

**GUIDELINES  
FOR  
Specialized Programs of Research Excellence (SPOREs)**

*August 2011*

**These Guidelines are in effect for submissions in January 2012 and later**

**Translational Research Program  
Division of Cancer Treatment and Diagnosis  
National Cancer Institute**

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## FOREWORD

Specialized Programs of Research Excellence (SPOREs) are specialized center grants to support multi-project, interdisciplinary, and in some cases, multi-institutional, translational research involving both basic and applied scientists that will result in diverse new approaches to the prevention, early detection, diagnosis and treatment of human cancers. Each SPORE is focused on a specific organ site, such as breast or lung cancer, or a group of highly related cancers, such as gastrointestinal cancers. The key required elements of all SPORE grants are a minimum of four translational research projects that must reach a human endpoint within five years, a developmental research program, a career development program, and a biospecimen/pathology Core. Other features of SPOREs include: co-leadership of all projects by a basic and applied/clinical scientist; specialized Cores that interact with the research projects; a required research project in early detection, prevention, or population science studies for some organ sites; flexibility to terminate projects that are not meeting translational goals and to replace them with new promising projects during the funding period; the requirement for interSPORE collaboration and collaboration with other research groups to facilitate movement of SPORE research along the translational science continuum; and the requirement for substantial access to cancer patient populations. In addition, for a SPORE application to be eligible for submission, the investigators must have a strong, demonstrable research base in the cancer type to be studied. These Guidelines for NCI SPORE grants are intended as a resource on NCI policies and review procedures for prospective SPORE applicants and for reviewers of NCI SPORE applications. These Guidelines also contain instructions for preparing and submitting a SPORE application to the NCI which supplement the instructions in the PHS 398 form for applications for a Public Health Service Grant (see <http://grants1.nih.gov/grants/funding/phs398/phs398.html>), since the instructions in the PHS 398 form relate primarily to preparing single project R01 applications.

**ALL NCI SPORE APPLICATIONS MUST BE SUBMITTED UNDER NIH FUNDING OPPORTUNITY ANNOUNCEMENT PAR-10-003, Specialized Programs of Research Excellence (SPOREs) in Human Cancer for Years 2010, 2011 and 2012 (P50) (<http://grants.nih.gov/grants/guide/PA-files/PAR-10-003.html>).** Applications not prepared using the current version of the PHS 398 application forms or not adhering to the format and preparation instructions contained in these Guidelines and the NCI SPORE Funding Opportunity Announcements may be deferred or returned without review.

Submitting and reviewing a SPORE application requires a substantial investment of effort by applicants, applicant organizations, NCI staff, and peer reviewers. To maximize the potential of this effort, prospective applicants are strongly advised to discuss their ideas with relevant NCI program staff in the NCI Translational Research Program (TRP, <http://trp.cancer.gov>) at least four to six months prior to the submission of an application. In addition, since SPOREs have a fixed total budget cap for all new, resubmitted (amended), and renewal (competing continuation) applications, all applicants should confirm with TRP staff that their proposed SPORE will adhere to current NCI budget policies.

Applicants are asked to submit a letter of intent as outlined in detail in the Funding Opportunity Announcement (<http://grants.nih.gov/grants/guide/PA-files/PAR-10-003.html>). This letter is not mandatory, but strongly encouraged because it allows NCI staff to estimate the potential review workload and plan the details of the review in advance. The letter of intent should be sent electronically or by mail to the NCI Program Officer/Director at the following address:

Rajeev K. Agarwal, Ph.D.  
Program Director  
Translational Research Program (TRP)  
Division of Cancer Treatment and Diagnosis (DCTD)  
National Cancer Institute (NCI)  
National Institutes of Health (NIH)  
6116 Executive Boulevard, Suite 700  
Bethesda, MD 20892-8347 (regular mail)  
Rockville, MD 20852 (express/courier mail)  
Tel: 301-496-8528  
Fax: 301-402-5319  
Email: [agarwalraj@mail.nih.gov](mailto:agarwalraj@mail.nih.gov)

**Applicants should also be aware that competitive revision awards (supplements) to SPORE applications are very rare and require extremely compelling situations. Therefore, these Guidelines do not include instructions for the preparation of a competitive revision application. SPORE grantees who wish to submit a competitive revision application should speak first with their Program Officer in the TRP.**

Finally, NCI SPORE applications must follow all relevant NIH policies regarding protection of human subjects from research risks; inclusion of women, minorities and children in clinical research; monitoring of data and safety of all clinical trials; vertebrate animals; human embryonic stem cells; and resource sharing as indicated in the PHS 398 instructions. Failure to do so may result in deferral of the review or return of the application without review.

The process for submitting a SPORE application is described in detail in these Guidelines. All NCI SPORE applications, including new, renewal, and resubmitted applications, must be received on or before the dates stated in [PAR-10-003](#). The original application and three copies must be sent to the NIH Center for Scientific Review (CSR) at the address provided in the PHS 398 form. Two copies of the application must also be sent directly to the NCI Referral Office at the address shown below:

Referral Officer  
Division of Extramural Activities  
National Cancer Institute  
6116 Executive Boulevard, Room 8041, MSC 8329  
Bethesda, MD 20892-8329 (for U.S. Postal Service express or regular mail)  
Rockville, MD 20852 (for non-USPS express/courier delivery)  
Telephone: (301) 496-3428  
Fax: (301) 402-0275  
E-mail: [ncirefof@dea.nci.nih.gov](mailto:ncirefof@dea.nci.nih.gov)

One of the two copies of the application sent to the NCI Referral Office may be a CD with a bookmarked PDF file. All appendix material must be prepared as bookmarked PDF files on a CD following the instructions in the PHS 398 form and included in the package with the two copies sent to the NCI Referral Office on the receipt date.

NCI SPORE applications will be grouped for review by NCI Special Emphasis Panels based on scientific areas of the proposed research and the number of applications received for a particular receipt date.

