

 **Helfgott**
RESEARCH INSTITUTE
AT NATIONAL COLLEGE OF NATURAL MEDICINE

LETTER FROM THE DIRECTOR



We have experienced another outstanding year at the Helfgott Research Institute at the National College of Natural Medicine (NCNM). Our research teams spent the year studying some of the most widespread chronic diseases that threaten the health of our citizens, including diabetes, cancer, and chronic pain. Our students asked for more research training and we delivered, offering mentorship to more than 80 students this year. Helfgott investigators have presented their research at national and international conferences.

In addition to playing an active role in the local and national research community, Helfgott serves the immediate social environment as well. We've done many things to make Helfgott a "home" for our researchers and staff, and to make the institute an integral part of NCNM. We support a healthy lifestyle by coordinating NCNM's participation in an annual "Bike Commute Challenge," and offering free yoga. Helfgott members volunteer in the community and sponsor families at Christmas. We continue to host a research celebration each year to honor the many achievements of our students, faculty, investigators, and staff.

This annual report highlights a few of the exciting studies we're working on and introduces you to some of the researchers at Helfgott. We launched a new website this year that will give you a more complete picture of our research and the investigators performing these studies (www.helfgott.org). Ever expanding our expertise in naturopathy, Chinese medicine, acupuncture, immunology, psychology, and nutrition, Helfgott has a strong and diverse team dedicated to advancing the science of natural medicine. Our mission is to conduct rigorous, high quality, research on the art and science of healing. We thank you for taking the time to get to know us.

A handwritten signature in black ink that reads "Heather Zwickey". The signature is written in a cursive style and is positioned above a horizontal line.

Heather Zwickey, PhD
Associate Professor
Dean of Research, National College of Natural Medicine
Director, Helfgott Research Institute

NEW GRANTS

Grantsmanship is an art as well as a science. Medical researchers most often apply for funding to the National Institutes of Health (NIH). However, because the budget at NIH has been reduced and the number of researchers seeking funding is on the rise, only 7 - 9% of grants submitted to NIH are funded. Furthermore, the review process takes a long time, and may exceed 9 months. For these reasons and others, we are working to build an endowment at Helfgott to fund research. Below are a few of our grant successes from this year, from both federal and private sources.

Research Education Grant

The National College of Natural Medicine is committed to using a science-based curriculum to train naturopathic physicians and Chinese medicine practitioners. The main goal of the NIH-funded Research in Complementary and Alternative Medicine Program (CAMP) project is to increase the research training content for our faculty and students. This requires the development of a research education curriculum plan that will be implemented in NCM's doctoral program coursework and clinical experiences. From these initiatives, we expect that future naturopathic physicians and Chinese medicine practitioners will have an enhanced ability to critically evaluate biomedical literature, be more equipped to participate in clinical research, and facilitate the integration of CAM and conventional health care delivery into a patient-centered primary care approach.

Nutrient-Hormone Interaction

Epidemiological evidence has linked intake of fruits and vegetables to a reduced cancer risk, and the intake of cruciferous vegetables (broccoli, kale, mustard greens, cabbage, Brussels sprouts) has been associated with reduced breast cancer. Cruciferous vegetables have many bioactive compounds and are known to affect estrogen metabolism, which is a modulator of breast cancer risk. Helfgott has recently received a grant to study the safety and effectiveness of a purified cruciferous vegetable supplement on estrogen metabolism in healthy women—Standard Process' Cruciferous Complete.

Obesity & Appetite

As a post doctoral fellow, Dr. Kim Tippens, ND, LAc, was granted a Tartar Trust Fellowship Award from the OHSU Foundation for the original study, *Hormonal Controls, Hunger and Behavior in Obese Metabolic Syndrome Patients*. This study was conducted in conjunction with Dr. Carlo Calabrese's *Expectancy in Treatment of Metabolic Syndrome and Obesity* study and aims to determine if hormones that are thought to affect appetite and satiety influence compliance, adherence and response to dietary interventions. The study will also observe the relationship between these hormones and ultimate weight loss in obese individuals with metabolic syndrome.



