoxic, the fraction consisting of >5-ring compounds induced a mutagenic response at much lower dose levels. These data have implications for using BAP as the surrogate PAH in risk assessment.



Society of Toxicology Abstracts

ALKALINE TREATMENT OF AFLATOXIN B1: STABILITY OF PARENT AND DEGRADATION PRODUCTS. R H Bailey, A B Sarr, T D Phillips. Faculty of Toxicology, TAMU.

EFFECTS OF CHEMICAL INTERACTIONS ON BACTERIAL MUTAGENICITY. J L Capizzi and K C Donnelly, VAPH, TAMU.

INDOLE-3-CARBINOL AND DIINDOLYL METHANE AS ARYL HYDROCARBON (Ah) RECEPTOR AGONISTS AND ANTAGONISTS IN T47D HUMAN BREAST CANCER CELLS.

I Chen, S Safe and L Bjeldanes, VTPP, TAMU and Dept. of Nutritional Sciences, University of California, Berkeley, CA.

HYDROXY-PCBs AS ANTI-ESTROGENS: STRUCTURE-ACTIVITY RELATIONSHIPS. K Conner, M Mustain, M Moore, K Ramamoorthy, S Safe, B Gillesby, A Joyeux, I Zacharewski and P Balaguer, VTPP, TAMU; Dept. of Pharmacology and Toxicology, University of Western Ontario, London, Ontario, Canada; and INSERM U58, 60 rue de Navacelles, 34090 Montpellier, France.

INDUCTION OF HEPATIC CYP1A2 BY ACENAPHTHYLENE IN MICE: AGE-DEPENDENT EFFECTS. J Miggins, M Steinberg, M Sethi, J Womack, and S Safe. Departments of Veterinary Pathobiology and Veterinary Physiology and Pharmacology, TAMU.

A THROMBIN-GENERATED FRAGMENT OF OSTEOCALCIN UPREGULATES MITOGENIC RESPONSIVENESS OF SMOOTH MUSCLE CELLS IN A CHEMICAL MODEL OF ATHEROGENESIS. A R Parrish and K S Ramos. Faculty of Toxicology and VTPP, TAMU.

2, 3, 7, 8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) AS AN ANTIESTROGEN IN MCF-7 HUMAN BREAST CANCER CELLS: INHIBITION OF ESTROGEN-INDUCED HEAT SHOCK PROTEIN 27 GENE EXPRESSION. W Porter, R Duan and S Safe. VTPP, TAMU.

IDENTIFICATION and PURIFICATION OF BRAIN-FABP and HEART-FABP FROM MOUSE BRAIN. L Pu, S Myers-Payne, A Frolov, U Igbavboa, W G Wood and F Schroeder. VTPP, TAMU. Sponsor: K S Ramos.

TRANSCRIPTIONAL DOWNREGULATION OF INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN-4 BY 2, 3, 7, 8-TETRA-CHLORODIBENZO-p-DIOXIN IN MCF-7 AND T47D HUMAN BREAST CANCER CELL LINES. K Schrope, W Porter, M Moore and S Safe. Departments of Biochemistry and Biophysics and VTPP, TAMU

ALKYL POLYCHLORINATED DIBENZOFURANS AS ANTI-ESTROGENS IN HUMAN BREAST CANCER CELL LINES. G Sun, W Wang, and S Safe, VTPP, TAMU.

INTERACTION OF THE ARYL HYDROCARBON (Ah) RECEPTOR AND FOS ONCOPROTEIN. L Dong, W Wang, C Rowlands, J Thomsen and S Safe, Biochemistry and Biophysics and VTPP, TAMU.

EFFECTS OF CLAY AND CYCLOPIAZONIC ACID IN BROILER CHICKENS. M R Dwyer, R H Bailey, L F Kubena, S Buckley, R B Harvey, T D Phillips, Faculty of Toxicology, TAMU; USDA/ARS, FAP Laboratory, College Station, TX.

