National Cancer Institute

NCI CAM News

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The Newsletter of the Office of Cancer Complementary and Alternative Medicine

In this issue:

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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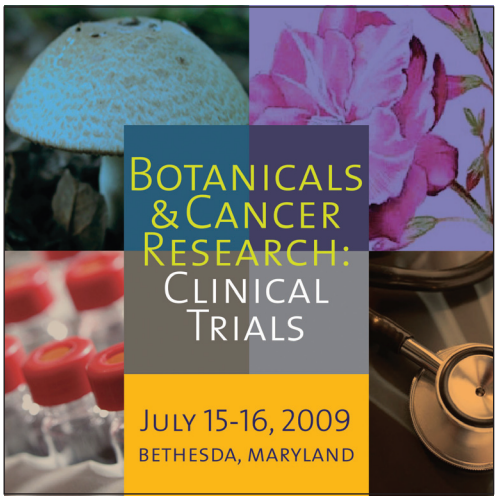
NCI Botanicals Workshop Focuses on Research Challenges

Conducting a successful Phase III clinical trial is a critical research benchmark for any new cancer treatment. Reaching that goal is daunting for all potential therapies, but it is especially so for botanical compounds. Botanical compounds are complex natural substances harvested from places such as rainforests, seas, and countries all over the world. This summer, on the National Institutes of Health (NIH) campus, more than 100 conventional researchers, experienced complementary and alternative medicine (CAM) researchers, policymakers, and experts attended a workshop designed to tackle the topic of botanicals cancer clinical research head-on.



"We wanted these discussions to be real and pragmatic," said Jeffrey D. White, M.D., director of the NCI Office of Cancer Complementary and Alternative Medicine (OCCAM) within the Division of Cancer Treatment and Diagnosis. "NCI is interested in the full spectrum of CAM activities (prevention, diagnosis, nutrition, etc.), but the search for botanicals to actively treat cancer is an area of special focus."

From the lively discussions during the July 15-16, 2009 workshop, a number of ideas emerged about how to establish an effective and organized clinical trial research infrastructure in the United States. The image of a pathway was used by some at the workshop as a way to describe how a botanical could move through the entire development spectrum: from discovery and reliable harvesting, into preclinical research at the bench, through to animal testing and human clinical trials, and ultimately to approval by the U.S. Food and Drug Administration (FDA) as a cancer treatment in humans.

One idea that kept resurfacing throughout the two-day workshop was the creation of a consortium. Participants discussed the value of forming a collaborative network of scientists, resources, and facilities that would come together around a 'big-picture' strategic view of the field of botanicals research. The

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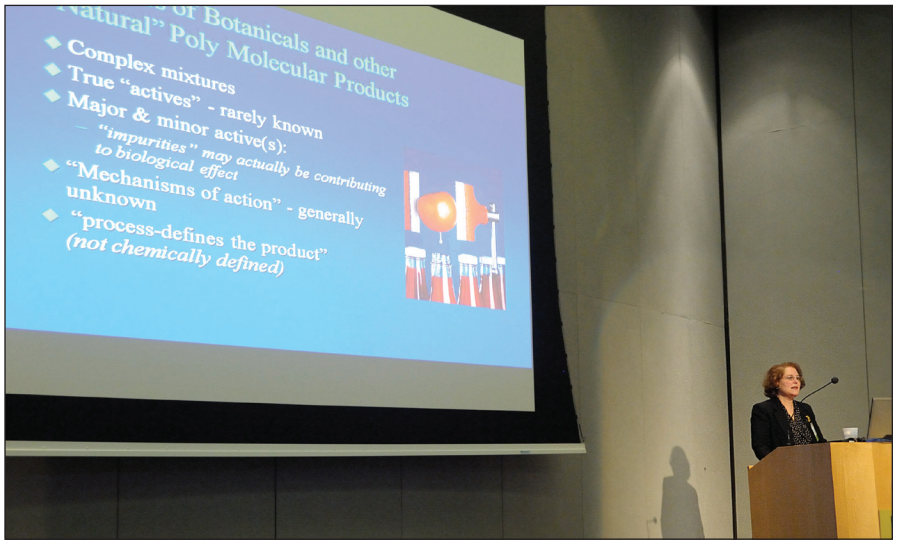
mission of such a network would be to sift through ideas, identify a few important botanical candidates for clinical testing, and then galvanize support for such studies, whether with funds from the government or the pharmaceutical industry.

Edward Chu, M.D., deputy director at Yale's Cancer Center and its chief of Medical Oncology, commented on the frustration expressed by some fellow CAM researchers about at times being relegated to the fringes of mainstream medical research. "This community must take a more rigorous 'Western' approach to research and the development of botanicals, if we expect to compete with major drug treatments coming out of the pharmaceutical industry labs," he contended.

"Perhaps the best way to convince mainstream research scientists and clinical investigators about the potential efficacy of botanicals and herbal medicines is to have at least one success story," said Dr. Chu.

Shaw Chen, M.D., Ph.D., associate director for Special Product Review at the FDA, heads the agency's new Botanical Review Team. He told the workshop participants that FDA has taken a number of steps to ensure the agency takes into consideration the special features of a botanical product and makes necessary adjustments during its review process. The agency issued a "Guidance for Industry-Botanical Drug Products," which is a blueprint to facilitate development of new therapies from botanical sources. However, Dr. Chen is disappointed that so few investigators have made a dedicated effort to push a botanical drug all the way through the process. "Without big pharma's resources or experiences, the nascent botanical industry will probably need more help from government agencies like NIH to move forward," he noted.

