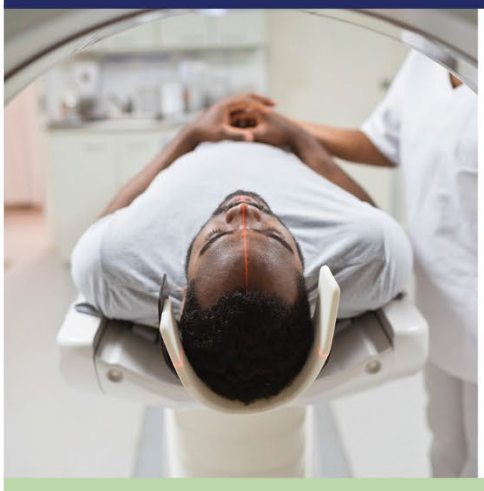
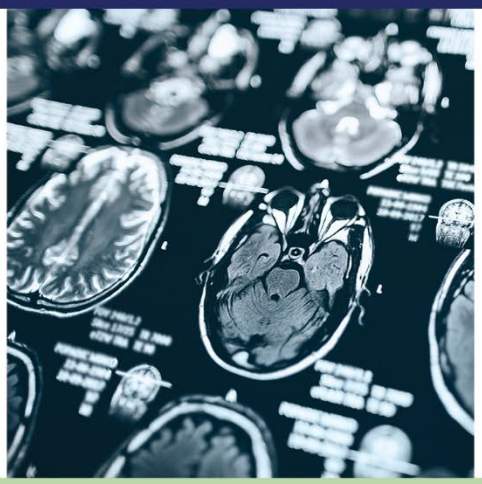
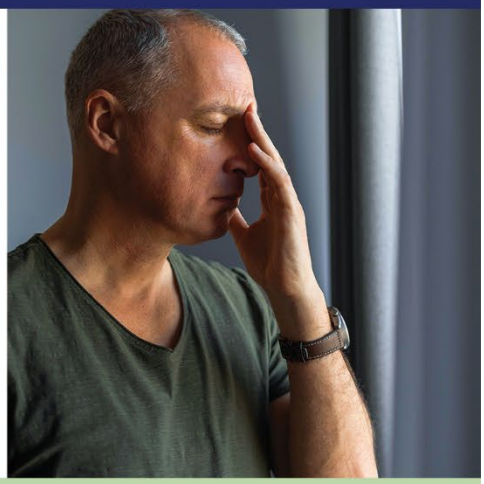
CDMRP
DEPARTMENT OF DEFENSE
CONGRESSIONALLY DIRECTED MEDICAL RESEARCH PROGRAMS

Department of Defense

Congressionally Directed Medical Research Programs

Fiscal Year 2024

Glioblastoma Research Program

Stakeholders Meeting – Summary and Gaps

28 June 2024

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Overview: CDMRP History

The Congressionally Directed Medical Research Programs, CDMRP, located within the U.S. Army Medical Research and Development Command, is a global funding organization that fosters novel approaches to congressionally targeted biomedical research areas in response to the expressed needs of its stakeholders – Congress, Service Members and their Families, Veterans and the American public. CDMRP-managed programs are diverse but share the common goals of accelerating progress, advancing paradigm-shifting research, developing cutting-edge technologies and identifying breakthroughs and solutions that will lead to cures, improved patient care and enhanced quality of life.

CDMRP receives annual congressional appropriations that are disease- or condition-specific, allowing flexibility to implement targeted investment strategies each year that focus on areas of highest potential impact and highest priority needs of the patient and research communities. CDMRP accomplishes this through close coordination and continual development of strategic and research partnerships with the scientific and clinical communities, industry, other federal and nonfederal funding organizations and consumers including patients, survivors, family members and/or caregivers–all of which are critical to enabling successful outcomes.

CDMRP maintains a passionate dedication to its mission and readily adapts to emerging priorities or congressional establishment of new programs or topics. Across all programs, CDMRP funds research to benefit people in the Military Health System, including Service Members and their Family members, Veterans and the American public.

The DOD does not request funding for CDMRP as part of the president's annual budget submission. Instead, in response to input from consumer advocates, survivors, people living with a disease or injury and others, Congress adds CDMRP funding to the annual defense appropriations bill. In FY24, Congress appropriated funds for 35 distinct programs for management by the CDMRP.

Programmatic Cycle

CDMRP executes its program cycle process for each appropriated program as shown in Figure 1. New programs begin their cycle with a public stakeholder meeting to identify key knowledge gaps and collect feedback for consideration at the program's vision setting meeting. The vision setting meeting brings together the CDMRP program team and a programmatic panel comprised of researchers, clinicians, consumers and other subject matter experts. The panel members consider congressional language and assess the state of the science, stakeholder-identified gaps, clinical care gaps and patient needs to help develop the program's vision and mission statements, focus areas, strategic plan, yearly investment strategy and funding opportunities. After vision setting, the program releases funding opportunities, also called program announcements, to solicit research aligned with the goals established by the program. Once the application deadline passes the CDMRP initiates its two-tier review process.

