American Cancer Society Awards $54.3 Million in Extramural Discovery Science Research Grants

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The American Cancer Society (ACS), the largest non-government, non-profit funding source of cancer research in the United States, has approved funding for 89 new Extramural Discovery Science (EDS) research grants totaling $54.3 million. The grants will fund investigators at 65 institutions across the United States starting January 1, 2023.

"We are proud to announce these new grant awardees and their research projects," said Dr. William Dahut, chief scientific officer at the American Cancer Society. "It's very exciting, as we will fund studies that will increase our understanding of genetics and cancer risk and explore better ways to find, treat, and survive cancer, focusing on equity and optimizing quality of life for cancer survivors."

The American Cancer Society seeks to improve the lives of patients with cancer, families, and caregivers through research, patient services, and advocacy. To maximize our impact, ACS has established six priority research areas to advance our mission: etiology or causes of cancer, obesity/healthy eating, active living, diagnosis and screening, treatment, survivorship, and health equity across the continuum. These topics will require fundamental, preclinical, clinical, and implementation research as well as multidisciplinary research teams to tackle the complexities of cancers and cancer care.

Awards funded in the current grant cycle include:

RESEARCH PROFESSOR AWARD

Kornelia Polyak, MD, PhD

Dana-Farber Cancer Institute

Cancer as a Systemic Disease

Dr. Polyak is the recipient of an ACS Research Professor Award. The ACS Research Professor Award is a highly honorific award to investigators who have made seminal contributions that have changed the direction of cancer research. The award recognizes their exceptional track records in the areas of research, mentoring and service. Dr. Polyak's grant is titled "Cancer as a Systemic Disease". Cancer incidence, including the risk of developing breast cancer, increases with age. Aging is associated with declining immunity, which may contribute to the increased risk of cancer. Dr. Polyak's group found significant differences related to T cells in invasive breast cancer compared with preinvasive breast tumors. Based on these findings, Dr. Polyak's research will investigate the associations between pre-existing immunity and the risk of disease progression and metastasis and the influences of host factors, such as age and obesity, on immune environments and tumor evolution.

CANCER HEALTH EQUITY RESEARCH CENTERS

Amelie Ramirez, DrPH

University of Texas Health Science Center, San Antonio

Avanzando Equidad de Salud: Latino Cancer Health Equity Research Center (LCHERC)

In response to severe cancer health burdens in majority-Latino South Texas, the "Avanzando Equidad de Salud: Latino Cancer Health Equity Research Center" at UT Health San Antonio will unite research scholars and the community to reduce health disparities across the cancer care continuum by targeting social determinants of health that prevent Latinos from obtaining equitable care. Social determinants of health include health insurance, access to care, financial strain, food insecurity, transportation, income, education, health literacy, and language.

These social determinants of health will be targeted to promote equitable cancer care and outcomes in South Texas

Nicolette Teufel-Shone, PhD

Arizona Board of Regents, University of Arizona

Center for Native American Cancer Health Equity

Cancer is the second leading cause of death among Native Americans nationwide. In Arizona, Native Americans have lower screening for detectable cancers than non-Hispanic Whites and are more likely to be diagnosed with advanced stages of cancer. Native Americans living in rural locations are exposed to environmental contamination caused by mining, agricultural pesticides, and oil spills. The goal of the Center for Native American Cancer Health Equity (C-NACHE) is to reduce Native Americans' unequal cancer burden as driven by low cancer screening rates and disproportionately high exposure to carcinogenic environmental contaminants. In the short-term, C-NACHE's community-requested research projects and statewide network will inform Native Nation leaders on determinants influencing cancer risks among their citizens and provide alliances to lobby for changes in practice and policy. In the long-term, C-NACHE will contribute to cancer health equity for Native Americans in Arizona and will serve as a national model for the role of community-university partnerships to advance cancer health equity.

Highlights from each of the focus areas of funding in the current grant cycle include:

ETIOLOGY (CAUSES OF CANCER)

Eric Kool, PhD

Stanford University

Genetic Risks from Heat-damaged DNA in Food

Discovery Boost Grant

High-temperature cooking of foods and meat-based diets have been associated with an increased risk of some types of cancer. Dr. Kool's work examines the genetic mechanisms underlying this association. This research will advance knowledge about the associations between food preparation methods and chronic diseases, including cancer, and will identify the relative genotoxicity risks from consuming meat-based versus plant-based foods.