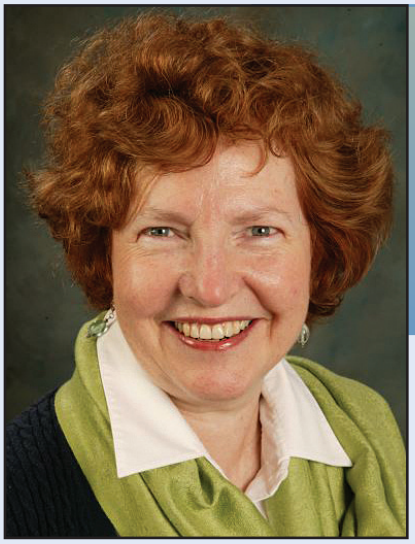
Many products and formulations are put forward by smaller companies, most of whom: "are content with marketing their product as a dietary supplement," explained Dr. Chen. Such products receive a less rigorous review by FDA, and approval is not required before marketing. "While many are in development, our botanical drug track has really been tested by only one marketing application (Veregen); so few botanical candidates have tried to navigate the regulatory process to come anywhere near Phase III trials," he added.



Dr. Freddie Ann Hoffman, co-chair of the Role of Industry in Botanical Drug Development working group

Dr. Emma Shtivelman, co-chair of the Targets, Pathways, and Networks in Preclinical Models working group

OCCAM Director Jeffrey D. White, M.D. noted, "NCI has a role as a facilitator in fostering botanical research and clinical trials". Barbara Sorkin, Ph.D., a program director at the National Center for Complementary and Alternative Medicine, also suggested that "a dedicated, multi-component funding mechanism might have to be developed to support a multi-pronged, multidisciplinary approach to botanical research." ❧



Dr. Julia Rowland

A Conversation with:

Julia Rowland, Ph.D.
Director
Office of Cancer Survivorship
Division of Cancer Control and Population Sciences

Please describe the role of the Office of Cancer Survivorship (OCS) within NCI.

The NCI Office of Cancer Survivorship (OCS) was established in 1996 as a direct response to compelling and articulate advocacy from the consumer community, which requested more information about the unique and poorly understood needs of the growing population of those living long-term after cancer. The overall mission of OCS is to help improve not only the length of survival time of individuals, but equally important, to improve the quality of life of all those living with a history of cancer. OCS achieves this mission by directing and supporting research, advocating for and underwriting the training of researchers and clinicians, and participating in the development of educational materials and outreach programs designed for healthcare providers as well as cancer survivors and their caregivers.

Is CAM important to the survivorship community? How so?

Historically, CAM was very much a focus of interest within the cancer community, primarily as an alternative to the few treatments for cancer, many of which had serious side effects that were often poorly controlled, and whose outcome when applied was fairly bleak for most of those diagnosed. As a result of the advances made in treatment options and in the control of their side effects, I believe cancer patients today are using therapies that are complementary, and less as an alternative, to conventional treatments. They are also talking more openly about CAM use, not only with family and friends, but also their doctors and nurses.

Beyond the active treatment phase, survivors may use CAM to help with the lingering side effects of treatments, to promote a general sense of health, or in an attempt to alter the course of their illness. In addition, some survivors turn to CAM therapies as a way to help manage other chronic health conditions, whether cancer-related or not.

What do you think CAM can offer to cancer survivors?

CAM can help restore a sense of control to the individual with cancer. Patients want to be able to do something active, proactive even, for their health and well-being. An additional part of the appeal of CAM is that it feels like a 'natural' approach to healing for survivors, many of whom, after an aggressive course of cancer therapy, are leery of taking more medicines that might expose them to further medical problems. Finally, CAM use supports the desire of many cancer survivors to engage in a holistic or more integrative approach to their well-being.

Does OCS have any current or upcoming projects related to CAM?

One of the areas of research we are very interested in is physical activity. Activities like tai-chi, yoga, dragon boat racing, and fly fishing have proven helpful to breast cancer survivors in their recovery process. In a recently published study funded by OCS*, researchers documented the benefits of slowly progressive weight lifting for breast cancer survivors with documented

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**ClinicalTrials.gov Identifier: NCT00194363*

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lymphedema or arm swelling. This finding challenges the usual recommendations for management of this condition.

A further area of interest to many survivors and the larger research community is the role that stress may play in causing cancer and affecting its clinical course. OCS currently supports a number of studies that examine the impact of stress management on survivors' general health, quality of life, and immune function.

Dietary supplements are also a popular topic within the survivorship community for many of the reasons noted above. We, along with OCCAM, are interested in evidence-based research to determine whether these dietary cocktails might be beneficial to survivors' health.

Lastly, our office always promotes the importance of physician-patient dialogue surrounding CAM. Physicians and nurses need to ask patients about their use of CAM, and patients need to feel free to raise this topic with their healthcare team – without fear of being dismissed or labeled as 'kooky' or 'difficult.' These conversations are especially important given how quickly information is changing about CAM therapies. Both provider and patient need to know what is safe and effective, or at a minimum, will do no harm in the course of that individual's cancer care and recovery.

For more information on the Office of Cancer Survivorship, visit: ***http://dccps.nci.nih.gov/ocs.***

News from the Field

NCI Opens New Door for CAM Research with Small Grant Program

For the first time, NCI is offering grant awards – R03 grants – for researchers interested in starting small pilot and feasibility studies of CAM therapies and practices. These studies can generate data needed for conducting larger scientific studies of CAM in the future.

Through the initial R03 Program Announcement (PA) released last spring, NCI's Office of Cancer Complementary and Alternative Medicine (OCCAM) seeks to "encourage investigators to initiate research in areas not typically explored" in larger studies funded by more rigorous grant mechanisms, such as R01 and R21 awards.