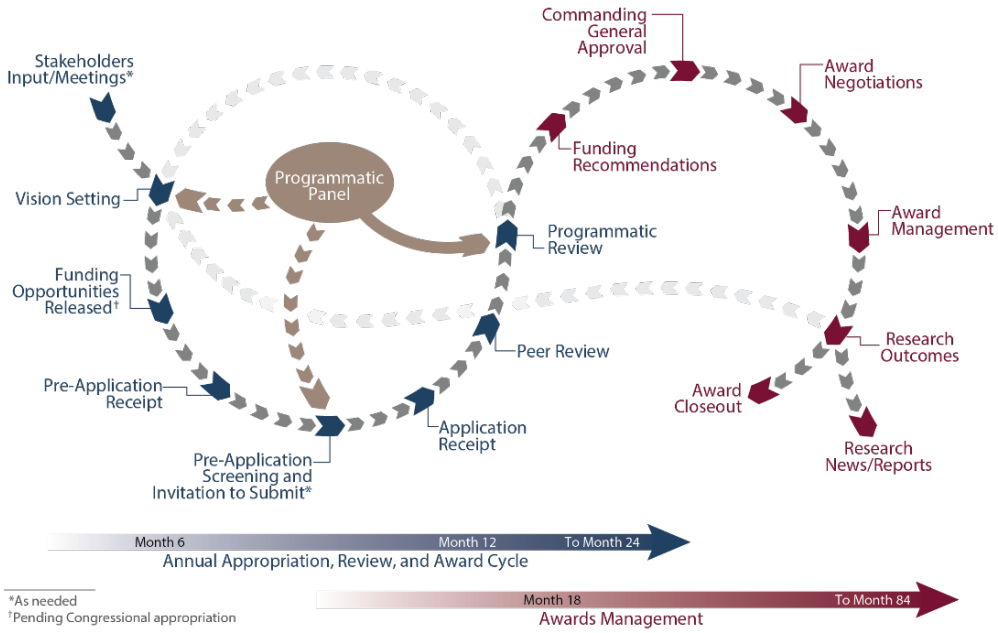

Figure 1. CDMRP Annual Program Cycle

The CDMRP developed a two-tier review model, based on recommendations from a 1993 Institute of Medicine report, to ensure that each program's research portfolio reflects both the most meritorious science and the most programmatically relevant research.[1] The IOM, now the National Academy of Medicine, recommended a two-step review procedure for research applications composed of a scientific peer review and a separate programmatic review, as shown in Figure 1. The scientific peer review, conducted by an external panel recruited specifically for each peer review session, involves the expertise of scientists, clinicians and consumers/patient advocates and may also include specialist reviewers and military or Veteran members. The peer reviewers evaluate applications individually based on scientific and technical merit with respect to the described criteria in the funding opportunity solicitation. The CDMRP does not rely on standing peer review panels. The Programmatic Panel conducts the second tier of review to assess the applications based on the scientific peer review ratings and summaries, a balanced program portfolio, programmatic intent and potential impact. The Programmatic Panel recommends for funding scientifically sound applications that best meet the program's interests and goals. Upon approval of funding recommendations and completed negotiations, the CDMRP funds research awards. The CDMRP program team provides full life-cycle support of funded research awards and their outcomes.

Introduction to the Glioblastoma Research Program

Glioblastoma is the most common type of brain cancer, accounting for 50% of all primary malignant brain tumors and annually affects three persons per 100,000 in the United States.[2] Studies demonstrate a higher incidence of brain cancer among Service Members compared to

[1] Institute of Medicine Committee to Review the Department of Defense's Breast Cancer Research Program. A Review of the Department of Defense's Program for Breast Cancer Research. Washington, DC: National Academies Press; 1997. 1, Introduction. Available from: https://www.ncbi.nlm.nih.gov/books/NBK233671/
[2] SEER*Explorer Application (cancer.gov)

the general population, and the Department of Veterans Affairs recently established brain cancers, including glioblastoma, as presumptive conditions associated with military service. The National Cancer Institute Center for Cancer Research reports that glioblastoma is highly aggressive with a median survival of 15-18 months, while SEER data – Surveillance, Epidemiology, and End Results – demonstrates that only 6.2% of patients survive five years post diagnosis.[3] The standard of care, established in 2005, relies on maximal safe surgical resection followed by radiation and chemotherapy; however, recurrence is common, and more than half of patients experience disease progression within six months of their operation.[4]

The CDMRP historically funded glioblastoma research under its Peer Reviewed Cancer Research Program, PRCRP, and Rare Cancers Research Program, RCRP, as discussed in subsequent sections. Before FY24, no single program supported research specifically for the glioblastoma community.

The Further Consolidated Appropriations Act, 2024, called for a Glioblastoma Research Program, GBMRP, supported by a $10 million appropriation. The CDMRP will manage the FY24 GBMRP according to congressional intent by using a competitive selection and peer review process to support research relating to glioblastoma. All CDMRP-funded research must be relevant to Service Members and their Families, Veterans and/or the American public.

Glioblastoma Funding Landscape

CDMRP-Managed Awards with Glioblastoma Focus

The PRCRP funded research in pediatric brain tumors since its inception in FY09, and in FY17 Congress introduced a new topic for brain cancers. Since FY09, the PRCRP funded over 100 awards focused on pediatric and adult brain cancers totaling nearly $80M, as shown in Figure 2. Of those, approximately 45 awards focused on glioblastoma, totaling $37.6M from FY09–FY22, with an additional six glioblastoma research awards currently under negotiation for FY23.

[3] SEER*Explorer Application (cancer.gov)

[4] Haihui Jiang, Kefu Yu, Mingxiao Li, Yong Cui, Xiaohui Ren, Chuanwei Yang, Xuzhe Zhao, and Song Lin. 2020. "Classification of Progression Patterns in Glioblastoma: Analysis of Predictive Factors and Clinical Implications." *Frontiers in Oncology* 10 (Nov):590648.

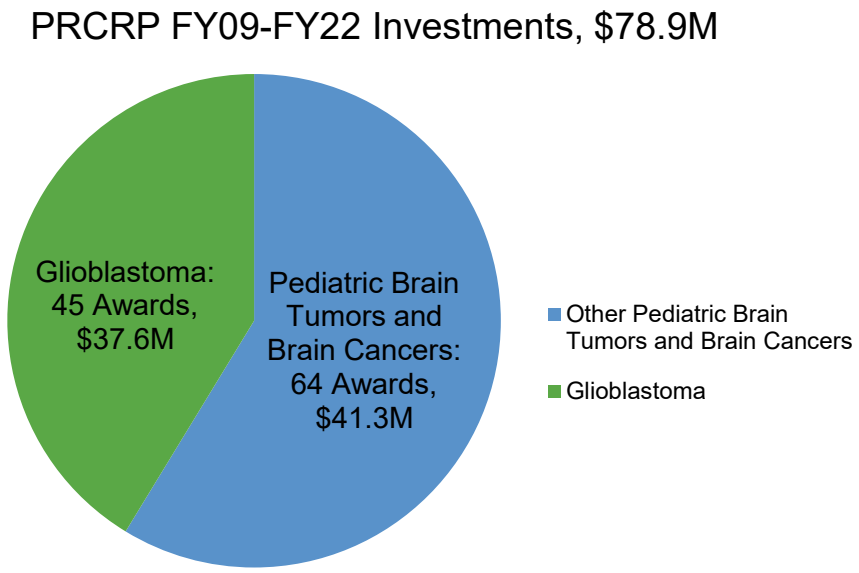

Figure 2. FY09-FY22 CDMRP PRCRP Pediatric Brain Tumors, Brain Cancers and Glioblastoma-Focused Awards

Congress established the RCRP in FY20; the program funds research for rare cancers with an incidence of fewer than six cases per 100,000 per year. During the first two years of the program, the RCRP supported 18 projects focused on brain and neurological cancers totaling $5.8M from FY20–FY22, as shown in Figure 3. Seven of those projects focused on glioblastoma, representing a nearly $1M investment. Three additional glioblastoma awards are currently under negotiation for FY23.

