

CTAHR RESEARCH NEWS

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Dr. Pratibha Nerurkar holds fresh and fermented noni for experimentation.

**Healing
powers of
traditional
medicine**

**Understanding
our funding**

**A stuffed
calabash**

In this issue

Healing powers of traditional medicine . . . p 3

Research calabash . . . p 10

Visitors from Australia. . p 13

An in-depth look at our funding p 11

Grants received p 16

New grants p 17

Faculty publications . . p 21

From the Associate Dean and Associate Director for Research

Happy New Year to you, and welcome back to a new semester! It is difficult not to eat a lot during the holiday seasons. Consequently, losing weight has been a perennial favored New Year's resolution for many of us. Therefore, we have arranged to have Dr. Pratibha Nerurkar of Molecular Bioscience and Bioengineering (MBBE) Department describe her research in this first issue *CRN* for 2008. When Dr. Nerurkar first showed me her interesting data that bitter melon reduces body fat, I immediately informed my wife, and parents of this research news. Not surprisingly, bitter melon has become a regular dish on our dinner table; and we drink bitter melon tea regularly. Oh, I forgot to mention how I hated the bitter melon in my childhood. Somehow, the bitterness of this beautiful vegetable has subdued since then. In addition to the bitter melon, Pratibha has also worked on noni and kava, in attempting to elucidate the molecular basis of their medicinal effectiveness. As you will see from her story, she did not work alone; she has collaborated with many others in all her work. Dr. Nerurkar has built a productive research program using intramural funding, and with that foundation, she is able to obtain extramural funding to expand her research. Although her research is very basic in nature, it has great implications and usefulness to the general public. Bitter melon recipe swap, anybody?

President Bush signed the appropriation bill (finally) on December 26, 87 days after the beginning of federal fiscal year! Yes, all our CSREES special grants are in the bill, but, at lower amounts. In last month's *CRN* (http://www.ctahr.hawaii.edu/ctahr2001/Research/Downloads/ResearchNews/CTAHR_Research_News_Dec_07.pdf), Doug Vincent updated you on our current

situation. He explained why we have decided not to have RFP for TSTAR this year. The implication of this decision is that we will not be funding new projects this year so that we can fulfill our commitments to previously-approved projects. This is a tough decision, but it will make our lives much easier in future years. We will do as much as we can to support new faculty members and other new initiatives.

The future of TSTAR, ADAP, the USDA Native Hawaiian Education Grant and the Sun Grant Initiative is now in focus as the Senate and House finalize the new Farm Bill; an update is in the Calabash.

As long as the special grants represent a significant portion of our research funding, our research programs will continue to be affected by the political maneuvering in the Congress and between Congress and the President. The only way to insulate us from similar disruptions in the long-term is to continue building our programs around competitive grants. Thanks to Doug who has provided a year-end summary of our grants and contracts, and a comparison to previous two years.

Thanks for being a loyal reader of *CRN*! Please do provide us your comments and suggestions so that we can provide a more valuable service to you. Please do send in full citations for your new publications!



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Healing powers of traditional medicine

By Pratibha V. Nerurkar
Associate Professor
Department of Molecular Biosciences and Bioengineering



P.V. Nerurkar lab.
Back (L-R): Lance Buesa (Maui), Philip Eck (Ghana), Erin Brewer (California), Pranjali Shah (India).
Front (L-R): Dr. Yun Kyung Lee (Korea), Pratibha V. Nerurkar (India).

Countless years ago, according to ancient Indian Sanskrit epics, the king of the gods, Lord Indra kept losing his kingdom of heaven in battles with invincible demons. Eventually, Lord Vishnu advised the gods to seek the help of the demons and churn the ocean to obtain the Elixir of Immortality—ambrosia that would make them immortal and help them regain their lost kingdom. Today, we humans continue to churn the “ocean of science” while fighting against the demons of diseases in search of preventive and curative wellness, longevity genes and anti-aging miracles.

Yet we seem to forget that generations of healthy indigenous peoples, such as Okinawan centenarians, have proven that humans have an excellent genetic potential for vibrant, disease-free health and longevity. However, after a century of unprecedented decline in health, and an increased prevalence of chronic health conditions, more and more people are tapping into diverse traditional therapeutic practices and alternative health care approaches that fall outside the boundaries

of conventional, allopathic medicine. The gap between traditional and mainstream medicine is narrowing, with MDs running clinical trials of traditional remedies and reputable traditional practitioners are modifying their practices in the light of new scientific evidence.

So just what is this traditional wisdom of health care, and why is it worth exploring in this technological age of MRI's, pharmaceuticals, nutraceuticals, and biotechnology? *And this is exactly what we want to know.* I hate pills and medicine (and who doesn't), so I am always trying to rummage through my kitchen or backyard to find ingredients for that magic potion that will cure common cold and runny noses. A biochemist by training, I have always been fascinated by the potent chemicals in nature, whether they hurt or heal. My research journey of the last 20 years has taken me from cancer-causing chemicals in tobacco and red meat to traditional medicines to treat obesity-associated type 2 diabetes (T2D).



Janice Quach and Philip Eck analyze mitochondrial toxicity data using multi-plate reader.

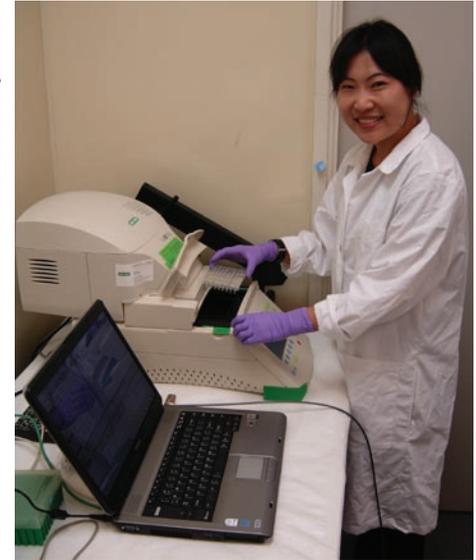


Undergraduate student Pranjal Shah prepares buffer for gel electrophoresis.



Philip Eck ponders at his microscope as he watches the effects of noni juice on mouse muscle cells.

Dr. Yun Kyung Lee investigates the transplacental effects of antiretroviral drugs using real-time PCR techniques.



Since 2002, when I joined MBBE/CTAHR, evaluating the scientific merits of ancient traditions from India, Hawaii and Polynesia, and making significant advances and contributions to enrich my research program are my research assistants (Laurel Pearson, Jodi Cope, Natalie Kong, and Jeanette Fiess), graduate students (Yun Kyung Lee, Steven Lim, Stacey Sneec, Adrienne Nishioka, Dawn Chin Meun, Philip Eck and Lance Buesa), undergraduate students (Ellen Linden, Megan Motosue, Janice Quach and Pranjal Shah), post-doctoral fellow (Dr. Yun Kyung Lee) and collaborators world-wide (Dr. Khosrow Adeli, Dr. H. C. “Skip” Bittenbender, Dr. Diane Dooley, Dr. Klaus Dragull, Dr. Jimmy Efrid, Dr. Jennifer Frank, Dr. Bernard Fromenty, Dr. William McClatchy, Dr. Vivek R. Nerurkar, Dr. Qing Li, Dr. Anne Shovic, Dr. C. S. Tang, Mr. Karl Yanagihara and Dr. Richard Yanagihara).

Metabolic syndrome and Ayurvedic medicine, *Momordica charantia* (bitter melon)

For at least two thousand years, in South Asia, a sophisticated tradition of clinical and physiological research, as well as of surgical procedures has been practiced. This body of practical and theoretical knowledge is called: “Ayurveda” – which literally means “the Science of Longevity.” On the basis of an integral concept of the human body as functioning

through the three basic elements of wind (vayu), bile (pitta) and phlegm (kapha), generic and specific herbs, and minerals were administered, in this tradition, to treat an enormous array of physical and mental ailments. Even the idea of psycho-somatic ailments was explicitly discussed in these texts. Western medical sciences have replaced most of such ancient written or oral therapeutic traditions, by branding them “unscientific.” One major focus of our research is to understand the scientific basis of Ayurvedic medicine, *Momordica charantia*, commonly known as bitter melon (BM) or goya, to treat/prevent obesity and type 2 diabetes.

Today, obesity and associated disorders such as hypertension, type 2 diabetes and cardiovascular diseases (CVD), are escalating worldwide. These disorders are together referred to as “metabolic syndrome” or “syndrome X.” At least 47-million American adults, that is one in every five of us, are afflicted with metabolic syndrome. In Hawaii, between 72,000 to 100,000 people currently have diabetes, of which 25,000 or more remain undiagnosed. Native Hawaiians, Filipinos, and Japanese have higher rates of diabetes than Caucasians. Current treatment consists of lifestyle changes such as diet and exercise along with

allopathic medicines. However, these are subject to secondary failure and drug-drug interactions with a negative impact on the quality of life, compelling patients to seek alternative or complementary therapies.