Isis Mikhail, M.D., M.P.H., Dr.P.H., who proposed and is directing the R03 program for OCCAM, said, "These are small grants of up to $50,000 a year for two-years in direct costs. They're mainly aimed at pilot and feasibility studies for CAM. If investigators have a CAM therapy to explore, they can start a pilot project to develop the necessary background information to help them move forward to apply for a larger grant such as an R01 grant. R03s do not require that you already have background data. It's actually a tool to develop such data."

She added, "It really opens another door for studies of CAM remedies that haven't had the opportunity to acquire sufficient pilot data and may hopefully, eventually help us to find some new CAM treatments or therapies for cancer."

Dr. Mikhail noted that the PA spotlights CAM therapies identified by NCI's Best Case Series Program as ideal candidates for pilot testing under the R03 grant mechanism. Examples of such therapeutic regimens include the treatment approach of the P. Banerji Homeopathic Research Foundation, insulin potentiation therapy, and macrobiotic lifestyle as per the Kushi Institute. Research of these approaches is high-risk and previous efforts to stimulate investigations via single contract mechanisms have not been fruitful.

"Researchers now have a second option with the R03 mechanism to collect more data to expand the cases from best case series submissions; maybe do a small clinical trial or a study of any type of design they see fit," Dr. Mikhail continued. "This provides them a 'Plan B' that may allow an opportunity to show if their CAM approach has promise."

In 2008, OCCAM staff worked together to identify important research areas and gaps. OCCAM identified three areas of research for its focused efforts for the R03 and other grant programs. These include: 1) identifying novel therapeutics in the pharmacopeia of traditional medical systems as defined by the World Health Organization; 2) using complementary approaches to improve the therapeutic ratio of standard and investigational anti-cancer therapies; and 3) research on lifestyle modifications (e.g., diet, exercise, mind-body approaches) for their impact on cancer outcomes (e.g., response to conventional cancer therapy, survival).

NCI's PA for the R03 CAM awards is generating considerable interest among researchers and CAM practitioners, thanks to OCCAM's efforts to advertise the program in various medical, CAM and integrative medicine journals. "I've received many phone calls and e-mails recently, so our PA is starting to get noticed," said Dr. Mikhail.

"With this PA we intend to promote the establishment of collaborations between researchers and CAM practitioners," she continued. "We're also open to international applicants, for example, Chinese, Indian, and Korean researchers. I've received phone calls from scientists in Germany and Canada. We're really quite excited about this program!"

If the R03 program generates good projects, there will be a number of follow-up options for researchers, Dr. Mikhail explained. "If an R03 grantee is successful with a small, pilot study, it will help them move forward with a larger study, possibly an R01. If the funds for a successful R03 grant application are used to document a clinical case series of patients treated with an unconventional cancer therapy, then that series could be submitted to the NCI Best Case Series Program, which seeks to identify approaches that warrant NCI-initiated research."

Application deadlines for the R03 grants are on the regular rolling trimester schedule for all NIH grants, with deadlines in February, June, and October. For more information about this announcement, please refer to the PA announcement at ***http://grants.nih.gov/grants/guide/pa-files/PA-09-168.html*** or contact Dr. Mikhail at **mikhaili@mail.nih.gov.**

Recovery Act Adds CAM Supplements to OCCAM's Portfolio

Six months after President Obama signed the American Recovery and Reinvestment Act of 2009 (Recovery Act), OCCAM funded three new supplements to grants in its portfolio. Dr. Fazlul Sarkar (Wayne State University), Dr. Rakesh Srivastava (University of Texas Health Center at Tyler), and Dr. Yung-Chi Cheng (Yale University) were awarded supplements to their parent grants.

The Recovery Act was developed as an effort to jumpstart our economy, create or save millions of jobs, and put a down payment on addressing long-neglected research challenges in our country. NIH received $10.4 billion to spend over two years on research and infrastructure. NIH research funding awarded through the Recovery Act was selected based on the ability to: promote job creation; develop the economy; accelerate the pace and achievement of scientific research; and have high impact on the field of research.

Two of OCCAM's Recovery Act supplements were chosen, in part, because they address a highly significant area of research – pancreatic cancer, which is a cancer with both a very poor prognosis and 5-year survival rate.

Dr. Sarkar was awarded a supplement to a parent study, which examines B-DIM – a natural non-toxic agent – for its chemopreventive and chemotherapeutic effects against pancreatic cancer. The parent grant seeks to elucidate the mechanistic role of several signaling molecules in pancreatic cancer and further assess the role of B-DIM for the inhibition of pancreatic cancer cell growth, migration, and angiogenesis; and induction of apoptosis in vitro, and the anti-tumor activity in xeno-graft as well as in two distinct transgenic animal models of pancreatic cancer. The supplement will allow Dr. Sarkar

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to perform novel experiments for assessing the expression of miRNA and its relationship to gene expression profiles of target genes by microarray of pancreatic tumors, with and without B-DIM treatment using 2 distinct transgenic animal models.

(Grant number: 3R01CA131151-02S1)

Dr. Srivastava has been awarded a supplement to a parent grant studying the green tea polyphenol epigallocatechin-3-gallate (EGCG). EGCG is a natural non-toxic product, which exerts significant inhibitory effects on diverse cellular events associated with tumor initiation, promotion, and progression. The parent grant is investigating whether EGCG can be used as a chemo-preventive agent against pancreatic cancer using xenograft, orthotopic and $Kras^{G12D}$ transgenic mouse models, and to examine the molecular mechanisms by which EGCG causes growth arrest and apoptosis in pancreatic cancer. Both these processes are not well understood. The main hypothesis of the parent grant is that EGCG will inhibit the Ras-dependent P13K/Akt and MAP kinase activities and that these two will converge to regulate FOXO transcription factors, cell growth, and apoptosis in pancreatic cancer cells.