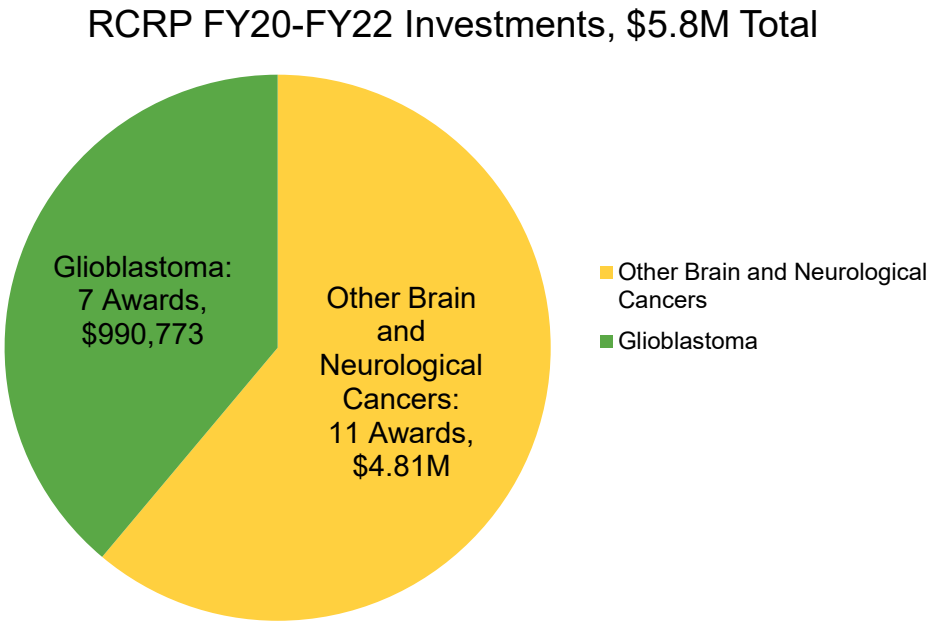

Figure 3. FY20-FY22 CDMRP RCRP Brain Cancer and Glioblastoma-Focused Awards

Other Federal Funding Landscape with Glioblastoma Focus

The National Institutes of Health is the primary federally funded research center and the largest public funder of biomedical research in the world. The NIH receives funding annually, most recently from the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2024. To enable better understanding about the nature and behavior of living systems for the purposes of improving health, increasing longevity of life and reducing illness and disability, the NIH awards approximately 83% of its nearly $48B budget to extramural research.[5] Twenty-seven unique institutes and centers operate under the NIH, each with their own research priorities. According to the NIH RePORTER, a feature of the Research Portfolio Online Reporting Tools, from FY14–FY23, the NIH invested over $3.6B in brain tumor research.[6] To determine the federal funding landscape in glioblastoma research, the CDMRP completed a data analysis on 26 April 2024 from Digital Science's Dimensions platform, available at https://app.dimensions.ai. Access was granted to subscription-only data sources under contractual agreement with CDMRP. The Dimensions database is the world's largest collection of research data, including over 140 million publications, 7 million grants, 800,000 clinical trials, 1.8 million policy documents and 29 million datasets. By using the key word "glioblastoma" and searching Dimensions' full text data, CDMRP generated the funding landscape analysis for grants provided by United States funding organizations that started between calendar years 2014–2023. The NIH invested over $1.3B in glioblastoma research specifically as shown in Figure 4. The National Cancer Institute funds most of the NIH-supported glioblastoma research while the National Institute of Neurological Disorders and Stroke, also supports a sizeable investment in glioblastoma, as seen in Figure 4.

[5] NIH Funding: FY1996-FY2023 Report via the Congressional Research Service (https://crsreports.congress.gov/)
[6] https://reporter.nih.gov/

