OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND READINESS

The Honorable Mitch McConnell
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

OCT - 3 2025

Dear Mr. Chairman:

The Department's response to the Joint Explanatory Statement, page 746, accompanying H.R. 2617, the Consolidated Appropriations Act, 2023 (Public Law 117–328), "Peer-Reviewed Cancer Research Program," is enclosed.

This report covers Fiscal Year (FY) 2023 appropriations for the Peer-Reviewed Cancer Research Program (PRCRP) ($130 million); discusses key PRCRP research efforts, outcomes, and products; and summarizes the projects selected for FY 2023 funding, including their relevance to military health. The FY 2023 PRCRP Programmatic Panel selected 84 applications for funding, representing 94 separate awards (19.5 percent funding rate), based on scientific peer-review ratings, programmatic intent, and relevance to military health. Through evaluations including military health needs, gaps in research topic areas, and patient outcomes, the FY 2023 PRCRP funded innovative and impactful research to support Service members and their families.

Thank you for your continued strong support for the health and well-being of our Service members and their families. I am sending similar letters to the other congressional defense committees.

Sincerely,

[redacted]

Sean O'Keefe
Deputy Under Secretary of Defense for
Personnel and Readiness

Enclosure:
As stated

The Honorable Christopher Coons
Ranking Member

[redacted]

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

The Honorable Ken Calvert
Chairman
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

OCT - 3 2025

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Sincerely,

[redacted]

Sean O'Keefe
Deputy Under Secretary of Defense for
Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Betty McCollum
Ranking Member

[redacted]

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND READINESS

The Honorable Roger F. Wicker
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

OCT - 3 2025

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Sincerely,

[redacted]

Deputy Under Secretary of Defense for
Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Jack Reed
Ranking Member

[redacted]

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

The Honorable Mike D. Rogers
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

OCT - 3 2025

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Sincerely,

[redacted]

Sean O'Keefe
Deputy Under Secretary of Defense for
Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Adam Smith
Ranking Member

[redacted]

Report to the Congressional Defense Committees

Peer-Reviewed Cancer Research Program

September 2025

The estimated cost of this report for the Department of Defense (DoD) is approximately $3,800 for Fiscal Years 2024-2025. This includes $1,500 in expenses and $2,300 in DoD labor.
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BACKGROUND AND PURPOSE

This report is in response to the Joint Explanatory Statement, page 746, accompanying H.R. 2617, the Consolidated Appropriations Act, 2023, (Public Law 117–328), which requests that the Assistant Secretary of Defense for Health Affairs provide a report to the congressional defense committees on the status of the Peer-Reviewed Cancer Research Program (PRCRP). For each research area, the report includes the funding amount awarded, progress of the research, and relevance of the research to Service members and their families.

The Defense Health Agency manages the Defense Health Program (DHP) Research, Development, Test and Evaluation (RDT&E) appropriations. The U.S. Army Medical Research and Development Command (USAMRDC) Congressionally Directed Medical Research Programs (CDMRP) provides execution management for the DHP RDT&E PRCRP Congressional Special Interest funds.

FISCAL YEAR 2023 PRCRP INTRODUCTION AND STATUS

Congress initiated the PRCRP in 2009 to research cancers relevant to military health and not already addressed in the cancer programs currently executed and managed by CDMRP. For Fiscal Year (FY) 2023, the Consolidated Appropriations Act, 2023 (Public Law 117–328) provided $130 million for the PRCRP and specified 20 different Topic Areas (Table 1).

Table 1. FY 2023 PRCRP Topic Areas

• Bladder Cancer	• Head and Neck Cancers	• Pediatric, Adolescent, and Young Adult Cancers*
• Blood Cancers	• Liver Cancer	• Pediatric Brain Tumors*
• Brain Cancer	• Lymphoma	• Sarcoma
• Colorectal Cancer	• Mesothelioma	• Stomach Cancer
• Endometrial Cancer	• Metastatic Cancers	• Thyroid Cancer
• Esophageal Cancer	• Myeloma*	• Von Hippel-Lindau Syndrome Malignancies±
• Germ Cell Cancers	• Neuroblastoma	

*Research focused on children (ages 0–14 years), adolescents (ages 15–24 years), and/or young adults (ages 25–39 years).
±Excludes cancers of the kidney and pancreas.