The NIH continues to evolve policies governing all extramural awards, including NCI SPORE grants. Applicants are strongly encouraged, therefore, to obtain the latest policy and procedure information as the first step in preparing a new or renewal SPORE application. Further information and guidance may

also be obtained from any of the NCI Program Officers in the Translational Research Program (<http://trp.cancer.gov>).

## **SUMMARY OF CHANGES IN THIS REVISION OF THE NCI SPORE GUIDELINES**

This page provides only a summary of the changes and revisions in these updated Guidelines for NCI SPOREs. Detailed information is presented in the appropriate sections of these Guidelines below and in PAR-10-003, Specialized Programs of Research Excellence (SPOREs) in Human Cancer for Years 2010, 2011 and 2012 (P50) (<http://grants.nih.gov/grants/guide/PA-files/PAR-10-003.html>).

**There are significant changes in the instructions and requirements for preparing the following sections of the SPORE application:**

### ***Revision of the Program Organization and Capabilities (POC) Section***

This recently added section of the SPORE application has been revised to include information about the scientific and administrative leadership of the SPORE; cancer patient population; integration of the shared resource cores with the projects; planning and evaluation activities; and bioinformatics infrastructure—development and usage. This section also discusses the relationship of the SPORE to the Cancer Center and/or institution(s) in which it functions, including institutional commitments and how SPORE research projects and Cores will be integrated with existing Cancer Center/institutional resources (e.g., use of clinical data and safety management systems, biostatistical Cores, etc.) Information about collaborations has been moved to the new Scientific Collaboration (SC) Section. The POC may have one page for an Introduction to a resubmission application, and 12 pages for the discussion of the above items.

### ***New Scientific Collaboration (SC) Section***

This new section of the SPORE application includes descriptions of collaborative efforts (including agreements) of SPORE projects within the SPORE community, across NCI-supported clinical trial and translational science mechanisms, and also with other government and non-government programs that have as their goal moving cancer therapeutic, biomarker, prevention or epidemiological studies from the discovery/laboratory phase to early clinical trials/studies to later phase studies and beyond. The strategic and procedural details of what has been accomplished, what is ongoing, and what is planned, for each of the projects and programs is appropriate for this section while the presentation of specific scientific data should remain in the individual research projects and programs. Aspects of SPORE leadership related to collaboration (see definitions in section III C 6) should be discussed here whereas all other aspects of the scientific and administrative leadership of the SPORE unrelated to collaboration should be discussed in the POC section. The SC may have one page for an Introduction to a resubmission application, and 12 pages for the discussion of the above items.

### ***New Administrative Core***

An Administrative Core is now a requirement and should include information about the fiscal and data management, clerical and meeting support, and quality control and communication aspects within the SPORE (see also section III E2ii). The Administrative Core may have one page for an Introduction to a resubmission application, one page for administrative aims, and 12 pages for the discussion of the above items.

### ***Requirement for Advisory Boards***

In the past, advisory boards have been strongly encouraged. Now, an External Advisory Board consisting of appropriate experts who are not affiliated with either the SPORE or the SPORE

institution(s) is required and should be addressed under Planning and Evaluation in the POC section of the application. Internal/Institutional Advisory Boards are still strongly encouraged.

***Change in Requirement for Project in Early Detection, Prevention, or Cancer Population Science***

A project in early detection, prevention, or cancer population science will now be required for SPOREs only in four malignancies: breast, prostate, lung, and gastrointestinal cancers. SPOREs of other organ sites are strongly encouraged to include projects focused on one of these understudied areas of science.

***New Scoring Paradigm for the overall SPORE***

The overall Impact/Priority Score will now reflect the likelihood that the proposed SPORE will have a sustained powerful impact on translational cancer research in the organ site or group of related cancers chosen for study. The previous 70%/30% weighting (projects plus Cores/developmental programs plus POC) has been eliminated. In arriving at their final Impact/Priority Score, reviewers should focus on the translational impact of the proposed research projects as they are supported by the shared resource cores in the context of the overall program organization and capabilities, the developmental programs and the scientific collaborations of the SPORE.

***New NIH Policy of Post-Submission Application Materials***

For the majority of applications submitted for the September 2010 receipt date and thereafter, the only post-submission grant application materials that the NIH will accept are those resulting from unforeseen administrative issues. Post-submission grant application materials are those submitted after submission of the grant application, but prior to the initial peer review. This option is to be used when an unexpected event, such as the departure of a participant, a natural disaster, etc., has occurred, and can not be used to correct oversights/errors discovered after submission of the application. <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-10-115.html>

## REMINDERS

Communication with the NCI Translational Research Program (<http://trp.cancer.gov>) about the intent to submit a SPORE application is strongly suggested at least 4 to 6 months before the projected submission date and a letter of intent is requested 4 weeks before the receipt date.

**The receipt dates for all NCI SPORE applications, including new, renewal, or resubmitted applications, are shown in PAR-10-003 and in Section VIII A of these Guidelines.** The original application and three copies must be **received** by the NIH Center for Scientific Review application receipt office by the indicated dates. Two paper copies of the application or one paper copy and a CD with a PDF file of the application should be sent to the NCI Referral Office by the receipt date. A CD containing PDF files of all Appendix materials should be sent with the copies of the application to the NCI Referral Office.

## I. INTRODUCTION

**The SPORE (P50) grant is for support of a collaborative, multi-project, interdisciplinary, and often multi-institutional translational research program involving strong leadership and a number of independent investigators, basic scientists and clinical/applied scientists, who are dedicated to developing and applying new approaches to the prevention, early detection, diagnosis, and treatment of human cancers.** A SPORE includes a diverse group of projects connected by their organ-site or cancer type translational focus. The SPORE as a whole, including the translational research projects, the shared resource cores (Cores), the developmental research program, and the career development program, should produce a synergistic effort that will allow progress in improving cancer outcomes for human cancer patients to occur at a greater rate than if each project were pursued separately.

These Guidelines provide:

- Definitions, background, and policies for National Cancer Institute (NCI) SPORE grant applications.
- Instructions for the preparation of new, competing renewal, and resubmitted SPORE grant applications.
- Review criteria and a description of the peer review process for NCI SPORE grant applications.