Bitter melon (BM) is widely cultivated in Asia, East-Africa and South America and extensively used in folk medicines as a remedy for diabetes and its complications. We are interested in studying the effects on BM at cellular and molecular levels. Initially using mouse fat cells (adipocytes) in culture, we demonstrated that BM juice (BMJ) can reduce the accumulation of fat in the cells. We have recently demonstrated that BMJ can also reduce weight gain in mice fed a high-fat-diet (HFD) containing 58% fat. In our studies, BMJ also improved diabetes (fasting glucose and glucose tolerance) in mice fed HFD as well as reduced triglycerides and the bad



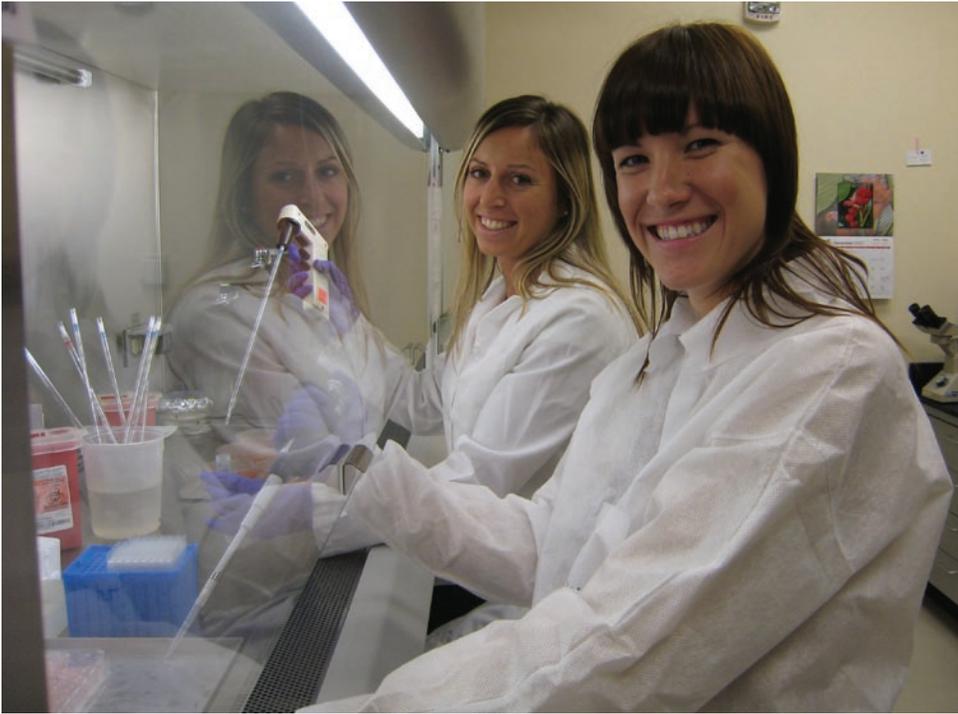
Bitter melon on the vine.

cholesterol (very low density lipoproteins, VLDL; low density lipoproteins, LDL) in the liver and blood of HFD-fed mice. The next question was what are the signaling mechanisms that are regulated by BM to bring about these changes in lipid and glucose metabolism? Stimulating collaborations with Dr. Khosrow Adeli (Professor, Department of Laboratory Medicine & Pathobiology; Head, Division of Clinical Biochemistry, The Hospital for Sick Children, University of Toronto, Toronto, Canada)

and Dr. Vivek R. Nerurkar (Director, Retrovirology Research Laboratory; Professor, Tropical Medicine, Medical Microbiology and Pharmacology, JABSOM), and tireless efforts of my research team (Dr. Yun Kyun Lee and Laurel Pearson) helped us to understand the insulin-like role of BM in liver cells that reduces the



Dr Nerurkar trains research associate, Laurel Pearson, to culture mouse adipocytes, 3T3-L1.



Preparing samples for microarray are Esther Volper (back) and Erin Brewer.

synthesis of triglycerides and bad cholesterol through stimulation of insulin-receptor phosphorylation and its down stream targets. Using the boons of modern science such as microarray technology and real-time PCR, we (Dr. Vivek R. Nerurkar, Esther Volper and Erin Brewer) are now in search of target genes that are regulated by BM in the liver. We have further confirmed that all different varieties of locally available bitter melon have equipotent medicinal properties to improve glucose and lipid metabolism.

As the name suggests, BM is extremely bitter in taste and although used in various local cuisines of Hawaii, not many people relish this vegetable with unique medicinal properties. Our next goal was therefore to develop recipes that will promote and increase BM consumption among general population. My graduate student Stacey Snee put on her chef hat and enthusiastically added BM to popular dishes such as marinara sauce, soups, stir fry and chili and conducted palatability testing along with our collaborators Dr. Dian Dooley (HNFAS), Dr. Jimmy Efirid (Biostatistician, Head Bioinformatics Program, JABSOM), Dr. Anne Shovic (HNFAS) and Dr. Vivek R. Nerurkar. Our study indicated that tomato-based recipes, such as marinara sauce and minestrone soup, were able to easily mask the bitter taste of BM were considered palatable.

Although, my research team and I strongly believe in the poly-pharmacy of traditional medicine and a holistic approach to treatment of various diseases, it

was a temptation to tease out and identify the active components of BM. Collaborators, Dr. Will McClatchy (Botany), Dr. Qing Li (MBBE) and Mr. Karl Yanagihara (MBBE) have enthusiastically assisted us to identify these components using high-pressure liquid chromatography (HPLC) separation techniques. We have identified numerous polyphenols and flavonoids that are known to have high antioxidant properties

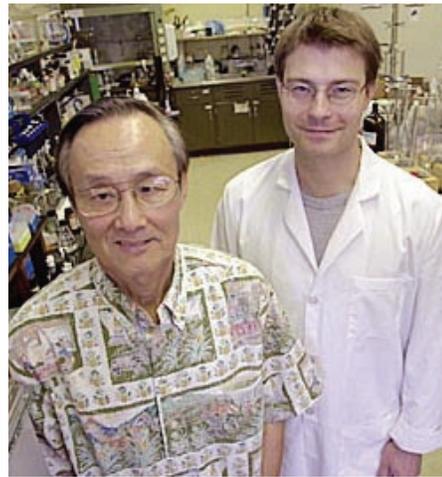
and impart health benefits.

Our research on BM is supported by the Hawaii Community Foundation and three major grants from the National Institutes of Health (NIH).

Exploring the anti-diabetic properties of Hawaiian medicine, *Morinda citrifolia* (noni)

Thousands of years ago, *Morinda citrifolia* or noni was considered the queen of ‘canoe plants’ when early Polynesians travelled far and wide to establish new villages. Noni was an important source of food in times of famine. The seeds, leaves, bark, and roots were also consumed by people versed in the healing properties of noni. Today numerous health claims are listed for noni, but once again like most reemerging traditional medicines, noni lacks rigorous scientific evaluation.

One of our recent research projects focused on the anti-diabetic properties of noni using the HFD-fed mouse model. Our preliminary studies indicate that fermented noni juice significantly improves the fasting glucose levels and glucose metabolism in obese, diabetic mice. However, the mechanism by which noni causes an improvement in blood glucose remains largely unknown. Once again we set out on a tireless journey to investigate the various target molecules and genes regulated by noni, using modern techniques such as real-time PCR, microarray and various biochemical enzymatic assays. Of course, the next milestone to conquer is testing the efficacy of noni in placebo



The kava team. Top left going clockwise: Drs. H.C. “Skip” Bittenbender (left) and Pratibha Nerurkar at “International Kava Conference,” Suva, Fiji, 2004. Drs. C.S. Tang (left) and Klaus Dragull ensure that they purify sufficient quantities of kavalactones and alkaloids to test toxicity mechanisms in human liver cell culture and animals models.

Other lab members continuing clockwise: Steven Lim (left), Dr. Yun Kyung Lee and bottom row: Laurel Pearson (left) and Ellen Linden. Steven Lim graduates in 2005 after tireless research on Kava-associated hepatotoxicity. Christy Gilman and Megan Motosue undergraduate students.



controlled clinical trials for type 2 diabetes. Noni research is supported by USDA CSREES.

The good and the ugly of kava

I thought changing careers from cancer research to alternative medicine was an exhilarating challenge, until I was approached by Dr. C.S. Tang (Emeritus Professor, MBBE CTAHR) and colleagues, Dr H. C. Skip⁷ Bittenbender and Dr. Klaus Dragull, to solve the mystery of kava hepatotoxicity.

