Mid-Hudson Chemist
American Chemical Society
Department of Chemistry
SUNY New Paltz
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NERM2008

The 34th Northeast Regional Meeting of the American Chemical Society will be held in the Sheraton Conference Center in scenic Burlington, Vermont from June 29 to July 2, 2008. Visit http://www.nerm2008.org for information. The technical program will feature symposia on topics of particular current or regional interest. The technical program will be complemented with a day focused on continuing education for K-12 chemistry teachers, with technical and career development workshops, and with social and networking events. The Chemistry Enthusiasts program will provide a series of entertaining and thought-provoking lectures and discussions aimed at those who have an interest in chemistry, but are not full-time researchers. The NERM2008 exhibition will provide an invaluable opportunity to learn about chemistry-related products and services from leading providers.

To submit an abstract for oral or poster presentation of research, visit http://www.nerm2008.org. The deadline for abstract submission is May 11.

Hudson Valley Science Café

A Science Café is a monthly gathering in a café, open to the public, with a short presentation of a topic followed by discussion. The essence of a Science Café is informality, with groups seated around tables with food and drink to encourage conversation. Hudson Valley Science Café meets on the 4th Tuesday of the month.
Website: http://www.cafescientifique.org:80/hudsonvalley.htm

Future topics will be chosen from all of the sciences. If you have a suggestion for a speaker, or if you have a topic to present, please contact Dr. Toby Rossman (rossman@env.med.nyu.edu).

ADDRESS
It's All Good Restaurant (Southern food), now at 394 Washington St, Newburgh (formerly the Shamus Pub). Food and drinks served from 6:00-7:00 and after 7:30. $3.00 admission fee includes coffee or tea.

May 20, 2008 (3rd Tuesday)
"Don't Put All Your Shrimp Eggs in One Basket - Estuarine Shrimp and Their Importance in the Food Chain and Their Use as Biomonitors"
Kathleen Nolan, Ph.D., Professor and Chair, Dept. of Biology, St. Francis College, Brooklyn Heights, NY

June 24, 2008
"From *Sherlock Holmes* to *CSI*: Chemistry as a Forensic Science"
(Hudson Valley Science Café/ Mid-Hudson ACS joint presentation)
James T. Spencer, Ph.D., Professor of Chemistry, Syracuse University

July 29, 2008 (5th Tuesday)
"The Response of Environmental Organizations to Junk Science Explanations of Global Warming"
Irwin Sperber, Ph.D., Associate Professor of Sociology, SUNY New Paltz

(Hudson Valley Science Café has received start-up funds from WGBH-NOVA and The American Chemical Society.)

The Mid-Hudson Section of the American Chemical Society and The Department of Chemistry of SUNY New Paltz Announce

Computational Design of a Small Peptide that Inhibits Breast Cancer

Dr. George C. Shields
Department of Chemistry, Hamilton College (Clinton, NY)

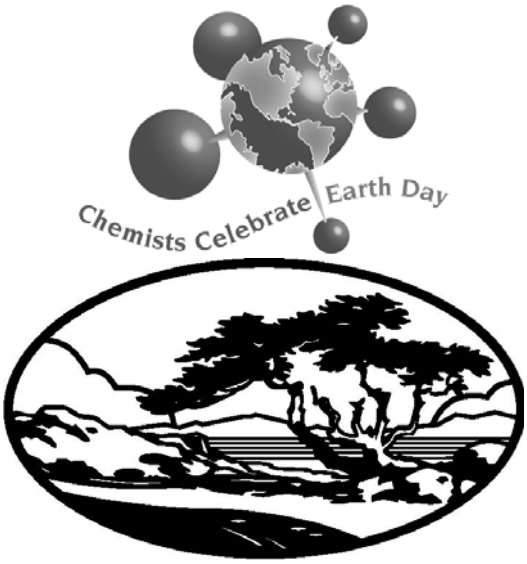
Wednesday, May 7, 2008
7:00 PM
Room TBA
SUNY New Paltz
(Refreshments at 6:30 PM)

Contact: Dan Freedman (phone:845-257-3795 or e-mail: freedmad@newpaltz.edu)

Abstract: Breast cancer is the most common cancer diagnosed in woman and is the second leading cause of cancer death among women, closely following lung cancer. Many breast cancer drugs, like tamoxifen, have limited long term efficacy and often have undesirable side effects, leading researchers to search for new breast cancer drugs. Alpha-fetoprotein (AFP), an embryo specific serum alpha-globulin glycoprotein, is synthesized by the fetal yolk sac and circulates through the serum of pregnant women. A growth-regulating hormone, AFP has the capacity to both stimulate and inhibit growth, although scientists remain uncertain of the exact pathways involved. In the last several decades, clinical researchers have discovered the anti-estrogenic cancer properties of AFP. A number of studies have since shown its effectiveness as a therapeutic agent to treat estrogen-dependent breast cancer, as well as its ability to prevent pre-malignant foci from developing into breast cancer. Researchers at Albany Medical College performed studies on AFP, parsing it down to a smaller peptide chain of 34 amino acids that retained the same anti-estrogenic activity as the original molecule. Continuing research attempted to identify smaller subchains of the original AFP molecule that remained active, finding an 8-mer that they named P472-2. Antiestrotrophic activity was then measured in a uterine mouse assay. The original AFP molecule, its 34 amino acid analogue, and P472-2 all showed comparable activity in prohibiting estradiol-induced growth in the uterus. P472-2 has been shown to inhibit estrogen-induced T47D breast cancer cells in culture as effectively as the original AFP molecule. Information about the pharmacophore has been previously obtained by substituting amino acids in P472-2. Cyclic analogs nine amino acids long have been synthesized that also retain full activity. All efforts to create a peptide under eight residues resulted in the loss of anti-cancer activity. We have used Replica Exchange Molecular Dynamics techniques to model selected active analogs of the linear and cyclic peptides to explore their conformational space. Our results reveal that the peptide's critical region is a four amino acid sequence that has a turn conformation. We present here a new lead compound that shows anti-cancer activity as measured in T47D breast cancer cells in culture and in a uterine mouse assay.