The objective of Dr. Srivastava's supplement is to examine how JAK/STAT3 pathway mediates chemopreventive properties of EGCG in vitro and $Kras^{G12D}$ transgenic mouse model in vivo. In addition, he will assess whether inhibition of STAT3 can enhance the biological effects of EGCG and gemcitabine in pancreatic cancer.

(Grant number: 3R01CA125262-02S1)

Dr. Cheng was awarded an equipment supplement to continue the work of his U01 project, which examines the mechanisms of anticancer activity of the nucleoside analog troxacitabine (L-OddC), and PHY906, a Chinese herbal mixture. The equipment supplement will replace old and unreliable equipment utilized for separation, purification, detection, and storage of RNA, DNA, protein, and small molecules and will improve the capacity to quantify and characterize protein, RNA, and DNA from small tissue samples. Replacing and upgrading the equipment will accelerate and improve the scientific research conducted.

(Grant number: 3R01CA063477-14S1)

"By allowing more in depth investigation of these research topics with more up-to-date equipment, these supplement funds will speed the progress of these scientists in the generation of their important findings, while also retaining or hiring new staff in their labs, thus contributing to our nations economic recovery," said OCCAM's Director Dr. Jeffrey D. White.

For more information on the Recovery Act, visit ***www.nih.gov/recovery/index.htm***. To search for ARRA grants, visit ***http://projectreporter.nih.gov/reporter.cfm***.

For more information on other CAM-related ARRA Grant Awards funded through NCI, visit ***www.cancer.gov/cam/research_arra_awards_2009.html***.

Funding Opportunities

Funding Available for Behavioral Research in Cancer Control

Cancer patients and survivors use complementary and alternative medicine (CAM) approaches extensively. In March 2009, the National Cancer Institute (NCI) and the National Center for Complementary and Alternative Medicine (NCCAM) released Program Announcement (PA) PA-09-130, titled "Exploratory Grants for Behavioral Research in Cancer Control (R21)." In this PA's invitation for applications, developmental and formative behavioral research in cancer prevention and control, including investigations of CAM therapies, are requested.

This PA includes and incorporates research interests in CAM topics such as physical activity and nutrition, as well as mind-body practices, manipulative and

body-based interventions, and approaches derived from traditional medical systems, which may improve the quality of life of cancer patients and survivors. Nutrition and physical activity as keys to an energy balance strategy play an important role in the prevention of the initiation, promotion, and progression of cancer.

Approaches of interest include the development of outcomes measurements and instruments relevant to adherence, efficacy and effectiveness of integrative practices in relevant groups, as well as pilot studies to optimize such interventions for subsequent, more extensive clinical studies. Such pilot studies may include optimization of dose or treatment schedule, as well as the development of feasible and meaningful control conditions.

This PA will support research to:

- Refine current theoretical mechanisms of behavior change as well as focus on developing new models to examine and explain key factors that specifically influence diet and physical activity behaviors.

PA-09-130 invites applications on nutrition research

- Explain how individuals and groups maintain healthy behaviors and support study of the interplay of multiple health behaviors that may exist such as between sleep and physical activity, diet, and obesity.

- Clarify the relative contribution of sedentary lifestyle and fitness as distinct from physical activity effects on health promotion and cancer. Applications that focus on the relationship between genotypes and health behaviors, specifically as it relates to food preferences and physical activity are encouraged.

- Examine if existing diet and physical activity measures are appropriate for minority, low-literacy, and/or high-risk populations.

For more information, please review the following announcement: ***http://grants.nih.gov/grants/guide/pa-files/PA-09-130.html*** or Dr. Sabra Woolley at **woolleys@mail.nih.gov**.

Examining the Effect of Dietary Components on Natural Killer Cells

In April 2008, NCI published the Program Announcement (PA) PA-08-132, "Enhancing Tumoricidal Activity of Natural Killer (NK) Cells by Dietary Components for Cancer Prevention (R01)". The aim of this PA is to stimulate research efforts aimed at establishing the physiological significance of dietary components in regulating the tumoricidal cell activity of natural killer (NK) cells for cancer prevention.

Research projects proposed in response to this funding announcement should focus on defining the minimum quantity and duration of exposure to specific dietary components to change tumoricidal activity of NK cells for cancer prevention and the underlying mechanism(s) accounting for this response.

Proposed projects must include animal and/or human investigations to be considered responsive to this announcement.

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In vitro models can be used only to support in vivo studies, and therefore, should not constitute the primary focus of the application.

Molecular targets for food components may be examined at the sites of:

1. The tumoricidal cell receptors and cancer cell specific ligands;

2. The release of tumoricidal cytokines such as IFN-ɣ and

3. The release of lytic granules such as granulysin, perforin, and serine proteases (granzymes).

Researchers are encouraged to contact Program Director Young S. Kim, Ph.D., at the Division of Cancer Prevention; she can be reached at **kimyoung@mail.nih.gov**.

OCCAM also welcomes questions regarding funding opportunities. Please contact Research Development and Support Program Director Dr. Isis Mikhail at **mikhaiki@mail.nih.gov**.

