National Cancer Institute (NCI)
National Cancer Advisory Board (NCAB)
***ad hoc* Subcommittee on Experimental Therapeutics**

Gaithersburg Marriott Washingtonian Center
Gaithersburg, MD
2 December 2024
6:00 p.m.–7:00 p.m. EST

SUMMARY

Subcommittee Members
Dr. Richard J. Boxer, Chair
Dr. Rose Aurigemma, Executive Secretary
Dr. Nilofer S. Azad
Dr. Callisia N. Clarke
Dr. Luis Alberto Diaz, Jr. (absent)
Dr. Andrea Hayes Dixon (absent)
Ms. Julie Papanek Grant
Dr. Amy B. Heimberger (absent)
Dr. Ashani T. Weeraratna

Other Participants
Dr. Chandrakanth Are, Board of Scientific Advisors (BSA)
Dr. Shaalan Beg, NCI
Dr. John D. Carpten, Chair, NCAB
Dr. Mark P. Doescher, BSA
Dr. Shelton Earp, Chair, BSA
Dr. Gary L. Ellison, NCI
Ms. Tamika Felder, NCAB
Dr. Debra L. Friedman, BSA
Dr. William C. Hahn, BSA
Dr. Ana Maria Lopez, BSA
Dr. Douglas R. Lowy, NCI
Dr. Wells A. Messersmith, BSA
Dr. Karen M. Mustian, BSA
Dr. Lisa A. Newman, BSA
Dr. Raymond U. Osarogiagbon, BSA
Dr. W. Kimryn Rathmell, Director, NCI
Dr. Kimberly Stegmaier, NCAB
Dr. George J. Weiner, BSA
Ms. Joy Wiszneauckas, NCI
Dr. Amanda Cenname, The Scientific Consulting Group, Inc., Rapporteur

Welcome and Opening Remarks
Dr. Richard J. Boxer, Clinical Professor, David Geffen School of Medicine, University of California, Los Angeles

Dr. Richard J. Boxer, Subcommittee Chair, welcomed the participants to the NCAB *ad hoc* Subcommittee on Experimental Therapeutics (Subcommittee) meeting. He noted that the Subcommittee members had discussed convening meetings among representatives from the government, academia, and industry to discuss pathways for drug discovery and bridge communication gaps in this space.

Dr. Boxer explained that small businesses often show reluctance to interact with the federal government. To overcome this challenge, NCI leaders could engage with venture capitalists who fund startup companies and foster discussions in this space. Future meetings could include representatives from advocacy groups, industry, academia, and NCI to discuss ways to improve communications and build pathways for drug discovery. These meetings would be held on the NIH campus. Dr. W. Kimryn Rathmell, Director, NCI, has previously expressed support for these efforts.

Briefing on Avenues to Support Translational Research in the Small Business Innovation Research Program
Dr. Rose Aurigemma, Associate Director, Developmental Therapeutics Program (DTP), Division of Cancer Treatment and Diagnosis, NCI

Dr. Rose Aurigemma, Executive Secretary, discussed challenges in advancing new therapeutic strategies into the commercial sector (e.g., getting more drugs to patients, recruiting partners and investors). Currently, the field has experienced an influx of scientific discoveries but a paucity of lead candidates in clinical trials. Dr. James H. Doroshow, Director, Division of Cancer Treatment and Diagnosis, NCI, previously suggested forging partnerships with NCI leaders to bridge gaps in this space.

NCI offers a variety of extramural funding mechanisms to support translational development, including grant funding (e.g., R01, P01, P50, supplements). New initiatives require significant time investments, as well as dedicated long-term funding. Additionally, these grants cannot support costly Investigational New Drug–enabling studies. Study sections generally favor hypothesis-driven research rather than iterative drug development activities.

NCI conducts development activities on behalf of investigators and companies through the NCI Experimental Therapeutics (NExT) Program, but it is highly competitive, and budget and capacity are limited. Furthermore, competitive entry to NCI's Experimental Therapeutics Clinical Trials Network is not guaranteed. Supplemental awards can help bridge gaps in this space, but these funds are limited and are directed toward specific efforts.

Dr. Aurigemma explained that during the past several months, she has met with representatives from NCI's Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) programs. She outlined the SBIR contract mechanism, which provides funds for research and development leading to products, processes, or services that offer commercial potential. Dr. Aurigemma explained that this mechanism offers a potential partnership between DTP and the SBIR program to solicit translational projects to drive new therapies to clinical testing.

DTP includes staff members who are well versed in all aspects of drug development. The SBIR contract mechanism allows DTP to work with companies as they achieve milestones and provide guidance where applicable. Ultimately, these efforts could lead to subsequent investment opportunities and access to other resources. Dr. Aurigemma briefly highlighted examples of contract topics, which include antibody–drug conjugates as radiopharmaceutical theranostics for cancer, as well as synthetic microbes for immuno-oncology therapies.

Dr. Aurigemma prompted the Subcommittee members to consider areas of focus for translational opportunities that currently are not being addressed within private industry. Examples of potential topics for consideration include antibody–drug conjugate technologies and therapeutic vaccines (e.g., mRNA, peptide).

