

From the Director's Desk..."

...Bhimu Patil

Texas taxpayers voted two years ago and approximately \$3 billion (for ten years) was appropriated to create and expedite innovation in the area of cancer research and to enhance the potential for a medical or scientific breakthrough in the prevention and cure of cancer. In 2009, the Cancer and Research Institute of Texas (CPRIT) actively engaged in creating funding opportunities for preventing and treating cancer. The CPRIT opened with an excellent start by appointing three world renowned scientists for key positions: 1) Executive Director, Dr. William Gibson, and former Chief Operating Officer of Centers for Disease Control and Prevention; 2) Chief Scientific Officer, Dr. Alfred Gilman, Nobel Laureate and Chief Scientific Review Council; and 3) Dr. Phillip Sharp, Nobel Laureate. Undoubtedly, two Nobel Laureates and a Federal Agency head will significantly enhance this timely cause. Credit goes out to the visionary Lance Armstrong for his tireless effort on this noble cause. Fortunately, the federal government recently initiated a plan to reform health care plans. While both state and federal governments have a structured method to achieve disease prevention and treatment, the importance of research and efforts for "true prevention" should not be forgotten. Although studies on the treatment and cure of cancer are essential, an understanding of the mechanisms on how fruits, vegetables, and their bioactive compounds actively influence the prevention of diseases should be wisely invested in. The effectiveness of Obama's health care plan and the CPRIT money will be understood if money is also allocated for prevention studies in addition to the search for a cure. In the 2009 "Time" magazine of June 22 cover article

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THE 2009 VFIC BIENNIAL CONFERENCE WILL BE HELD ON AUGUST 21st IN CONJUNCTION WITH THE TEXAS PRODUCE CONVENTION.

WATCH YOUR MAILBOX FOR MORE INFORMATION.

<http://vfic.tamu.edu/>

Announcing the 2009 FAV Health Conference

VFIC hosted the 2nd FAV Conference in Houston, which was a huge success. The committee is organizing the 3rd conference in Avignon, France, October 18th to 21st 2009. The previous conference brought together a large and diverse audience to discuss the benefits of fruits and vegetables, the same diversity is anticipated at this conference. The objective of FAV HEALTH 2009 is to continue providing a forum for horticultural scientists, nutritionists, food scientists, biomedical scientists, chemists, biochemists, clinicians, medical professionals, social economists to exchange information and bridge the communication gap between the agricultural sciences, nutrition and health sciences. Plenary sessions, oral communications and posters will cover a wide range of topics from plant breeding to consumption behavior. Marie Josèphe Amiot-Carlin, chair of the organizing committee, has put together a terrific program, many of the sessions will continue discussions started at the 2007 conference. For those who attended the conference in Houston, thank you for your support and we encourage you to attend the upcoming conference.

More information can be found at <http://favhealth2009.com/>.

Dr. Mark Hussey named the Dean of COALS and Vice-Chancellor



The VFIC and its industry would like to congratulate Dr. Mark Hussey on being named the new Dean for the College of Agriculture and Life Sciences. Dr. Hussey began with Texas AgriLife Research in Weslaco in 1983. He joined the Department of Soil and Crop Sciences in 1985 and moved up through the department to Professor and Department Head in 2001. In 2005, he was named Associate Director for Texas AgriLife Research and he was named Director in 2007. We look forward to working with Dr. Hussey and we are confident our Center will continue to grow as we move forward under his leadership.

More information on Dr. Hussey can be found at: <http://coals.tamu.edu/about/administration/hussey.php>

Our Visitors...



University & Industry Consortium– Participants included: John Baker (Michigan State University), Dirk Benson (Syngenta Biotechnology, INC.), Dean Bushey (Bayer Cropscience), Shane Burgess (Mississippi State University), Ralph Cavalieri (Washington State University), Don DeVries (Dow Agrosciences), Matt Gibson (Poet Nutrition), Todd Jones (BASF), Ramesh Kantety (Alabama A&M University), Jozef Kokini (University of Illinois), Marc Linit (University of Missouri), Mike Mazzocco (University of Illinois), Bruce McPheron (Pennsylvania State University), Emilio Oyarzabal (Monsanto Company), Steve Pueppke (Michigan State University), Luis Requejo (Farm Credit Bank of Texas) & Govind Sharma (Alabama A&M University)

Village Farms CEO Mr. & Mrs. Mike DeGiglio



Texas A&M- Rio Grande Area High School Recruits

Thessaloniki Greece American Farm School



The VICKids program was started in 1999 to help the younger generations understand the importance of eating healthy and having a diet rich in fruits and vegetables while grasping the concept of the research that takes place here. The program consists of a short presentation, lab demonstration and hands on activities. From 1999-2006, this program educated over 4,500 young Texans. The age range of participants is from 6 years to 17 years of age.