New to the world of kava, I soon learnt that kava (*Piper methysticum*, *Piper* – Latin for “pepper,” *methysticum* – Greek for “intoxicating”) is an ancient plant used for medicinal, religious, political, cultural and social purposes throughout the Pacific. Other names for kava include awa (Hawai‘i), ‘ava (Samoa), yaqona (Fiji), and sakau (Pohnpei). The roots and rhizome of the kava plant has been widely used for centuries throughout the Pacific, from Papua New Guinea to Hawai‘i, without any apparent side effects except dermopathy (diseases of the skin or rashes or lesions). In the late 1990s, commercial kava products gained immense popularity in Europe and North America as an effective treatment option for anxiety. By end of 2001, alleged hepatotoxicity (drugs that cause damage to the liver) sparked a ban of kava-containing products in Western countries such as Germany, France,

Switzerland, Australia, and Canada. However, kava tinctures, capsules, teas, and dry kava powder continue to be sold in health food stores and ethnic markets within the United States of America regardless of a consumer advisory issued by the U.S. Food and Drug Administration concerning the potential hepatotoxicity of commercial kava products.

Our laboratory was among the first to demonstrate that kava alkaloids such as pipermethystine (PM) was highly toxic to human liver cells in culture by inducing mitochondrial oxidative stress. In contrast, the active ingredients, kavalactones, were non-toxic to the cells. Although kava drink is traditionally prepared from the underground roots and rhizome, commercial preparations in the late 1990s may have included stem peelings and above ground parts due to easy availability and high demand, which is abundant in kava alkaloids, like PM, while the physiologically active kavalactones are abundant in roots and rhizome. Along with our collaborator, Dr. Bernard Fromenty (Professor, INSERM Unite 481, France), we have also recently demonstrated that not only kava extracts from stem peelings cause increased oxidative stress in rats, but alcohol can also increase the toxicity and stress in combination with extracts prepared from kava rhizome.

The alleged kava-associated hepatotoxicity is once again an example of how one cannot overlook the

conventional prudence of the Polynesians who drank only the fresh extracts of the rhizome and avoided the above ground parts of kava. This research was supported by grants from USDA CSREES.



More Nerurkar lab team members: (L to R): Adrienne Nishioka (investigated anti-diabetic effects of noni and graduated in 2007), Jeanette Fiess (identified the active components of bitter melon juice) and Dawn Chin-Meun (graduate student).

Boons and curses of modern medicine

Since the first case of acquired immunodeficiency syndrome (AIDS) was first detected in the United States in 1981, human immunodeficiency virus (HIV), the virus that causes AIDS, has claimed over a million lives in the United States. In 1996, protease inhibitors, a type of antiviral drug, were an effective part of AIDS treatment. Later it was apparent that highly active antiretroviral therapy (HAART), combination of three or more different antiretroviral drugs, could significantly delay the onset of AIDS in HIV-infected patients. HAART reduced the morbidity and mortality among immuno-suppressed patients in the United States, Canada and other developed countries. This definitely was a boon and miracle of modern science. But as HIV-infected patients lived longer, along with the boon came the dark side of the coin. Patients on HAART now suffered from “Syndrome X” with signs of lipodystrophy (increased

abdominal fat and loss of fat from hands and legs), hyperlipidemia (elevation of lipids in the bloodstream), type 2 diabetes and a high risk of developing CVD (heart disease). Not only were the HIV-infected adults and children at risk from HAART-associated metabolic abnormalities, but recent epidemiological evidence indicates that HIV naïve (non-infected) children born to HIV-infected mothers on HAART also have a high risk of developing “Syndrome X” early in adult life.

Our interest in the cellular and molecular causes of metabolic Syndrome X, led our team to investigate the signal transduction mechanisms of HAART-associated toxicities. Productive collaborations with Dr. Jennifer Frank (Physician, University Health Services, UHM), Dr. Vivek R. Nerurkar, Dr. Richard Yanagihara (Professor of Pediatrics, JABSOM) and Dr. Khosrow Adeli (Head and Professor of Clinical Biochemistry Hospital for Sick Children, University of Toronto), led to the findings that mitochondrial stress and loss of mitochondrial function were involved in HAART-associated liver toxicities. Using cell culture system, we further demonstrated that bitter melon can overcome the lipid abnormalities associated with HAART. Recently completed research in our laboratory, using



At the end of the day, it is not all about work, but time for some fun and laughter. L to R: Dr. Yun Kyung Lee, Ellen Linden, Steven Lim, Natalie Kong and Dr. Pratibha V. Nerurkar.

a mouse model indicates that intrauterine exposure to HAART caused abnormalities in glucose metabolism the mice offsprings and they had high fasting blood glucose, due to the loss of mitochondrial functions and mitochondrial stress. These studies were supported by the Research Center for Minority Institutions (RCMI) program, NCRR, NIH.

It's about balance

Some people are fed up altogether with mainstream Western medicine, and think that modern medicine is a curse. I am not one of them. What I think we really need is a balanced blend of modern science and the wisdom of our traditions. However, there is more to it than meets the eye. There is no magic cure for all our ailments. No single herb, food or medicine can cure it all. A more holistic approach with individualized treatment that considers the role of our individual genetic makeup and gene-environment interactions is the key. There are lifestyle changes to consider, including reducing stress and linking the body-mind axis to the ecological rhythms of nature and seasons. And, almost certainly Ayurvedic, Yunani (Persian and Arabic), Chinese and Hawaiian therapeutic traditions could be very fertile sources of rigorous scientific research-programs, looking into synergies between plants and the pulse, herbs and the heart, tension-reduction, and breathing and posture. Although modern science is in search of longevity genes and looking into the secrets of long-lived Okinawans, the realistic quest should be "Healthy Lifespan." Can we avoid diseases and aging and live forever? That is definitely is a million dollar question. But until a definite answer is found, we should strive to achieve something simple –"aging gracefully and living a healthy life."

Pratibha V. Nerurkar

Born: Mumbai, India

Joined CTAHR: 2002

Education: BS, MS and PH.D in Biochemistry from the University of Mumbai, India.

Specializations: Biochemistry, and Cellular and Molecular Biology.

Current work: Obesity, type 2 diabetes, alternative medicine, signal transduction and gene regulation, lipid metabolism, oxidative stress, mitochondrial toxicity, nutrigenomics, microarray, gene-environment interactions and chemical toxicity.

Languages spoken: English, Hindi, Marathi and some Gujarati (last three are Indian languages).

Selected grants

Nerurkar. 6/1/2007–5/30/2009. Longevity food, SIRT activation and diabetic dyslipidemia. (NIH/NCCAM) \$346,000.

Nerurkar and Mau. 9/1/2007–8/30/2012. Evaluating the mechanisms involved in ameliorating obesity and hyperlipidemia by bitter melon (NIH/NCMHD) \$525,000.

Nerurkar, Ostrander, and Yanagihara. 8/1/06–7/31/11. Longevity foods and obesity-associated insulin resistance (NIH/NCRR) \$880,466.

Selected publications

Nerurkar PV, Pearson L, Efird J, Adeli K, Theriault A., and Nerurkar VR. Inhibition of microsomal triglyceride transfer protein (MTP) gene expression and ApoB secretion by bitter melon in HepG2 Cells. *Journal of Nutrition*, 2005; 135: 702-706.

Nerurkar PV, Lee YK, Linden EH, Lim S, Pearson L, Frank J and Nerurkar VR. Lipid lowering effects of *Momordica charantia* (bitter melon) on cellular lipids and apolipoproteins in protease inhibitor-treated human hepatoma cells. *Br J Pharmacol*. 2006 Aug; 148(8): 1156-64.

Lim S, Dragull K, Tang CS, Bittenbender HC and Nerurkar PV. Effects of kava alkaloid, pipermethystine, and kavalactones on oxidative stress and hepatic cytochrome P450 in F344 rats. *Toxicological Sciences*, 2007 May; 97(1): 214-21.



The research calabash

By Doug Vincent
Special Program Director for Grants and Contracts

Reminder – AD 421 Annual Reports still due.
Please help and complete your USDA AD-421 Annual Accomplishment report. They were originally due on November 15, 2007. We need to submit them to USDA CRIS by February 1, 2008. The original deadline was November 15, 2007. Go here to enter the reports on-line: <http://cwf.uvm.edu/cris/>. Detailed instructions are here: http://www.ctahr.hawaii.edu/vincent/AD-421_Revised_Instructions_FY2007.pdf. To permit internal review prior to the February 1, 2008 deadline for submission, please make every effort to complete the reports by **Friday, January 18, 2008**. Any questions contact, Doug Vincent at vincent@hawaii.edu.