The PRCRP holds an annual Vision Setting meeting to review the research landscape, including Federal and non-Federal research funding of the specified topic areas for that FY, the knowledge and product gaps in cancer research and care, and the relevance of cancer research to military health. Coordination with other Federal and non-Federal funding organizations enables the

PRCRP to identify research areas for investment, optimize the impact of cancer research and care efforts, and develop an investment strategy for the current year's PRCRP appropriation.

During the FY 2023 Vision Setting, the PRCRP Programmatic Panel members (comprised of clinicians, scientists, veterans, active duty military oncologists, and patients) identified a list of overarching challenges in the current spectrum of cancer research. The PRCRP Overarching Challenges represent a focused strategy to close gaps in cancer research and patient care and ultimately make an impact across the different topic areas. Each PRCRP application must address at least one PRCRP Overarching Challenge.

FY 2023 PRCRP Overarching Challenges:

Prevention

- Investigate innovative prevention strategies and early detection methods to decrease cancer burden.

- Elucidate the mechanisms underlying cancer development to improve prevention methods.

Diagnostics/Prognostics

- Identify approaches to predict treatment resistance, recurrence, and development of advanced disease.

- Distinguish unique features driving cancer occurrence across the spectrum of ages (e.g., children, adolescents, young adults, older adults).

- Develop and improve minimally invasive methods to detect cancer initiation, progression, and recurrence.

Therapeutics

- Transform cancer treatment, especially for advanced disease and metastasis.

- Improve current therapies, including systemic and local treatments.

- Research longitudinal evaluation of disease progression and/or treatment response.

- Elucidate the mechanisms of cancer development to improve treatment methods.

Patient Well-Being and Survivorship

- Study methods to address survivorship issues including quality of life, overall mental health, psychological impact of recurrence, and/or survivor permanent disability.

- Reduce short- and long-term treatment effects, including neurocognitive deficits.

- Investigate ways to bridge gaps between treatment and survivorship, including alternative medicine, nutrition and lifestyle factors, and supportive care.

Disparity

- Improve prevention strategies, diagnosis, treatment, and outcomes for patients in underserved or under recognized populations.

- Study methods to improve accessibility to care and address survivorship.

- Advance health equity and reduce disparities in cancer care through research.

FY 2023 PRCRP Award Mechanisms

During the FY 2023 Vision Setting meeting, the PRCRP Programmatic Panel recommended seven award mechanisms to achieve the vision of the PRCRP and most effectively address the FY 2023 PRCRP Overarching Challenges. Table 2 discusses the PRCRP award mechanisms offered in FY 2023.

Table 2. FY 2023 PRCRP Funding Opportunities

FY 2023 Award Mechanism	Intent	Maximum Direct Costs per Award
Career Development Award − Fellow Option	Advance cancer research capacity by developing early-career investigators	$400,000
Career Development Award − Resident Option, Level 1	Advance cancer research capacity by developing exceptional early-career clinicians with potential for leadership in cancer research; requires a one-year project	$200,000
Career Development Award − Resident Option, Level 2	Advance cancer research capacity by developing exceptional early-career clinicians with potential for leadership in cancer research; requires a two-year project	$400,000
Idea Award	Support innovative, high-risk/high-reward research	$400,000
Impact Award	Support mature studies with near-term clinical impact	$1,000,000
Patient Well-Being and Survivorship Award	Fill gaps in the understanding of survivorship and well-being of those affected by cancer	$1,000,000
Translational Team Science Award	Support correlative studies focused on the next phase of a clinical trial or future clinical application	$2,500,000

FY 2023 APPLICATION REVIEW PROCESS AND INVESTMENTS

The PRCRP uses a two-tier review process to evaluate and recommend awards for funding. To ensure that each program's research portfolio reflects not only highly meritorious science, but also the most programmatically relevant research, the CDMRP developed this two-tier model based upon recommendations from a 1993 report issued by the National Academy of Medicine (formerly the Institute of Medicine). Both tiers of review incorporate the expertise of scientists, clinicians, military Service members, and consumers (lay persons with experience in cancer either as patients or caregivers).