## II. DEFINITIONS and IMPORTANT URLs for GRANT POLICIES

Career Development Program (CDP) – A required element within the SPORE that uses funds (a minimum of \$50,000/year) to support junior faculty or established investigators who wish to develop or refocus their careers on translational cancer research. Each awardee's project should not exceed two years and junior awardees should be assigned a mentor or advisor.

Developmental Research Program (DRP) – An important required component of the SPORE, with a minimum budget of \$50,000 per year from the NCI, which supports pilot projects of a limited duration. DRP pilot projects may be collaborative both inside and outside the SPORE community. Although DRP projects do not have to be translational, DRP projects with translational potential may become full projects during the non-competitive years with the approval of the External Advisory Board and the NCI Program Official.

Grants Management Specialist – the NCI official who serves as the focal point for all business-related activities associated with the negotiation, award, and administration of grants.

Letter of Intent – a nonbinding notification submitted to NCI staff by a Principal Investigator indicating intent to submit an application.

Multiple PD/PI - More than one Program Director/Principal Investigator (PD/PI) may NOT be designated by the applicant organization to direct the overall SPORE. However, each individual research project must have at least two co-Project Leaders: one basic and one clinical/applied co-leader.

National Cancer Advisory Board (NCAB) – a Presidential-appointed chartered committee that advises the Secretary, Department of Health and Human Services (DHHS) and the Director, NCI. The NCAB is composed of both scientists and lay members, performs the second level of review of grant applications, and advises on matters related to the policies, mission, and goals of the NCI. The members include outstanding authorities knowledgeable in relevant programmatic areas that are especially concerned with the health needs of the American people.

NCI Program Director – the NCI scientist administrator responsible both for the development of scientific initiatives and for the scientific management of research programs sponsored by the NCI. This person serves as the focal point for all science-related activities associated with the negotiation, award, and administration of grants. This person is also known as the NCI Program Officer or Program Official.

P50 – the NIH activity code which identifies a Specialized Center grant.

Principal Investigator – the person designated by, and responsible to, the applicant/awardee institution for the scientific and administrative direction and proper conduct of all aspects of the P50 SPORE grant. The Principle Investigator is also known as the SPORE Director.

Project – a research component of the SPORE application having a separate, detailed budget.

Project Co-Leaders/Core Directors – the investigators (basic and clinical or applied) responsible for the scientific direction and conduct of an individual research project or of a shared resource core component of a SPORE. There must be at least two for each research project and one or more for each shared resource core.

R01 – the NIH activity code that identifies an individual, investigator-initiated research project grant.

Scientific Review Officer (SRO) – the NCI scientist administrator responsible for the organization, management, and documentation of the initial peer review process for applications.

Shared Resource Core (Core) – a separately budgeted component in a SPORE that provides essential facilities or services to at least one of the proposed research projects. Also known as Cores, they may include other analytical or non-hypothesis driven research activities designed to enhance a service.

Special Emphasis Panel (SEP) – a group of scientific experts convened for a specific peer review of submitted applications.

SPORE Grant (P50) – the Specialized Programs of Research Excellence is a Specialized Center grant mechanism, for the support of a multi-project, interdisciplinary, and often multi-institutional research program. The NCI SPORE program was initiated through a special appropriation from Congress in Fiscal Year 1992 in order to promote interactions between basic and applied scientists for the development of new approaches to the prevention, early detection, diagnosis, and treatment of human cancer. The focus is on organ-site specific translational research or translational research that involves highly related groups of human malignancies. SPORE grants include support for common shared resource cores required for the conduct of the component research projects and require a developmental research program as well as a career developmental research program. A key aspect of the SPORE program is collaboration between each funded SPORE and other SPOREs and/or other NCI-funded research programs.

Summary Statement – the official record of the evaluation of the application and the recommendations of the SEP.

### **Important URLs for Grants Policy**

- Updated Instructions Regarding Inclusion of Publications as Appendix Materials: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-10-077.html>
- NCI Web Site: <http://www.cancer.gov/>
- Extramural Funding Opportunities: <http://deainfo.nci.nih.gov/funding.htm>
- NCI Notices Related to Initiatives: <http://deainfo.nci.nih.gov/extra/notices/index.htm>
- NIH Office of Extramural Research (OER) Peer Review Policy and Issues: <http://grants.nih.gov/grants/peer/peer.htm>
- PHS 398 Form and Instructions: <http://grants2.nih.gov/grants/funding/phs398/phs398.html>
- NIH Instructions to Reviewers for Evaluating Research Involving Human Subjects: [http://grants.nih.gov/grants/peer/hs\\_review\\_inst.pdf](http://grants.nih.gov/grants/peer/hs_review_inst.pdf)
- Guidance on Research Involving Human Specimens: <http://www.hhs.gov/ohrp/humansubjects/guidance/cdebiol.pdf>
- NIH Data Sharing Policy and Implementation Guidance: [http://grants1.nih.gov/grants/policy/data\\_sharing/data\\_sharing\\_guidance.htm](http://grants1.nih.gov/grants/policy/data_sharing/data_sharing_guidance.htm)
- NIH Guidance on Research Involving Human Embryonic Stem Cells: <http://stemcells.nih.gov/policy/guidelines.asp>
- NIH Policy on Resubmission (Amended) Applications <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-09-003.html>



- NIH Funding Opportunity Announcement for SPORE: <http://grants.nih.gov/grants/guide/pa-files/PAR-10-003.html>

### III. SPORE (P50) FUNDING MECHANISM

#### A. Background

The Specialized Program of Research Excellence (SPORE) was conceived and implemented by the National Cancer Institute (NCI) through a special \$20 million appropriation from Congress in Fiscal Year 1992. This program was initiated by the NCI to promote interactions between basic and applied scientists for the development of new approaches to the prevention, early detection, diagnosis, and treatment of human cancer. Since the objective of this program is to encourage a diversity of approaches to translational research, the P50 mechanism was chosen to support these grants. This mechanism has all of the features necessary to enable SPOREs to achieve translational goals, including the support of the following features: multiple translational research projects; co-leadership on all projects; shared resource Cores; flexibility to terminate and replace research projects without additional peer review; programs to develop pilot projects as well as to foster the development of translational scientists; and opportunities to combine resources and expertise between SPOREs and other NCI funded mechanisms to test new technologies and human applications in order to advance translational cancer research.