For more information about this PA, please visit: ***http://grants.nih.gov/grants/guide/pa-files/PA-08-131.html.***

Research Resources

NCI Provides Resources to Researchers

NCI offers the following research-related resources, which are often unknown to investigators:

RAID (Rapid Access to Intervention Development)

NCI makes available resources to academic discovery laboratories and not-for-profit organizations for pre-clinical development of drugs and biologics through its RAID program. RAID is designed to facilitate the translation of novel, scientifically meritorious therapeutic interventions originating in the academic community to the clinic. The goal of RAID is clinical "proof of principle" that a new molecule or approach is a viable candidate for expanded clinical evaluation, particularly in areas such as rare cancers, pediatric cancer, clinical/molecular pharmacodynamics, certain specified classes of biologics, natural products, and small molecule and antibody development for concomitant imaging studies. The output of RAID activities are products and information that will be made fully available to the originating investigator for support of an IND application and clinical trials.

RAID proposals are accepted twice a year. Since its beginning in 1998, RAID has approved 104 projects out of the 288 proposals submitted.

For more information on RAID, call **301-496-8720**, or e-mail **ncidtpraidinfo@mail.nih.gov**.

PubChem

Developed by the National Center for Biotechnology Information, PubChem is a component of NIH's Molecular Libraries Roadmap Initiative, and it provides information on the biological activities of small molecules. PubChem is three databases — PubChem Substance (chemical substances screened for bioactivity), PubChem Compound (small molecule chemical structures), and PubChem BioAssay (bioactivity screens of chemical substances). Results of biological screening, links to published articles, and protein 3D structures are available. To access PubChem, visit ***http://pubchem.ncbi.nlm.nih.gov/***.

- **PubChem Substance:**

  The PubChem Substances Database contains descriptions of chemical samples, from a variety of sources, and links to PubMed citations, protein 3D structures, and biological screening results that are available in PubChem BioAssay. If the contents of a

DTP sends samples to investigators at labs all over the world

chemical sample are known, the description includes links to PubChem Compound.

http://www.ncbi.nlm.nih.gov/sites/entrez?db=pcsubstance

- **PubChem Compound:**

  The PubChem Compounds Database contains validated chemical depiction information provided to describe substances in PubChem Substance. Structures stored within PubChem Compounds are pre-clustered and cross-referenced by identity and similarity groups. Additionally, calculated properties and descriptors are available for searching and filtering of chemical structures.

http://www.ncbi.nlm.nih.gov/sites/entrez?db=pccompound

- **PubChem BioAssay:**

  The PubChem BioAssay Database contains bioactivity screens of chemical substances described in PubChem Substance. It provides searchable descriptions of each bioassay, including descriptions of the conditions and readouts specific to that screening procedure.

http://www.ncbi.nlm.nih.gov/sites/entrez?db=pcassay

Mouse Models of Human Cancers Consortium Repository

NCI's Mouse Models of Human Cancer Consortium (MMHCC) Repository is an NCI-funded resource for mouse cancer models and associated strains. Comprised of 25 principal investigators, which connect more than 50 research institutions in the United States and abroad, MMHCC is a collaborative program designed to derive and characterize mouse models, to generate resources and information, and to use innovative approaches in pre-clinical trials and drug intervention studies.

The repository makes strains available to all members of the scientific community (academic, non-profit, and commercial). MMHCC strains are maintained as live colonies or cryoarchived as frozen embryos, depending on demand. Up to three breeder pairs may be ordered from live colonies. Cryoarchived strains are supplied as frozen embryos or recovery of live mice by the MMHCC may be requested.

A complete list of available strains can be found on the site. Researchers are encouraged to submit their cancer models to the MMHCC for archiving and distribution. Submission requests are reviewed and evaluated by the MMHCC Repository Committee.

For more information on MMHCC, visit ***http://emice.nci.nih.gov/emice***.

Developmental Therapeutics Program Databases of Open Compounds and Data on Cell Lines

NCI's Developmental Therapeutics Program (DTP) maintains a repository of synthetic compounds and pure natural products that are available to investigators for non-clinical research purposes.

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Over 20,000 vialed samples and 3,500 plates are shipped from the Repository to external investigators throughout the world annually. Samples are available at no cost except for shipping charges. The Repository collection is a uniquely diverse set of more than 200,000 compounds that have been either submitted to DTP for biological evaluation or, in some cases, synthesized under DTP auspices. Importantly, investigators should note that chemical structures of these substances are those assigned by the originator of the material and in the vast majority of cases, the compounds have not been analyzed by DTP for accuracy of structure or for the purity of the sample. Compounds are available through a web-based ordering system.

For more information on DTP's resources, visit ***http://dtp.nci.nih.gov/guide.html.***

Notice about the CRISP Function on NIH's RePORT Web Site

On September 1, 2009, the CRISP system was retired and replaced by the NIH RePORTER (Research Portfolio Online Reporting Tool Expenditures and Results). A beta version of the new RePORTER tool has been released to the public. This new tool retains all of the features of CRISP, while providing additional query fields, hit lists that can be sorted and downloaded to Excel, NIH funding for each project (expenditures), and the publications and patents that have acknowledged support from each project (results). RePORTER also provides links to PubMed Central, PubMed, and the U.S. Patent & Trademark Office Patent Full Text and Image Database, for more information on research results. New features will be added to RePORTER in several releases throughout fiscal year 2010. In the meantime, comments on RePORTER are being solicited through the feedback link on the RePORTER site.

To preview the new RePORTER tool, visit ***http://projectreporter.nih.gov/reporter.cfm.***

Contact Information

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http://cancer.gov/cam

Research Highlights

CAM Research on Display at the AACR Annual Meeting

The 100th annual meeting of the American Association for Cancer Research – held April 18-22, 2009 in Denver, Colorado – featured poster and symposium sessions on diet, nutrition, and cancer. Research results highlighting the potential for whole foods and isolated plant compounds, vitamins, and other natural products to prevent and treat cancer were presented by over 50 teams of researchers from across the country and international institutions.