POLYCYCLIC AROMATIC

HYDROCARBON CONTRIBUTION TO COAL TAR-INDUCED HEPATOCARCINOGENICITY. MA Steinberg, N Harper, and S Safe. VTPP, TAMU; L Goldstein, Electric Power Research Institute, Palo Alto, CA; L V Rodriguez, MD Anderson Cancer Center, Univ. of Texas, Houston, TX; and H Dunsford, Univ. of Mississippi Medical Center, Jackson, MS.

DECREASED ARYL-HYDROCARBON (Ah)-RESPONSIVENESS BY ICI 164,384 IN MCF-7 CELLS. J Thomsen, W Wang, and S Safe. VTPP, TAMU.

REGULATION OF ESTROGEN-INDUCED TRANSFORMING GROWTH FACTOR- α BY 2, 3, 7, 8-TETRACHLORODIBENZO-p-DIOXIN IN HUMAN BREAST CANCER CELLS. C Vyhildal and S Safe. VTPP and Biochemistry and Biophysics, TAMU.

GROWTH INHIBITION OF MDA-MB-468 HUMAN BREAST CANCER CELLS BY 2, 3, 7, 8-TETRACHLORODIBENZO-p-DIOXIN (TCDD): ROLE OF TRANSFORMING GROWTH FACTOR- α . W Wang and S Safe. VTPP, TAMU.

RELATIVE INDUCTION POTENCY OF SELECTED POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS) IN ENVIRONMENTAL SAMPLES USING THE H4IIE CELL BIOASSAY. K Willett, P Gardinali, J Sericano, T Wade, and S Safe. VTPP, TAMU; AND Geochem. and Environ. Res. Group, TAMU.

FACTORS WHICH DETERMINE THE ARYL HYDROCARBON (Ah)-NONRESPONSIVENESS OF ADRIAMYCIN RESISTANT MCF-7 HUMAN BREAST CANCER CELLS. C Wilson, W Wang and S Safe, VTPP, TAMU.

INDOLE-3-CARBINOL AND 2, 3, 7,

8-TETRACHLORODIBENZO-p-DIOXIN (TCDD) REDUCES DAILY SPERM PRODUCTION AND ALTERS EPIDIDYMAL FUNCTION. C E Wilker, S H Safe, and L Johnson. Faculty of Toxicology, TAMU.

CHARACTERIZATION OF THE Ah-RESPONSIVENESS OF ISHIKAWA ENDOMETRIAL CELLS. M Wormke and S Safe, VTPP, TAMU.

EFFECTS OF 2,2', 4, 4', 5, 5'-HEXACHLOROBIPHENYL AND INDOLE-3-CARBINOL ON 3, 3', 4, 4', 5, 5'-PENTACHLOROBIPHENYL-INDUCED TERATOGENESIS IN CHICKEN EMBRYOS AND C57BL/6 MICE. F Zhao, K Mayura, N Kocurek, J F Edwards, L F Kubena, S Safe, and T D Phillips, Faculty of Toxicology, Vet. Anatomy, TAMU.

MODULATION OF GROWTH-RELATED GENE EXPRESSION IN PRIMARY CULTURES OF RAT HEPATOCYTES BY BENZO(A)-PYRENE AND 2, 3, 7, 8-TETRACHLORODIBENZO-P-DIOXIN. W Zhao and K S Ramos. Faculty of Toxicology and VTPP, TAMU

MOLECULAR TARGETS OF BENZO(A)PYRENE IN VASCULAR SMOOTH MUSCLE CELLS (SMCs). Y Zhang and K S Ramos. Faculty of Toxicology and VTPP, TAMU.

INHIBITION OF c-FOS PROTO-ONCOGENE EXPRESSION BY TCDD USING ESTROGEN-RESPONSIVE 5'-PROMOTER CONSTRUCTS. R Duan, W Porter, and S Safe. VTPP, TAMU.

ISOTHERMAL ANALYSIS OF AFLATOXIN B₁ BINDING TO PHYLLOSILICATE CLAYS. P G Grant, A B Sarr, T D Phillips. Faculty of Toxicology, TAMU.

REACTION AND DIFFUSION CHARACTERISTICS OF CRYO-IMMOBILIZED RECOMBINANT *E. coli* BIOCATALYST IN REMEDIATION OF NEUROTOXIC ORGANOPHOSPHATES. M S Hong, E Rainina, J K Grimsley, B E Dale, and J R Wild. Department of Chemical Engineering, Department of Biochemistry and Biophysics, TAMU.