#### B. SPORE Definition of Translational Research

**Translational research uses knowledge of human biology to develop and test the feasibility of cancer-relevant interventions in humans and/or determines the biological basis for observations made in individuals with cancer or in populations at risk for cancer.**

By this definition, SPORE projects are permitted to move not only in the forward direction, toward clinical trials and studies in areas of prevention, early detection, treatment, development of biomarkers, and population science, but also in the reverse direction, using human biospecimens, often from clinical trials, to study new phenomena, to optimize previous findings, or to develop new hypotheses based on results from human studies. See Figure 1.

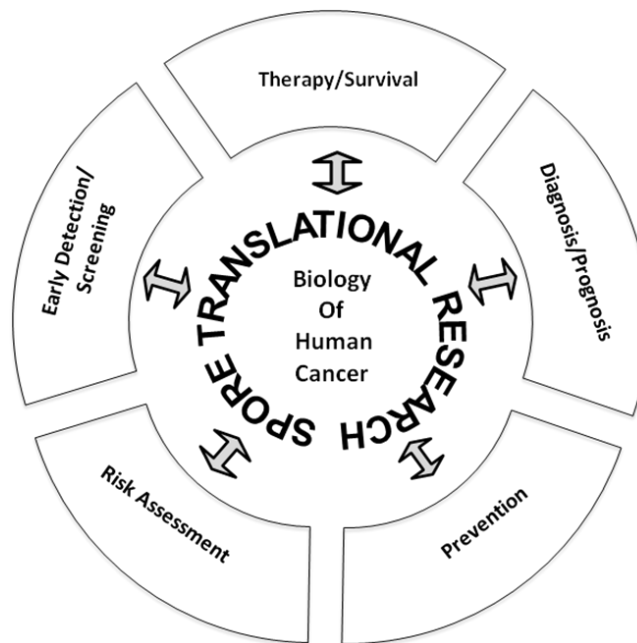


Figure 1: Translational research focus of SPOREs. Research projects should be designed to: (a) test the relevance of a biological discovery in human cancer risk, prevention, early detection/screening, diagnosis, prognosis, or therapy and/or (b) determine the biological basis of an observation made in the clinic or population during the 5-year term of the grant.

All proposed SPORE projects must be translational. In every SPORE project, the development of new cancer-relevant interventions should include both a laboratory component and a human application that must be performed at some time **during the 5 year term of the grant**. Similarly, existing human applications must represent the starting point for those projects that propose to study the biological basis of observations made in humans. For the purpose of these Guidelines, such human applications are defined as the **human endpoints**.

The following types of human endpoints are acceptable to qualify SPORE projects as translational and programmatically responsive:

- Early phase clinical trials of new investigational drugs and biologics, experimental procedures, medical devices, or combinations thereof, or
- Early phase clinical trials of new combinations or new uses of the FDA-approved agents and devices, or
- Discovery and development of biomarkers, only when measurements are made in human specimens, or directly in human subjects, or
- IND-directed toxicology studies\* conducted following a pre-IND meeting with the FDA in which the plan proposed by the investigators is acceptable to the FDA, or
- Population, behavioral, or psychosocial studies, when these studies address mechanistic aspects of the biology of the disease, or
- Clinical studies that lead to laboratory studies which address new clinical hypotheses.

At least one specific aim of each project must address one of these human endpoints.

Experiments using cell lines or xenografts/tumor grafts may be important to the translational studies proposed and are encouraged, but are not sufficient to meet the human endpoint requirement.

Potential applicants are advised to consult with the NCI program staff to clarify whether the above mentioned criteria have been satisfied in their planned grant applications. A current listing of the TRP program staff can be found at <http://trp.cancer.gov>

\*The TRP realizes that IND-directed toxicology studies do not involve human beings, but as these studies are the last steps before clinical trials begin, they are considered appropriate and responsive as a human endpoint for SPORE translational projects.

### **C. General Description of SPOREs**

In addition to their focus on organ-specific human cancer, such as breast cancer, or highly related groups of human cancer types, for example gastrointestinal cancers, all SPOREs include the following common features.

#### **1. Translational Research Focus**

All SPOREs must be focused on translational research that meets the definition provided in Section III.B. SPOREs are dedicated to capitalizing on research opportunities that have the potential to change the current paradigm in the prevention, detection, diagnosis, and/or treatment of human cancer. SPORE projects can include some basic science objectives if they are relevant to human cancer and will lead to a human application within the 5-year term of the grant. If a project has lost its translational focus or the likelihood of having an impact on human cancer, it should be discontinued as a SPORE project and replaced by a project with translational focus.

#### **2. Collaborative Design and Implementation of Research Projects**

SPOREs require collaborative co-leadership for each project by at least one scientist in the basic biomedical sciences working at the cellular and molecular level, and one or more scientists in applied areas, for example, clinical scientists working in patient-oriented research and /or population scientists with experience in patterns of disease, who provide the expertise for the design and implementation of translational cancer research projects.

#### **3. Flexibility to Change Research Direction/Team Approach**

The flexibility of the SPORE program was established in order for the Principal Investigator (PI) to terminate research projects that demonstrate little or no translational progress and to replace them with new projects that have greater translational potential. New projects may also be substituted for original projects that are completed before the end of the grant period. As a result of this flexibility, the team of scientists that participates in SPORE projects may or may not remain the same, and the roles of co-leaders on projects may change throughout the course of the funding period. The flexibility option may not be used, however, to add full scientific projects over and above the number that was peer reviewed, even if no new funds are requested.