OBESITY/HEALTHY EATING AND ACTIVE LIVING

Miyeko D. Mana, PhD

Arizona State University

Maternal Obesity and the Developmental Origins of Cancer Risk

Research Scholar Grant

In the United States, almost 50% of women of childbearing age are overweight or obese, and the incidence of colorectal cancer is increasing in younger populations. Maternal obesity increases offspring's risk of colorectal cancer, suggesting the burden of risk is passed to the next generation. Dr. Mana's research investigates how maternal obesity contributes to colorectal cancer in offspring. Understanding the developmental origins and reversibility of tumor risk in offspring from obese mothers will help develop new and more effective preventive approaches.

SCREENING AND DIAGNOSIS

Anthony Scott, MD, PhD

University of Michigan

Functional Evidence to Improve Lynch Syndrome Variant Interpretation

Clinician Scientist Development Grant

Dr. Scott's research addresses the clinical difficulty with management of Lynch Syndrome and the frequency of variants of uncertain significance. The goal of this project is to use high-throughput approaches to characterize functional mutations within the gene MSH6 that lead to Lynch Syndrome. This could have long-term implications for cancer screening and preventative treatment for Lynch Syndrome.

TREATMENT

Adam C. Mueller, MD, PhD

Thomas Jefferson University

Investigating ADAM10 mediated radiation resistance and EMT through Notch

ASTRO-ACS Clinician Scientist Development Grant

Effective treatments are urgently needed for pancreatic cancer, one of the deadliest cancers in the U.S. Dr. Mueller's work investigates novel mechanisms mediating signaling between pancreatic cancer cells and the tumor microenvironment, leading to radiation resistance and invasion. This research will provide important insights into new treatment targets and approaches.

Brandon DeKosky, PhD

Massachusetts General Hospital

High-throughput Functional Screening of Personalized anti-cancer T cell Receptor Repertoires

Research Scholar Grant

Immune-based therapies and CD8+ T cells can effectively control cancer progression for many patients. However, technical barriers in T cell receptor (TCR) analysis have limited the ability to fully understand TCR-based neoantigen recognition and advance adoptive TCR therapies. Dr. DeKosky will examine anti-cancer TCR responses in three different models of human malignancies to identify the molecular mechanisms of immune pressure. Understanding these mechanisms will help develop new immune-based treatments that selectively destroy cancer cells with fewer side effects.

HEALTH EQUITY AND ACCESS TO CARE

Inas Khayal, PhD

Trustees of Dartmouth College

Identifying Hospital and Patient Social Determinants of Health Factors from Hospital-Level Palliative and End-of-Life Cancer Healthcare Disparities

Research Scholar Grant

Quantifying a hospital's local healthcare disparities is currently a high-cost, resource-intensive process. Dr. Khayal's research will apply novel methods to quantify the local healthcare disparities for over 2,000 hospitals providing cancer care across the U.S. and to develop a toolkit of processes for hospitals to use to identify hospital

and patient social determinants contributing to these disparities. Understanding local healthcare disparities can inform personal healthcare decisions, advocacy and outreach efforts, and healthcare delivery improvement to address healthcare inequities using locally available resources.

HEALTH EQUITY AND SURVIVORSHIP

Samilia Obeng-Gyasi, MD, MPH
Ohio State University

Examining the Role of Allostatic Load in Racial Disparities in Intrinsic Breast Cancer Subtype and as a Prognostic Marker

Research Scholar Grant

Socioenvironmental stressors, including those resulting from racism and discrimination, may contribute to worse outcomes among Black women with breast cancer when compared with White women. Allostatic load is a comprehensive way of measuring how the body responds to external stress. Dr. Obeng-Gyasi's work examines biological markers associated with allostatic load and the influence of allostatic load on the relationship between race and breast cancer outcomes. This work will provide a health equity framework that moves beyond reporting social determinants of health to examine how they become biologically incorporated and affect breast cancer outcomes.

The American Cancer Society EDS program currently supports research and training in a wide range of cancer-related disciplines at 183 institutions. With an investment of more than $5 billion since 1946, the ACS has funded 50 researchers who have gone on to be awarded the Nobel Prize. The program primarily funds early career investigators, giving the best and the brightest a chance to explore cutting-edge ideas at a time when they might not find funding elsewhere.

The Extramural Discovery Advisory Council also recommended an additional 34 grant applications totaling more than $20.6 million that could not be funded due to budgetary constraints. These "Pay-If" applications represent work that passed the Society's multidisciplinary review process but are beyond the Society's current funding resources. They can be and often are subsidized by donors who wish to support research that would not otherwise be funded.

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