The first tier of review entails a scientific peer review of the applications received for funding. An external panel of subject matter experts, recruited specifically for each peer review session, conducts these reviews. The peer review process evaluates the applications based on established scientific and technical criteria as delineated in each program announcement/funding opportunity.

The second tier of review, the programmatic review, involves a programmatic panel. The PRCRP Programmatic Panel (https:/cdmrp.health.mil/prcrp/panels/panels23) assesses the applications based on their scientific peer-reviewed ratings, adherence to the intent of the award mechanism, portfolio composition, programmatic intent, and relative impact to patients.

During November-December 2023, CDMRP convened 46 FY 2023 PRCRP peer review panels. The panels used peer review criteria to evaluate applications that included technical merit and impact on patient outcomes. During December 2023-February 2024, CDMRP convened the FY 2023 PRCRP Programmatic Panel to conduct programmatic review. The Programmatic Panel considered each FY 2023 PRCRP Topic Area, Overarching Challenges, and award mechanism-specific criteria to ensure a balanced portfolio. Following deliberation, the Programmatic Panel recommended 99 applications that were scientifically sound and best met the program's goals. The Commanding General, USAMRDC delegated approval authority to the Deputy to the Commanding General, USAMRDC, who reviewed and approved the funding recommendations.

In FY 2023, the PRCRP funded 84 applications (representing 94 separate awards) of the 483 full applications received, for a 19.5 percent funding rate totaling $115,896,170. The remaining $14,103,830 of the FY 2023 PRCRP appropriation is directed toward administrative and management costs in support of these PRCRP projects and Department of Defense (DoD) withholds, including USAMRDC withholds ($2,513,000), Small Business Innovation Research (SBIR)/Small Business Technology Transfer Programs (STTR) allocations ($4,336,000), and CDMRP management costs ($7,254,830) (Table 3).

Table 3. FY 2023 PRCRP Budget

Budget Allocations	Amount
FY 2023 PRCRP Congressional Appropriation	$130,000,000
Less: SBIR/STTR Withholds	($4,336,000)
Less: USAMRDC Withholds	($2,513,000)
Less: CDMRP Management Costs	($7,254,830)
Amount Available for FY 2023 Research	$115,896,170

Table 4 presents total research recommended for FY 2023 funding by Topic Area.

Table 4. FY 2023 Total Research Dollars Invested per PRCRP Topic Area*

Topic Area	Number of Awards	Award Amount
Bladder Cancer	6	$6,727,348
Blood Cancers	6	$9,084,408
Brain Cancer	8	$8,209,614
Colorectal Cancer	11	$17,201,904
Endometrial Cancer	6	$6,363,362
Esophageal Cancer	4	$3,917,050
Germ Cell Cancers	2	$2,807,227
Head and Neck Cancers	2	$2,039,300
Liver Cancer	3	$2,864,172
Lymphoma	4	$8,084,067
Mesothelioma	3	$5,515,721
Metastatic Cancers	4	$7,042,990
Myeloma	3	$1,799,114
Neuroblastoma	3	$3,942,664
Pediatric Brain Tumors	5	$4,834,785
Pediatric, Adolescent, and Young Adult Cancers	12	$12,307,841
Sarcoma	5	$4,578,552
Stomach Cancer	5	$6,543,246
Thyroid Cancer	2	$2,032,807
Von Hippel-Lindau Syndrome Malignancies[+]	0	$0

*Seven FY 2023 Advancing Cancer Care in Clinical Trials awards received partial funding from FY 2024 funds to mitigate risk; the resultant available $7,817,726 in FY 2023 funds fully funded three additional FY 2023 applications from an alternate funding list. Topic Areas funded were common to both FYs. Separation of awards by topic followed by summation of award amounts introduces a rounding error of $2.00.