Recently, we have worked hard to update the curriculum, activities, presentation and the overall program. We have taken many careful steps and planning to ensure the program would reach its full potential and give students a complete overview of our research. Since it's revitalization in September 2008, the VICKids has given 8 tours and seen over 120 kids from 1st to 12th grade. This span of ages shows the depth and diversity the program is able to achieve. We are pleased that the program is doing well and only has room to get better with time.

To schedule a tour through the VICKids program, please contact Tribbie Sandner at 979-845-1044 or tdsandner@ag.tamu.edu



Meet our Scientist ...



Dr. Chapkin obtained his B.Sc. and M.Sc. in Nutrition from the University of Guelph in Canada. In 1986, he received his Ph.D. in Nutrition

and Physiological Chemistry from the University of California, Davis. At present, he is a Professor & Faculty Fellow within the Department of

Nutrition and Food Science at Texas A&M University. He is also an active member of the Division of Hematology/Oncology, Scott & White Hospital/Clinic and Texas A&M Health Science Center.

Dr. Chapkin is also member of the Program in Integrative Nutrition & Complex Diseases, the American Society for Cell Biology and the American Association for Cancer Research.

Research and accomplishments

Dr. Chapkin's lab investigates the impact of dietary fat and fiber on the cellular "signaling cascades" in the colon. His laboratory is involved in Systems Biology, the modeling and understanding at the molecular level of the dynamic relationships among diet and biological molecules which regulate colon cancer development. He has demonstrated that omega-3 fatty acids regulate the transmission of information that alters physiological responses such as cell growth, differentiation, apoptosis (programmed cell death), DNA methylation status, membrane microdomain organization, and protein trafficking, thereby ultimately determining the risk for developing colon cancer. Findings from his studies indicate that the chemopreventive effect of fish oil is due to the direct action of omega-3 fatty acids and not to a reduction in the content of omega-6 fatty

acids. He has developed noninvasive methodology for monitoring global changes in intestinal gene expression. This effort has generated patents and an NIH initiated and sponsored clinical intervention trial.

Dr. Chapkin's laboratory is also investigating the mechanisms by which dietary lipids and phytochemicals, e.g., docosahexaenoic acid (DHA) and curcumin, modulate effector cells (T-lymphocytes) of the immune system. He is involved in studying the role of lipids as mediators of chronic inflammation. He has demonstrated that dietary DHA and curcumin alter T-lymphocyte membrane microdomain composition and suppress cytokine production. Elucidation of the mechanisms by which DHA and phytochemical (botanical) feeding suppress T-lymphocyte function will lead to the establishment of dietary guidelines

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Mark your calendars...

August 18-21, 2009

Texas Produce Convention

<http://www.texasproduceassociation.com/>

August 21, 2009

VFIC Biennial Conference: Austin Omni Hotel

<http://vfic.tamu.edu/>

October 2-5, 2009

PMA- Fresh Summit International Convention & Exposition;

<http://www.pma.com/freshsummit/2009/index.cfm>

October 18-21, 2009

3rd International Symposium on Human Health Effects of Fruits and Vegetables

<http://favhealth2009.com/>

Meet the Next Generation of Scientist...

Recent Graduates:

Basavaraj Girenanvar graduated in 2007 with a PhD, under the direction of Dr. Bhimu Patil. His dissertation was titled "Grapefruit Juice Drug Interaction: Isolation, Synthesis and Biological Activity of Furocoumarins and Their Variation due to Pre- and Post-harvest Factors". Basavaraj is currently employed by Ciryagen Agri & Biotech Private Limited-Institute of Agricultural Biotechnology.

Wooki Kim graduated in 2008 with a PhD, under the direction of Dr. Robert Chapkin. His dissertation was titled "Molecular Mechanisms of Immunosuppressive Effects of Dietary n-3 PUFA, Curcumin and Limonin on Murine CD4+ T Cells". Wooki is currently employed as a Post-Doctoral Fellow in Dr. Robert Chapkin's lab at TAMU.

Hui Mei graduated in 2009 with a PhD, under the direction of Dr. Kendal Hirschi. Her dissertation was titled "Characterization of Cation/H+ Antiporters from Arabidopsis and Zebrafish". Hui is currently employed as a Post-Doctoral Fellow at Mount Sinai Medical School.

Jay Morris graduated in 2007 with a PhD, under the direction of Dr. Kendal Hirschi. His dissertation was titled "Characterization of plant cation/H+ antiporters and how they can impact human nutrition". Jay is currently employed as a Post-Doctoral Fellow at Medical University of South Carolina. Jay received a Distinguished Graduate Student Award for Excellence in Doctoral Research in March of 2008. He is the first VFIC student to win this prestigious award.