Nominations due for CTAHR Outstanding Alumni Award - January 31, 2008

Please take the time to honor an outstanding CTAHR alumnus/alumna by nominating him or her for the 2008 CTAHR Outstanding Alumni Award. The deadline is January 31, 2008, and more information about the award can be found here: <http://www.ctahr.hawaii.edu/NominateAlumnus08.pdf>. The 2008 Award will be the 20th time the award has been given to truly outstanding alumni. Past awardees have been recognized for their outstanding and lasting contributions to CTAHR, the University of Hawaii, the State of Hawaii and internationally. The honoree will be feted at the CTAHR's 20th Annual Awards Banquet on **May 9, 2008**. Surely you can think of another individual who has had similar impacts. Send nominations to the CTAHR Office of Academic and Student Affairs at acadaff@ctahr.hawaii.edu by **January 31, 2008**.

CTAHR Dean's Awards for Excellence Nominations – Due February 8, 2008

Is your secretary a wonderful person? Does your APT or Ag Tech anticipate your every need? Is there a researcher or extension faculty member who has made a significant contribution toward excellence in the College of Tropical Agriculture and Human Resources? Now is the time to honor that individual by nominating him/her for one of the CTAHR Dean's Awards for Excellence or Outstanding Service. The

nomination deadline is **February 8, 2008**, for the following awards:

- 2008 CTAHR Dean's Award for Excellence in Extension
- 2008 CTAHR Dean's Award for Excellence in Research
- 2008 CTAHR Dean's Award for Outstanding Civil Service
- 2008 CTAHR Dean's Award for Outstanding Service by an Administrative, Professional and Technical Employee.

To download nomination information, please go to this web site: <http://www.ctahr.hawaii.edu/banquet/nomination.asp>. This year's recipients will be honored at the CTAHR's 20th Annual Awards Banquet on **May 9, 2008**, at the Coral Ballroom of the Hilton Hawaiian Village.

Finalists Named for Vice Chancellor for Academic Affairs here in January.

The four finalists for the position of Vice Chancellor for Academic Affairs at UH-Manoa have been named. They will be on campus for interviews January 22-January 31, 2008. A campus-wide forum to hear from the candidates will be held at 4:00 pm, in the Architecture Auditorium (room 205) on the dates below. The finalists, including a former CTAHR faculty member, are as follows:

- Susan Bryant, Vice Chancellor for Research, University of California-Irvine, Presentation, **Tuesday, January 22, 2008**, 4:00 pm.
- James Staros, College of Arts and Sciences, State University of New York – Stony Brook, Presentation, **Thursday, January 24, 2008**, 4:00 pm.
- Peter Quigley, Assistant Vice Chancellor for Academic Affairs, UH-Manoa, Presentation: **Monday, January 28, 2008**, 4:00 pm.
- Diane Ullman, Associate Dean for Undergraduate Academic Programs (and former CTAHR Entomologist), University of California at Davis, Thursday, **January 31, 2008**, 4:00 pm.

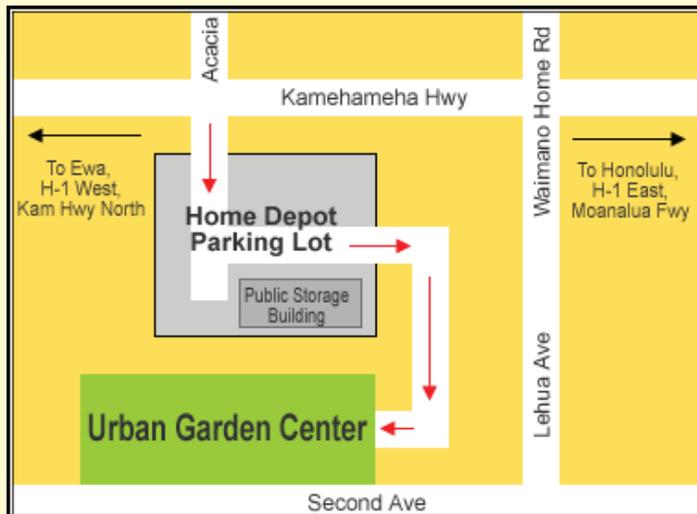
More detailed information about the candidates can be found at the following site: <http://www.hawaii.edu/executivesearch/vcacademicaffairs/>.

Farm Manager's Meeting Information Now Available

The annual Farm Manager's meeting was held on October 30, 2007 on Maui. The meeting was hosted by Maui County Administrator Harold Keyser. Meeting notes, PowerPoint Presentations and other documents from the meeting are now available for download at this web site: <http://www.ctahr.hawaii.edu/CS/files/folders/fm07/default.aspx>

Pearl City Urban Garden Annual Plant Sale – Saturday, February 2, 2008.

Need new plants for your garden? Come join us on **Saturday, February 2, 2008 from 8:00 am to 2:00 pm** for CTAHR's Pearl City Urban Garden Center Annual Plant Sale. Flowers, nursery plants, native Hawaiian plants, and tips on how to grow them. For directions, see the map below or go here: <http://www.ctahr.hawaii.edu/ougc/location.asp>. Come early! The good stuff goes fast. For more information about CTAHR's Oahu Urban Garden Center at Pearl City, see their web site: <http://www.ctahr.hawaii.edu/ougc/index.asp>



CTAHR Spring Event – February 15, 2008

Party with a Purpose!! The CTAHR Office of Academic and Student Affairs will be hosting the Annual Spring Event on **Friday, February 15, 2008** at 11:30 am – 1:00 pm, the grassy area next to Gilmore Hall. Join us for hot dogs, hamburgers and veggie burgers. This year we are accepting donations on behalf of the Easter Seals campaign. Come, not only for the “bread” but also for the “circuses.” The CTAHR-wide annual dodge ball competition will be held on the grounds.

CTAHR Student Research Symposium – April 11-12, 2008

Mark your calendars today. The 20th Annual CTAHR Student Research Symposium will be held on **Friday and Saturday, April 11-12, 2008**. The Symposium provides a forum for graduate and undergraduate students to present their research conducted under the supervision of CTAHR and UH-Hilo CAFNRM faculty. Please inform and encourage your graduate and undergraduate students to participate. Stay tuned for future announcements and expect that abstracts will be due in early March 2008.

Grant Coaching Available Now

The CTAHR Office of Research is offering grant coaching support for individuals or small groups who are currently writing grants that have indirect cost returns. We are using RTRF funds to pay for this pilot program; therefore, it is important that we invest in opportunities that result in a return to that investment. Indirect cost returns provides CTAHR, college units and PIs (that generate the RTRF) with additional, highly flexible funding that can be used to support and expand research programs. We hope that by increasing our success rates in obtaining competitive grants, we will have greater direct and indirect costs, to support our research activities. So if you are currently writing grants (or you plan to write a proposal) and want help developing, polishing and refining your proposal to meet an upcoming deadline, complete the application found at this link http://www.ctahr.hawaii.edu/vincent/Grant_Coaching_Request.doc

Hawaii Sea Grant College Program Seeking Pre-proposals - reprise

Preliminary proposals are requested for the University of Hawaii Sea Grant College Program funding in 2009-2011. Faculty from universities and colleges in Hawaii, Guam, American Samoa and the U.S. affiliated insular Pacific region are invited to submit proposals. Funding begins February 1, 2009 and ends January 31, 2011. Not including funding for graduate assistantships, a typical award is \$30,000 per year. Companion graduate assistantships for successful proposals are funded separately. The 2009-2011 Program will address the four National Sea Grant Focus Areas: Sustainable Coastal Development, Coastal Hazard Resiliency, Healthy Coastal Ecosystems and Sustainable Safe Seafood Supply. Four cross-cutting themes of these focus

areas are also of interest: Globalization, Climate Change, Coastal and Ocean Literacy and Decision-making Capacity. To receive consideration, preliminary proposals are due electronically via the UH Sea Grant proposal submission websites, eProjects (http://www.soest.hawaii.edu/eProjects/login/login_login.php). The deadline for pre-proposals is **Wednesday, February 13, 2008**. To download more detailed information, go here: <http://www.soest.hawaii.edu/SEAGRANT/home/pdf/RFP%20-%202009-2011.pdf>

New Plant Plot Allocation Forms Available now – Animal form under review

The new plot allocation forms are now available here: <http://www.ctahr.hawaii.edu/ctahr2001/Research/Stations.html>. After considerable review and revision, the forms for plant projects are now available. Two versions are available – a fillable Adobe Acrobat Form (.pdf) and an MS Word (.doc) file. The forms for animal use on our experiment stations are also available at the same web site. C.Y. Hu is still seeking feedback about these forms through **January 23, 2008**. Please download the form, review them and send comments back to the Associate Dean/ Associate Director for Research at hucy@ctahr.hawaii.edu.