[+]No awards were made for this topic area. Applications received were either not meritorious as determined during the two-tier review or non-compliant with congressional language.

The PRCRP awarded all FY 2023 research funds by September 30, 2023. The Department expects outcomes by the end of each period of performance, which spans 2 to 4 years from the start date of an award.

FY 2023 PRCRP TOPIC AREAS: RELEVANCE TO MILITARY HEALTH

Cancer research profoundly impacts the reduction of cancer burden on military families and improves force readiness. Tables 5a and 5b show potential cancer risks and effects on military health. Successful studies may lead to innovative approaches for cancer prevention, improved diagnostic/detection methods, new prognostic information, potentially novel treatments, and better ways to cope with quality-of-life issues.

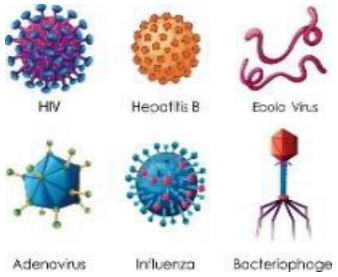
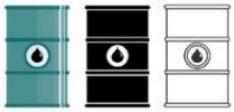
Environmental Exposures

The Department of Veterans Affairs (VA) has acknowledged certain exposures increase cancer risk among Service members and their families.[1,2] Service members operate in environments that may increase the incidence of multiple cancers immediately or years, if not decades, later. Exposures linked to increased cancer risk include, but are not limited to, chemical weapons, including storage; ionizing radiation; herbicides; electromagnetic fields; jet fuel; organic materials; biological agents; environmental hazards; herbicides; pesticides; air pollutants; burn pits; chemical and biological warfare weapons; and other occupational hazards. Tables 5a and 5b detail the potential carcinogenic agents implicated in cancer and military health. Specific risk levels associated with these exposures may vary depending on the deployment environment.

VA currently recognizes seven categories of associated cancers with Agent Orange exposure. Although the Vietnam War ended in 1975, C-123 airplanes responsible for spraying the pesticide known as Agent Orange stayed in commission until 1982.[3] The National Academy of Medicine determined that Service members who were not involved in the Vietnam conflict may have been exposed to Agent Orange residue. Infectious agents such as *Helicobacter pylori* (stomach cancer), human papillomavirus virus (associated with head and neck cancers, and cancers of the genital tract), and hepatitis (liver cancer) present another area of cancer risk.[4-6]

Compared to individuals in the U.S. population, military aviators and aircraft support personnel have a higher incidence of cancer diagnosis and mortality, including an increased rate of brain and nervous system cancers.[7]

Table 5a. Exposure-Related Cancer Risks*

Environmental and Occupational Exposure-Related Cancer Risks	
Risk	**Related Cancer**
Agent Orange and Other Herbicides 	Bladder, chronic lymphocytic leukemia, Hodgkin's lymphoma, multiple myeloma, non-Hodgkin's lymphoma, respiratory, soft tissue sarcoma, thyroid cancer
Asbestos 	Bladder, mesothelioma
Radiation 	Bladder, bone, brain, colorectal, endometrial/uterine, esophageal, leukemias (except chronic lymphocytic leukemia), liver, lymphoma (except Hodgkin's lymphoma), multiple myeloma, salivary gland, stomach, thyroid cancer
Infectious Agents 	**Epstein-Barr virus:** Lymphoma, oral cavity cancer ***Helicobacter pylori*:** Gastric cancer **Hepatitis B and hepatitis C viruses:** Liver cancer **Human immunodeficiency virus:** Anal, cervical, Kaposi sarcoma, liver, lymphoma, throat cancer **Human papilloma virus:** Anal, cervical, head and neck, penal, vaginal, vulvar cancer **Human T-cell lymphotropic virus type 1:** Adult T-cell lymphoma
Industrial Solvents 	Adrenal, bladder, blood (leukemia, lymphoma), bone, brain, gastric, liver, nasopharyngeal cancer
Contaminated Water: Camp Lejeune (1953–1987) 	Bladder, esophageal, leukemia, non-Hodgkin's lymphoma, multiple myeloma
Chemical Weapons 	Acute myeloid leukemia, laryngeal, nasopharyngeal, squamous cell carcinoma

See "References for Tables 5a and 5b" section.