INHIBITION OF EXCITATORY POST-SYNAPTIC POTENTIALS IN RAT HIPPOCAMPAL SLICES BY 2, 3, 7, 8-TETRACHLORODIBENZO-p-DIOXIN (2, 3, 7, 8-TCDD) AND 2, 2', 5, 5'-TETRACHLOROBIPHENYL (2, 2', 5, 5'-TCB). S J Hong, C A Grover, G D Frye, S H Safe, E Tiffany-Castiglioni. TAMU.

IN VITRO ANALYSIS OF LIGAND-DEPENDENT CHANGES IN Ah-RECEPTOR-DRUG INTERACTIONS. L A Johnson, C Wilson and S Safe. VTPP, TAMU.

THE PURIFICATION OF A TNT-REDUCING ENZYME. T Kalafut, M E Wales, J R Wild. Department of Biochemistry and Biophysics, TAMU.

RATIONAL ENZYME DESIGN: COMPUTER MODELING AND SITE-DIRECTED MUTAGENESIS AS TOOLS TO IMPROVE CATALYTIC ACTIVITY AND SPECIFICITY OF ORGANOPHOSPHORUS HYDROLASE. B D Kuhlmann, L Scapozza, K Lai, J Grimsley, S Harvey, J Kolalowski, and J R Wild. Dept of Biochemistry and Biophysics, TAMU; Environmental Technology Division, Edgewood Research, Development and Engineering Center, APG, MD. Sponsor: S Safe.

SUBSTITUTED FLAVONES AS ARYL HYDROCARBON RECEPTOR AGONISTS AND ANTAGONISTS. Y-F Lu, M Santostefano, B D M Cunningham, M D Threadgill, and S Safe. VTPP,

TAMU; and School of Pharmacy, University Bath, Claverton Down, Bath, England.

INHIBITION OF 7, 12-DIMETHYLBENZANTHRACENE-INDUCED RAT MAMMARY TUMOR GROWTH BY 6-METHYL-1,3,8-TRICHLORODIBENZOFURAN. A McDougal, J Howell, and S Safe, VTPP, TAMU.

DEGRADATION AND TOXICOLOGICAL EVALUATION OF FUMONISIN B, AND OTHER MYCOTOXINS TREATED WITH HYDROLYTICALLY-PRODUCED OZONE GAS. K S McKenzie, A B Sarr, K Mayura, W P Norred, K A Voss, R D Plattner, T D Rogers, and T D Phillips. Faculty of Toxicology, TAMU; Toxicology and Mycotoxin Research Unit, ARS/USDA, Athens, GA; Bioactive Constituents Research, ARS/USDA, Peoria IL; Lynntech, Inc., College Station, TX.

DIETARY ESTROGENS AND ANTIESTROGENS: A QUESTION OF DOSE AND POTENCY. S Safe. VTPP, TAMU.

ALTERATION OF OXYTOCIN-INDUCED CALCIUM OSCILLATIONS IN CLONE 9 CELLS BY TOXIN-EXPOSURE. R C Burghardt, T D Phillips, S H Safe and R Barhoumi. Faculty of Toxicology, TAMU.

ANTIESTROGENIC ACTIVITY OF HYDROXYLATED PCBs IDENTIFIED IN HUMAN SERUM. M Moore, M Mustain, K Daniel, S Safe, T Zacharewski, B Gillesby, A Joyeux, and P Balaguer. VTPP, TAMU; Dept. Of Pharmacology and Toxicology, Univ. Of Western Ontario, London, Ontario, Canada; and INSERM U58, Montpellier, France.

FAILURE OF CHLORO-S-TRIAZINE-DERIVED CHEMICALS TO INDUCE ESTROGEN RECEPTOR-MEDIATED

RESPONSES *IN VIVO* AND *IN VITRO*. T Zacharewski, K Connor, J Howell, I Chen, H Liu, K Berhane, C Sciarretta and S Safe. VTPP, TAMU; and Dept. Of Pharmacology and Toxicology, Univ. Of Western Ontario, London, Ontario, Canada.