Plant Compounds Show Anticancer Effects

Many studies presented at AACR examined compounds extracted from herbs and seeds for potential anticancer properties. Thymoquinone, a phytochemical compound extracted from the plant Nigella sativa, was tested against several cancer types. In laboratory experiments using pancreatic cancer cell lines, investigators from M.D. Anderson Cancer Center observed that thymoquinone was able to increase the cell-killing effects of gemcitabine, a chemotherapy

drug most commonly used in pancreatic cancer, possibly by regulating genes that would make the cancer cells more sensitive to gemcitabine treatment. Another set of experiments from the University of Miami suggested that the combination of thymoquinone and another compound, curcumin (which is found in the spice tumeric), had anti-inflammatory effects in benign prostatic hyperplasia (BPH). Inflammation is thought to play a role in the development of some tumor types, such as prostate cancer.

Vitamin K1 Helps Sorafenib Kill Kidney Cancer Cells

In experiments performed in cultured cells, researchers from Thomas Jefferson University in Pennsylvania showed that doses of vitamin K1 given to liver cancer cells, along with the targeted drug Sorafenib, could both inhibit cell growth and cause cell death. In these experiments, the doses of both vitamin K1 and Sorafenib given to the cells were not large enough to stop cancer cell growth alone, but the combination of the two compounds at low doses had cell-killing effects. The use of vitamin K1 with low-dose Sorafenib may be a promising approach to liver cancer prevention in people at high risk of the disease such as those with cirrhosis, the researchers explained.

Walnuts Reduce Tumor Incidence, Number, and Size in Mouse Model of Breast Cancer

Scientists from Marshall University School of Medicine in West Virginia reported that transgenic mice fed the human equivalent of 2 ounces of walnuts a day were significantly less likely to develop mammary tumors than mice fed a standard diet. In addition, mice on the walnut diet that did develop tumors grew smaller tumors in fewer glands. Analysis of the molecular effects of the diet showed that walnuts increased the amount of omega-3 fatty acids and decreased the amount of omega-6 fatty acids in the mammary glands. The walnut diet also altered the expression of genes involved in cell proliferation, apoptosis (programmed cell death), and differentiation (cell maturation). "With dietary interventions you see multiple mechanisms when working with the whole food," said Dr. Elaine Hardman, lead author of the study, in an accompanying press release.

Eating walnuts may prevent breast cancer.

"It is notable that, as the link between diet and cancer is becoming clearer; more research is focusing on this area of lifestyle change, and in recent years, AACR has been featuring more of this research in its meetings," said Isis Mikhail, M.D., M.P.H., Dr.P.H., director of OCCAM's Research Development and Support Program. "The abstracts presented at AACR show both the rigor of basic science in the area of natural products research as well as the clinical and translational potential of dietary and nutritional lifestyle changes and their effectiveness in cancer outcomes."

Ginger Helps Reduce Nausea from Chemotherapy

Reprinted from the Cancer Bulletin, May 19, 2009
www.cancer.gov/ncicancerbulletin/051909/page3

Ginger helped prevent or reduce chemotherapy-induced nausea when taken with traditional anti-nausea drugs by patients with cancer, researchers have found. The results are from a randomized, double-blind, placebo-controlled clinical trial, the largest study to examine the potential effects of ginger on chemotherapy-related

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nausea. The study will be presented May 30 at the ASCO annual meeting in Orlando, FL.

"We have found that ginger supplementation is an effective tool against chemotherapy-related nausea," said lead investigator Dr. Julie Ryan of the University of Rochester Medical Center, who discussed the findings at a press briefing last week. All doses of ginger evaluated in the study significantly reduced nausea compared with placebo, she noted.

The trial, funded by NCI's Community Clinical Oncology Program, included 644 patients, most of them women, who were receiving chemotherapy for breast, digestive, lung, or other cancers. These patients received a placebo or one of three doses of ginger (0.5 g, 1.0 g, or 1.5 g) for 6 days, including 3 days leading up to the first day of chemotherapy and 2 days after chemotherapy began. They also received traditional anti-nausea medications during the study. Patients rated their nausea four times per day on a scale of 1 to 7.

Each dose of ginger was more effective than the placebo at mitigating nausea. The most effective doses were either 0.5 g or 1.0 g, taken during the first day of chemotherapy. Effectiveness decreased linearly over a 24-hour period. The highest dose may not be as effective, the researchers speculated, because it is more than the maximum absorption dose for biological activity.

Correction

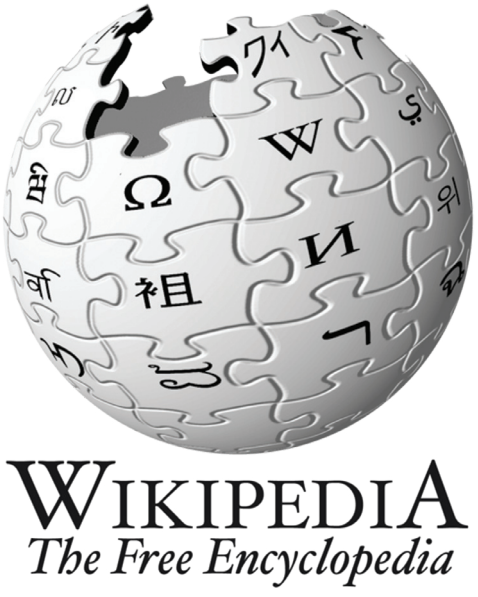
In the Spring 2009 issue of NCI CAM News, the article "Vitamin C as a Potential Anti-Cancer Agent: Progress and Controversies" gave credit to Dr. Humphrey Osmond as having first speculated that vitamin C could be useful as an anti-cancer agent by strengthening collagen and thereby preventing the spread of metastases. The article should have instead credited Dr. William McCormick.