Service members, their families, veterans, and the American public are also at risk for developing various cancers due to lifestyle choices (Table 5b). The PRCRP remains committed to decreasing the burden of cancer on these populations by funding innovative and high-impact research.

Table 5b. Cancer Risk Factors and Lifestyle*

Additional Cancer Risks	
Risk	**Related Cancer**
Alcohol 	Colorectal, esophageal, head and neck, liver, oral cancer
Obesity 	Colorectal, endometrial, esophageal, gastric, liver, thyroid cancer
Tobacco	Adrenal, bladder, cervical, colorectal, esophageal, head and neck, oral cavity, stomach cancer

*See "References for Tables 5a and 5b." section.

Mission Readiness

Congressional language requested that PRCRP-funded research be relevant to Service members and their families. The PRCRP devised a FY 2023 investment strategy that prioritizes research on risk factors from environmental exposures and research to enhance mission readiness. The FY 2023 PRCRP addressed these core capabilities by ***requiring*** that all applications address at least one of the FY 2023 PRCRP relevant military health Focus Areas, presented in Table 6.

Table 6. FY 2023 PRCRP Focus Areas Relevant to Military Health

Environmental Exposures	• Environmental/exposure risk factors associated with cancer.
Mission Readiness	• Gaps in cancer prevention, early detection/diagnosis, prognosis, and/or treatment that may impact mission readiness and the health and well-being of military members, veterans, their beneficiaries, and the general public. • Gaps in quality of life and/or survivorship that may impact mission readiness and the health and well-being of military members, veterans, their beneficiaries, and the general public.

A Service member's cancer diagnosis affects not only the individual Service member, but also the Service member's entire unit and mission. Each Service member plays a crucial role in mission readiness that may be affected by a cancer diagnosis of the Service member or family member. Research that improves survival, while minimizing side effects, will have a major impact on mission readiness by enabling an active duty Service member to return to full duty. Additionally, mission readiness includes ensuring that family members receive world-class health care. Service members become affected when a member of their family or support system receives a cancer diagnosis. Time off to assist in the care, recovery, and well-being of family members will affect overall unit force readiness and vulnerabilities.

Cancer not only directly affects the military's capabilities, but also indirectly places a burden on the Military Health System (MHS). Data provided by the Armed Forces Health Surveillance Division (AFHSD) (formerly the Armed Forces Health Surveillance Branch), based on electronic records within the Defense Medical Surveillance System (DMSS), demonstrate the impact of cancer care on the MHS. Table 7 presents MHS medical encounters during 2014-2023 for select cancer types within the PRCRP's Topic Areas.

Table 7. MHS Medical Encounters for Select Cancers (2014–2023)*

Cancer Type	Patient Category	Average Patients per Year	Total Outpatient Encounters	Total Hospital Bed Days
Bladder Cancer	Active Service Members	70	2,589	119
	Other DoD Beneficiaries	18,773	916,536	83,450
Leukemia	Active Service Members	233	49,724	15,781
	Other DoD Beneficiaries	15,234	1,184,764	200,839
Osteosarcoma	Active Service Members	102	10,651	2,886
	Other DoD Beneficiaries	1,968	91,978	27,142
Stomach Cancer	Active Service Members	36	3,892	1,262
	Other DoD Beneficiaries	2,530	184,438	52,260
	Totals	**38,946**	**2,444,572**	**383,739**

*Data provided by the AFHSD based on DMSS electronic records. Does not include care received outside the MHS. Includes all MHS inpatient and outpatient encounters where provider made the first (primary) diagnosis. Active Component Service members (ACSMs) category does not include Activated Reserve and Activated National Guard. This does not include care received while deployed, or any care received outside of the MHS not processed through TRICARE (i.e., care covered by other insurance sources or care paid for entirely out of pocket). Other DoD beneficiaries include: National Guard/Reserve members; family members of ACSMs and National Guard/Reserve members; former Service members; and family members of former Service members.