Recent Publications

Bradley R, Oberg E, **Calabrese C**, Standish LJ. Mechanistic application of nutritional and botanical medicines in type 2 diabetes using a clinical algorithm. *J Altern Complement Med.* 2007; 13(1):159-75.

Brush J, Mendenhall E, Guggenheim A, Chan T, Connelly E, Soumyanath A, Buresh R, **Barrett R**, and **Zwickey H**. The effect of *Echinacea purpurea*, *Astragalus membranaceus*, and *Glycyrrhiza glabra* on CD69 expression and immune cell activation in humans. *Phytotherapy Research.* 2006 Aug;20(8):687-95.

Brown, K. "Omega-3 Fatty Acids" Herb, *Nutrient and Drug Interactions: Clinical Implications and Therapeutic Strategies*. Ed. Mitchell Bebel Stargrove, et al. Mosby/ Elsevier, 2007.

Colbert AP, Yun JK, **Edinger T**, Larsen A, Thong T. *Skin Impedance Measurements for Acupuncture Research: Development of a Continuous Recording System*. eCAM advanced access published June 15, 2007 p1-8.

Elder C, Ritenbaugh C, Mist S, **Aickin M**, Schneider J, **Zwickey H**, **Elmer P**. Randomized trial of two mind-body interventions for weight-loss maintenance. *J Altern Complement Med.* 2007 Jan-Feb;13(1):67-78.

Elmer PJ, Obarzanek E, Vollmer WM, et al. Effects of comprehensive lifestyle modification on diet, weight, physical fitness, and blood pressure control: 18-month results of a randomized trial. *Ann Intern Med.* 2006 Apr 4;144(7):485-95.

Funk KL, **Elmer PJ**, Stevens VJ, et al. PREMIER—A Trial of Lifestyle Interventions for Blood Pressure Control: Intervention Design and Rationale. *Health Promot Pract.* 2006 Jun 27.

CURRENT RESEARCH

Taking a Closer Look at **Detoxification Diets**

Diet and lifestyle treatments focusing on detoxification or “cleansing” are major components of many natural medicine practices. The concept has been popularized in diet and weight-loss books, and there are many commercial products that focus on cleansing. However, little research data is available on this approach. The goal of this project is to evaluate the use of cleansing approaches in weight loss and weight maintenance.

As a part of the project, medical students at NCNM were surveyed about their use and experience with cleanses. The research team also reviewed books, articles, websites, blogs, natural food stores and commercial products and kits. This information will be used to develop a clinical trial protocol to evaluate the feasibility, safety and preliminary efficacy of cleanse approaches for use in weight loss and weight maintenance. This project also serves as a learning laboratory for NCNM students to learn research methods. Students are developing skills in survey research, protocol writing, protection of human subjects, participant recruitment and data evaluation, analysis and presentation.



Patricia J. Elmer, PhD, MS, FAHA

Dr. Elmer received her master's degree in nutrition from the University of Wisconsin-Madison and her doctoral degree in epidemiology from the University of Minnesota. She has served as a faculty member at the University of Minnesota School of Public Health, a senior investigator at the Kaiser Permanente Center for Health Research, and a senior advisor to The National Institutes of Health, the World Health Organization and other national health and nutrition organizations to establish dietary and clinical practice guidelines.

Relaxation and Visualization Therapy for Breast Cancer Patients

Patients undergoing chemotherapy or radiotherapy for cancer often use natural medicine to treat the side effects. Natural medicine may alleviate pain, diarrhea, nausea, or fatigue caused by chemotherapy or radiotherapy. Women who undergo radiotherapy for breast cancer experience significant fatigue and acute skin reactions, including considerable burning of the skin leading to debilitating pain.

At Helfgott we are studying how relaxation and visualization therapy can reduce the intensity of the burn, pain, and fatigue experienced by women who are undergoing radiotherapy for breast cancer. Relaxation and visualization has been shown previously to improve fatigue and psychological distress. If this mind-body approach is effective for reducing the physical pain and radiation burn, its use would dramatically improve standard breast cancer care.