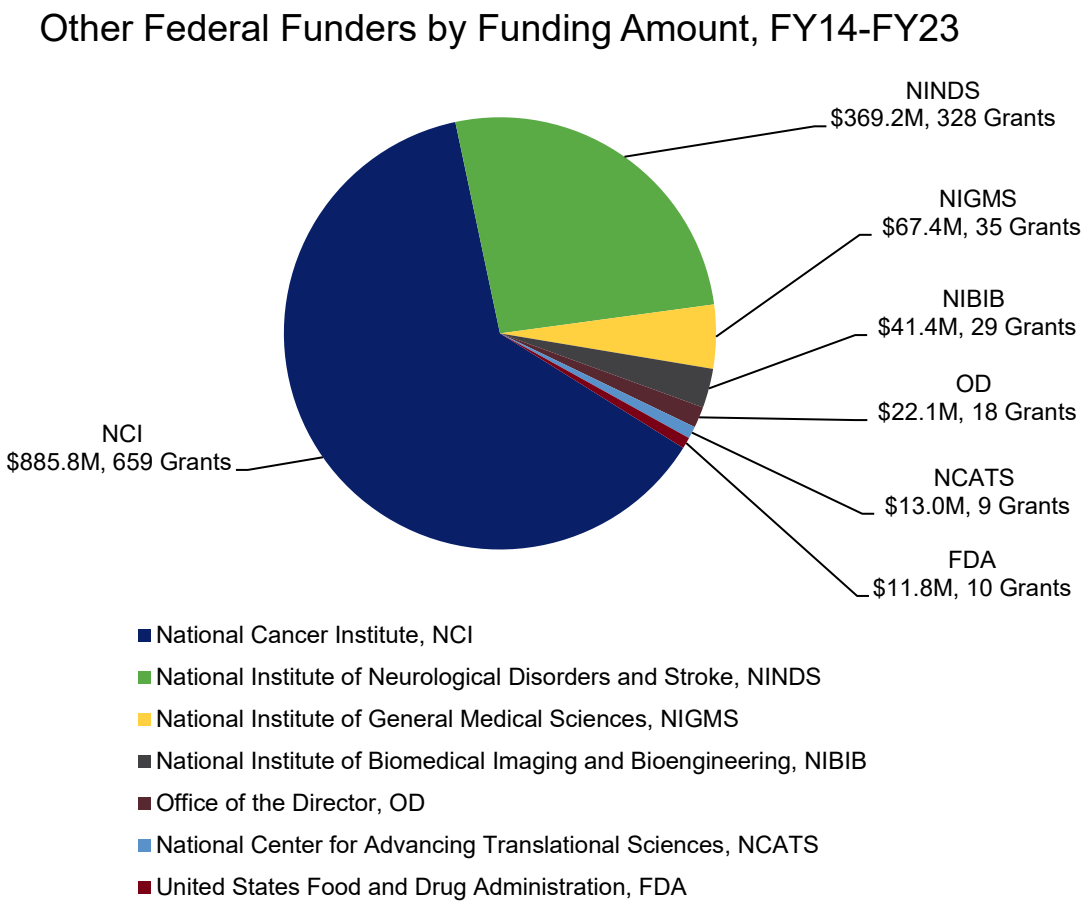

Figure 4. Other Federal Funding Agencies Investing in Glioblastoma

CDMRP completed an additional analysis on 26 April 2024 from the Digital Science's Dimensions Platform to determine the distribution of funding across the Common Scientific Outline areas for glioblastoma in the United States from 2014–2023.[7] The CSO is a classification system organized into six broad areas of scientific interest in cancer research: biology, etiology, prevention, early detection, treatment, and survivorship. Of more than 2,000 nationally funded grants, treatment received the most significant investment with nearly 1,000 grants and $1.4B, as shown in Figure 5. Investments primarily support the discovery and development of systemic therapies, followed by the discovery and development of localized therapies. Research into glioblastoma biology, especially cancer progression and metastasis, oncogenes and tumor suppressor genes and alterations in chromosomes received a sizeable investment of more than 700 awards and over $821M. Approximately 288 awards supported research focused on novel detection strategies for earlier diagnosis and predicting treatment response or recurrence.

[7] This information was written using data obtained on 17 April 2024 from Digital Science's Dimensions platform, available at https://app.dimensions.ai. Access was granted to subscription-only data sources under license agreement.

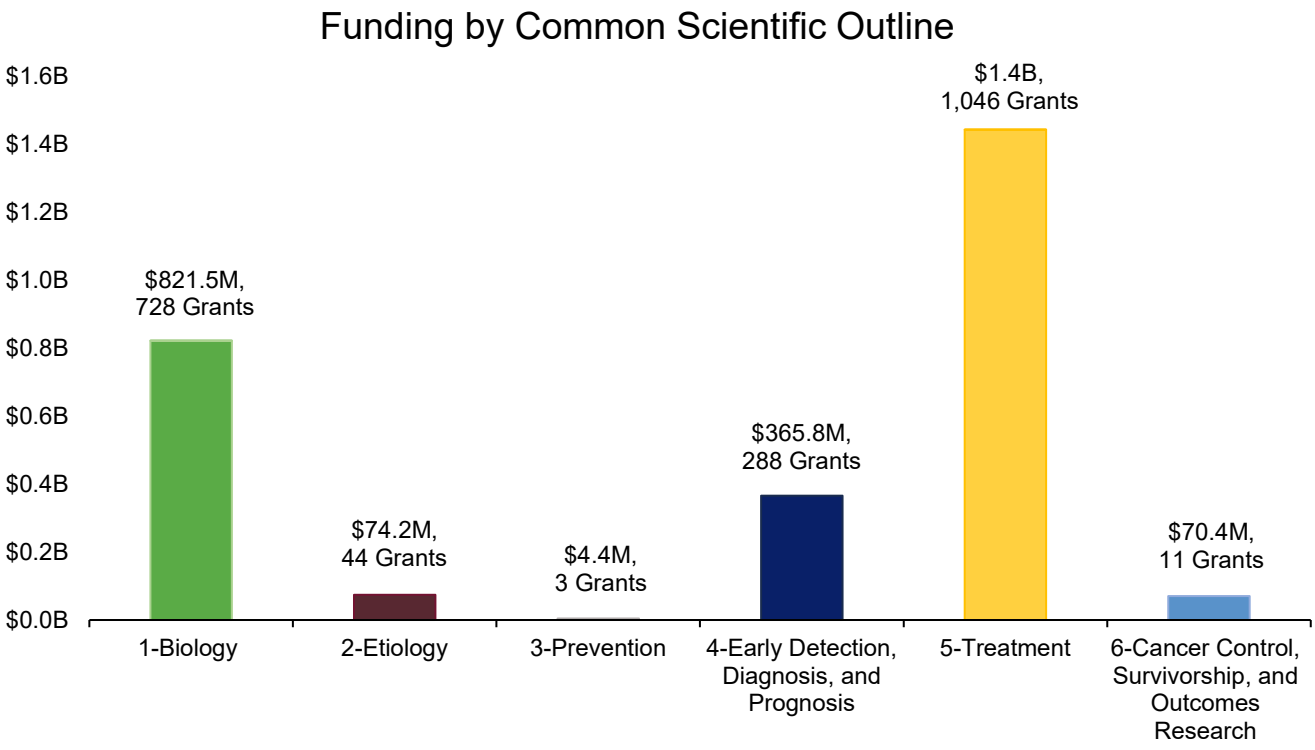

Figure 5. The Common Scientific Outline for Funding and Grants in Glioblastoma

Glioblastoma Funding Landscape and Advocacy Efforts: Other Agencies

Several additional government agencies and nongovernment advocacy agencies finance glioblastoma research and efforts. This includes the American Brain Tumor Association, the Glioblastoma Foundation, the National Brain Tumor Society, and The Sontag Foundation.

