

Administrative Supplements for New Interdisciplinary Research on Cancer and
Aging to the NCI Designated Cancer Centers, 2020-2021

October 2021

Administrative Supplements for the NCI P30 Cancer Center Support Grants to Build New Interdisciplinary Research on Cancer and Aging

Contemporary improvements in early detection and diagnosis, cancer treatment, and the implementation of population-based cancer prevention and control strategies have contributed to a sustained decline in overall cancer mortality rates. Although this trend is promising, challenges at the nexus of cancer and aging are, in turn, becoming more prominent. Older adults (age 65 years and older) are the largest growing segment of the U.S. population, and aging into older adulthood is disproportionately associated with the incidence of common cancers. Many pediatric, adolescent and young adult cancer survivors can expect to live for decades after cancer treatment. However, evidence suggests some cancers and cancer treatments change the hallmarks of aging, shift aging trajectories, influence aging-associated outcomes like gait speed, frailty, and functional independence, and increase the risk of multimorbidity and subsequent malignancies. As cancer survivors age chronologically and biologically and experience adverse physical, psychosocial, and behavioral outcomes, interventions to prevent, ameliorate or rehabilitate aging-related consequences of cancer and its treatments are a priority.

Strategic investments in aging research will contribute to population health by preserving or promoting healthspan and ensuring equitable access to – and benefit from – advances in cancer prevention, control, and population science. In FY20, the National Cancer Institute (NCI), Division of Cancer Control and Population Sciences (DCCPS) provided one-year supplemental funding to NCI-designated Cancer Centers to support the development of interdisciplinary research infrastructure to address critical cancer and aging research questions or catchment area needs.

The Jackson Laboratory

Project Contacts: Karolina Palucka, MD, PhD and Susan Airhart, BS

Project Title: Building research capacity at the intersection of cancer and aging.

Program Overview: The goal of this supplement is to accelerate our efforts to increase transdisciplinary research capacity and catalyze new, joint research programs between members of The Jackson Laboratory's (JAX) NCI-funded Cancer Center (CC) and NIA-funded Aging Center (AC). Specific activities carried out under this supplement included: 1) Creating a Cancer-Aging Task Force to guide the development of an integrated strategic plan, 2) promote AC and CC collaboration through the annual CC Retreat and CC-sponsored pilot funding; 3) engage external advisors to request their input on our programs and plans; and 4) conduct working group meetings to further develop collaborative project concepts. We have successfully completed the strategic planning process, identifying the central research themes that will guide the development of the Cancer-Aging research program as well as the expertise and technology gaps we must address to achieve our strategic goals. Further, we determined that post docs/trainees, with an interest in exploring the intersection of cancer and aging, are critical to developing this new transdisciplinary program. To that end, we've established a new post doc/trainee funding mechanism to support this. This program is complemented by Cancer-Aging Pilot RFA to help launch new collaborations. Finally, the Cancer Center EAB enthusiastically endorsed our plan to build an integrated Cancer-Aging research program. Thus, this supplement has enabled our NIH-funded centers to exploit our conjoint expertise in advanced genetic model systems of disease, physical proximity, and spirit of collaboration, to thoroughly explore questions at the intersection of cancer and aging/geroscience and advance discovery across these disciplinary domains.

Oregon Health & Science University Knight Cancer Institute

Project Contacts: Kerri Winters-Stone, PhD and Jeffrey Kaye, MD

Project Title: Engaging Digital Technology to Investigate Aging in Cancer: A Collaboratory of KCI and ORCATECH