CAM Information

Wikimedia Foundation and NIH Meet to Discuss Health Information on the Web

On July 16, Wikimedia Foundation- the non-profit organization that runs Wikepedia.org- hosted its first ever U.S. Wikipedia Academy on the NIH Bethesda campus. The academy is a public outreach event created to teach participants how to contribute to Wikipedia and orient the audience to Wikipedia's structures and community policies. NIH joined forces with Wikimedia to engage NIH subject matter experts to post to the site and to ensure that high quality medical and science information is available on the site.

Wikipedia contains nearly 13.5 million articles written in over 250 languages. In May, it served over 315 million unique visitors. The site manages, on average, more than 14 million page views per



hour[1]. The latest data from the Pew Internet and American Life Project states that 61% of Americans adults look online for health information[2]. The collaboration between NIH and the Wikimedia Foundation is a step in the direction of more accurate and reliable online health information.

The Office of Cancer Complementary and Alternative Medicine (OCCAM) has joined the call for improving access to health information by creating its own entry on Wikipedia.org. OCCAM wants to raise awareness of the resources it can provide to the public and intends to continually update its entries along with other entries on CAM-related topics. Through multiple online channels, like the OCCAM Web site and Wikipedia.org, OCCAM is dedicated to communicating cancer CAM topics in a fashion that reaches the widest audience possible and enhances the public's understanding of the evidence regarding cancer and CAM.

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[1] *National Institutes of Health. (2009, July 14). NIH and Wikimedia Foundation Collaborate to Improve Online Health Information [press release]. Retrieved August 13, 2009, from http://www.nih.gov/news/health/jul2009/od-14.htm*

[2] *Pew Internet and American Life Project. (2009). The Social Life of Health Information. Retrieved August 12, 2009, from http://www.pewinternet.org/Reports/2009/8-The-Social-Life-of-Health-Information.aspx?r=1*

Find and Order NCI Publications More Easily

NCI has announced the launch of the new NCI Publications Locator Web site. A team from the NCI's Office of Communication and Education (OCE) recently led efforts to redesign the interface, making it easier to find and order NCI publications. To ensure that the new site would be more user-friendly, the OCE team conducted usability and focus group testing. After a year of hard work, the result is a system with greater accessibility and advanced features.

Many improvements have been made to the NCI Publications Locator site. The new design has a similar look to NCI's Web site, ***cancer.gov***, which allows the user a familiar experience. From the homepage of the new site, a user finds lists of publications organized into categories that can be quickly scanned; an announcements section, which features new and updated publications; a search function; and A-Z quick links that take the user to publications with titles that begin with each letter.

Now, NCI Publications Locator site provides more information about each publication: NIH publication number; description; thumbnail image, if available; last review date; number of pages; format; language; target audience; a list of related products; and a link to the publication online.

Users can also order publications more easily with an improved search and advanced search function. A shopping cart area, where users can see their selected publications and quantity, is available as well as find a shopping cart icon indicating where they are in the ordering process. For users who would like to print publications, instead of ordering them, NCI Publications Locator offers separate PDFs of the NCI's professionally designed covers and content for certain publications through its Contents and Covers service. Additionally, certain publication covers can be ordered in batches of twenty-five.

NCI currently offers 18 publications on CAM, which can be found by selecting "Complementary and Alternative Medicine" from the Subject list on the NCI Publications Locator home page. To order or view these CAM publications or those on other topics, visit ***https://cissecure.nci.nih.gov/ncipubs/home.aspx***.

Integrative Cancer Care Among Topics at Continental Conference

In May 2009, over 790 health care professionals – both CAM and conventional – and researchers from 24 countries met in Minneapolis, Minnesota for the North American Research Conference on Complementary and Integrative Medicine (NARCCIM). This four-day conference was sponsored by the Consortium of Academic Health Centers for Integrative Medicine, which consists of 42 leading academic medical centers from across North America. The desired result for the event was to provide an environment for new collaborations to develop and established ones to grow.

The plenary talks, poster sessions, and keynote speeches covered a spectrum of integrative medicine research areas: basic science, clinical, methodological, health services, and education.

Presentations on integrative cancer care were abundant at NARCCIM. On the third day of the conference, a symposium titled "Integrative Medicine in Cancer Care" examined topics such as statistics on and reasons for CAM use, current knowledge on the impact of diet and supplements on cancer prevention and treatment, mind-body interventions and the effect of stress on disease outcomes, and complexities in cancer CAM research and ethics. Speakers for the symposium included the following: Moshe Frenkel, M.D., Eran Ben-Arye, M.D., Stephen Sagar, M.D., Donald Abrams, M.D., Mary Hardy, M.D., Lorenzo Cohen, Ph.D., Marja Verhoef, Ph.D., Elad Schiff, M.D., Jillian Capodice, L.Ac., Shachar Lev Ari, Ph.D., and George Lewith, M.D.

Other cancer CAM presentations included:

- "CAM is part of who I am": Framing the Decision to Use CAM Within Cancer Care
- The Effect of Therapeutic Touch on Osteosarcoma Cells
- Cancer Treatment from a Complexity Science Perspective
- Building a Library of Authenticated Medicinal Plants to Systematically Evaluate Their Extracts and Fractions for Anti-Cancer Properties
- Online Narrative Interventions for Aging Cancer Patients: A Feasibility Study
- A Systematic Review of Epidemiological Studies on the Prevalence of CAM Use by Pediatric Cancer Patients

In addition to sessions on CAM's application to a variety of diseases, the conference agenda included sessions on writing grant applications and experiential sessions of tai chi and yoga.