FY24 GBMRP Stakeholders Meeting

Moment of Silence

Each CDMRP meeting begins with a Moment of Silence to commemorate the individuals affected by the disease or condition and to set the intention for the day's discussion. Mr. Adam Hayden led the Moment of Silence at the FY24 GBMRP stakeholders meeting to reflect on the impact that glioblastoma has on patients, their families and their caregivers. He briefly touched on his personal glioblastoma journey and living with brain cancer for eight years. He shared several slides developed from his post on the Glioblastology blog (see https://glioblastology.substack.com/p/bearing-witness). He told stories that highlighted the value in bearing witness in the face of suffering and the benefits of being present. At the conclusion of his presentation, he asked everyone in attendance to reflect on those who live with or are affected by glioblastoma.

Pre-Meeting Request for Information: Results

In response to the FY24 congressional appropriation, the GBMRP released a Request for Information as part of the initial market research to understand the state of the science ahead of the stakeholders meeting. The GBMRP posted the RFI to SAM.gov and collected responses using the SurveyMonkey platform. Individuals subscribed to program news releases via eBRAP for the GBMRP, PRCRP, and RCRP received invitations to complete the GBMRP RFI. Staff received a total of 336 responses, which the program tabulated and categorized.

Individuals self-identified their role, or roles, in the glioblastoma community, Figure 6. Two hundred and fifty-three (253) respondents identified as having a role specifically in academia, 93 identified as a clinician, and 21 individuals identified as a glioblastoma patient, caregiver, or advocate.

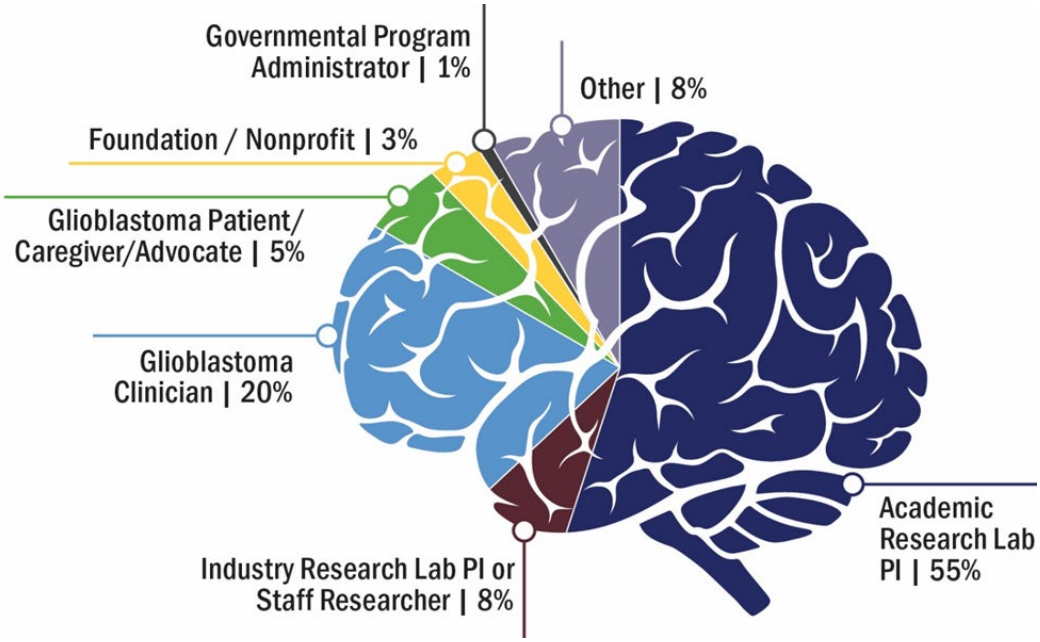

Figure 6. Analysis of the RFI Respondents' Roles Within the Glioblastoma Community

Question 1: *What area or topic within glioblastoma research do you feel holds the most promise to advance the field?*

Figure 7. A Word Cloud Including the Most Frequently Mentioned Words in Response to Question 1

The first opened-ended question had a character limit to encourage a focused response about the area or topic within glioblastoma research that holds the most promise to advance the field as shown in Figure 7. Most respondents replied about the importance of new therapeutic options, particularly within the field of immunotherapy. Types of therapies mentioned in the responses included combination strategies, RNA-based therapy, cellular therapies including CAR-T cells, and oncolytic viruses. Many responses also focused on the potential of new biological findings to advance the glioblastoma field. Specifically, the study of novel molecular pathways holds promise to increase the understanding of oncogenesis and to identify potential therapeutic targets. Respondents also noted the importance of increased understanding of the tumor microenvironment and how the microenvironment contributes to tumorigenesis and drug resistance and could be targeted for therapeutic interventions. To study these mechanisms, respondents noted the need for new tumor models that recapitulate glioblastoma, including improved in vivo models and patient-specific models. Many responses also mentioned new detection methods to improve early diagnosis with an emphasis on noninvasive detection strategies. Respondents suggested the identification of novel biomarkers as a promising avenue for both disease detection and monitoring therapeutic response. Respondents also frequently mentioned the need for research related to overcoming the blood - brain barrier to improve drug delivery to glioblastoma. Finally, several respondents noted reducing treatment side effects and improving quality of life as topics that hold great promise toward advancing the field. Other topics mentioned included understanding and overcoming drug resistance, new surgical techniques, cancer neuroscience, precision medicine, risk factors and use of artificial intelligence.