Program Overview: The purpose of this supplement was to develop a unique "Collaboratory" between the Knight Cancer Institute and the Oregon Center for Aging and Technology (ORCATECH) to integrate digital technology to study aging and cancer. Our Specific Aims and accomplishments over the one-year funding period are as follows: Aim 1) *Engage a transdisciplinary group of investigators, clinicians, and stakeholders to establish a novel research Collaboratory.* We assembled both scientific core (n=7) and advisory (n=30) teams with expertise in aging, cancer, technology, therapeutic trials, community engagement, and rural health. Our advisory team met quarterly to guide the direction and activities of the Collaboratory, including the design and goals of the demonstration project in Aim 3 and culminating in a P01 planning retreat in September 2021. Aim 2) *Conduct a preliminary analysis comparing outputs from continuous passive monitoring between aging cancer survivors and aging peers without cancer using the existing CART database.* We conducted an analysis on a sample of 10 patients who were monitored before and after a cancer diagnosis. An abstract was presented at ASCO and a manuscript is near submission. Aim 3) *Conduct a demonstration project integrating the CART Community Life Lab into KCI clinical trials to generate novel research questions and approaches that advance knowledge in cancer and aging.* The demonstration project is IRB approved and has enrolled 1 patient to date, with 14 patients currently in screening. Our sustainability plans include the following: investment from KCI in cancer and aging research through new developing shared resource in digital health and open faculty positions; proposal submitted for internal funding mechanism (\$500K), and P01 planning underway. The latter began through a retreat in September 2021 with 22 investigators, trainees and stakeholders. The next retreat is planned for January 2022, where P01 projects and cores will be identified for a 2023 submission.

Robert H. Lurie Comprehensive Cancer Center of Northwestern University

Project Contacts: Bonnie Spring, PhD and Christine Rini, PhD, MA

Project Title: Sustainable Interdisciplinary Research Infrastructure to Address Challenges in Aging and Cancer

Program Overview: This project aims to create sociotechnical infrastructure to support research on cancer and aging. As social infrastructure, we propose to establish a new consortium of Chicago-area basic, clinical, and population science experts in aging and cancer—the Consortium for Cancer and Aging Research (CCAR). We will deploy a novel IDEAS lab method to facilitate the emergence of new interdisciplinary research collaborations at the Robert H. Lurie

Comprehensive Cancer Center of Northwestern University (Lurie Cancer Center). To create technical infrastructure to implement research findings, CCAR will initiate strategic planning and a proof-of-concept demonstration of digital infrastructure that includes an electronic health record registry for patients with indicators of functional aging and that auto-refers adult breast cancer survivors with obesity to receive behavioral weight loss treatment. The most interdisciplinary team emerging from the IDEAS lab won a \$50,000 pilot grant to study Circadian Disruption as a potential Mechanism of Accelerated Aging in Lymphoma. They won \$10,000 in additional pilot funds to collect the DunedinPoAm biomarker that measures the pace of aging. Two IDEAS lab graduates also competed successfully for two \$100,000 Pepper Center pilot grants: one creating a telehealth tool to address cancer-related distress in older rural survivors; the other examining whether physical activity prevents frailty in older cancer survivors. Both went on to earn career development awards and plan NCI R01 submissions in fall 2022; one has joined a writing group of the national Cancer and Aging Research Group (CARG). Fields added to an EPIC survivorship registry support identification of breast and prostate cancer patients with obesity and frailty with auto-referral to cost-effective MPOWER behavioral obesity treatment that shows feasibility, acceptability, and preliminary efficacy for an initial 17 patients.

Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins

Project Contact: Elizabeth A. Platz, ScD, MPH

Project Title: SKCCC Agenda Setting and Engagement Activities to Promote Aging and Cancer Research