Kim Paulhill graduated in 2008 with a M.S. under the direction of Dr. Nancy Turner. Her thesis was titled "Quercetin and dietary lipids alter the cellular redox environment of the colonocyte in the promotion stage of colon carcinogenesis". Kim is currently seeking her Ph.D. under the direction of Dr. Turner. Kim was one of 12 finalists in the Proctor & Gamble student competition held by the American Society for Nutrition at the Experimental Biology 2008 meeting.

Jose Perez graduated in 2007 M.S. under the direction of Dr. Bhimu Patil. His thesis was titled "Citrus bioactive compounds influencing Phase II". Jose is currently employed with USDA-ARS as a Chemist and TSTC- Harlingen as an Instructor. Jose plans to return to A&M in 2010 to obtain a Ph.D.

Togo Shinohara graduated in 2007 with a M.S., under the direction of Dr. Daniel Leskovar and Dr. Bhimu Patil. His thesis was titled "Development of Management Practices for Artichoke Production in Southwest Texas".

Jennifer Waters-Jeffery graduated in 2008 with a Ph.D. under the direction of Dr. Steven King. Her thesis was titled "Carotenoid *in Planta* Development, Storage, and Bioaccessibility: A comprehensive Approach to Nutrient Analysis".

Awards:

Haejin Bae earned an Honorable Mention in the 2009 Texas A&M AgriLife Graduate Student Research Poster Competition in January 2009.

Wooki Kim was the overall winner in the P&G Graduate Student Research Awards in the Oral Competition at the American Society for Nutrition in April 2008 and received a McNeil Nutritionals Predoctoral Fellowship in March 2007 at ASN.

Amit Vikram won second place for his Oral Presentation at the Ag Food Chemistry Division of American Chemical Society National Conference in 2009.

Have something you want to add
to the newsletter?
Send it to Tribbie Sandner at
tdsandner@ag.tamu.edu

Industry Advisory Committee

David Drews-Hazera Inc.
Jimmy Bassetti-J&D Produce
Rick Jones-Seminis Vegetable Seeds
Steve Cargil-Cargil Produce Co.
Bob Peterson-C&V Supply
Danny Arnonld-A&W Produce
Gregg Proctor-Kroger Company
John McClung-Texas Produce Association
Ray Prewett-Texas Produce Association
Hugh Topper-HEB Grocery

2007 FAV Health Conference Wrap-Up

The Second International Symposium on Human Health Effects of Fruits and Vegetables was held in Houston, Texas, October 9-13, 2007. Over 300 participants had the opportunity to attend and participate in 26 sessions, poster sessions, two round table discussions and a banquet during the 4 day event. Each session had a plenary speaker, an invited talk and oral presentations with time assigned for discussion. The oral presentations were divided into sessions covering the following areas of fruit and vegetable research cancer prevention, antioxidants, brain and eye health, bioavailability, obesity prevention, brassica, cardio vascular disease, food/drug interaction, mineral elements, isolation and characterization, post harvest, breeding, environmental factors, skin health, wine and health, osteoporosis, organically grown, and marketing. One round table discussion, "Challenges and Opportunities of FAV for Health: Perspective from Journal Editors and Global Leaders" had presentations and discussions by journal editors from Ag and Food Chemistry, Antioxidant and Redox Signaling Journal, American Journal of Clinical Nutrition, and representatives from AVRDC-The World Vegetable Center, NAPED, WHO, CIRAD and CDC. The second round table discussion, "Current and future funding challenges for FAV for health" included state and federal officials (Texas Department of Agriculture, USDA Program Leaders from Human Nutrition and Plant and Animal Systems, National Cancer Institute/National Institutes of Health Program Leader in the Division of Cancer Prevention, and representatives from the Texas A&M University System). The poster sessions had 184 entries with awards given to the top three chosen by committee. The awards were presented at the banquet. The symposium website has the abstracts and slides of the oral presentations and poster abstracts. One session was organized and conducted by graduate students who were near completion of their advanced degrees. This session gave these presenters an opportunity to organize, present and rebuttal the research presented as well as interact with senior scientists who participated. Graduate student presenters were from Sweden, India, the United Kingdom and the United States.

The Third International Symposium on Human Health Effects of Fruits and Vegetables will be held in Avignon, France, October 18th-21st 2009.

<http://favhealth2009.com/>



2007 FAV PARTICIPANTS

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"It's All about Prevention" informs the steps to avoid getting sick. I hope the federal government will take \$80 billion from "Big Pharma" and allocate some research funding (\$10 billion) for "Food as Pharma" as well as CPRIT will pay close attention prevention while addressing cure for cancer. I am confident that such planning and allocation for required research funding will stimulate trans-disciplinary research to provide translational results for the prevention of certain diseases including cancer. However, 'proof of the concepts' are essential to encourage the country to lead healthier lifestyles in the future.