Heather Zwickey, PhD

Dr. Heather Zwickey is the Director of the Helfgott Research Institute and is the Dean of Research and Associate Professor of Immunology at NCNM. Dr. Zwickey trained at the world renowned National Jewish Medical and Research Center in Denver and went on to complete a postdoctoral fellowship at Yale University. At Helfgott, Dr. Zwickey applies her immunology expertise to natural medicine. Currently, she heads several pilot studies looking at the effects of botanicals, hydrotherapy, energy medicine, and diet on immunological parameters.

Natural Relief for Temporomandibular Disorder (TMD)

Temporomandibular Disorder (TMD), which encompasses a variety of jaw disorders and problems with the jaw joint or facial muscles, can cause extreme pain and discomfort. Recently, researchers at NCNM collaborated with researchers at Kaiser Permanente Center for Health Research, Oregon Health and Science University, and the Oregon College of Oriental Medicine to study how natural medicine compared to conventional care for treatment of TMD.



Acupuncture and herbs were found to be as effective as conventional care (mouth guards, eating soft foods, and taking pain relieving medications), and participants who received naturopathic care had significant reduction in pain and other TMD symptoms. Naturopathic care included treatments ranging from homeopathy and energy medicine to nutrition and herbal supplements. A larger study is planned for the future to confirm these results and a follow-up study is now underway to further examine the use of acupuncture and herbs for TMD.



Elizabeth Sutherland, ND

Elizabeth Sutherland, ND received her bachelor's degree in biopsychology from Tufts University, and her ND degree from NCNM. She completed a two-year post-graduate research fellowship through the Kaiser Permanente Center for Health Research and is currently a co-investigator on several studies, including "Developing Patient-Centered Outcomes for CAM Clinical Trials" and "Methods Development for Early Phase CAM Trials". Dr. Sutherland also teaches Doctor-Patient Relationship classes and is curriculum coordinator for the Mind-Body Medicine Department at NCNM.

For more information on current studies visit

www.helfgott.org

Recent Publications

Hammerschlag, R, and **Zwickey H**. Evidence Based Medicine in CAM: Back to Basics. *Journal of Alternative and Complementary Medicine*. November 4, 2006. 12: 349-350.

Kaufman, K, & Gregory, WL. Discriminators of complementary and alternative medicine provider use among men with HIV/AIDS. *American Journal of Health Behavior*. 2007 31(6), 591-601.

Motta A, Schmitz C, Rodrigues L, Ribeiro F, Teixeira C, Detanico T, Bonan C, **Zwickey H**, Bonorino C. Mycobacterium tuberculosis heat-shock protein 70 impairs maturation of dendritic cells from bone marrow precursors, induces interleukin-10 production and inhibits T-cell proliferation in vitro. *Immunology*. 2007 Mar 7.

Obarzanek E, Vollmer WM, Lin PH, Cooper LS, Young DR, Ard JD, Stevens VJ, Simons-Morton DG, Svetkey LP, Harsha DW, **Elmer PJ**, Appel LJ. Effects of Individual Components of Multiple Behavior Changes: The PREMIER Trial. *Am J Health Behav*. 2007 Sep 1;31(5):545-560.

Pearson S, **Colbert AP**, McNames J, Baumgartner M, Hammerschlag R. Electrical Skin Impedance at Acupuncture Points. *J Altern Complement Med*. 2007;13(4):409-418.

Saha S, Freeman M, Toure J, **Tippen KM**, Weeks C. Racial and Ethnic Disparities in the VA Healthcare System: A Systematic Review. Washington, DC: U.S. Department of Veterans Affairs, June 2007.

Standish LJ, **Calabrese C**, Snider P. The Naturopathic Medical Research Agenda: the foundation and future of naturopathic medical science. *J Altern Complement Med*. 2006 12(3):341-5.

Wahbeh H, Calabrese C, Zwickey H. Binaural beat technology in humans: a pilot study to assess psychologic and physiologic effects. *J Altern Complement Med*. 2007 Jan-Feb;13(1):25-32.

Wahbeh H, Calabrese C, Zwickey H, Zajdel D. Binaural beat technology in humans: a pilot study to assess neuropsychologic, physiologic, and electroencephalographic effects. *J Altern Complement Med*. 2007 Mar;13(2):199-206.