Update on the Farm Bill

The next important federal legislation is the Farm Bill. The Senate passed the Farm Bill by a large margin, 79-14 on December 14, 2007. The next step in the process is the convening of a conference committee to work out differences between the House and Senate versions of the bill. We anticipate that this will begin in earnest this month with the hope that the final bill is completed and sent to the President in February. The Farm Bill is an authorizing bill; it doesn't appropriate funding. By authorizing budget items, it puts these items into the budget of a particular agency. For example, the TSTAR program has always been funded as an earmark. If the Senate has its way and sways the House to see it their way, the TSTAR program will be authorized as a line item in the USDA budget. Another authorization we hope for is the Agricultural Development in the American Pacific (ADAP) program. If ADAP is authorized, then the program would also become a line item in the USDA budget. It will also expand the program to include Alaska as part of the program. Another program is the Alaska Native, Native Hawaiian Serving Institution Agricultural Education Grant program. In this case, the program was originally authorized in the 2002 Farm Bill, and it must be reauthorized in the new Farm Bill to continue to receive funding. Finally, both House and Senate bills contain language amending the original authorizing language for the Sun Grant Research Initiative to create a new center (or sub-center) recognizing the unique situation in the Pacific and provides financial assistance for biobased energy technologies. If all of these pass, CTAHR will be well positioned to continue to serve its stakeholders through Hawaii and the Pacific.

CTAHR hosts University of Queensland visitors

By Doug Vincent
Special Program Director for Grants and Contracts

Drs. Max Shelton and Scott Dalzall from the School of Land, Crop and Food Sciences of the University of Queensland in Brisbane, Australia were hosted by Dr. Jim Brewbaker of the Department of Tropical Plant and Soil Sciences. On December 20, 2007, meetings were held with HNFAS' Drs. Brent Buckley, Jim Carpenter, C.N. Lee, Doug Vincent and Jim Brewbaker. The subject was the use of *Leucaena*, a tropical nitrogen fixing tree, as a beef cattle fodder. Besides being the "father of tropical sweet corn," Dr. Brewbaker has a long history of breeding *Leucaena* for use as forage, pasture improvement and for windbreaks. Often criticized

as an invasive species, Dr. Brewbaker has developed several seedless varieties of *Leucaena* that produce high quality, high protein cattle feed but without the invasive drawbacks. These varieties have been used as a "protein bank" to supplement pastures throughout Hawaii. But to see the extensive use of *Leucaena* as a cattle feed, one must go to Australia where Australian beef cattle industry have embraced the use of this tropical tree. This adoption has been largely through the decades-long collaboration between Dr. Brewbaker and Dr. Shelton of the University of Queensland. Dr. Dalzall will be staying in Hawaii into February and visiting CTAHR faculty and ranchers throughout the state.



(L-R) Jim Brewbaker, TPSS; Scott Dalzall, Queensland; Jim Carpenter, HNFAS, Brent Buckley, HNFAS, Max Shelton, Queensland.



One of several varieties of *Leucaena* at the CTAHR's Waimanalo Experiment Station.

Funding challenges ahead for CTAHR

By Doug Vincent
Special Program Director for Grants and Contracts

Dr. Linda Johnsrud, the UH Vice President for Academic Planning and Policy has released recently the new “UH System Strategic Outcomes and Performance Measures, 2008-2015.” The report is available here: <http://www.hawaii.edu/ovppp/uhplan/strategicoutcomes.pdf>. Among the performance measures is an increase in extramural funding support by **3% a year**. We have provided for you a summary of the extramural funding for CTAHR, as a whole, and for each individual unit over the last three calendar years. While earmark-funded projects are counted as extramural funds, we have elected to delete them from the calculations. But Figure 1 demonstrates how significant the earmark funding is to our total funding and how much we were hurt in 2007 when the earmarks were cut out of the federal budget.

CTAHR funding for each calendar year shows consistent funding for extramural funding in 2005 and 2006 but a considerable drop off in 2007; a reduction by around \$4.0 million. Surprisingly, the number of awards remained the same. This is also reflected in the average awards as shown in figure 2. Following two years where the average award exceeded \$120,000 per award across CTAHR, the average size of individual awards fell in 2007 to \$78,000. The 2005 and 2006 averages might have been skewed by the presence of a couple of very large grants, namely the USAID Soil Management CRSP funds in TPSS for over \$2.6 million in 2005 and 2006 and the Hawaii-Iraq Kurdistan grant in NREM for \$1.2 million in 2006. These big grants do alter the average award size for TPSS and NREM.

CTAHR Extramural and Earmark Funding

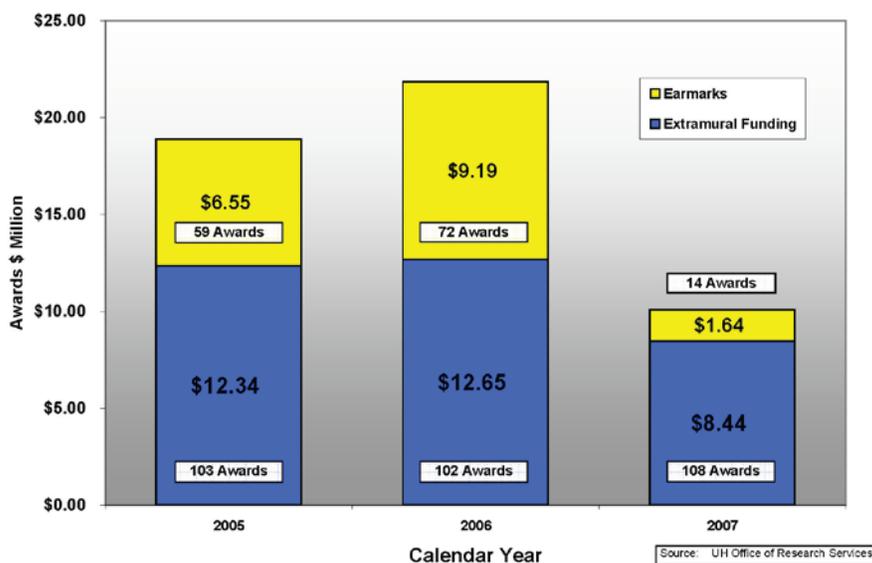


Figure 1. Total CTAHR Funding separated by earmark and extramural funding.

Average Award Size by CTAHR Unit (Minus Earmark-Funded Projects)

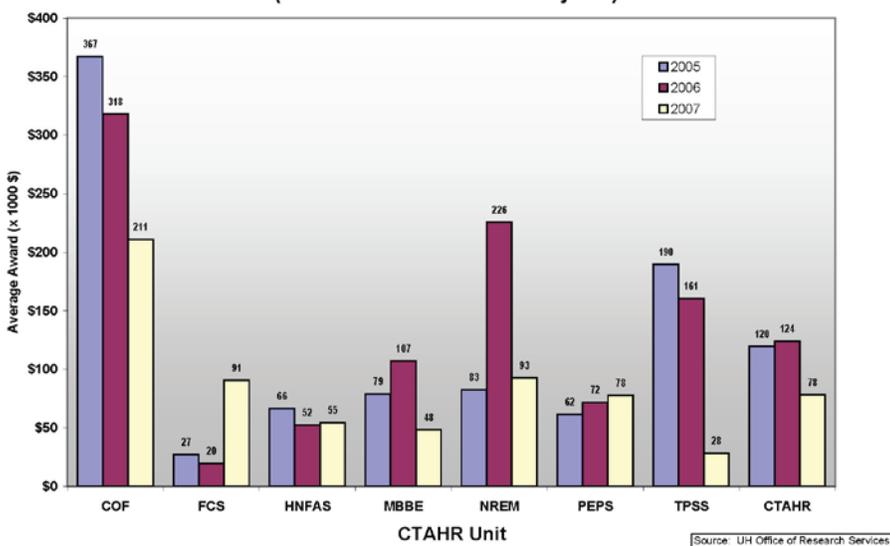


Figure 2. Average Award Size for CTAHR Extramural Funding.

Figure 3 illustrates the extramural awards sorted by CTAHR unit. Some units are relatively consistent over the previous three years – HNFAS, NREM, and PEPS. Although difficult to see because of the scale, FCS shows an increase of funding to almost a half a million dollars in 2007 over the two previous years of funding around \$100,000 per year. The bump in NREM’s funding in 2006 and the big drop off in TPSS’ funding in 2007 can be explained by the one time addition of big Kurdistan grant in NREM in 2006 and the loss of the USAID Soil Management CRSP funding from 2005 and 2006 in TPSS.