<u>Promising Areas</u>

- Development of new therapeutics, including immunotherapy
- Knowledge of basic biology and identification of novel molecular pathways
- Understanding and/or modulating the tumor microenvironment
- New or improved methods of detection, noninvasive monitoring and imaging techniques
- Overcoming the blood - brain barrier
- Development of new tumor models
- Identifying novel biomarkers for disease progression and drug response
- Understanding and overcoming drug resistance
- Reducing treatment side effects and improving quality of life

Question 2: *In your opinion, which of the following areas is most underfunded/under-resourced in glioblastoma?*

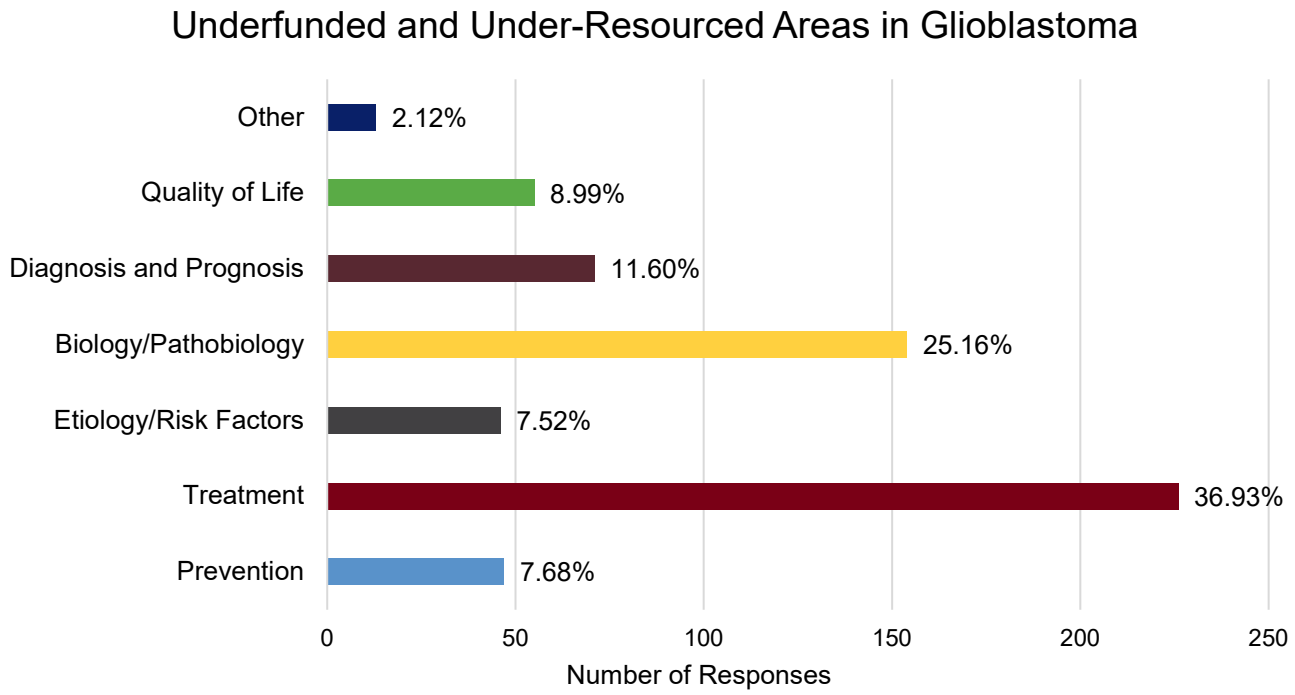

Figure 8. Graphical Representation of Question 2 Responses of the Most Underfunded, Under Resourced Areas in Glioblastoma

Question 2 of the survey asked respondents to identify two underfunded or under-resourced priority areas in glioblastoma research, as shown in Figure 8. Treatment emerged as the most underfunded area, selected by 226 respondents. One hundred and fifty-four (154) individuals indicated biology/pathobiology as under-resourced. Thirteen (13) responses selected “Other”. Identification of biomarkers and addressing health disparities, especially focusing on Veteran care, emerged as notable themes. The "Other" category also emphasized the need for more preclinical models.

Question 3: *The glioblastoma field would benefit from more _____ studies.*

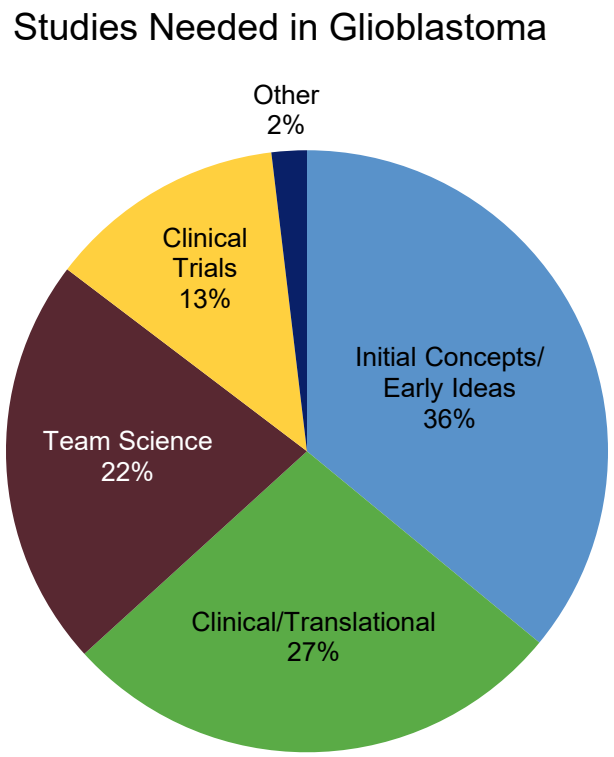

Figure 9. Reponses to Question 3 of What Studies Are Needed in the Glioblastoma Field

Question 3 asked for the types of studies that would most benefit the glioblastoma field and revealed diverse priorities as shown in Figure 9. Respondents could select two options and 228 individuals favored initial concepts/early ideas. One hundred seventy-three (173) respondents selected clinical/translational research as most needed, while 140 selected team science approaches. Additional responses under “Other” emphasized the value of enhanced integration of basic research, translational clinical trials and clinical observational work.

Question 4: *Please list a maximum of three innovative areas/topics that could revolutionize the course of glioblastoma research and/or clinical care.*

Figure 10. A Word Cloud Including the Most Frequently Mentioned Words in Response to Question 4

Question 4 in the survey was open-ended and asked for innovative areas/topics that could revolutionize the course of glioblastoma research and/or clinical care, as shown in Figure 10. A character limit encouraged a focused response. Respondents most frequently identified new therapeutic strategies as the area that could revolutionize the glioblastoma field with a focus on targeted therapy options and combination strategies. Respondents also identified immunotherapy frequently, including cell-based and biological approaches such as CAR-T cells and oncolytic viruses. In addition, respondents described novel drug delivery strategies and overcoming the blood-brain barrier as areas that could revolutionize the field. Respondents frequently recognized the goal of an increased understanding of glioblastoma basic biology as an area with great potential for the field. This included better understanding of the tumor microenvironment, metabolism, mutagenesis and cancer stem cells. In addition, respondents frequently cited the development of new glioblastoma research models, including the development of preclinical models that are more predictive than those currently available, patient-derived models, animal models and 3D organoids. Respondents also felt that new and improved detection or imaging technologies could revolutionize the field, and they mentioned early diagnostic strategies, particularly noninvasive methods, and advanced imaging techniques that integrate artificial intelligence. Similarly, many suggested identification of novel molecular biomarkers for early diagnosis and treatment efficacy. Some respondents also recognized improving patient quality of life as an innovative area that can enhance the patient experience, as well as more early-phase clinical trials or window-of-opportunity trials. Respondents also mentioned identifying risk factors, cancer neuroscience, epigenetics and machine learning.

