American Cancer Society Awards New Research and Training Grants

Nation’s largest non-government, not-for-profit cancer research funder awards 74 grants totaling more than $39 million in second of two 2018 cycles

October 1, 2018– The American Cancer Society, the largest non-government, not-for-profit funding source of cancer research in the United States, has approved funding for 74 research and training grants totaling $39,106,261 in the second of two grant cycles for 2018. The grants will fund investigators at 53 institutions across the United States; 63 are new grants while 11 are renewals of previous grants. Five grants are Mission Boost Grants, representing a new ACS funding initiative that invests in innovative, high risk, high reward, patient-oriented projects. All the grants go into effect January 1, 2019.

Two individuals have been awarded the prestigious five-year renewable American Cancer Society Research Professorship:

- **Karlene A. Cimprich, PhD of Stanford University** will be one of two new recipients of a prestigious ACS Research Professorship. Dr. Cimprich’s $400,000 five-year grant will be used to explore molecular genetics and biochemistry of cancer. They will build on their previous work showing that when genomic DNA is transcribed into RNA, the RNA and DNA may get tangled with each other, creating unusual RNA-DNA hybrid molecules, known as R-loops, that cause the DNA to be broken. Recent work in their lab and others has shown that R-loops may contribute to the damage and mutations that develop in cancer cells, which and could make them susceptible to certain treatments. Their study will explore how cells respond to broken pieces of R-loops that form during their repair, and whether these might turn on important organismal responses that could contribute to cancer progression. The aim is to identify targets to develop drugs that exploit this vulnerability and specifically kill cancer cells.

- **Craig M. Crews, PhD of Yale University** is the other new recipient of a prestigious ACS Research Professorship. Dr. Crews’s $400,000 five-year grant will be used to investigate the use of a technology (PROTAC™) developed in his lab that approaches drug development in a different way; instead of the traditional pharmaceutical paradigm that focuses on blocking the function of a disease-causing protein, their approach focuses on enlisting the cell's own quality control machinery to specifically eliminate rogue protein altogether. The aim is to use this method to go after cancer causing proteins that are not currently "pharmaceutically vulnerable" to expand the number of drug target proteins, leading, it is hoped, to the development of new anti-cancer therapeutics.

Other highlights of the new grants include:

- **Xi Chen, PhD of Baylor College of Medicine** will receive a four-year $792,000 grant to study the approximately 20% of breast cancers that are Triple Negative Breast Cancer (TNBC). They are not only unresponsive to current therapies but are also the most aggressive and most likely to relapse when a temporary relief is achieved with a standard chemotherapy. The lab has identified transcription factor XBP1 to be crucial to TNBC tumor initiation, progression and relapse. The work is ultimately aimed at developing a potent, safe and efficacious cancer drug to the clinic as a TNBC targeted therapy.

- **Mara H. Sherman, PhD of Oregon Health and Science University** will receive a four-year $792,000 grant to investigate a specific cellular mechanism in pancreatic cancer, the third leading cause of cancer-related death among men and women combined in the United States. Dr. Sherman hypothesizes that cells within the pancreatic tumor microenvironment known as stellate cells have evolved mechanisms to “feed” energy to cancer cells to simultaneously promote their survival and growth, and to regulate expression of cancer-

supportive genes. The lab will use a combination of patient-derived cancer and stellate cells cultured together to understand on a molecular level the impact of supportive cells on pancreatic cancer cell growth and behavior. The lab's work has the potential to identify a novel metabolic vulnerability of pancreatic cancer, which may be targetable for therapeutic benefit.

- **Timothy Burns, MD, PhD of the University of Pittsburgh** will receive a four-year $709,000 grant to study MET gene-associated lung cancers. While lung cancers driven by MET can be targeted with drugs such as Crizotinib, almost half of patients with MET alterations fail to respond to the drug. Moreover, those who initially respond eventually have their tumors return. The goal of this investigation is to develop novel therapies to both better target MET-driven lung cancers and prevent and overcome resistance to MET inhibitors.

- **Aileen Li, PhD of the University of California, San Francisco** will receive a three-year $163,500 grant for work that aims to address the fundamental question of how individual proteins secreted by tumor cells drive tumor growth or collapse. Dr. Li's lab will use engineered synNotch cells as tools to precisely modify the tumor microenvironment in animal tumor models, testing how individual or combinations of secreted proteins in the tumor alter the fate of the tumor. Findings from these studies will fill our gaps in knowledge and help lead to better understanding the fundamental rules that govern the behavior of the tumor microenvironment.

- **Shirley M. Bluethmann, PhD of Pennsylvania State University** will receive a four-year $728,000 grant to improve rates of hormonal "blocking" therapy after treatment among breast cancer patients with hormone-sensitive cancers (about 70% of patients). Up to half of survivors that receive a prescription for one of these drugs do not complete hormonal therapy for at least 5 years, which reduces survival benefits. Dr. Blumenthal's group will test a self-management intervention that combines personalized education and exercise advice to help control joint pain in older breast cancer survivors after they begin hormonal therapy. They believe that reducing joint pain for survivors may also promote continued use of hormonal therapy.

- Led by principal investigator, **Linda Malkas, PhD, PhM, Beckman Research Institute of City of Hope, Duarte, California,** was awarded a new three-year institutional Research Grant. Eight other sites successfully renewed their existing programs. The grants provide essential seed funding for pilot projects that can provide the foundation for a successful cancer research career.

- Three preventive medicine residency programs successfully renewed multi-year grants that teach skills that can enhance cancer surveillance, increase cancer screening, or reduce risk for cancer. The ACS is the only organization that offers grants to equip physicians to become experts in addressing cancer prevention and control at the population level.

Since 1946, the American Cancer Society has funded research and training of health professionals to address the causes, prevention, and early detection of cancer, as well as new treatments, cancer survivorship, and end of life support for patients and their families. In those 72 years, the American Cancer Society's extramural research grants program has devoted more than $4.8 billion to cancer research and has funded 47 Nobel Prize winners.

The Council for Extramural Research also approved 88 grant applications for funding, totaling $48, 986,711 that could not be funded due to budgetary constraints. These "pay-if" applications represent work that passed the Society's multi-disciplinary 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. In 2017, more than $11.5 million in additional funding helped finance 39 "pay-if" applications.

For more information about the American Cancer Society Research Program, please visit http://www.cancer.org/research.

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