The bottom line is that CTAHR is facing several challenges. While we truly appreciate the continued support of our Congressional delegation for their efforts in providing funding for important research in support of Hawaii’s agricultural producers, we must face the reality that our reliance on the largesse provided by Congress is not sustainable. Due to other demands on our Congressional leadership, we face an erosion of these funds over the next several years. The loss of the earmarks and our reliance on them is shown in Figure 1. Our reliance on earmark funding has another negative aspect, which is that these funding sources pay only direct costs. While it is true that indirect costs are shared among several, Dean Hashimoto’s decision to return most of CTAHR’s share of the indirect costs to the units that generate them, provides considerable

flexibility to the PI’s who generate the indirect costs. The other challenge we now face is the expectation that we will increase our funding by 3% over the next several years. It is fortuitous that the current low point in CTAHR extramural funding provides us room to move upward without too much effort. But that may only work for one or two years. But the new performance measures for CTAHR carry through to 2015. So we have to be proactive to meet our goals.

So is there any good news? First, UH-M’s status as a Native Hawaiian Serving Institution was restored. Many grant programs provide extra consideration for minority serving or EPSCOR institutions. That can help applications submitted to federal funding agencies. For many years, CTAHR’s grant numbers have relied upon a few senior faculty to obtain the funding. Many of the “big grants” we received in the past were obtained by senior faculty. What’s changed in 2007 is that we have had more proposals submitted than in the previous two years. While the average grant award is less than the previous two years, we actually received a few more, albeit smaller, grants in 2007. We are also gradually convincing faculty that you don’t have to be a researcher to obtain funding. Other faculty ranks received funding in 2007. More junior faculty members are seeking funding from competitive grant programs. That’s a good sign. Unfortunately, it is rare that funding is secured from these programs with the first application. But we

also hear that these folks are not giving up and are trying again. We’re also trying out a new model for grant writing support – grant coaching, instead of a grants specialist. Through the coaching process, we hope that those who are actively seeking grant support, including those that are re-submitting their proposals, will benefit directly from one-on-one or small group specific attention that the grant coaching will provide. The challenges that we face are not insurmountable. But it requires effort and a will to be successful. The next several years will be important for the future of CTAHR.

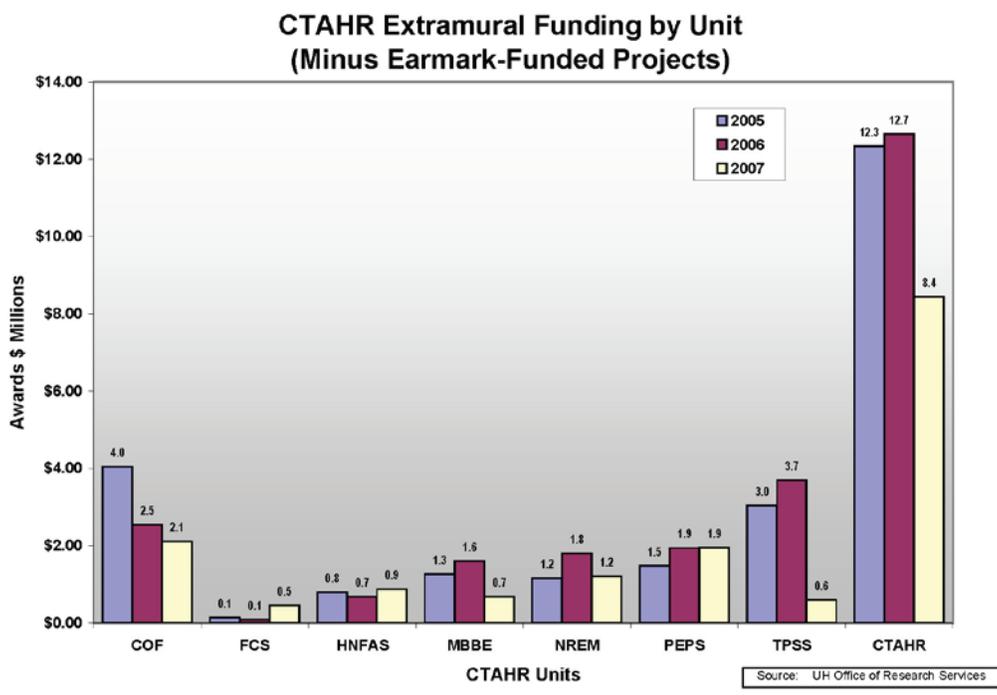


Figure 3. CTAHR Extramural Funding by Unit.

Recent grants received

By Doug Vincent
Special Program Director for Grants and Contracts

A “job well done” to the recipients of the extramural contracts and grants listed below. Thank you for your hard work and creativity is seeking out and receiving funding to support these important activities of the College. Since the beginning the state fiscal year in July 2007, CTAHR has received 75 awards for \$6,012,523. It is important we continue to seek funding to support our programs. While the list is short, it illustrates the diversity of the important work

that we do. Funds obtained support a 4-H program on military bases; a study on the impacts of feral pigs on Hawaii’s environment; research on the remediation of soil pollutants; and research on the molecular biology of corn genomics. The recipients range from extension agents, professors, researchers, specialists, center directors and administrators . . . in another words – all of us. Add your name to a future list!!

CTAHR grants from 12_10_07 to 1_14_08.

First name	Last name / Dept	Project Name	Funder	Amount
Claire	Nakatsuka / FCS	Military 4-H Grant	Kansas State University	\$30,000
James	Brosnan / TPSS	A Series of IPM Workshops for Turfgrass Managers in Hawaii	Univ of California - Davis	5,000
Nguyen	Hue	Remediation of Arsenic in Hawaii Soils: Laboratory and Field Plot Studies of Phytoremediation	Hawaii Dept. of Health	24,000
Chris	Lepczyk / NREM	Home Range and Disturbance Patters of Feral Pigs	Nature Conservancy of Hawaii	35,000
Gernot	Presting / MBBE	Functional Genomics of Maize Centromeres	Univ of Georgia	259,609
Douglas	Vincent / Admin	Environmental Effects of Tephritid Fruit Fly Eradiation and :Control	DA-Dept. of Agriculture	159,716
Sylvia	Yuen / COF	Memorandum of Agreement Relating to Quality Care for Home-based and Center-Based Child Care Providers	Hawaii Dept. of Human Services	15,750
Totals			7 grants for a total of:	\$529,075

Lots of new funding opportunities!

By Doug Vincent
Special Program Director for Grants and Contracts

Happy New Year. As we embark into 2008 and the Year of the Rat, it's hard to believe that we have completed one semester of the 2007-2008 Academic Year. But as fast as time progresses, there are always new grant opportunities opening up. Below are listed several opportunities for funding – many due next month but many due throughout the Spring Semester and into the summer. Some of the newer opportunities are several USDA CSREES grants, including Biotechnology Risk Assessment, the Integrated Pest Management Crops and Risk and Risk Avoidance and Mitigation Programs. Both programs have late February deadlines. Region 9 of the Environmental Protection Agency has grants open with a mid-March deadline for their Strategic Agricultural Initiative / Food Quality Protection Act programs. Back to USDA CSREES, several National Research Initiative Competitive Grant Programs have letters of intent due by March 14, 2008 for programs in which the grants are due by June 5, 2008. As mentioned in previous CTAHR Research News, the letters of intent are a mechanism to pre-screen potential applicants to ensure that potential proposals fit into the program guidelines. They can be sent by e-mail to the National Program Leader and you can learn as to whether your ideas fit into the program without investing the time, effort and emotion to writing a full grant proposal. Letters of intent are due for a couple of the Animal Genome programs, for the Arthropod and Nematode Biology and Management Programs, and for the Plant Biosecurity program. If you are looking for local sources of funding, the Hawaii Sea Grant College program is seeking pre-proposals by February 13, 2008 and I've listed several private foundation deadlines whose programs are run through the Hawaii Community Foundation (HCF). Most of the HCF grants are for small community development projects, but HCF does offer a biomedical research grant program. Suffice to say that there are still many, many opportunities to find funding for your activities. Take advantage of these opportunities to seek additional funding for your programs. As always, if my office can assist in any way, please let us know.