MOLECULAR MECHANISM OF INHIBITION OF ESTROGEN-INDUCED BRAIN CREATINE KINASE EXPRESSION BY TCDD. F Wang and S Safe. VTPP, TAMU.

IMMUNOHISTOCHEMICAL QUANTITATION OF CYTOCHROME P450 AS AN INDICATOR OF HYDROCARBON EXPOSURE IN RED DRUM (*Sciaenops ocellatus*). L P Flood, B Campbell and D L Busbee. VAPH, TAMU.

IMMUNOCHEMICAL VISUALIZATION OF RAT LIVER PROTEINS ADDUCTED BY BUTYLATED HYDROXYTOLUENE

(BHT). M Reed and D C Thompson. TAMU Health Science Center, College Station, TX.

GLUTAMATE UPTAKE AND GLUTATHIONE CONTENT IN LEAD-TREATED ASTROGLIA. L A Schneider, R Stevenson and E Tiffany-Castiglioni. VAPH, TAMU.

GLOMERULAR MESANGIAL CELLS ARE PREFERENTIAL TARGETS OF BENZO(A)PYRENE IN THE KIDNEY. K S Ramos, C M Bral and A R Parrish. Faculty of Toxicology and VTPP, TAMU.

MOLECULAR AND CELLULAR TARGETS OF BENZO(A)PYRENE IN PRECISION-CUT RAT LIVER AND KIDNEY SLICES. K Brendel, R L Fisher, A R Parrish and K S Ramos. Department Of Pharmacology., Univ. Of Arizona, Tuscon, AZ; and Faculty of Toxicology and VTPP, TAMU.

BENZO(A)PYRENE INDUCES TRANSCRIPTION OF THE NORMALLY CONSTITUTIVE C-HA-RAS PROTOONCOGENE IN VASCULAR SMOOTH MUSCLE CELLS. C M Bral, D N Sadhu and K S Ramos. Faculty of Toxicology and VTPP, TAMU.

STUDIES ON THE MECHANISM OF HEPATOTOXICITY OF p-CRESOL: EFFECTS OF DEUTERIUM LABELLING AND RING SUBSTITUTION. D C Thompson, K Perera and R London. TAMU Health Sciences Center, College Station, TX and NIEHS, Research Triangle Park, NC.

ENZYME BASED BIOSENSOR FOR DIRECT DETECTION OF ORGANOPHOSPHOROUS NEUROTOXINS. A L Simonian, E I Rainina, J K Grimsley and J R Wild. Department of Biochemistry and Biophysics, TAMU.

Conferences

May 1996

May 30-31, 1996

The 10th Annual Genetic and Molecular Toxicology Workshop

Bethesda, MD

Contact: Patricia M. Mulligan; Microbiological Associates, Inc.; 900 Blackwell Road; Rockville, MD 20850; Tel: (301) 251-0437

June 1996

June 3-7, 1996

Critical Issues in Tumor Microcirculation, Angiogenesis and Metastasis

Cambridge, MA

Sponsored by the Harvard Medical School and Massachusetts General Hospital

Contact: Harvard MED-CME; P.O. Box 825; Boston, MA 02117-0825

June 5-8, 1996

Control and Manipulation of Malignant Tumor Spread

Paris, France

Contact: S. Scholl or S. Pellegrino; Tel: 33 1 44 32 46 71

June 8-12, 1996

Inducible Genomic Responses

Stevenson/Columbia River Gorge, WA

Contact: AACR; Public Ledger Bldg., Suite 816; 150 South Independence Mall West; Philadelphia, PA 19106-3483; Tel: (215) 440-9300

June 12-13, 1996

The Future Uses of Chlorine: Issues in Education, Research, and Policy

Cambridge, MA

Contact: Jennifer Nash; Chlorine Project; MIT Rm E40-251; 77 Massachusetts Ave.; Cambridge, MA 02139-4307; Tel: (617) 253-3586; E-mail: jnash@mit.edu