Program Overview: We conducted research *agenda setting* and *communication/engagement activities* to advance interdisciplinary, population-focused intra- (CPC) and inter-programmatic aging-cancer research. Our efforts were designed to: 1) stimulate new, innovative cancer prevention and control research at the nexus of aging and cancer and organize funding opportunities responses, 2) cultivate new population science investigators working at the aging-cancer interface, and 3) bring attention to clinical and public health needs for research and translation to practice for older adults at risk for cancer or living with or surviving cancer, including in the catchment area. *Agenda setting* accomplishments: -Convened the Aging and Cancer Work Group (WG) with members across divisions/disciplines, which through presentations and deep discussions, identified gaps in knowledge about seven major aging-cancer research questions. -Held CPC Annual Retreat focused on aging-cancer via presentations and breakout sessions addressing 3 key research areas from the WG. -Integrated aging-cancer as a priority area crossing each CPC aim. -Internal pilot funding awarded for one aging-cancer study for FY22. Will offer aging-cancer in RFP in FY23. *Communication/engagement* accomplishments: -Ongoing monthly engagement with the SKCCC Patient and Family Advisory Council around translation and implementation of best practices for older adult cancer survivors and their caregivers. -Ongoing planning with SKCCC Community Outreach and Engagement for engagement with the newly convened statewide Community Advisory Board. -Multidisciplinary seminars on aging-cancer scheduled for 2021-2022. Key strategy to sustain research on priority aging-cancer topics: As a cross-cutting priority area in the CPC Program, the CPC leaders are held responsible for actively promoting and facilitating collaborative research on aging-cancer including across SKCCC programs. To do so, activities include: networking collaborators; updating on research at the CPC retreat and SKCCC Program Leaders' Council; organizing seminars on priority topics; promoting continued internal funding for multidisciplinary pilot projects; and co-mentoring students/fellows across aging-cancer disciplines.

Stephenson Cancer Center at The University of Oklahoma

Project Contacts: Kathleen Moore, MD, Lori Jervis, PhD, and Arlan Richardson, PhD

Project Title: GeroOncology Program Development from Bench to Bedside to Community

Project Aims/Goals: The primary goals of this supplement were to develop a novel program to study the molecular underpinnings of the increased risk for cancer with age, investigate strategies to delay cancer in the aging population, and improve care and outcomes for older patients with cancer. The GeroOncology Working Group has since been established as one of three standing working groups in the SCC. Based on a mini-workshop involving directors of Geriatric Oncology Clinics at other Cancer Centers, we explored the possibility of developing a Geriatric Oncology Clinic at the SCC. Based on the enthusiasm of the 60+ attendees at the mini-workshop, we decided to develop a pilot clinic in 1 or 2 types of cancer. Ryan Nipp, MD/MPH has been recruited from Harvard Medical School to be a co-director of the GeroOncology Working Group and to lead the effort in developing a Geriatric Oncology Clinic in the SCC. Four pilot

grants of \$50,000 each were awarded to teams of scientists studying aging and cancer to gather preliminary data for future NIH grants. A virtual Oklahoma GeroOncology Symposium was held with six internationally recognized speakers in aging and cancer who described the current status of research in this area. The symposium was very successful with 293 attendees; ~60% of the attendees coming from other Cancer Centers. We plan to continue to award pilot grants in aging and cancer and to hold the Oklahoma GeroOncology Symposium each fall to focus on current research in aging and cancer. Faculty will continue to be recruited with interests in aging and cancer, specifically in community outreach and health equity in geriatric oncology.

University of Colorado Cancer Center

Project Contacts: Daniel Sherbenou, MD, PhD, Elizabeth Kessler, MD, and Sarah Roberts, MS, ACSM CET

Project Title: Infrastructure Development and Team-Building for a Statewide Approach to Address Cancer and Aging in Colorado

Program Overview: The University of Colorado Cancer Center contains a rich faculty interested in aging and cancer which ranges from clinical to basic researchers. With this expertise, our long-term goal is to organize a Center for Aging and Cancer in Colorado with the capability to improve the cancer care for the elderly in our state and beyond. Towards this, our project aims to (1) build the infrastructure to promote scientific exchange among our members, (2) disseminate the use of frailty assessments in both urban and rural clinical practices, and (3) build the capacity for patient-centered data collection. During the award period, we have galvanized the members of our cancer center who seek to address cancer in the elderly. People age very differently, and we believe the concept of frailty is central to formulating a personalized cancer treatment approach for older persons. Thus, we have used focus groups to determine the preferred frailty measurement among our stakeholders. From discussions with oncology and primary practice providers in our center and statewide, the G8 questionnaire was the preferred tool. In order to optimize implementation, we developed a patient-reported version. Within the University of Colorado clinics, we are piloting a “G4+4” version in which 4 questions are asked via the “My Health Connection” patient portal, and the remaining 4 questions are collected from the electronic medical record. In parallel, we will pilot the patient reported G8 in rural clinical practices. Our transdisciplinary foundation will continue bidirectional activity between the cancer center and community practices serving patients across Colorado. Based on results of piloting the patient-reported G8, we will implement this tool broadly and establish a pipeline for the frailty patient data collection for elderly patients with cancer.