Zwickey H, Schiffke HC. Genetic correlates of Chinese medicine: in search of a common language. *J Altern Complement Med*. 2007 Mar;13(2):183-4.

STUDENT RESEARCH



Student Spotlight: **Summer Swanick**

Summer is a fourth year ND student who is involved in women's health research at Helfgott. Summer began doing research while she was a student at the University of Arizona, working with Dr. Gary Schwartz at the Human Energy System Laboratory. She continued her involvement in research as a student at the Southwest College of Naturopathic Medicine, where she worked on a study investigating a compound of bioidentical estrogens in menopausal women.

Summer is enrolled in the midwifery program at NCM, and is part of a Helfgott research team working on infertility studies. She has been involved in creating a survey on fertility, writing a paper on fertility from a naturopathic approach based on interviews with a panel of naturopathic doctors, and conducting a pilot clinical trial of using Vitex agnus castus to address female infertility. After graduation, Summer plans to continue her education as a post doctoral fellow and resident specializing in fertility and women's health. Her long-term goals include ongoing research to better understand infertility and how to treat it holistically.

"I have found the research opportunities at Helfgott to be beyond my expectations."

Vitex agnus castus:

An Investigation of Female Fertility Enhancement

Infertility has become increasingly common as women over 30 seek to have children. One natural medicine approach to infertility includes using a botanical medicine called Vitex agnus castus. Vitex, commonly known as chaste tree berry, has a long history of use in women's health. It has traditionally been used to treat a variety of conditions resulting from hormonal imbalance, including infertility, menstrual disorders and PMS.



Student researchers at Helfgott are conducting a study that investigates the use of Vitex to improve female fertility. In this study, women take Vitex or placebo for six months. Investigators will study the safety and effectiveness of the herb, its effects on hormone regulation and stress levels, and whether a woman successfully conceives and carries a pregnancy to term. If Vitex improves female fertility, it may provide a holistic and much less expensive approach to conception than in-vitro fertilization.

Ashwagandha

A group of NCM students is investigating whether an herb used in a traditional medical system called Ayurveda can be used to modulate the immune system. Ayurveda originated in India more than 2,500 years ago and uses nutrition, yoga, meditation, and herbal medicine to facilitate health. One of the most widely used Ayurvedic herbs is Ashwagandha (*Withania somnifera*). Although it is not well studied, Ashwagandha is thought to affect the endocrine, nervous, cardiopulmonary, and immune systems. Student investigators are studying the effects of Ashwagandha on stress, inflammation, and immune modulation. Researchers will compare levels of inflammatory markers before and after the participants take Ashwagandha for five days. If Ashwagandha is found to substantially modulate the immune system, it may be used with patients with autoimmune conditions or cancer.



SERVING OUR COMMUNITY

SPARC Symposium for Portland Area Research in Complementary & Alternative Medicine

Started in 2006 and spearheaded by the Helfgott Research Institute, this event reflects the unique research environment in Portland. Where else in the country do researchers and practitioners of biomedicine, chiropractic, psychology, immunology, naturopathic, and Chinese medicine come together to share the accomplishments and challenges of their projects with students and colleagues?

The second annual SPARC Symposium focused on research collaborations between institutions, individuals, researchers, physicians and practitioners in the Portland area. Leanna Standish, ND, PhD, of Bastyr University and the University of Washington, delivered a keynote presentation on the *Entangled*



Mind Hypothesis, discussing the intricate challenges of studying distance healing with functional magnetic resonance imaging (fMRI). Participating institutions include Kaiser Permanente Center for Health Research, National College of Natural Medicine, Oregon College of Oriental Medicine, Oregon Health & Science University, Portland State University and Western States Chiropractic College.

AWSEM Advancing Women in Science, Engineering and Mathematics

Helfgott is proud to be a part of AWSEM, a science and math advocacy program that introduces middle and high school students to professional women in the sciences. A few times each year, girls in the AWSEM program come to Helfgott and NCNM, where they are exposed to the science and the art of natural medicine. The girls experience acupuncture demonstrations and yoga, learn about natural medicine research, and even get to make their own natural products, such as lip balm and Epsom salt scrubs with medicinal oils. Volunteers from NCNM lead demonstrations and other informative exercises aimed at creating an intellectual bridge from our classrooms to the next generation of innovative thinkers. Helfgott is thrilled to host AWSEM and its sister program, Dragonfly (which is geared toward younger girls) as it allows us to not only reconnect with youth, but to also reconnect with our love of science.