About the speaker: Dr. George Shields grew up in central New York. He earned a B.S. in Chemistry at Ga Tech in 1981 and enrolled in the master's program at Tech with the intention of becoming a high school teacher. After completing his M.S. in Chemistry in May of 1983, he decided to pursue a Ph.D. at Tech, which he completed in March of 1986. His thesis work was in chemical physics, using mass spectrometry to study ion-molecule collisions. He then went to Yale for a postdoc, working in Tom Steitz's lab, where he solved (with fellow postdoc Steve Schultz) the structure of the Catabolite Gene Activator protein complexed with DNA. In August of 1989 he joined the faculty at Lake Forest College, north of Chicago, and spent nine years there, the last two as Chairperson of the department of chemistry. In June of 1998 he moved to Hamilton College, where he chaired the department until July of 2006. His current research interests use computational chemistry to investigate atmospheric and biological chemistry. He is currently the Winslow Professor of Science, and is involved in a number of initiatives to increase the amount of undergraduate research in computational chemistry.

Directions to SUNY New Paltz: Take I-87 to Exit 18 and turn left at the traffic light after the toll plaza (Rte. 299). From Rte. 299, turn left at the third traffic light onto S. Manheim Blvd. (Rte. 32 South). Turn right onto Mohonk Ave. East. For more information, please visit http://www.newpaltz.edu/about/directions_text.html. For a campus map, please visit http://www.newpaltz.edu/map/.



Chemists Celebrate Earth Day:
"Streaming Chemistry"
Illustrated Haiku Contest Winners

Grades 9-12

Brittni Troy
10th grade
Valley Central HS
Teacher: Terri Campbell
(Entry sent to national contest.)

Grades 6-8

Gianni LaRossa
8th grade
Poughkeepsie Day School
Teacher: Laura Graceffa
(Entry sent to national contest.)

Grades 3-5

Madeline Freedman
4th grade
Poughkeepsie Day School
Teacher: Gretchen Lytle
(Entry sent to national contest.)

Grades 9-12
Honorable Mention

Stephanie Vega
11th grade
Valley Central HS
Teacher: Terri Campbell

Jake Lewis
10th grade
Red Hook HS
Teacher: Jason Pavlich

Casey Shea
10th grade
Red Hook HS
Teacher: Jason Pavlich

Grades 6-8
Honorable Mention

Erik DeArce
8th grade
Poughkeepsie Day School
Teacher: Laura Graceffa

Cris Iacoponi
7th grade
Poughkeepsie Day School
Teacher: Laura Graceffa

2008 Dutchess County Regional Science Fair Results

The Annual Dutchess County Regional Science Fair was held on April 5, 2008. Several members of the Section assisted in judging those exhibits related to the study of chemistry. The Section presents special awards to those students who were deemed best able to demonstrate the understanding of their subject matter and were creative, thorough and clear in their presentation. It was time well-spent. In addition to asking questions on their current work, the judges gave the students ideas on ways to delve even deeper into their research on the subject. The group reviewed over 50 projects and awarded 15 deserving students. Below are the names of this year's award recipients and the judges. Many thanks to those who volunteered their time on a Saturday morning!

OUTSTANDING
($50 Barnes and Noble Gift Card and ACS Certificate)

Michael Schepis
(Our Lady of Lourdes HS)
Viscosity

Matthew J. Neiman
(5th grader at Hagan Elementary)
What Plant Makes the Best Dye?

Judges: Ines Augie, John Hummel, Sarjit Kaur, Nancy Klymko, Cristine Mans, Dominic Schepis, Patti Cusatis

SUPERIOR
($25 Barnes and Noble Gift Card and ACS Certificate)

Josephine Tai
(5th grader at Gayhead Elementary)
How Much Water Can a Coin Hold?

Hannah Coffin
(6th grader at St. Denis / St. Columba)
How Does Corrosion of Steel Wool Respond to Temperature?

Sonika Mehta
(7th grader at Van Wyck Junior High)
Water Density

Madison Petrella
(6th grader at St. Martin de Porres)
Is Magic Salt Really Magic?

Jessica Chan
(John Jay High School)
The Best De-Icer

Laya Varanasi
(Roy C. Ketcham High School)
Deep Frying: A Recipe for Disaster?

HONORABLE MENTION (ACS Certificate)

Amanda Camilleri
(6th grader at St. Denis / St. Columba)
Which Antacid Can Neutralize the Most Stomach Acid?

James Huston
(5th grader at Gayhead Elementary)
Exothermic and Endothermic Reactions with Crystals

Ryan Metz
(5th grader at St. Mary's - Fishkill)
What Colors are in there? Chromatography

Sean Smith
(6th grader at St. Denis / St. Columba)
Spongy

A J Nandi
(7th grader at Van Wyck Junior High School)
Bio Fuels

Savan Shah
(7th grader at Wappingers Junior High)
Corrosion

William Welling
(5th grader at Alden Place - Millbrook)
Growing Hydrogen