University of Michigan Rogel Cancer Center

Project Contacts: Lindsay Kobayashi, PhD, MSc, Lauren Wallner, PhD, MPH, Katrina Ellis, MSW, MPH, PhD, David Lombard, MD, PhD

Project Title: The Cancer and Aging Initiative at the U-M Rogel Cancer Center

Program Overview: This supplement aimed to establish and enhance sustainable infrastructure for research addressing cancer and aging at the University of Michigan Rogel Cancer Center through 1) building collaborative networks, 2) establishing new data resources, and 3) supporting early career development. To achieve Objective 1), we held a Cancer and Aging “Research Jam” to identify priority areas for institutional programming and new research initiatives. Building from the “Research Jam”, we now host a monthly cross-programmatic Cancer and Aging Working Group series to support research in progress. To achieve Objective 2), we have invested in linking over 18 years of longitudinal data from the nationally representative US Health and Retirement Study (HRS) and its biobank to Medicare claim data on cancer diagnoses and treatments as a new shared data resource. To achieve Objective 3), we have supported cancer center postdoctoral fellows with funding to present their research on cancer and aging at national conferences and to attend training programs on aging. Our next steps are to extend and formalize activities and infrastructure established during this supplement period. Starting with the HRS-Medicare linkage, we are working to establish a Cancer & Aging data and code repository as a potential new shared resource for the Cancer Center, which would enhance the accessibility of population data for cancer and aging research. We will continue our cross-programmatic working group, facilitate development of external grant applications in cancer and aging, and continue to invest in training the next generation of investigators with dual expertise in cancer and aging.

University of Southern California, Norris Comprehensive Cancer Center

Project Contact: Caryn Lerman, PhD, Mariana Stern, PhD, Sean Curran, PhD

Project Title: The Aging & Cancer Translational Group (ATCG) at the Norris Comprehensive Cancer Center

Program Overview: This collaborative effort between the USC Norris Comprehensive Cancer Center (NCCC) and the USC Davis School of Gerontology was designed to foster innovative research that integrates gero-science, population-science, and translational research to improve cancer care, outcomes, and survivorship, among the diverse elderly patient population in Los Angeles County. We identified strategic research priorities through a scientific retreat and through discussions with our internal advisory board. We used these strategic priorities to solicit and fund two novel collaborative research projects. One is focused on assessing awareness and acceptability among patients and physicians of geriatric assessment and financial hardship screening, with the goal of implementing strategies to routinely collect these measurements in the clinic. The second project is a pilot intervention study to test if a Fasting-Mimicking Diet with Vitamin C can improve the treatment of older patients with KRAS-mutant metastatic colorectal cancer, an understudied population in need of improved outcomes. Finally, we are conducting a needs assessment among patients and physicians to identify the key needs and priorities to improve cancer outcomes and reduce disparities among our patients. The results of this evaluation will be discussed with our community advisory board and will guide future initiatives and priorities at NCCC. Next steps include: 1) a symposium on cancer and aging early in 2022, 2) continuing with a seminar series/affinity group to foster more collaborations, with access to pilot funding from NCCC, 3) supporting existing collaborations to successfully secure extramural funding, 4) prioritizing research on aging and cancer across other initiatives at NCCC to increase the research portfolio, and 5) planning for a program project grant on cancer and aging.