<u>Innovative Areas</u>

- Development of new therapeutics, including immunotherapy, and overcoming drug resistance

- Basic biology, including tumor microenvironment, heterogeneity
- Methods of early disease detection and identification of risk factors, noninvasive monitoring and assessing therapeutic response, including novel biomarkers.
- Drug delivery technologies for overcoming the blood-brain barrier
- Disease models that accurately recapitulate glioblastoma
- Quality of life studies and improving the patient experience
- Artificial intelligence and machine learning

Question 5: *What obstacles or challenges are researchers and the patient community facing that could potentially be addressed by the GBMRP?*

Figure 11. A Word Cloud Including the Most Frequently Mentioned Words in Response to Question 5

Question 5 in the RFI, also an open-ended question, asked respondents to concisely identify obstacles or challenges facing researchers and the patient community for GBMRP to address, Figure 11. Respondents identified the two most common obstacles facing the glioblastoma community as the lack of relevant and accurate disease models and the limited understanding of glioblastoma basic biology. Respondents described challenges with the available model systems and the need for better preclinical models that are clinically relevant, including: in vivo disease models, the need for immune competent mouse models, large animal models or xenograft models, and in vitro models that include organoids, stem cell models and 3D models. Many respondents felt a major challenge is the limited understanding of glioblastoma biology, including a lack of understanding of the basic tumor biology, tumor microenvironment and interactions with the immune system, and drivers of oncogenesis and treatment resistance.

Many respondents also reported that the lack of collaboration, data sharing and limited access to samples as a major challenge to the field. Respondents noted that siloed research hampers collaboration and the exchange of data across institutions while also slowing progress in the field. Survey participants also described that access to disease models, biobanks and tissue samples as a significant challenge facing the glioblastoma community. Many respondents mentioned the lack of access to comprehensive biobanks of clinically annotated patient samples, including samples from Veterans and minorities, as a main barrier in the field.

Finally, respondents identified health inequity issues and patient access to clinical trials as a challenge to the field, particularly for patients in rural areas and minority populations. Additionally, survey participants mentioned the gaps in understanding patients' quality of life and the need for more early-phase or window-of-opportunity clinical trials.

Major Obstacles

- Lack of relevant disease models, both in vivo and in vitro
- Limited understanding of basic biology of glioblastoma
- Insufficient access to patient samples and limited biobanks
- Lack of collaboration and data sharing

Stakeholders Meeting Objectives

Purpose

The stakeholders meeting provides an opportunity to engage stakeholders, including researchers, clinicians and those living with or affected by glioblastoma, in an open-dialogue forum to identify knowledge and capability gaps to inform future glioblastoma research investment discussions.

Participants

The program invited 44 representatives, 41 of whom attended, from glioblastoma-related non-profit organizations, academia, government institutions and industry. The program invited members of the glioblastoma community to share broad perspectives on which initiatives have the greatest potential to propel the science forward, break down potential barriers in research and patient outcomes, address key knowledge or scientific gaps and identify potential approaches for the treatment of glioblastoma.

Outcomes

- Summarize relevant knowledge and research gaps and development of top greatest needs in the field
- Summarize the state of the science in glioblastoma research
- Identify challenges inhibiting progress

Summary of Breakout Sessions

After reviewing the pre-meeting survey results and the current glioblastoma funding landscape, participants discussed specific topics in three concurrent breakout sessions. The topics for discussion included therapeutics, including immunotherapy and drug delivery; basic biology and

research resources, including disease models and biobanks; and detection strategies for diagnosis and therapeutic response, including biomarkers. The program evenly sorted participants into breakout groups and informed them that the recommendations provided to the program are non-decisional. Each breakout group identified and ranked five primary research gaps for future consideration by the GBMRP. Breakout groups also had the option to provide additional gaps and/or general comments for consideration by the program. The GMBRP Programmatic Panel will receive the feedback and comments provided by the stakeholders when they meet to develop the program's vision and mission, focus areas, award mechanisms and investment strategy.

The following outlines the top research gaps as identified and prioritized by each breakout group.

a. Breakout Group One

Primary Gaps

1. Mechanisms of resistance, recurrence and treatment failure *[Research Area: Basic Biology/Research Resources]*
2. Novel models/model systems that represent the human disease (improved biological relevance to humans) *[Research Area: Basic Biology/Research Resources]*
3. Cancer neuroscience and the tumor microenvironment *[Research Area: Basic Biology/Research Resources]*
4. Drug delivery strategies for crossing the blood-brain barrier including mechanisms of delivery, multi-drug delivery, enhanced delivery and model systems *[Research Area: Therapeutics/Immunotherapy]*
5. Combination therapies such as chemotherapy, surgery, immunotherapy and radiation *[Research Area: Therapeutics/Immunotherapy]*

b. Breakout Group Two

Primary Gaps

1. In vivo models *[Research Area: Basic Biology/Research Resources]*
2. Non-invasive biomarkers, liquid biopsy and imaging strategies *[Research Area: Detection Strategies]*
3. Combination therapies such as chemotherapy, surgery, immunotherapy and radiation *[Research Area: Therapeutics/Immunotherapy]*
4. Drug delivery strategies for crossing the blood-brain barrier *[Research Area: Therapeutics/Immunotherapy]*
5. Tumor microenvironment *[Research Area: Basic Biology/Research Resources]*

c. Breakout Group Three

Primary Gaps

1. Biobanks servicing unique needs, such as recurrent glioblastoma *[Research Area: Basic Biology/Research Resources]*
2. Access to and validation of models and samples *[Research Area: Basic Biology/Research Resources]*