The PI of the SPORE is expected to make decisions about the continuation or discontinuation of projects in consultation with his/her internal and external advisors, as well as with other lead investigators on the SPORE. The flexibility option is available only after the SPORE application has been awarded; a new project cannot be proposed for one that has overlap with an awarded or soon-to-be awarded U.S. Public Health Service (PHS) grant. Although it is acceptable for investigators to submit concurrently essentially the same research proposal as a SPORE project and as an independent R01, R21, etc., application to the NIH, they must be prepared to relinquish the R01 (or other single project) award if both are determined to be meritorious and eligible for funding. Investigators may not concurrently submit both a P01 and a P50 application requesting support for the same projects/activities. Potential overlap will be evaluated by NCI staff prior to review; submitted applications will not be reviewed if they do not conform to NIH policies or if they fail to meet the minimum requirements of the SPORE Program.

#### 4. Specialized Research Infrastructure

SPOREs are expected to establish the critical research infrastructure needed to sustain the translational research projects proposed within the SPORE, as well as to promote the horizontal and vertical collaborative projects with other SPOREs and other government and non-government supported research groups within the biomedical research community that evolve during the project period. SPOREs must be in a position to facilitate the complex research objectives inherent in studying human cancer.

#### 5. Fostering Translational Research Careers

SPOREs provide a unique environment for translational research that can be used to prepare new scientists for careers in this evolving field or provide the opportunity for established scientists to re-orient their research careers toward translational research.

#### 6. Research Collaborations, Networks, and Consortia

SPOREs are expected to identify the kinds of research questions that can only be accomplished through collaborations, networks, and consortia and take full advantage of SPORE scientific expertise and infrastructure. Through the promotion of inter-SPORE research, SPOREs also conceive and initiate research that is further linked to other key programs of the NCI, NIH, and other government and non-government programs. Acceleration along the pathway to the clinic, either directly in the case of therapeutic agent development or indirectly through the various steps of validation in the case of biomarker development, can best be served by two types of collaboration:

- i. **Horizontal Collaboration:** Collaboration in which groups work together coordinately to accomplish a set of research aims or goals on a single level, that is, in the laboratory, or at the clinical trial stage, or as a population clinical study. This is the type of collaboration in which SPOREs have traditionally participated.
- ii. **Vertical Collaboration:** Collaboration in which groups work together sequentially, or with some concomitance, to move up the translational research pathway, that is, from discovery, to pre-clinical development, to Phase I trials or studies, to later phase studies, and possibly to a final hand-off to a commercial company.

#### 7. Sharing Information, Data, and Resources

SPOREs readily share information, data, and resources within their organ site network, as well as with other SPOREs, to take advantage of research results that are applicable to various cancer sites. Applications for SPORE grants are required to include a data and research resources sharing plan. The plan should outline how final research data will be shared among the SPOREs, as well as with the research community at large, or state why this is not possible. For additional information on the NIH Data Sharing Policy, see [http://grants.nih.gov/grants/policy/data\\_sharing/](http://grants.nih.gov/grants/policy/data_sharing/). The NIH also requires the timely sharing of biomedical resources by grant recipients. Therefore, the plan should also describe how unique research resources will be distributed, e.g., through the institution, a repository, or national coordinating center. For information regarding research resources sharing, see [http://grants1.nih.gov/grants/policy/nihgps\\_2003/NIHGPs\\_Part7.htm#\\_Toc546000132](http://grants1.nih.gov/grants/policy/nihgps_2003/NIHGPs_Part7.htm#_Toc546000132) information regarding the sharing of model organisms can be found at [http://grants.nih.gov/grants/policy/model\\_organism/index.htm](http://grants.nih.gov/grants/policy/model_organism/index.htm).

#### 8. Intellectual Property Rights

Each SPORE must develop an intellectual property management plan (IPMP) which addresses evaluation, protection, and commercialization of solely or jointly owned SPORE inventions, including any patenting and licensing strategies. This plan should address all proposed SPORE projects. **Although the IPMP will not be included in the application or evaluated during the peer review process, it must be submitted to NCI program staff prior to award. Therefore, all applicants are**

**strongly encouraged to begin development of their IPMP while they are developing the projects.**

The institution should provide a written assurance that it will protect the intellectual property rights arising from inventions of the SPORE investigators and their collaborators; under no circumstances should the institution enter into agreements with commercial entities (e.g., pharmaceutical or biotechnology companies) that would compromise the ability of SPORE investigators to have unhindered access to institutional resources developed in SPORE-related research or participate fully in collaborations with any other researchers. The statement of commitment should also include a written assurance that in its interactions with commercial entities under sponsored research agreements, the SPORE institution(s) will comply with the requirements of the Bayh-Dole Act (37 CFR 401; <https://s-edison.info.nih.gov/iEdison/37CFR401.jsp>), the NIH Grants Policy Statement, and any relevant NIH funding agreements while upholding basic principles of academic freedom. Sponsored research agreements with commercial entities should be entered into by the SPORE institution(s) only upon due consideration of the points outlined in "Developing Sponsored Research Agreements: Considerations for Recipients of NIH Research Grants and Contracts" (Federal Register, Vol. 59, No. 215; Tuesday, November 8, 1994; pp. 55674-5567).

The IPMP should also include a written assurance that the SPORE institution(s) will manage its interactions with third parties so that they do not restrict the SPORE's ability to receive and disseminate biomedical research materials developed with NIH funding from and to the scientific community. *Likewise*, letters should be supplied by any relevant third parties (including any external co-investigators, collaborators, or consultants) confirming their adherence to these policies. These letters should outline in detail the agreement made between the commercial entity and the SPORE institution.

Costs related to the patenting and/or licensing of intellectual property may be allowable as F&A costs (see <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-04-045.html>). Applicants should, in developing their IPMP, confer with their institutions' offices that are responsible for handling technology transfer-related matters and/or sponsored research. Applicants may also wish to independently research and review examples of approaches considered by other institutions, such as those described on the NCI Technology Transfer Branch web site at <http://ttb.nci.nih.gov/ipplans.html>. Furthermore, applicants are welcome to address inquiries regarding the development of IPMPs directly to the NCI program staff in the Translation Research Program of the NCI.