A report commissioned by the Leukemia & Lymphoma Society found that treatment cost for blood cancers during the first year following diagnosis is $156,000 per patient.[8] Costs for 3 years of follow-on care vary, depending on blood cancer type (e.g., $200,000 for chronic leukemia to over $800,000 for acute leukemia). Other cancers, such as bladder cancer, have

mean lifetime costs that can exceed $200,000.[9,10] Studies show the costs of national cancer care in 2020 were $208 billion.[11] The MHS and VA burden includes costs for active duty Service members, their families, veterans, and other military beneficiaries.

PRCRP RESEARCH PROGRESS AND OUTCOMES

The PRCRP has funded several clinical pipeline projects with potential to have a profound impact on the health of active duty Service members and their families, veterans, and the American public. Table 8 summarizes a select representation of awards.

Table 8. Select PRCRP Clinical Pipeline Projects

Cancer Type	Organization	Summary
Blood Cancers	MD Anderson Cancer Center	A Phase 1 clinical trial is underway to test a treatment for patients with recurrent acute myeloid leukemia to improve long-term patient outcomes. The trial will examine the effects of the intervention and determine a safe and effective dose.
Head and Neck Cancer	University of Pennsylvania	Researchers are conducting a three-year, multi-site, randomized clinical trial of head and neck cancer survivors with lymphedema and fibrosis, long-term and late toxicities that cause disfiguration and impair functions like swallowing and breathing. The study aims to develop a comprehensive intervention to reduce symptom burden and improve quality of life.
	MD Anderson Cancer Center	Researchers are conducting a "window of opportunity" clinical trial in a salivary gland malignancy, adenoid cystic carcinoma (ACC). This study will assess and systematically evaluate tumor samples to measure the impact of an inhibitor (AL101) aimed at the tumor and its immune microenvironment. Findings will guide a Phase 1/2 clinical trial to assess the safety and efficacy of the most promising AL101-based combination therapy in recurrent/metastatic ACC.
Neurological Cancers	University of Alabama at Birmingham	This project focuses on malignant glioma, a type of brain cancer, including investigation of potential treatment with oncolytic viral therapy, a less toxic treatment that targets tumor cells and spares healthy cells. Findings identified therapeutic biomarkers for predicting which patients with brain tumors will likely benefit from oncolytic viral therapy.
	University of North Carolina (UNC)	Utilizing a promising Chimeric Antigen Receptor T cell therapy (CAR-T) approach, the team at UNC plans to treat solid pediatric tumors. Though CAR-T continues to remain an elusive therapy for solid tumors, the approach under investigation may improve the antitumor activity of CAR-T