Student Spotlight: **Gregory Sax**

Gregory Sax is studying classical Chinese medicine at NCNM.

He is working on developing correlations between Western psychopathological diagnoses and the functions of the 12 organ systems of classical Chinese medicine. He was brought to his studies by way of a BA in Semiotics from Brown University and an MFA in Filmmaking from UCLA, coupled with a long-standing fascination with the cultivational arts and physical practices of internal alchemy.

Greg worked for UCSF in the early 90's co-facilitating cognitive behavioral research groups and is currently completing the literature review for a multi-phase study at Helfgott on treating bipolar disorders through classical Chinese medicine. He hopes some day to open a retreat center for healing through radical frequency repatterning and educating the intuition through the creative process.

"As the Western scientific community is gradually awakening to the insights of the classical Chinese medicine healing tradition, it seems imperative to present, in as rigorous a way as possible, information that will help these two traditions to inform each other."



Student Spotlight: **Brooke Huffman**

Brooke is a second year ND student with a passion for working with high-risk, medically underserved populations. She chose to come to NCNM largely because of the College's community clinics and their focus on low income populations, mental health, and drug treatment. Brooke earned her BA/BS degrees at the Evergreen State College, and worked for nearly a decade in various social work positions. These included jobs as an outdoor educator in a drop-in center for homeless youth, a full-time birth doula in a community clinic serving low income women, and a lead staff in a group home for teen boys. Brooke also founded a youth street outreach program for homeless and high-risk teens that was funded by the Centers for Disease Control. She currently works with the Helfgott Research Institute doing disparities research. She also co-founded the NCNM Queers and Allies club. After graduation, Brooke plans to continue working with high-risk populations by creating a mobile medical program, as well as developing holistic approaches to treating HIV, hepatitis and substance abuse.

"I have faith that treating HIV infected persons with natural medicine will bring promising results."

INNOVATIONS

Helfgott recently received a generous donation to establish a psychophysiology laboratory to study subtle physiological changes that occur in response to natural medicine treatments. We have purchased several pieces of equipment and are also working with engineers to build specialized instruments. Our new equipment is capable of measuring heart rate variability, respiration rate, skin temperature, blood pressure, brain waves, and other vital functions. We plan to correlate these objective outcome measures with subjective reports of improvement as indicators of response to acupuncture, homeopathy, nutrition, manipulation, massage and other therapies.

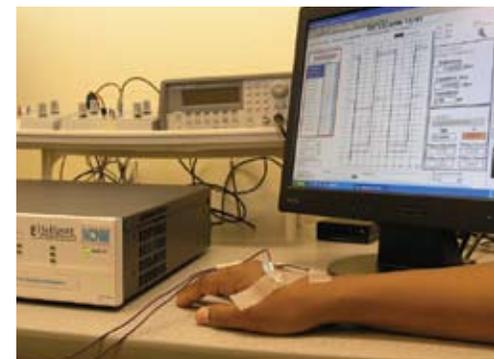
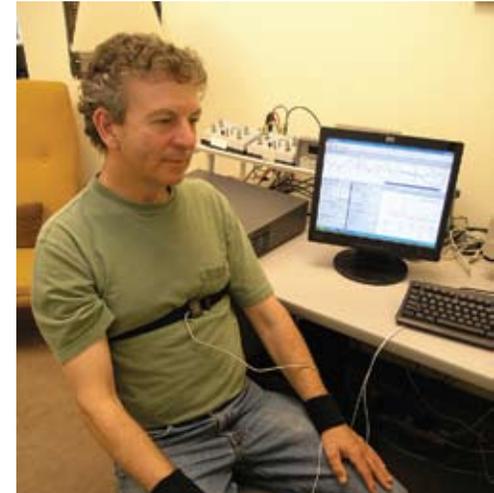
Current Studies

- **Migraine Patients**—We are determining whether patients who suffer from migraines have different patterns of heart rate variability and skin resistance at acupuncture points.
- **Acupuncture Skin Impedance**—This study will evaluate whether skin impedance differs between acupuncture points and non-acupuncture points in healthy participants.
- **Physiological change as a result of acupuncture**—We will determine whether skin impedance and heart rate variability change in similar ways as a result of an acupuncture treatment.
- **Data collection and analysis in healthy participants**—We will establish patterns for analysis and interpretation of recorded physiological measures in healthy participants.