## **9. Participation in NCI-Sponsored Meetings and Workshops**

SPORE Directors and selected investigators are expected to participate in NCI-sponsored meetings and workshops to share expertise and research results with other translational grantees funded by NCI mechanisms such as SPOREs, P01s, R01s, U01s, etc. Examples of such meetings/workshops include the NCI Translational Science Meeting (TSM) and organ-site specific workshops. Other goals of these meetings are to share materials, assess progress, and identify new research opportunities as well as to establish research priorities, and collaborations that will maximize reducing incidence, morbidity, and mortality of cancer. A statement of commitment to attend this workshop should be included in the Administrative Core.

Travel funds for the PI and (up to) nine selected SPORE investigators and collaborators should be budgeted for these meetings in the Administrative Core.

Because of the collaborative nature of the SPORE program, unwillingness or a consistent inability of a PI or SPORE group to attend SPORE-related meetings may be the basis for termination of the grant.

## **10. If a SPORE application originates from an institution that is supported by an NCI Cancer Center Support Grant (CCSG; P30), the following are also expected:**

- i. A SPORE PI should hold a senior position in the Cancer Center. The PI of the SPORE may be the Cancer Center Director.
- ii. The SPORE must be an integral part of the Cancer Center and the lines of authority should be clearly indicated. A letter of commitment which delineates the organizational relationships and responsibilities is required. This letter must be address to either the SPORE PI or the NCI and must be signed by the Cancer Center Director.
- iii. The applicant should discuss how the SPORE will interact synergistically with existing P30 programs in order to maximize both SPORE and Cancer Center research objectives. While the SPORE is expected to become an integral element within the NCI-designated Cancer Center, a distinct institutional commitment to the SPORE must still be maintained throughout the term of the SPORE grant.
- iv. The proposed Cores within the SPORE should not duplicate any available facility already in place and supported by another granting mechanism (e.g., P30, P01, U01, U10, DOD, etc.). Applicants may, however, use SPORE funds to augment pre-existing Cancer Center resources in order to direct these activities toward more effective fulfillment of the requirements of the SPORE. For example, the SPORE should use the Cancer Center-specific IRB(s) and DSMB(s) as well as other clinical trial resources, whenever possible.

#### **D. Eligibility Requirements for Submission of a SPORE Application**

SPORE applications must meet all of the following eligibility criteria as well as contain the required components of a SPORE. Applications that are not responsive to these requirements will not undergo scientific peer review.

##### **1. Institutional and Individual**

Applications may be submitted by U.S. domestic for-profit and not-for-profit organizations, either public or private, including universities, colleges, hospitals, and laboratories, units of State and local governments, units of State and local Tribal governments, eligible agencies of the Federal government, and faith-based or community-based organizations. Racial/ethnic minority individuals, women, and persons with disabilities are encouraged to apply as PIs.

Each applicant institution may submit multiple SPORE applications provided that they are scientifically different, proposed in a different cancer site, and are led by different PIs. A single investigator may participate in more than one SPORE as long as there is no scientific overlap.

Foreign institutions may not submit a SPORE application. However, U.S. institutions may propose consortium agreements with foreign institutions as long as the appropriate federal-wide assurances for the protection of human subjects are in place (see <http://www.hhs.gov/ohrp/>) and the activities at the foreign site(s) do not exceed 49 percent of the direct costs of the overall budget. NIH provides limited facilities & administrative (F&A) costs (8 percent of total direct costs less equipment) to foreign institutions and international organizations to support the costs of compliance with NIH requirements, including, but not limited to, protection of human subjects, animal welfare, and research misconduct. See the NIH Grants Policy Statement (Revised December 2003) at [http://grants.nih.gov/grants/policy/nihgps\\_2003/NIHGPS\\_Part12.htm](http://grants.nih.gov/grants/policy/nihgps_2003/NIHGPS_Part12.htm).

##### **2. Statement of Institutional Commitment**

An institution applying for a SPORE grant should demonstrate a commitment to the proposed SPORE's stability and success by promising to incorporate the SPORE high within its institutional priorities. The application must provide a statement of commitment that includes a plan addressing how the institutional commitment will be established and sustained, how the institution will maintain accountability for promoting scientific excellence, and how the SPORE research effort will be given a high priority within the institution (relative to other research efforts). The institutional commitment may be in the form of support for recruitment of scientific talent, providing protected time for physicians, assignment of specialized research space, cost sharing of resources, and/or other ways proposed by the applicant institution. *Letters from a high-level institution official(s) (e.g., Dean of the School of Medicine, President, and Vice President for Research) and the Cancer Center Director should be attached confirming this commitment.* In the case of a SPORE that involves two or more institutions, the applicant institution must submit a formal written agreement(s) from the other participant organization(s) that states how the participating institution will commit to the SPORE.

The primary institution (as well as any participating institutions) is strongly encouraged to demonstrate commitment by providing financial support to the Developmental Research and Career Development Programs on an awarded SPORE, as well as other programmatic needs identified as high priority in the application. The institution(s) is also encouraged to provide the SPORE PI with discretionary funds. These funds can be used to support anticipated as well as unanticipated activities during the funding period. All financial commitments made by the institution to the SPORE will be monitored and are expected to be maintained during the entire term of the award.

### 3. Cancer Patient Population

Each SPORE must document access to a substantial patient population in the cancer-site focus of the application and provide reasonable assurance that the patients and human specimens needed for translational research are readily available. If the appropriate patient population is not available at the applicant institution, a consortium agreement may be established with a different institution(s) to provide adequate access to clinical specimens and/or patients.