Cancer Type	Organization	Summary
		cells through enhanced survival and efficacy at the tumor site. A Phase 1 trial currently underway tests this new method on children with relapsed/refractory neuroblastoma.
	Virginia Commonwealth University	An evidence-based psychotherapeutic intervention, Managing Cancer and Living Meaningfully, is under investigation in a pilot clinical trial. Researchers hope to better understand the potential benefits of this intervention on brain tumor patients' mood and quality of life. This may lead to improvements in health care providers' understanding of how to enhance patient well-being and overall functioning.
Gastrointestinal Cancers	Thomas Jefferson University	The team used a *Listeria*-based cancer vaccine to optimize the immune response in a colorectal cancer (CRC) clinical model. Results demonstrated protection against metastatic spread of CRC to the lungs and led to a Phase 1 clinical trial for CRC patients with minimal residual disease. This *Listeria*-based vaccine may be the first step in protecting against disease recurrence in CRC.
	Vanderbilt University Medical Center	This newly awarded study aims to develop therapeutic strategies that can reprogram precancerous lesions in the stomach back to normal cells as a preventative strategy to reduce cancer risk. Based on results of a previous clinical trial, the team will conduct a Phase 2 clinical trial of a U.S. Food and Drug Administration (FDA)-approved drug used for pinworm treatment.
	Thomas Jefferson University/ Institute for Cancer Research/ Seattle Institute for Biomedical and Clinical Research	A multi-institutional research team is evaluating oral linaclotide, a drug used to treat irritable bowel syndrome, as a potential treatment for CRC. A Phase 2 clinical trial of oral linaclotide is underway to examine its ability to inhibit progression of CRC in patients with established adenomas or invasive carcinomas.
	Mayo Clinic	This project will assess whether a newly developed vaccine boosts tumor immune response in metastatic CRC patients by re-activating existing immune responses and inducing new immune responses. In addition to conducting a Phase 1 clinical trial, the team is developing a companion diagnostic test to identify patients likely to benefit from this vaccine treatment.

Cancer Type	Organization	Summary
Pediatric and Young Adult Cancers	Fred Hutchinson Cancer Center	A pilot clinical trial is underway to investigate the feasibility of administering gonadotropin-releasing hormone analogs as an intervention among newly diagnosed adolescent and young adult cancer patients who are at increased risk of premature menopause, and consequently experience reduced fertility due to their cancer treatment.
	City of Hope	This project supported the preclinical development of a vaccine to prevent and treat Epstein-Barr virus (EBV)-driven lymphomas targeting five glycoproteins important for viral entry into diverse cell types. The results strongly suggest that the vaccine induces serum antibodies with protective properties, providing necessary proof to support a Phase 1 clinical trial. This vaccine could reduce rates of EBV infection, thus reducing rates of infectious mononucleosis and EBV-associated lymphomas.
	Children's Hospital of Philadelphia (CHOP)	Researchers at CHOP are conducting a multi-site observational cohort study of pediatric patients with differentiated thyroid cancer that has metastasized to their lungs. The study will examine how radioiodine (RAI) therapy, a standard of care, interacts with recently developed therapies that target driver oncogenes. Among adults, the interaction of targeted therapies with RAI resulted in increased disease sensitivity to RAI. This study will help confirm if RAI has the same effects among children and adolescents.
	Johns Hopkins University	This project includes a pilot clinical trial to inform a prospective Phase 2 study on limiting radiation therapy dose in pediatric brain tumor patients to reduce impacts on healthy brain tissue while delivering a therapeutic dose to the tumor. This study will assess early and late neurocognitive outcomes.
Germ Cell Cancers	The University of British Columbia	This team conducted studies that demonstrated the ability of a biomarker specific for testicular cancer to predict relapse risk and identify relapsed disease before it becomes clinically evident. Using such a biomarker could reduce use of toxic and invasive treatments, thereby avoiding long-term impacts on patients' lives. Results of these analyses supported initiation of a Phase 2 clinical trial using the biomarker to inform recurrence risk.
Endometrial Cancer	UNC	This newly awarded clinical trial will conduct a window of opportunity study of a weight loss intervention administered prior to surgery in endometrial cancer patients. The team will compare the effects of a dietary intervention to a Type 2

Cancer Type	Organization	Summary
		diabetes drug and will assess weight loss on disease outcomes.
Mesothelioma	Sloan Kettering Institute for Cancer Research	Researchers will conduct a Phase 2 clinical trial of a drug FDA-approved for other cancers in patients experiencing mesothelioma recurrence. The goals of the study are to determine the efficacy of the drug in patients with previously treated diffuse pleural mesothelioma and characterize the effects in this patient population. The trial has potential to identify a treatment for this aggressive cancer, which has a high rate of relapse.
Melanoma	UNC	A study conducted at UNC focused on a key mediator of immunotherapy and resulted in an ongoing Phase 2 clinical trial for the combination of denosumab and other immunotherapeutic agents for patients with rare and metastatic melanoma.