Nomination of Drug Development Areas Most in Need of Support
Dr. Boxer and Subcommittee

Dr. Nilofer S. Azad highlighted the need to identify areas of focus that are not currently being addressed by industry, particularly in the context of antibody–drug conjugate technologies. Vaccine development (e.g., optimization, prediction tools) could represent a promising area for further exploration. Dr. John D. Carpten, NCAB Chair, added that degraders could offer an area of potential opportunity.

Dr. Kimberly Stegmaier remarked that pediatric-based methods could represent an area for exploration. Dr. Aurigemma explained that the Targeting Fusion Oncoproteins in Childhood Cancers Network was

recently launched; the goal of the network is to apply novel chemical strategies to accelerate innovative drug discovery and preclinical development of therapeutics for fusion oncoprotein–driven childhood cancers.

Dr. William C. Hahn asked how the program's success will be measured. Dr. Aurigemma referenced the model of the NExT Program, which sets milestones for projects. Under this program, NCI works in partnership with companies to overcome challenges faced during the development process. The ultimate goal of these efforts is to advance to a clinical trial.

In response to a question from Dr. Carpten, Dr. Aurigemma highlighted successes resulting from the NExT Program. She noted that NExT projects have originated as academic grants and have advanced along the development stages into clinical trials.

Dr. George J. Weiner commented that novel mechanisms for approved drugs could represent an area for further exploration; currently, companies have little incentive to pursue studies on this topic. Dr. Aurigemma noted that NCI's portfolio includes support for development of drugs that have been abandoned by companies.

Dr. Ana Maria Lopez highlighted senolytics as a potential area of focus for cancer prevention. She also suggested considering the concept of digital twins for virtual clinical trials. Dr. Aurigemma agreed to follow up regarding potential partnerships in this area.

Dr. Rathmell asked the Subcommittee members to consider potential strategies for engaging with biotechnology and pharmaceutical companies. Dr. Boxer highlighted the importance of leveraging NCI's capabilities for early development and discovery. Communication with industry will be essential for fostering collaboration in this space.

Dr. Karen M. Mustian suggested developing a list of key areas that are likely to be of interest to industry partners, with clearly identified milestones for investigators. She noted that most academic institutions do not offer support on this topic for investigators. Dr. Aurigemma responded that her team has had previous success in this area; solicitations would identify key milestones for investigators.

Dr. Shelton Earp, BSA Chair, highlighted the need for policy development and noted that NCI can serve as a leader alongside the U.S. Food and Drug Administration (FDA). Dr. Aurigemma noted that the contract mechanism allows for processes and services with commercial capacity; services could potentially be aligned with this area. Dr. Earp emphasized that such pathways would enable progress over the next several years. Dr. Carpten added that cellular therapies are an area of recent interest within private industry.

Dr. Ashani T. Weeraratna suggested including representatives from technology venture offices within academic institutions. Larger institutions often are well resourced in this area, but smaller institutions would benefit from additional support. NCI could play a role in advancing discoveries made by investigators who are affiliated with smaller institutions.

Dr. Hahn remarked that speed has been identified as a key consideration, and faster mechanisms (i.e., relative to traditional grants) are likely to be of particular interest. Dr. Aurigemma noted that the fast-track Phase 2 option can provide a more rapid mechanism for projects.

Dr. Mustian asked whether limited funds will present an issue for the program. Dr. Aurigemma remarked that NCI offers various resources to fund development efforts (e.g., NExT Program). NCI acknowledges that additional funds will be needed to enable progress in this space.

In response to a question from Dr. Carpten, Dr. Aurigemma commented on potential opportunities for the application of artificial intelligence in the area of drug development. She noted that this could be a subject for exploration. Dr. Carpten noted that NCI offers unique expertise and resources for development in this space.

Ms. Julie Papanek Grant suggested considering approaches for helping companies translate findings to the clinic, with a focus on filling knowledge gaps. She suggested that the members consider where the federal government can best supplement existing efforts in this space. She also emphasized the importance of identifying where the science is moving forward and defining NCI's role in making progress in this area.

Dr. Rathmell remarked that NCI can identify meaningful gaps that it is well positioned to address through accelerated efforts. Dr. Douglas R. Lowy spoke on the importance of complementing existing work being performed by the pharmaceutical industries rather than competing with companies. He emphasized that these efforts should focus on current unmet needs in this space. Developments can be considered from multiple perspectives (e.g., technological, cancer-focused).

In response to a comment from Dr. Rathmell, Dr. Aurigemma noted that pre-solicitation discussions can be helpful for sharing information on risks and challenges with interested applicants. It was also noted that the Advanced Research Projects Agency for Health (or ARPA-H) has authorities that allow for more frequent activities; in principle, NCI has analogous authorities for research. It was noted that new mechanisms can provide infrastructure for pipelines that minimize delays and enable rapid progress in this space.

Next Steps
Drs. Boxer and Aurigemma

Dr. Boxer emphasized the importance of fostering sustained conversations involving relevant parties. He noted that engaging the FDA in the discussions also can help enable progress in this area.

Adjournment

Dr. Boxer expressed appreciation to the participants for their engagement during the discussion. He adjourned the meeting at 7:10 p.m. EST.

Dr. Richard J. Boxer Chair	Date	Dr. Rose Aurigemma Executive Secretary	Date