3. Drug delivery strategies for crossing the blood-brain barrier, including local delivery *[Research Area: Therapeutics/Immunotherapy]*
4. Mitigating toxicities such as radiation and chemo *[Research Area: Therapeutics/Immunotherapy]*
5. Combination therapies such as chemotherapy, surgery, immunotherapy, devices and radiation *[Research Area: Therapeutics/Immunotherapy]*

Top Priorities

From the stakeholders' discussions, three prominent themes emerged regarding glioblastoma research: (1) A consensus on prioritizing advancements in drug delivery strategies tailored to penetrate the blood-brain barrier. This focus underscores the critical need to enhance the efficacy of treatments by exploring diverse delivery mechanisms and optimizing multi-drug delivery systems. (2) Stakeholders emphasized the importance of developing combination therapies that can synergistically target different aspects of the disease, aiming for improved patient outcomes. (3) Stakeholders highlighted the necessity for novel experimental models that accurately mimic human glioblastoma, facilitating more predictive preclinical research and accelerating therapeutic discoveries. These themes collectively reflect a strategic shift towards comprehensive and innovative approaches in glioblastoma research, aiming to address its complex challenges effectively.

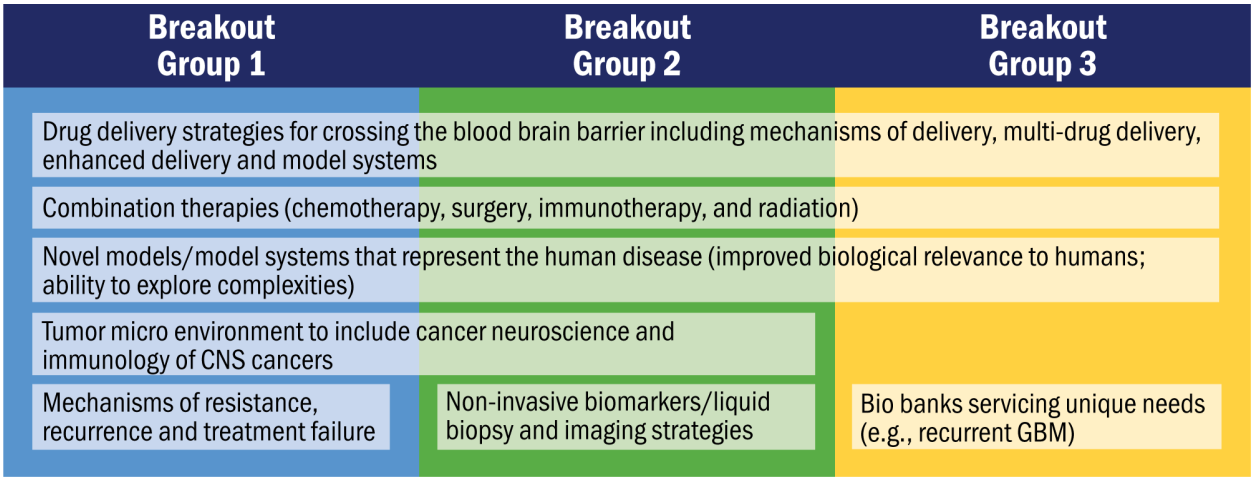

Figure 12. The Top Priorities that Emerged from the Three Breakout Sessions

Appendix 1: Meeting Attendees

Stakeholders

Mr. David Arons	National Brain Tumor Society
Dr. Mitchel Berger	University of California San Francisco Brain Tumor Center
Dr. Adrienne Boire	Memorial Sloan Kettering Cancer Center
Dr. Heather Calderone	American Brain Tumor Association
Mr. Haim Chera	McCain/Bayh Consortia
Mr. Scott Davis	The Sontag Foundation
Dr. Gavin Dunn	Massachusetts General Hospital
Dr. Howard Fine	Weill Cornell Medicine
Dr. Jane Fountain	National Institute of Neurological Disorders and Stroke
Dr. Henry Friedman	Duke University
MAJ Tim Gregory	Madigan Army Medical Center
Mr. Adam Hayden	National Brain Tumor Society
Dr. Lori Henderson	National Cancer Institute
Dr. Edward Hinchcliffe	University of Minnesota Masonic Cancer Center/Hormel Institute
Dr. Craig Horbinski	Northwestern University
Ms. Laura Hynes	Brain Tumor Network
Dr. Joshua Jackson	Drexel University College of Medicine
Dr. Margaret Johnson	Duke University
Mr. Patrick Jones	The End Brain Cancer Initiative
Mr. Stephen Kaplan	American Brain Tumor Association
Dr. Hilary Keely	The Sontag Foundation
Dr. Svetlana Kotliarova	National Institute of Neurological Disorders and Stroke
Dr. Andra Krauze	National Cancer Institute
Dr. Gita Kwatra	Glioblastoma Foundation
Dr. Ching Lau	The Jackson Laboratory for Genomic Medicine
Dr. Sean Lawler	Brown University
Dr. Shwetal Mehta	Ivy Brain Tumor Center, Barrow Neurological Institute
Dr. Duane Mitchell	University of Florida
Dr. Vida Passero	VA National TeleOncology
Dr. Sara Pedron-Haba	University of Illinois Urbana-Champaign
Dr. C.K. Petritsch	Stanford University
Dr. Allegra Petti	Massachusetts General Hospital
Dr. Dimitris Placantonakis	New York University Grossman School of Medicine
Dr. Renee Read	Emory University School of Medicine
Dr. Donna Roberts	International Space Station National Laboratory/Center for the Advancement of Science in Space
Dr. Jann Sarkaria	Mayo Clinic
Dr. Karisa Schreck	Johns Hopkins University
Dr. Natasha Sheybani	University of Virginia
Dr. Joohee Sul	Sul Clinical
Dr. Christopher Tinkle	St. Jude Children's Research Hospital
Dr. Claire Vanpouille-Box	Weill Cornell Medicine

Government observers from the CDMRP and U.S. Army Medical Research Acquisition Activity also attended the meeting, as well as the Leidos contractors who supported the meeting and its proceedings.