### 4. Minimum Research Base

In order for a SPORE application to be accepted for review by NCI, the application must include four or more independent investigators who currently serve as PIs (or project leaders) on peer-reviewed research grants (e.g., R01, R21, P01, U01, U10, American Cancer Society [ACS], U.S. Department of Defense [DOD], or equivalent) or are overall chairpersons or site chairpersons on active NCI cooperative group clinical trial(s) or committees directly related to the cancer(s) being investigated. PIs supported by the NCI through K05, K22, K24, or K25 career development grants can also be included in the research base requirement if the career award is directly relevant to the cancer or related group of cancers being investigated in the SPORE. Please note that an investigator who is a PI on multiple qualified grants or clinical trials counts only once towards the research base and, in order to qualify, the investigator must be the PI (not co-investigator) on the highlighted activity. The qualifying investigators also must have a significant role on the SPORE (i.e., greater than or equal to a 0.6 calendar months level of effort contributed as a project co-leader, co-investigator, or Core director); they cannot only serve as mentors within the proposed Career Development Program or be the project leader of a proposed Developmental Research project. Although it is not necessary to address the minimum research base in the application **applicants must confirm with TRP staff that they meet the minimum research base before preparing their application and again in writing**



**directly prior to submitting their application.** The latter notification may be done within the letter of intent.

## E. Major Components of SPORE Applications

### 1. Research Projects

Research projects may be conducted solely through the parent institution, or through collaborative associations that have been developed and/or are planned with other SPOREs and/or with other investigators in the biomedical research community. However, all SPOREs must meet the following requirements:

- i. Each proposed project must meet the definition of translational research as described in Section III B. Investigators who are not certain about whether their project fits this definition are advised to consult with program staff in the TRP.
- ii. Each proposed research project must be designed to test the relevance and/or potential importance of the research to human cancer within the 5-year term of the grant (e.g., validation of a new screening mechanism or diagnostic test, early phase therapeutic trial, analysis of human tissues such as tumors for molecular targets or blood samples for early detection biomarkers). Basic research projects, such as those employing animal models or cell lines, qualify as translational only if a human application is included in the specific aims of the research and if it is feasible to complete that aim within the 5-year funding period. *Applicants are encouraged to contact the Translation Research Program if they have any questions concerning this essential requirement.*
- iii. Each proposed research project must be led by project co-leaders, one in basic biological sciences and one in applied sciences, who commit adequate percent efforts and who use their combined conceptual and experimental skills in designing and implementing the project. It should be evident from this collaboration that translational research objectives will be accelerated such that it will be possible to test the relevance of the underlying hypotheses or to generate new hypotheses relevant to human disease. It is not necessary that the co-leaders commit equal effort to the project. The commitment for each of the project co-leaders should be equal to or greater than 0.6 calendar months per year level of effort.
- iv. A minimum of four research projects must be submitted, representing a balance and diversity of translational research objectives (e.g., early detection, prevention, diagnosis, treatment). Applications with a specific theme (e.g., gene therapy in prostate cancer) are discouraged.
- v. For breast, prostate, lung and gastrointestinal cancer SPOREs, at least **ONE** research project must focus on early detection, prevention, and/or population science research.

For the SPORE, the following definitions apply:

An **early detection** project is one that develops and/or tests an assay (biological or imaging) that determines the presence of an early invasive cancer or detects a pre-cancerous lesion, for which a subsequent intervention is established or for which an experimental intervention will be performed. A project investigating a risk assessment assay that determines the risk for subsequent development of a cancer would also be appropriate. Although, screening and early detection are sometimes used



interchangeably, screening is the application of the assay in general populations and is beyond the scope of a SPORE project.

A **prevention** project investigates a medical or lifestyle intervention that has as its aim the reduction of cancer incidence in individuals at risk. A project that addresses the prevention of a second primary tumor is also appropriate. A therapeutic vaccine in a no-evidence-of-disease state would NOT be considered secondary prevention, but rather a therapeutic intervention (i.e., adjuvant therapy.) However, a project which develops a vaccine that targets “at risk” lesions would be acceptable.

A **population science** project aims to understand the causes and distribution of cancer in diverse populations, supports the identification and delivery of effective interventions to reduce cancer risk, and mortality, and monitors and explains cancer trends in segments of the population. With the relatively small population sizes and funds of the SPORE projects these population studies should be pilot investigations using population science methods, or part of larger collaborative efforts that bring together investigators across diverse disciplines and perhaps across diverse NCI initiatives. To meet this requirement, population science projects should focus on risk assessment, prevention, and/or early detection, not therapeutic interventions.

For each of these types of studies, for the SPORE, there must be a **laboratory component** which is based on the **biology of human cancer**.

See Table 1 for a list of the organ sites supported by the SPORE program and which of these sites require a project focused on early detection, prevention, or population science. If such a project is required, then at least one scored project in this category will be required for award and must be maintained throughout the entire term of the award. In addition, if such a project is required, the applicant **must state on the specific aim page of that project** that this is the project that addresses the requirement and also state what type of project it is.

The leader(s) of a SPORE may reach out to another institution to include them as a consortium to fulfill this requirement either because of the relevant expertise of an investigator(s) or the patient base/population present at the additional site. The leader(s) of a SPORE may also propose a prevention, early detection, or population science project that capitalizes upon an existing or evolving inter-SPORE collaboration or related research activity supported by another NCI/NIH Network.

Cancer site SPOREs for which a project on early detection, prevention, or population science is not a formal requirement are still strongly encouraged to include a project focused on one of these important understudied areas of science. However, SPORE applications in these cancer sites that do not include such a project will not be penalized in the review.