June 8-August 23, 1996 (various dates)
FASEB Summer Research Conferences
 Saxtons River, VT

Snowmass Village, CO
 Copper Mountain, CO
 Contact: FASEB Career Resources; 9650
 Rockville Pike; Bethesda, MD 20814-3998;
 Tel: 1-800-43-FASEB, ext. 7020

June 9-12, 1996

**Modulation of Chemical Toxicity and Risk
 Assessment**

Tucson, AZ
 Contact: Susan Hurt, Conference
 Coordinator; The University of
 Arizona; College of Pharmacy
 Center for Toxicology; 1703 East
 Mabel; Tucson, AZ 85721-0207;
 E-mail: hurt@toxic.pharm.
 arizona.edu

June 9-14, 1996

**DNA Adducts and
 Mutations in Human
 Biomonitoring**

Stockholm, Sweden
 Contact: Meeting Secretariat
 Mairon Sandin; Karolinska Institutet,
 CNT, Novum; S-141 57 Huddinge,
 Sweden; Tel: +46-8-608 92 20

June 12-14, 1996

**4th Biennial International Symposium on
 Alternatives in the Assessment of Toxicity:
 Issues, Progress and Opportunities**

Aberdeen Proving Ground, MD
 Sponsored by U.S. Army Edgewood Research,
 Development and Engineering Center;
 Contact: Heather Cowan or Janice Rhodes;
 Tel: (410) 569-0200

June 17-21, 1996

**DNA Binding Proteins and Transcriptional
 Regulators**

Washington, D.C.
 Contact: CATCMB/103 McCort-Ward Bldg.;

The Catholic University of America;
 Washington, D.C. 20064; Tel: 202-319-6161

June 22-27, 1996

1996 World Congress on In Vitro Biology
 San Francisco, CA

Contact: Society for In Vitro Biology; 8815
 Centre Park Dr., Suite 210; Columbia, MD
 21045; Tel: 410-992-0946.

July 1996

July 29-August 2, 1996

**Environmental Applications of Gas
 Chromatographic Mass
 Spectrometry**

Bloomington, IN
 Sponsored by the School
 of Public And
 Environmental Affairs
 Indiana University;
 Contact: Executive
 Education Program;
 Indiana University; SPEA
 410H; Bloomington, IN
 47405; Tel: (812) 855-
 0193

August 1996

August 17-23, 1996

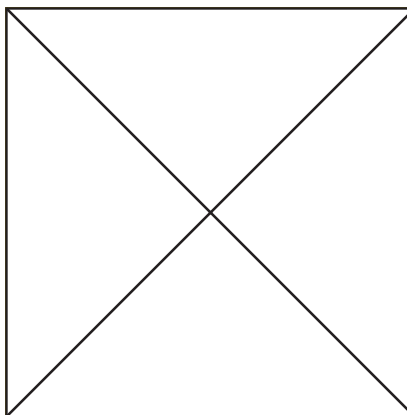
**Methods in Clinical Cancer
 Research**

Park City, UT
 Co-sponsored by the AACR and the ASCO;
 Contact: AACR; Public Ledger Bldg, Suite
 816; 150 S. Independence Mall West;
 Philadelphia, PA 19106-3483; Tel: (215) 440-
 9300

August 29-30, 1996

**Dietary Fat and Cancer: Genetic and
 Molecular Interactions**

Washington, D.C.
 Contact: AICR Conference Secretariat; The
 Pearson Group, Suite 210; 1150 South
 Washington Street; Alexandria, VA 22314; Tel:



(703) 683-6334

September 1996*September 11-13, 1996***Biological Monitoring in Occupational and Environmental Health**

Espoo, Finland

Contact: Ms. Kristiina Kulha;
Topeliuksenkatu 41 a A; FIN-
00250 Helsinki, Finland; Tel:
int+358-0-47 47 551, Fax:
int+358-0-47 47 548; e-mail:
kkul@occuphealth.fi

*September 22-25, 1996***Eurotox '96**

Alicante, Spain

Contact: J. Leuschner;
Redderweg 8; D-21147
Hamburg, Germany; Tel:
++49 40 70 20 20