Practice Assessment Program Coordinator Commander (USPHS) Colleen Lee, M.S., CRNP, AOCN®, said this about the meeting, "The key to success for this conference was the intertwining of academia, clinical practice, and research. The forum for sharing a vision in integrative medicine is unmatched elsewhere."

The conference takes place every three years. The location and date of the next NARCCIM have not yet been announced.

Sign-up for OCCAM's Listserv

Stay up-to-date on the latest cancer CAM news at NCI with OCCAM's listserv, *OCCAM Announcements*. As a listserv subscriber, you will receive a monthly email about upcoming workshops and lectures, new funding opportunities, publications, and other resources. To subscribe, simply visit OCCAM's Web site: ***http://www.cancer.gov/cam/news-listserv.html.***

OCCAM Director Attends Globalization of Chinese Medicine Annual Meeting

The Consortium for Globalization of Chinese Medicine (CGCM) held its annual meeting in Nottingham, England on August 26-28, 2009. The aim of the CGCM is to promote and globalize Chinese herbal medicine by sharing knowledge from academic, industrial, and regulatory bodies worldwide. The 2009 meeting was the 8th meeting of the Consortium, which now is composed of scientists from over ninety academic centers and biomedical companies around the world.

OCCAM Director, Jeffrey D. White, M.D. attended the meeting as Chairman of the Workshop Discussion Session: Clinical Trial I (Cancer and Liver Inflammation). This session included a plenary lecture and discussion of abstracts submitted to the session. "I described the NCI's CAM research activities, focusing on those related to the evaluation of aspects of Traditional Chinese Medicine, and our recent meeting exploring research on botanicals in cancer research. Many of the members of this consortium are researching natural products with anti-cancer activities, which makes this meeting one of the few venues for the presentation of new findings in that field," said Dr. White.

The meeting was successful in showcasing research and development in the area of Traditional Chinese Medicine (TCM). Key topics included: international collaborations, education, regulatory affairs, clinical trials in TCM, quality control, biological activities and mechanisms, herbal resources, and bioinformatics and databases. Other National Institutes of Health (NIH) meeting participants included National Center for Complementary and Alternative Medicine Director Dr. Josephine Briggs, who chaired a plenary session, and Dr. Paul Coates, director of NIH's Office of Dietary Supplements. Dr. Shaw Chen, associate director & botanical team leader in the Center for Drug Evaluation and Research of the U.S. Food and Drug Administration, also attended the meeting. The meeting ultimately served as a platform for the extension of international collaboration and cooperation in Chinese medicine between worldwide partner organizations including academic, government and industry groups.

For more information about the Consortium for Globalization of Chinese Medicine, visit the Web site at: ***http://www.tcmedicine.org.***

Two OCCAM Staff Members Present at Cancer Guides II Conference

OCCAM Director Jeffrey D. White, M.D., and Research Development and Support Program Director Isis Mikhail, M.D., M.P.H., Dr.P.H., recently attended the Cancer Guides™ II 2009 Cutting Edge Integrative Cancer Care conference. The four-day conference, held June 11-14, 2009, covered many facets of integrative oncology with opportunities for learning, break out discussions, and workshops. Topics included: survivorship, complementary and alternative therapies, research, grant funding, integrative cancer care approaches, nutrition, dietary supplements, and end of life issues. Suggested conference attendees included: oncologists, nurses and nurse practitioners, patient advocates, CAM practitioners, dietitians and nutritionists, and cancer survivors.

Dr. White gave a presentation titled "Integrative Oncology: Thoughts Regarding Future Development," in which he discussed OCCAM's role in integrative oncology and cited NCI and other OCCAM-funded research. The conference also provided an opportunity to highlight the NCI Best Case Series Program and to encourage conference participants to submit to the series.

Dr. Mikhail spoke about applying for grant funding from NCI for research surrounding CAM and cancer. Dr. Mikhail also hosted a round table discussion where interested participants could speak to her more in depth about grant funding. "Many of the participants had never received grants training before, so I was able to answer lots of questions about the process," Dr. Mikhail stated.

Featured Scientific Meetings

Date	Meeting	Location	OCCAM Staff Attending
August 25-28, 2009	8th Meeting of the Consortium for Globalization of Chinese Medicine	Nottingham, England	Dr. Jeffrey D. White
September 24-26, 2009	9th Annual Meeting of the Comprehensive Cancer Center of Wake Forest University Community Clinical Oncology Program Research Base	Ashville, NC	Dr. Isis Mikhail
September 24-25, 2009	HINTS Data Users Conference Partners in Progress	Silver Spring, MD	Liz Austin
October 15-17, 2009	2009 International Cancer Education Conference	Houston, TX	Shea Buckman
November 7-11, 2009	American Public Health Association Annual Meeting*	Philadelphia, PA	Liz Austin Shea Buckman Dr. Isis Mikhail**
November 12-13, 2009	Society for Integrative Oncology*	New York City, NY	Shea Buckman Dr. Isis Mikhail Dr. Dan Xi
January 7-9, 2010	Evidence-based Complementary and Alternative Cancer Therapies Conference	West Palm Beach, FL	Shea Buckman

**Indicates that an OCCAM staff member will be at the NCI or OCCAM exhibit booth.*
***The NCI booth will host a Meet-the-Expert session with Dr. Isis Mikhail on November 8, 2009 at 3 p.m.*

To obtain a copy of this newsletter or for inquiries on cancer and CAM, please contact 1-800-4-CANCER (1-800-422-6237).

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