SELECTED MAJOR RESEARCH OUTCOMES AND PRODUCTS

Preclinical Outcome with Promise for a Deadly Childhood Cancer

The diagnosis of a child with Diffuse Intrinsic Pontine Glioma (DIPG), also known as Diffuse Midline Glioma, is devastating due to its inoperability. DIPG has a 1 percent survival rate. Research conducted at Weill Cornell Medicine resulted in the development of a peptide nanofiber precursor (NFP), a highly stable structure shown to improve tissue penetration in DIPG. NFPs were conjugated with emtansine (DM1), an FDA-approved drug for breast cancer treatment with demonstrated effectiveness in treating other brain cancers. DM1-NFP exhibited selective toxicity toward glioma cells in mice implanted with human-derived DIPG tumors. A single treatment with the intervention increased survival time.[12]

Clinical Outcome with Promise for Esophageal Cancer

Most esophageal cancer patients receive their diagnosis at a late disease stage when the prognosis is poor.[13] Early detection of esophageal adenocarcinoma and its precursor lesion, Barrett's esophagus, has potential to improve survival. The PRCRP funded a study conducted in a veteran population at Louis Stokes Cleveland VA Medical Center to evaluate the diagnostic accuracy, tolerance, and acceptability of EsoCheck™, a non-endoscopic esophageal balloon sampling device, coupled with EsoGuard™, a deoxyribonucleic acid (DNA)-based screening assay. Preliminary results demonstrated high sensitivity and accuracy.[14] EsoCheck, shows promise for improved early detection, as it is well-tolerated by study participants and can be administered in a primary care setting. Service members experience increased occupational exposures to carcinogenic agents, including ionizing radiation, a known risk factor for esophageal cancer.

Outcome Advancing Precision Medicine

Conventional cancer treatments rely on a one-size-fits-all approach that disregards the complexity and heterogeneity of tumors composed of diverse cell types. The PRCRP funded formative research in the development of CIBERSORTx (Cell-type Identification By Estimating Relative Subsets Of RNA Transcripts), an analytical tool for characterizing tumor cell subsets in individual tumor samples. CIBERSORTx data have significant potential for personalized medicine and are widely used by cancer researchers exploring precision medicine to revolutionize cancer treatment.

FDA-Approved Product in Clinical Practice

The PRCRP contributed to a groundbreaking achievement for cancer research and military health. The Ohio State University conducted seminal work on the overexpression of a protein called exportin (XPO1), which led to clinical trials to test selinexor as a new treatment for blood cancers. In 2020, the findings led to FDA approval of XPOVIO© (selinexor), in combination with ibrutinib, as an oral treatment of multiple myeloma and relapsed or refractory diffuse large B-cell lymphoma. As of September 2024, there are 79 active clinical trials using selinexor as an intervention.[15] In an ongoing clinical trial of patients with advanced or recurrent endometrial cancer, exploratory analyses showed selinexor increased the length of progression-free survival for a subgroup of patients.[16]

Other accomplishments may be reviewed at the PRCRP webpage for research highlights (https://cdmrp.health.mil/prcrp/highlights).

SUMMARY

The PRCRP's vision is to advance mission readiness of U.S. military members affected by cancer and improve quality of life by decreasing the burden of cancer among Service members, their families, veterans, and the American public. Through analyses of military health needs, gaps in research and patient outcomes, and Federal and non-Federal funding landscapes, the FY 2023 PRCRP responded to congressional language by funding innovative and impactful science. In FY 2023, the PRCRP funded 84 applications (representing 94 separate awards) of the 483 full applications received, for a 19.5 percent funding rate totaling $115,896,170. The FY 2023 PRCRP investment in these awards represents its commitment to advancing the health and well-being of Service members, their families, veterans, and the American public.

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