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Editor’s Note: Representatives from both institutions are available for interview.

SEED GRANT PROJECTS TO STUDY THE ROLE OF NUTRITION IN CANCER PREVENTION AND CONTROL
OMAHA, Nebraska – The role of nutrition in cancer prevention and control will be explored by five Oklahoma and Nebraska
researchers who are recipients of seed grants awarded through a collaborative project of the Gretchen Swanson Center for Nutrition
in Omaha, Neb., and the Peggy and Charles Stephenson Cancer Center in Oklahoma City.

The program will support the researchers as they collect pilot data to compete successfully for national research grants in
the future. The grants are $50,000 each and will span one year. The program is funded by Rick Bucholz, son of the late Gretchen
Swanson.

Two seed grants were awarded in public health and three in basic and clinical/translational science. Public health related
projects were required to have an emphasis on American Indian youth and their families.

“Many people don’t realize that obesity prevention is also cancer prevention, and that is why the public health projects will
help to gain insight into the various environments and their influence on nutrition and obesity, especially among a high-risk
population, such as American Indians,” Dr. Amy Yaroch, Gretchen Swanson Center for Nutrition executive director, said.

The three laboratory and clinical science proposals focus on identifying compounds or mechanisms involved with tumor
growth, cancer treatment effectiveness and patient quality of life.

“We still have a great deal to learn about the link between nutrition and cancer,” notes Dr. Robert Mannel, director of the
Peggy and Charles Stephenson Cancer Center. “Through this collaboration we are able to support promising researchers who are
trying to better understand the physiological basis for this link with the hope of developing evidence-based nutritional strategies as a
way to combat cancer.”

Two of the studies were awarded to scientists at Eppley Cancer Center in Omaha. “The potential impact from these two
studies will assist us in expanding research in cancer prevention and control. This is an important emphasis in the Eppley Cancer
Center. We are grateful to the Gretchen Swanson Center for Nutrition for awarding these grants and for their work in the fight
against cancer,” Dr. Ken Cowan, Eppley Cancer Center director, said.
Research will be conducted throughout 2012 with findings to be presented in Omaha at a symposium in Spring 2013.

**PROJECT OVERVIEWS:**

**Child Care Influence on Health Outcomes in American Indian Preschoolers**
Susan B. Sisson, PhD, CHES
Assistant Professor
University of Oklahoma Health Sciences Center
Department of Nutritional Services

In Oklahoma, preschool-aged American Indians had the highest prevalence of obesity (18.8%) compared to preschoolers in other ethnic groups, emphasizing the importance of knowledge development and intervention in this population. This project addresses the need to develop understanding of relationship between the child care center environment, family environment, child weight status and obesity risk factors, including behaviors associated with overweight and obesity such as dietary quality and physical activity in American Indian preschool children.

**Building Foundations for a Healthy New Generation of American Indians**
Terry T-K Huang, Ph.D., MPH
Professor and Chair
College of Public Health | University of Nebraska Medical Center
Department of Health Promotion & Social and Behavioral Health

This mixed-method study, through a partnership with the Little Priest Tribal College in Winnebago, NE, uses a novel approach to (1) characterize individual and environmental factors related to obesity and associated diseases; (2) test the feasibility of a nutrition intervention supported by architectural change; and (3) assess the research partnership in an under-served, rural Native American community. Outcomes of the study will inform the design of culturally relevant and sustainable obesity interventions in the Winnebago nation, and set the stage for future observational and intervention studies across tribal colleges and communities.

**Protein Tyrosine Phosphatases as Targets of Polyphenolic Antioxidants**
Zhizhuang Joe Zhao, Ph.D.
Alfred M. Shideler Professor and Director of Experimental Pathology
University of Oklahoma Health Sciences Center
Department of Pathology

Polyphenols, abundant nutrients in fruits and vegetables, are thought to play a role in the prevention of various oxidative stress-associated diseases such as cancers. However, their beneficial effects on human health remain controversial. Protein tyrosine phosphatases are a diverse family of enzymes with both tumor suppressing and initiating activities, and they are highly sensitive to polyphenols. By performing biochemical and cell-based tests, this study is intended to identify polyphenols that inhibit protein tyrosine phosphatases with tumor-initiating effects and protect those with tumor-suppressing functions. It should provide valuable information for us to improve the therapeutic value of polyphenolic antioxidants.

**Utilizing a Ketogenic Diet to Target Cachexia Syndrome in Pancreatic Cancer**
Pankaj K. Singh, Ph.D.
Research Assistant Professor
Eppley Institute
University of Nebraska Medical Center

Pancreatic cancer displays significant alterations in cellular metabolism. Our long-term goal is to determine the mechanisms involved in the metabolic malfunction or failure during cancer-associated muscle wasting and to alter the cellular mechanisms involved to prevent cancer-associated metabolic abnormalities. We hypothesize that a ketogenic (low-carbohydrate) diet will result in the reduction of tumor size and muscle wasting. We aim to determine if a low-carbohydrate diet diminishes tumor growth and improves the health outcomes and quality of life for the cancer patients. Our studies may improve the quality of life of pancreatic cancer patients by preventing muscle wasting.
Most of the cancers that humans get are called carcinomas. Carcinomas are cancers of epithelial tissues. Cells from some carcinomas have gained the ability to leave the site of the primary tumor, migrate to distant sites and form new tumors. These distant growths are called metastases. Often it is the metastases rather than the primary tumor that cause death. Normal epithelial cells adhere to their neighboring cells and thus do not move around in our bodies. However, carcinoma cells are often deficient in cell adhesion, and it is likely these deficiencies in cell adhesion are at least part of the reason why some carcinomas become metastatic. Our laboratory is interested in the cell biology and biochemistry of cell adhesion with the goal of trying to understand and characterize metastasis.