Future Directions

- **Fibromyalgia**—We will evaluate whether heart rate variability changes predict clinical improvement in fibromyalgia patients who sleep on a magnetic mattress pad.
- **Autism**—We will develop quantitative EEG diagnostic criteria for children with autism.

Multiple Modality Biofeedback Device (top), Suunto watch that measures heart rate variation (middle), Acupuncture Skin Impedance System (bottom)



ACHIEVEMENTS, ACCOMPLISHMENTS AND HONORS

We have much to celebrate at Helfgott. We have met and exceeded many of the goals we have set for ourselves. Our recognition has moved beyond local to national and international. Below are a few of our achievements.

Helfgott Investigators International

Helfgott Senior Investigator Carlo Calabrese, ND, MPH, presented his research at the International Congress on Complementary and Alternative Medicine Research Conference in Munich, Germany in May 2007.

Helfgott Senior Investigator Heather Zwickey, PhD, presented her research at the International Immunology Congress in Rio De Janeiro, Brazil, in August 2007.



Helfgott at NIH

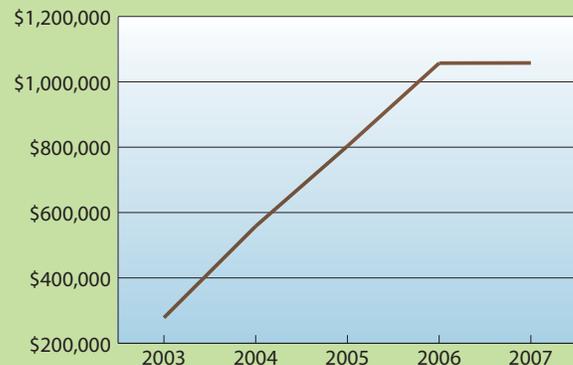
Helfgott Senior Investigator Carlo Calabrese, ND, MPH, is serving on the NCCAM National Advisory Council. This council lends their expertise to guide research priorities, advise training opportunities, and disseminate research.

Helfgott Senior Investigators Patricia Elmer, PhD, RD, and Agatha Colbert, MD, serve on NCCAM study sections as grant reviewers. Scientists who serve as grant reviewers use their time and experience to peer review grant applications from other researchers.

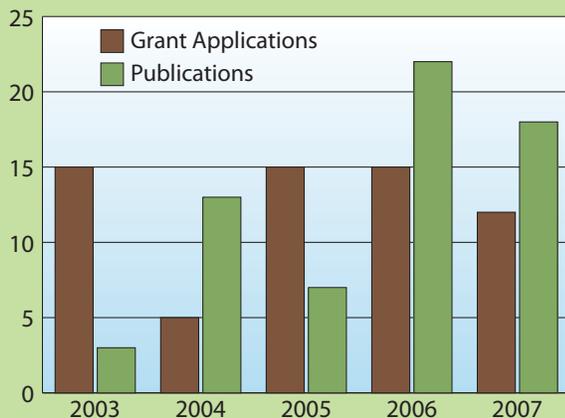
Growth

| Outcomes | 2003 | 2007 |
|-------------------------------|--------------|---------------|
| Research projects | 4 projects | 30 projects |
| Facilities | 400 sq. feet | 4000 sq. feet |
| Faculty involved in research | 4 | 14 |
| Students involved in research | 3 | 86 |
| NIH Grant Collaborations | 3 | 10 |
| Helfgott-led NIH Grants | 0 | 5 |