October 1996*October 6-9, 1996***Carcinogenesis from Environmental Pollution: Assessment of Human Risk and Strategies for Prevention**

Budapest, Hungary

Joint Conference of the AACR
and the IARC, with the
collaboration of the
Hungarian Cancer Society;
Contact AACR; Public Ledger
Bldg., Suite 816; 150 S.
Independence Mall West;
Philadelphia, PA 19106-3483;
Tel: (215) 440-9300

*October 19-23, 1996***Programmed Cell Death**

Bolton Landing, New York

Sponsored by the American

Association for Cancer
Research. Contact: Special
Conference Registration,
Public Ledger Building, Suite
816, 150 South
Independence Mall West,
Philadelphia, PA 19106-3483;
Tel: (215)440-9300, Fax:
(215)440-9313

*October 20-24, 1996***7th North American International Society for the Study of Xenobiotics Meeting**

San Diego, CA

Contact: ISSX; PO Box 3;
Cabin John, MD 20818; Fax:
301-983-5357

*October 26-28, 1996***3rd International Symposium: Impact of Cancer Biotechnology Diagnostic & Prognostic Indicators**

Nice, France

Sponsored by the Interna-
tional Society for Preventive
Oncology; Contact: Box 20,
University of Massachusetts
Medical Center; 55 Lake Ave.
N; Worcester, MA 01655

December 1996*December 4-7, 1996***New Approaches for Assessing the Carcinogenic Potential of Chemicals**

Austin, TX

Contact: Mary Lou Fendley;
UT Science Park; PO Box
389; Smithville, TX 78957;

Tel: (512) 237-2522

July 1997*July 1-5, 1997***Stress of Life—Stress and Adaptation from Molecules to Man**

Budapest, Hungary

Contact: Dr. Peter Csermely;
Institute of Biochemistry I.;
Semmelweis University; P.O.
Box 260; H-1444 Budapest,
Hungary; Tel: +361-266-6550

*July 6-10, 1997***7th EAVPT International Congress**

Madrid, Spain

Contact: Congress Secre-
tariat, Mrs. Marta Cazorla;
Viajes Iberia Congresos; 7th
EAVPT International Con-
gress; San Bernard 20; 28015
Madrid, Spain; Tel: 34 1
5328137



The toxicology program
would like to thank the
Spring 1996 Seminar Series
hosts for their assistance.

Hart Bailey
Larry Johnson
Rick Finnell
Tim Phillips
Weston Porter
Cody Wilson

special thanks to host and
seminar coordinator
Evelyn Tiffany-Castiglioni



International Program for Animal Alternatives

Call for Research Proposals for Development and Validation of Alternatives in Animal Testing for Efficacy and Safety

Sponsored by Procter & Gamble

Submissions due August 15

The purpose of this program is to provide funds for research in biological sciences. Specifically, this program funds the development and the scientific validation of replacements for, or improvements in, current animal methods for efficacy and safety testing used in the development of new drugs and other consumer products. Funding will be provided for up to three proposals each year. The maximum funding for each awarded proposal will be \$50,000 per year for a period of up to three years. Contact: Program Administrator; International Program for Animal Alternatives; The Procter & Gamble Company; Miami Valley Laboratories; PO Box 538707; Cincinnati OH 45253-8707; fax (513) 627-0084

Employment Opportunities

*Postdoctoral Position***University of Virginia**

Position available to study the expression, identification and regulation of estrogen receptors in the heart and peripheral vasculature. U.S. citizenship or permanent residency required. Send resume and names of four references to: C. Desjardins, Medical Center Box 391, University of Virginia, Charlottesville, VA 22908. e-mail: reprod@virginia.edu.

*Positions***Roche Bioscience**

Positions available are: Postdoctoral Fellow, Asthma

Research Scientists, Osteoporosis & Endocrine Research Program Manager, Drug Regulatory Affairs, and Research Scientists/ Associates in the fields of toxicology, NMR spectroscopy, radiochemistry, in vivo pharmacology, metabolism/ bioanalysis, computational chemistry, analytical & pharm chemistry and preclinical research. Send resume indicating position to Roche Bioscience, Dept. SCI0426, 3401 Hillview Ave., MS A2-HR, Palo Alto, CA 94304. Fax: (415)424-8159. Web address: <http://www.roche.com/bioscience>.