University of Hawaii
University Research Council

Faculty Travel Funds

Proposal Deadline: rolling – applications must be in >4 weeks before travel.

http://www.hawaii.edu/urc/pdf/factravel_g.pdf

http://www.hawaii.edu/urc/pdf/factravel_f.pdf

CHS Foundation

Rural Youth and Leadership Development

Proposal Deadline: rolling – applications accepted year round

<http://www.chsfoundation.org/programs/ryld.htm>

CHS Foundation

Returning Value to Rural Communities

Proposal Deadline: rolling – applications accepted year round

<http://www.chsfoundation.org/programs/rvrc.htm>

Conservation, Food and Health Foundation

Grants directed conservation, food and health in the Developing World

Concept Applications Due: February 1, 2008

<http://www.grantsmanagement.com/cfhguide.html>

National Education Association Foundation

Learning and Leadership Grants Student Achievement Grants

Proposal Deadline: February 1, 2008

<http://www.neafoundation.org/grants.htm>

U.S. Department of Agriculture, CSREES

Special Research Grants Program – Pest Management Alternatives

Proposal Deadline: February 1, 2008

<http://www.csrees.usda.gov/fo/>

[pestmanagementalternativesrgrp.cfm](http://www.csrees.usda.gov/funding/rfas/pdfs/08_pmap.pdf)

http://www.csrees.usda.gov/funding/rfas/pdfs/08_pmap.pdf

U.S. Department of Agriculture, CSREES

Higher Education Challenge Grant

Proposal Due: February 1, 2008

<http://www.csrees.usda.gov/fo/>

[educationchallengehigheredhep.cfm](http://www.csrees.usda.gov/funding/rfas/pdfs/08_hep_challenge.pdf)

http://www.csrees.usda.gov/funding/rfas/pdfs/08_hep_challenge.pdf

Binational Agricultural Research and Development Fund

Workshop Grants

Proposal Deadline: February 1, 2008

http://www.bard-isus.com/Workshop_07.pdf

BoatU.S. Foundation

Clean Water Grants

Proposal Deadline: February 1, 2008

<http://www.boatus.com/foundation/cleanwater/grants/>

National Science Foundation

Innovation and Organizational Change

Proposal Deadline: February 2, 2008

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5378

National Institutes of Health

Diet Composition and Energy Balance (R01)

Proposal Deadlines: February 5, 2008, June 5, 2008, October 5, 2008

<http://grants1.nih.gov/grants/guide/pa-files/PA-07-218.html>

U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Dr. Nancy Foster Scholarship Program (for Marine biology)

Proposal Deadline: February 8, 2008

<http://apply.grants.gov/opportunities/instructions/oppNOS-NMS-2008-2001067-cfda11.429-cid2077754-instructions.pdf>

U.S. Department of Agriculture

Agricultural Marketing Service

Federal State Marketing Improvement Program

Proposal Deadline: February 11, 2008

<http://www.ams.usda.gov/tmd/fsmip.htm>

University of Hawaii Sea Grant

Hawaii Sea Grant College Program

Pre-proposals Due: February 13, 2008

<http://www.soest.hawaii.edu/SEAGRANT/home/pdf/RFP%20-%202009-2011.pdf>

National Science Foundation

Assembling the Tree of Life

Proposal Deadline: March 14, 2008

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08515

U.S. Department of Agriculture

CSREES – NRI

Plant Genome

Proposal Deadline: February 14, 2008

<http://www.csrees.usda.gov/fo/plantgenomenri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture

CSREES – NRI

Rural Development

Proposal Deadline: February 14, 2008

<http://www.csrees.usda.gov/fo/ruraldevelopmentnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

Fiskars Garden Tools

Project Orange Thumb Community Garden Grants

Proposal Deadline: February 15, 2008

http://www.fiskars.com/content/garden_en_us/Garden/Community/project+orange+thumb/2008application

U.S. Department of Health and Human Services

National Institutes of Health

Superfund Basic Research and Training Program (P42)

Letter of Intent Due: February 15, 2008

Proposal Deadline: April 15, 2008

<http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-07-006.html>

U.S. Department of Agriculture

Food and Nutrition Service

FY 2008 Food Stamp Outreach Program

Proposal Deadline: February 19, 2008

<http://www.fns.usda.gov/fsp/outreach/grants/2008/default.htm>

<http://www.fns.usda.gov/fsp/outreach/grants/2008/RFA.pdf>

National Science Foundation

Microbial Genome Sequencing Program FY 2008

Proposal Deadline: February 19, 2008

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08511

U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Environmental Literacy Grants for Formal K-12 Education

Pre-proposals due: February 20, 2008

Proposal Deadline: June 25, 2008

<http://apply.grants.gov/opportunities/instructions/oppSEC-OED-2009-2001282-cfda11.469-cid2105290-instructions.pdf> (pre-proposal)

<http://apply.grants.gov/opportunities/instructions/oppSEC-OED-2009-2001282-cfda11.469-cid2105414-instructions.pdf> (full proposal)

U.S. Department of Agriculture

Natural Resources Conservation Service

Conservation Innovation Grants

Proposal Deadline: February 20, 2008

<http://www.nrcs.usda.gov/programs/cig/>
http://www.nrcs.usda.gov/programs/cig/pdf_files/CIG08-APF_Final1_Web_and_e-grants.pdf

National Science Foundation

Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences

Proposal Deadline: February 21, 2008

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08510

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
**National Marine Fisheries Service – Sea Grant
Fellowships in Marine Resource Economics**
Proposal Deadline: February 22, 2008
<http://apply.grants.gov/opportunities/instructions/oppOAR-SG-2008-2001202-cfda11.417-cid2097004-instructions.pdf>

U.S. Department of Agriculture, CSREES
Integrated Research, Education and Extension Competitive
Grants Program:
**Integrated Pest Management: Methyl Bromide
Transitions Program**
Proposal Deadline: February 22, 2008
<http://www.csrees.usda.gov/fo/methylbromideicgp.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_methyl_bro_integrated.doc

U.S. Environment Protection Agency
**Activities that Advance Methane Recovery and Use as
a Clean Energy Source**
Proposal Deadline: February 22, 2008
http://www.epa.gov/air/grants_funding.html#0801

Johns Hopkins University
Center for Alternatives to Animal Testing Grants
Preproposals due: February 22, 2008
<http://caat.jhsph.edu/programs/grants/preproposal.htm>

National Science Foundation
**Research on Gender in Science and Engineering FY
2008**
Proposal Deadline: February 25, 2008
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf07578

U.S. Department of Agriculture, CSREES
Biotechnology Risk Assessment Research Grants
Proposal Deadline: February 28, 2008
<http://www.csrees.usda.gov/fo/biotechnologyriskassessment.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_biotech_risk.doc

U.S. Department of Agriculture, CSREES
Integrated Pest Management: Crops at Risk Program
Proposal Deadline: February 29, 2008
<http://www.csrees.usda.gov/fo/cropsatriskicgp.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_ipm_integrated.doc

U.S. Department of Agriculture, CSREES
**Integrated Pest Management: Risk Avoidance and
Mitigation Program**
Proposal Deadline: February 29, 2008
<http://www.csrees.usda.gov/fo/riskavoidancemitigationicgp.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_ipm_integrated.doc

Hawaii Community Foundation
Medical Research Proposal
Proposal Deadlines: February 29, 2008, August 15, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/MedResRFP2008.pdf

University of Hawaii
University Research Council
Undergraduate Summer Research Award
Proposal Deadline: February 29, 2007
http://www.hawaii.edu/urc/pdf/uheh_g.pdf
http://www.hawaii.edu/urc/pdf/uheh_f.pdf

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Dean John A. Knauss Marine Policy Fellowship
Proposal Deadline: February 29, 2008
<http://apply.grants.gov/opportunities/instructions/oppOAR-SG-2009-2001198-cfda11.417-cid2096905-instructions.pdf>

Civic Ventures Foundation
**The Purpose Prize (for Americans leading with
experience.)**
Application Deadline: March 1, 2008
<http://www.purposeprize.org/index.cfm>

Hawaii Community Foundation
Cooke Foundation Grants
Proposal Deadlines: March 3, 2008, September 1, 2008
<http://cooke.hawaiicommunityfoundation.org/>

U.S. Department of Agriculture
Food and Nutrition Service
FY 2008 Team Nutrition Training Program Grant
Letter of Intent Due: March 3, 2008
Proposal Deadline: April 14, 2008
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSDA-FNS-CNTN-08-cfda10.574-instructions.doc>

Burroughs Wellcome Fund
Population and Laboratory Based Sciences
Letter of Intent Due: March 3, 2008
Proposal Deadline: May 15, 2008
http://www.bwfund.org/programs/population_lab_sciences/pup_lab_main.html