Congratulations to VFIC scientists, students and staff who received several honors and awards during 2008 (page 4 and 7). Kudos to all students who graduated (page 4). Congrats to Leo Lombardini for his success in USDA-challenge grant. Please block your calendar for the biennial conference on August 21st. This year's theme will focus on the consumer in order to demonstrate how our research will benefit consumers, restaurant associations, grocers, producers, and packers.

Bhimu Patil

VFIC Scientist 2008 Publications...

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- Chapkin, R. S., McMurray, D. N., Davidson, L. A., Patil, B. S., Fan, Y, and Lupton, J. R. 2008. Review Article Bioactive dietary long-chain fatty acids: emerging mechanisms of action. *British Journal of Nutrition* (2008), 100, 1152-1157.
- Chapkin, R. S., Wang, N, Fan, Y, Lupton, J. R, and Prior, I. A. 2008. Docosahexaenoic acid alters the size and distribution of cell surface microdomains. *Biochimica et Biophysica ACTA* 178 (2008):466-471.
- Crosby, K.M. 2008. Pepper. p. 221-248. In: J. Prohens, and F. Nuez (eds.). *Vegetables II: Fabaaceae, Liliaceae, Umbelliferae, and Solanaceae*. Springer, New York.
- Crosby, K. M, Jifon, J. L, and Leskovar, D. I. 2008. Agronomy and the nutritional quality of vegetables. In: F.A. Tomas-Barberan and M.I. Gil (eds.), p. 392-41. *Improving the health-promoting properties of fruit and vegetable products*. CRC Press, Boca Raton.
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- Fan, Y, Kim, W, Callaway, E, Smith, R, Jia, Qian, Zhou Lan, McMurray, D. N., and Chapkin, R. S. 2008. fat-1 transgene expression prevents cell culture-induced loss of membrane n-3 fatty acids in activated CD4⁺ T-cells. *Prostaglandins, Leukotrienes and Essential Fatty Acids*. (2008). 79(6): 209-214
- Frank, J, Kaulfurst-Soboll, H, Rips, S, Koiwa, H, and Schaewen, A. von. 2008. Comparative Analyses of Arabidopsis complex glycan1 Mutants and Genetic Interaction with staurosporin and temperature sensitive 3a. *Plant Physiology*, November 2008, Vol. 148, pp. 1354-1367.
- Girenavar, B., Jayaprakasha, G. K., Jifon, J. L., and Patil, B. S.. 2008. Variation of bioactive furocoumarins and flavonoids in different varieties of grapefruits and pummelo. *Accepted European J. Food Research and Technology*.

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News & Notes...

Awards:

Bhimu Patil received Texas AgriLife Research Faculty Fellows Awards in January at the 2009 Texas AgriLife Research in January.

Connie Sebesta won the Vice Chancellors Award of Excellence for support personnel on campus at the 2009 Texas AgriLife Research Conference in January.

Promotions:

Kendal Hirschi was promoted to Full Professor in January 2008 at Baylor College of Medicine.

Hisashi Koiwa, John Jifon, & Leo Lombardini were promoted to Associate Professor within the Department of Horticultural Sciences at TAMU in September 2008.

Bhimu Patil was promoted to Professor within the Department of Horticultural Sciences at TAMU in September 2008.

Professional Appointments:

Kendal Hirschi was selected for Editorial Board of Journal of Biological Chemistry in January 2009.

Leo Lombardini received at USDA Challenge Grant in April 2009 entitled "Cultivating Global Leaders in Agriculture: Enhancing Participation in Undergraduate Experiential Learning Opportunities for Minorities."

Nancy Turner was elected to serve as the Secretary/Treasurer of the Nutrition Science Council for the American Society for Nutrition, June 2007 – May 2010. She was also elected to serve as Chair-Elect/Chair of ASN Diet & Cancer Research Interest Section for the American Society for Nutrition, April 2008-April 2010.

G.K. Jayaprakasha was elected Secretary of the Ag Food Division of American Chemical Society.

Congratulation to everyone for a job well done!

Have something you want to add? Send it to tdsandner@ag.tamu.edu

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designed to reduce the incidence and severity of disorders that involve an inappropriately activated immune response (e.g., inflammatory bowel disease, ulcerative colitis) without increasing the susceptibility to infection. This is important because epidemiological and preclinical studies indicate that dietary omega-3 fatty acid (DHA)-induced shifts in inflammatory processes, in part, account for their anti-tumorigenic properties in colon cancer. Dr. Chapkin has mentored 21 graduate student, with 4 currently in his lab and trained 15 Post-Docs. He has 1 patent, published 146 papers, and written 15 book and/or book chapters. Currently he teaches NUTR 642 Nutritional Biochemistry II and NUTR 203 Scientific Principles of Human Nutrition.

Link to his web page: <http://nutr.tamu.edu/FACULTY/chapkinrs/webpage.htm>

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