*Positions***Amgen**

Opportunities in the fields of Toxicology, Pharmaceuticals, Medicinal Chemistry and Neuroscience. Email resume to: jobs@amgen.com and indicate resume as subject or send resume to Amgen, Job Code: TPSC, P.O. Box 2569, Thousand Oaks, CA 91319-2569. On-line job bulletin board at: <http://amgen.bio.com>.

*Health Risk Analyst***The New Hampshire Division of Public Health Services**

Candidate will prepare complex multi-media assessments of the harmful effects of environmental contaminants on populations at risk in addition to reviewing human health risk assessments. Requires a graduate degree in Toxicology, Environmental Health, or in a related field plus four years experience in public health or in a related field. Contact Dennis Pinski, Supervisor, Risk Assessment Section; Tel: (603) 271-4664.

*Assistant Professor***Johns Hopkins University School of Hygiene and Public Health**

Division of Toxicological Sciences. Applicants should be trained in the area of toxicology and completed at least two to three years of postdoctoral research. Send CV, research plans, and 3 references to James D. Yager, PhD; Professor and Director, Division of Toxicological Sciences; Dept of Environmental Health Sciences; Johns Hopkins Univ School of Hygiene and Public Health; 615 N Wolfe St; Baltimore, MD 21205-2179.

*Environmental Toxicologist***Maryland Department of the Environment**

Provides technical support to the Department's Air, Water, and Waste Administrations on environmental toxicology/public health issues. Four year or advanced degree in environmental health or toxicology with risk assessment coursework and/or experience required. Regulatory and/or

toxicological experience preferred. Send resume and writing sample to Dr. Diedre Murphy; Environmental Risk Assessment Program; Technical and Regulatory Services Administration; Maryland Department of the Environment; 2500 Broening Highway; Baltimore, MD 21224; Tel: 9410) 631-3906.

*Faculty Position***University of Rhode Island**

Tenure-track, Assistant Professor level position in the Department of Biomedical Sciences. A PhD in toxicology or a closely related discipline, such as pharmacology, biochemistry, or cell or molecular biology is required. The candidate must have postdoctoral experience and publications in peer reviewed journals. Send CV, 3 references, copies of selected publications, and research plan to Dr. Z. A. Shaikh, Search Committee Chair (Log #161065); P.O. Box G; University of Rhode Island; Kingston, RI 02881; Tel: (401) 874-2362.

*Assistant Professor***Saint Joseph's College**

Teaching responsibilities include environmental science; general and analytical chemistry (limnology helpful); and assistance with general laboratories. Ph.D. and teaching experience required. Send resume, CV, statement of teaching philosophy, research interest, transcripts, and three letters of recommendation to Sister Mary Ellen Murphy, Ph.D., Dean; Saint Joseph's College; 278 Whites Bridge Road;

Standish, ME 04084-5263Ni

*Cell Biologist Position #OPSCI-1714**Signal Transduction Position #OPSCI-1891***Wyeth Ayerst**

Candidates must have a Ph.D. in Life Sciences with a minimum of 3 years relevant postdoctoral experience or the equivalent. Send resume with salary requirements and Position # to Wyeth-Ayerst Research; Human Resources Dept; P.O. Box 7886; Philadelphia, PA 19101-7886; or fax to (610) 989-4854; e-mail: jobs@RAMAIL1.wyeth.com (ASCII format, no attachments, subject: resume).

*Postdoctoral Positions***NCI and NIH**

Two positions are available (1) in the Retrovirus Patho-genesis Group with Dr. David Derse, candidates should have a strong background in molecular biology and virology and (2) in the Developmental Signal Transduction Group, candidates should have a strong background in molecular, cellular, or developmental biology. Applicants must have less than 5 years of postdoctoral experience. Send CV and three references to the appropriate mentor at The Laboratory of Leukocyte Biology; Division of Basic Sciences; NCI-FCRDC; Bldg 567; Frederick, MD 21702.