U.S. Department of Agriculture
CSREES – NRI
Air Quality
Letter of Intent Due: March 5, 2008
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/airqualitynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Animal Genome (D): Functional Genomics
Letter of Intent Due: March 14, 2008
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgenomefunctionalgenomicsnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Animal Genome (A): Translational Animal Genomics
Letter of Intent Due: March 14, 2008
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgenometranslationalgenomicsnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Arthropod and Nematode Biology and Management (B): Suborganismal Biology
Letter of Intent Due: March 14, 2008
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/arthropodnematodesuborganismalbiologynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Arthropod and Nematode Biology and Management (C): Tools, Resources and Genomics
Letter of Intent Due: March 14, 2008
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/arthropodnematodetoolsresourcesgenomicsnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Plant Biosecurity
Letter of Intent Due: March 14, 2008
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/plantbiosecuritynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Environmental Protection Agency, Region 9
Strategic Agricultural Initiative / Food Quality Protection Act Grant Program
Proposal Deadline: March 14, 2007
<http://www.epa.gov/region09/funding/food-quality.html>
<http://www.wripmc.org/Research/R9%202008%20FQPA%20RFP%20Final%20Version.pdf>

Wildlife Conservation Society
Research Fellowship Program
Proposal Deadline: March 15, 2008
http://www.wcs.org/media/file/Factsheet_RFP_070130.pdf

U.S. Environmental Protection Agency
Community Action for a Renewed Environment (CARE) Program
Proposal Deadline: March 17, 2008
<http://www.epa.gov/air/grants/08-02.pdf>

Hawaii Community Foundation
Atherton Family Foundation Grants
Proposal Deadline: April 1, 2008
<http://atherton.hawaiicommunityfoundation.org/>

Hawaii Community Foundation
Kuki'o Community Fund
Proposal Deadline: April 1, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/KukioRFP2008.pdf

National Science Foundation
Ethics Education in Science and Engineering
Proposal Deadlines: April 3, 2008, March 2, 2009, March 1, 2010
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08530

U.S. Department of Health and Human Services
National Institutes of Health
Improving Diet and Physical Activity Assessment (RO1)
Letters of Intent Due: May 5, 2008
Proposal Deadline: June 5, 2008
<http://grants.nih.gov/grants/guide/pa-files/PAR-07-259.html>

Hawaii Community Foundation
'Ewa Beach Community Trust Fund
Proposal Deadline: April 14, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/Ewa_Beach_Application_2008.pdf

Hawaii Community Foundation
Promoting Outstanding Nonprofit Organizations (PONO)
Proposal Deadline: April 15, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/PONO_6_Application_2008-2009_fillable.pdf

U.S. Environmental Protection Agency
**Broad Agency Announcement for Conferences,
Workshops and/or Meetings**
Proposal Deadlines: January 7, 2008, June 5, 2008,
December 9, 2008
http://es.epa.gov/ncer/rfa/2008/2008_baa.html

U.S. Department of Agriculture
CSREES – NRI
Animal Genome (C): Bioinformatics
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgenomebioinformaticsnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Animal Genome (B): Tools and Resources
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgenometoolsresourcesnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Animal Growth and Nutrient Utilization
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgrowthandnutrientusenri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Human Nutrition and Obesity
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/humannutritionobesitynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
**Agricultural Prosperity for Small and Medium-Sized
Farms**
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/smallfarmsagriculturalprosperitynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Environmental Protection Agency
**Broad Agency Announcement for Conferences,
Workshops and/or Meetings**
Proposal Deadlines: January 7, 2008, June 5, 2008,
December 9, 2008
http://es.epa.gov/ncer/rfa/2008/2008_baa.html

New faculty publications

J. Kenneth Grace (PEPS)

Gentz, M. C. and J. K. Grace. 2007. Different boron compounds elicit similar responses in *Coptotermes formosanus* (Isoptera: Rhinotermitidae). *Sociobiology* 50: 633-641.

Kirschenbaum, R. and J. K. Grace. 2007. Agonistic interactions of four ant species occurring in Hawaii with *Coptotermes formosanus* (Isoptera: Rhinotermitidae). *Sociobiology* 50: 643-651.

Kirschenbaum, R. and J. K. Grace. 2007. Dominant ant species in four habitats in Hawaii (Hymenoptera: Formicidae). *Sociobiology* 50: 1069-1073

Qing Xiao Li (MBBE)

Lee, S.-E.; Seo, J.S.; Keum, Y.-S.; Lee, K.-J.; Li, Q.X. 2007. Fluoranthene metabolism and associated proteins in *Mycobacterium* sp. JS14. *Proteomics* 7(12):2059-2069.

Seo, J.S., Keum, Y.S., Hu, Y., Lee, S.E., Li, Q.X. 2007. Degradation of phenanthrene by *Burkholderia* sp. C3: initial 1,2- and 3,4-dioxygenation and *meta*- and *ortho*-cleavage of naphthalene-1,2-diol. *Biodegradation* 18:123-131.

Cheng, J.Z.; Harada, R.; Campbell, S.; Li, Q.X. 2007. Biodegradation of dinitrotoluene by *Pseudoxanthomonas* sp. JA40. *J. Young Investigators*. 16(3): Feb 2007, <http://www.jyi.org/research/re.php?id=940>

Keum, Y.-S.; McQuate, G.T., Li, Q.X. 2007. Synergists isolated from cade oil for the parapheromone α -ionol for male *Bactrocera latifrons* (Diptera: Tephritidae). *Biochemical Systematics and Ecology* 35(4):188-195.

Wang, D.; Atkinson, S.; Hoover-Miller, A.; Li, Q.X. 2007. Polychlorinated naphthalenes and coplanar polychlorinated biphenyls in tissues of harbor seals (*Phoca vitulina*) from the northern Gulf of Alaska. *Chemosphere* 67:2044-2057.

- Kwon, Y.W.; Kim, D.S.; Li, Q.X. 2007. Environmentally sound production-system approach in rice weed management for economical and safety benefits. *In: Proceedings of the International Workshop Weed Science and Agricultural Production Safety*. Editor-in-chief: Sheng Qiang. Nanjing, China.
- Moon, J.-K.; Keum, Y.-S.; Hwang, E.-C.; Park, B.-S.; Chang, H.-R.; Li, Q.X.; Kim, J.-H. 2007. Hapten synthesis and antibody generation for a new herbicide, metamifop. *J. Agric. Food Chem.* 55(14):5416-5422.
- Xu, T.; Shao, X.L.; Li, Q.X.; Jing, H.Y.; Sheng, W.; Wang, B.M.; Li, J. 2007. Development of an enzyme-linked immunosorbent assay for the detection of pentachloronitrobenzene residues in environmental samples. *J. Agric. Food Chem.* 55(10):3764-3770.
- Xu, T.; Sheng, W.; Wang, B.-M.; Shao, X.-L.; Li, Q.X.; Gao, H.-B.; Li, L. 2007. Application of an enzyme-linked immunosorbent assay for the detection of clenbuterol residues in swine urine and feeds. *J. Environ. Science and Health Part B*, 42:173-177.
- Seo, J.-S.; Keum, Y.-S.; Harada, R.M.; Li, Q.X. 2007. Isolation and characterization of bacteria capable of degrading polycyclic aromatic hydrocarbons (PAHs) and organophosphorus pesticides from PAHs-contaminated soil in Hilo, Hawaii. *J. Agric. Food Chem.* 55(14):5383-5389.
- Kim, H.-J.; Gee, S.J.; Li, Q.X.; Hammock, B.D. 2007. Non-competitive fluorescent immunoassay for detection of pyrethroid biomarker 3-phenoxybenzoic acid in human urine with KinExA™ 3000. *In: Rational Environmental Management of Agrochemicals – Risk Assessment, Monitoring, and Remedial Action*. Ivan R. Kennedy, Keith R. Solomon, Shirley J. Gee, Angus N. Crossan, Shuo Wang, Francisco Sanchez-Bayo (Editors). ACS Symposium Series 966. Washington DC.
- Campbell, S.; Harada, R.M.; Li, Q.X. 2007. *Ferrimonas senticii* sp. nov., a novel gammaproteobacterium isolated from the mucus of a puffer fish caught in Kaneohe Bay, Hawai'i. *Int J Syst Evol Microbiol* 57: 2670-2673.
- Liang, H.; Li, Q.X.; Sagawa, Y. 2007. Effects of rutin and IAA on elongation of etiolated mung bean (*Vigna radiata*) seedlings and RT-PCR diversity of related genes. *J. Zhongkai University of Agriculture and Technology*. 20(3):1-6.
- Kartika, H.; Li, Q.X.; Wall, M.M.; Nakamoto, S.T.; Iwaoka, W.T. 2007. Major phenolic acids and total antioxidant activity in Mamaki leaf, *Pipturus albidus*. *J. Food Science*. 72(9):S696-701.

Shu Hwa Lin (FCS)

Lin, S. (2007). Attitudes of tourists to purchasing organic cotton in Hawai'i. *Journal of Organic Systems*, 2(2), 14-26.