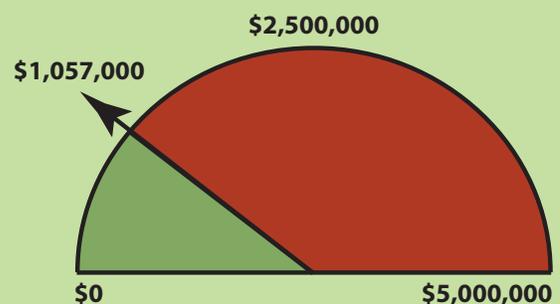
Financial Support



Grant Applications & Publications



Fundraising Goal



OUR VISION FOR THE FUTURE

The Vital Components of a Premier Natural Medicine Research Institute:

- Clinical research center:
 - Frontier research
 - Systems research
 - Naturopathic medicine
 - Chinese medicine
 - Physical medicine
 - Nutrition
 - Other natural modalities
- Center for Global Medicine
- Center for Social Medicine
- Multiple basic science labs
- Clinical lab
- Psychophysiology lab
- Bioinformatics
- Data management
- Biostatistics
- Clinical floors including:
 - Chinese medicine
 - Naturopathic medicine
 - Chiropractic medicine
 - Integrated medicine
 - Experimental space for piloting new medical models
 - Massage, hydrotherapy
 - In-patient floor
- Education facilities including:
 - Teaching kitchen
 - Classrooms
 - Conference space
 - Library

Helfgott: Advancing the Science of Natural Medicine

At Helfgott, we explore the potential of natural medicine and increase the evidence base for natural therapies. In the short term, we hope that these studies will inform clinical practice. In the long term, our goal is to revolutionize health care.

We envision Helfgott as the premier natural medicine research institute in the world. Our vision includes a consortium of researchers from naturopathic medicine, Chinese medicine, Ayurvedic medicine, physical medicine, energy medicine, and other natural medicine disciplines. We envision an institute based on health (pediatric and children's health, men's health, women's health, geriatric health), rather than disease. We see a think tank that develops innovative approaches to health care, and clinical floors where these approaches can be piloted. We see the development of research that finds ways to not simply treat symptoms, but instead, to promote health.

In order to reach these goals, Helfgott is launching a major campaign that will fund a new research building, provide money for student and post doctoral scholarships, and increase the institute's endowment. While final designs for the new building are incomplete, we want to share our initial plans with you.

Developing a Research Campus

Our expanded campus will be much more than just a building. As complementary and alternative medicine usage increases, scientific inquiry into natural therapies grows as well. The Helfgott Research Institute's exponential growth has paralleled this increase to a point where we need to expand from our current facilities into a research campus. The new campus will promote an open and deliberative community of inquiry, support the broad values and principles formulated by the natural medicine professions, and preserve the feeling of unity and the strong culture of research that has developed at Helfgott and NCNM.



OF NATURAL MEDICINE RESEARCH IN PORTLAND



Our Future Home

The new Helfgott campus will include multiple clinical and basic science labs, a conference facility, and “smart” classrooms with the latest wireless technology. It will house our current Centers of Excellence in diabetes and cancer, as well as our developing Centers for Global and Social Medicine. Staying true to natural medicine principles, the building will be designed to the strictest environmental standards, will include gardens, exercise and meditation spaces, and will be within easy access to public transportation. Not only will the building be a resource for researchers, health care practitioners and students, but there will be spaces for community as well, including a 50-seat teaching kitchen and community garden area.

The new building will be located in a vital neighborhood—a site that will continue to facilitate the strong collaboration between Helfgott and the Oregon Health and Science University, and promote economic growth in Portland by strengthening the city’s burgeoning alternative medicine business cluster.

We invite you to be part of our vision. To find out how, please visit our website at:

www.helfgott.org





NCNM
NATIONAL COLLEGE *of*
NATURAL MEDICINE

NCNM offers a fully accredited doctoral degree program in Naturopathic Medicine (ND) and a master's degree program in Oriental Medicine (MSOM). It is the oldest naturopathic medicine college in America and a leader in scholarship and research. For more information visit www.ncnm.edu.

...the profession's college, since 1956



advancing
the science of
natural medicine

049 SW Porter Street
Portland, OR 97202
www.helfgott.org
503-552-1743



Printed on recycled paper
using soy-based ink