Positions

NIH-funded positions are available to study signal transduction processes mediated by the Raf-1 protein kinase. Experience in molecular biology and protein biochemistry are required. Send CV, short

statement of research accomplishments and interests, and three references to John M. Sedivy, Ph.D; Dept of Molecular Biology; Cell Biology and Biochemistry; Brown University; Box G-J2; Providence, RI 02912.

Postdoctoral Position

University of Vermont

A recent Ph.D. is needed to study the proliferation of airway smooth muscle. Molecular biology experience is required. Send CV to James Posada, Ph.D; Dept of Molecular Physiology; University of Vermont; Burlington, VT 05405. Tel : (802) 656-5776; e-mail: posada@salus.med.uvm.edu.

Postdoctoral Positions

Yale University

Positions available to study signal transduction and gene regulation in inflammation (asthma). Experience in molecular biology and whole animal studies is desired. Send CV with references to Drs. Prabir Ray and Anuradha Ray; Dept of Internal Medicine/Pulmonary Section; Yale University School of Medicine; LCI 105, 333 Cedar Street; New Haven, CT 06520.

Postdoctoral Positions

University of Miami

Positions available to study the adaptive regulation of transporters and receptors in human brain. Candidates will have PhD and expertise in HPLC, GC/MS, ligand binding, receptor autoradiography, *in situ* hybridization, solution hybridization or PCR methodologies. Send CV and three references to Deborah C. Mash, Ph.D.; Dept of Neurology;

University of Miami; 1501 NW 9th Avenue; Miami, FL 33136; e-mail: dmash@mednet.med.miami.edu.

Postdoctoral Fellow

Wake Forest University

An NCI-funded Postdoctoral Fellowship is available in the Signaling Program of the Comprehensive Cancer Center of Wake Forest University. Research opportunities are available in the Departments of Biochemistry, Microbiology/Immunology, and Physiology/Pharmacology. Contact: Dr. Moseley Waite, Chairman; Dept of Biochemistry; Bowman Gray School of Medicine; Medical Center Boulevard; Winston-Salem, NC 27157-1016.

Research Scientist

Hemosol Inc.

A strong general background in cell biology, molecular biology and immunology is required. Ph.D. and relevant postdoctoral and/or industrial experience in cellular immunology, in-vivo and in-vitro lymphocyte culture, and flow cytometry. Send resume quoting file #XC/01/96 to HR Dept.; 115 Skyway Avenue; Etobicoke, Ontario M9W 4Z4.

Clinical Research Positions

Mayo Clinic

The Division of Medical Oncology and the NCI-designated Mayo Cancer Center in Rochester, Minnesota has two clinical research positions open. Submit research interests, CV, bibliography, and reference to James N. Ingle, M.D.; Associate Director for Clinical Research; Mayo Cancer Center; Mayo Clinic; 200 First Street, SW;

Rochester, MN 55905.

Senior Scientist/Toxicologist
International Life Sciences Institute (ILSI) Risk Science Institute

Applicants should have working knowledge of human health risk assessment and expertise in reproductive/developmental toxicology is required. Position requires a PhD in toxicology or related biological science and 3+ years of professional experience. Will coordinate and staff technical groups, analyze technical data, draft and edit manuscripts, create project concepts and solicit funding support for projects. Send a detailed resume and list of publications to Human Resources, ILSI, 1126 16th. St., NW; Washington, D. C., 20036. Fax: (202)659-3859.

Job Search Web Addresses:

Federation of American Societies for Experimental Biology: gopher.faseb.org (Telnet: appserv.faseb.org - login: gopher; web programs need Telnet)

Riley Guide: <http://www.wpi.edu/~mfriley/jobguide/html> or <http://www.wpi.edu/academics/ims/library/jobguide>

Best Bets: <http://www.lib.umich.edu/chdocs/employment>
American Cancer Society: <http://pubs.acs.org>

Federal Govt Openings: <http://www.fedworld.gov/>

Career Mosaic: <http://www.careermosaic.com/cm/>

Monster Board: <http://www.monster.com/>

NIEHS: <http://niehs.nih.gov>

FASEB Careers On Line: <http://www.faseb.org/careers>