**-Table 1. SPORE Organ Sites**

Organ Site(s)	Includes the following cancers*	Required Project**
1. Brain	Brain, and all nervous system tumors	No
2. Breast	Breast	Yes
3. Gastrointestinal (GI)	Predominantly Large and Small Bowel Cancers, but also including, Esophageal,	Yes

	Stomach, Liver, Pancreatic	
4. Genitourinary (GU)	Bladder, Kidney, Testicular, but <i>not</i> Prostate	No
5. Gynecological (GYN)	Cervical, Endometrial, but <i>not</i> Ovarian	No
6. Head and Neck	Salivary, Larynx, Nasopharyngeal, Oral, Thyroid	No
7. Leukemia	Leukemia, myelodysplastic syndrome (MDS)	No
8. Liver	Liver	No
9. Lung	Lung	Yes
10. Lymphoma	Lymphoma (Hodgkin's, Non-Hodgkin's, chronic lymphocytic leukemia [CLL])	No
11. Myeloma	Myeloma, monoclonal gammopathies of undetermined significance (MGUS)	No
12. Ovary	Ovarian	No
13. Pancreas	Pancreatic	No
14. Prostate	Prostate	Yes
15. Sarcoma	Soft and bony tissue sarcomas including: Osteosarcoma, Rhabdomyosarcoma, Ewing sarcoma, and other sarcomas	No
16. Skin/Melanoma	Predominantly Melanoma, but also all other skin malignancies. May also include melanoma in sites other than the skin.	No
17. Other Cancer Sites	Contact TRP Staff	

\* Not all-inclusive; if proposing projects on other cancers, contact appropriate TRP program staff.

\*\* Indicates whether applications **require** a project focused on early detection, prevention, or population science.

- vi. Research projects involving **HUMAN SUBJECTS** must adequately address the protection of human subjects from risks, the overall benefit of the study to participants, the inclusion (or exclusion) of women, minorities, and children as instructed in the PHS 398 Instructions (Rev. 06/2009). Instructions are provided at <http://grants1.nih.gov/grants/funding/phs398/HumanSubjects.pdf> or can be downloaded in MS Word format from <http://grants1.nih.gov/grants/funding/phs398/phs398.html>.

A project proposing the involvement of human subjects in clinical research must also include a Targeted/Planned Enrollment Table. The table is available at <http://grants.nih.gov/grants/funding/phs398/enrollment.pdf>. If applicable, competing renewal applications that include ongoing projects from the previous funding period must also provide Inclusion Enrollment Reports on any clinical research activity performed during the past 12 months. Any past difficulties encountered in the recruitment of human subjects including women, minorities, and/or children should be discussed, along with any new plans to enhance recruitment.

Only Phase I and early Phase II clinical trials (generally non-randomized, small accrual (<100), investigating the activity of a single agent in a particular disease) may be supported by the SPORE mechanism. SPOREs are strongly encouraged to establish

collaborative clinical trial activities across NCI-funded mechanisms early in the development of projects that have clinical trials/studies as their goals.

For multicenter, randomized Phase II therapeutic trials ( $\geq 100$  patients), SPOREs wishing to collaborate as an interSPORE endeavor or with investigators funded by other grant mechanisms, should use the appropriate NCI Disease Specific Steering Committees and their Task Forces (<http://restructuringtrials.cancer.gov/steering/overview>) working together to develop clinical concepts from early SPORE trials that could move forward, beyond SPORE grant support, to the Clinical Trials Cooperative Groups. Collaborative trials using this opportunity may also include correlative studies. However, correlative studies associated with a Cooperative Group trial may be supported within a SPORE project.

An alternative, but limited, collaborative opportunity is access to the NCI Cancer Trials Support Unit (CTSU) (<https://www.ctsu.org/public>) for large Phase II trials. The NCI will consider requests for CTSU resources upon recommendation by a Disease Specific Steering Committee when it is not possible to use to Clinical Trials Cooperative Groups. Trial support through the CTSU may include the following: regulatory support, website document hosting, protocol coordination, patient registration, study coordination, clinical database development, data management, data processing and information technology support. Accrual reimbursement consistent with other NCI funded trials of similar phase and complexity is also available. Trial support does not cover statistical services, patient care costs, clinical investigator oversight, salary support, correlative studies or routine and for-cause site auditing. For these types of support, other grant or contract mechanisms will be necessary.

For more information about these collaborative Phase II trial opportunities and the approval process required, applicants should contact the Coordinating Center for Clinical Trials (CCCT) staff member associated with the parent Disease Specific Steering Committee. The contact information can be found at <http://restructuringtrials.cancer.gov/steering/overview>.

It should be noted that a clinical trial may **not** be the goal of many SPORE projects. Some projects will reach a human endpoint by using human specimens in the laboratory to expand upon observations made in the clinic, a process known as “reverse translation.” However, when biomarker studies are ready for clinical trials, SPOREs are encouraged to collaborate with trans-NCI clinical trial mechanisms to validate the biomarkers clinically.

A plan for a clinical trial must include provisions for rigorous data management, quality assurance, and safety monitoring. These monitoring activities are distinct from the requirement for study review and approval by an Institutional Review Board (IRB). For details about the Policy of the NCI for Data and Safety Monitoring of Clinical Trials, see <http://deainfo.nci.nih.gov/grantspolicies/datasafety.htm> and the PHS 398 Instructions (Rev. 06/2009; Part II, page 17). A general description of the data and safety monitoring plans should be included in the application (see <http://grants.nih.gov/grants/guide/notice-files/not98-084.html>). This description should explain the rules and procedures for detecting, monitoring, and reporting any adverse drug reaction or event during a clinical trial. A copy of a draft or IRB-approved clinical trial protocol, along with informed consent forms and a specific data and safety monitoring (DSM) plan, are also required and should be included in an Appendix if the trial is already underway or is anticipated to begin within the first 2 years of an award. If the trial will be performed during the latter

part of the grant term, submission of these items to NCI program staff is required prior to the initiation of the trial.

The NIH also requires that all investigators proposing research involving human subjects are educated on the protection of human research participants. For information relating to this requirement, see the NIH Guide Notices at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-039.html> and at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-01-061.html>, and also the answers to Frequently Asked Questions found at [http://grants.nih.gov/grants/policy/hs\\_educ\\_faq.htm](http://grants.nih.gov/grants/policy/hs_educ_faq.htm).

## 2. Shared Resource Cores

SPORE applications **must** include a biospecimen/pathology and an administrative shared resource core and may include other shared resource cores that provide laboratory and/or clinical facilities, equipment, and/or services to be shared by one or more research projects and the developmental programs. Clinical and Biostatistical Cores are strongly encouraged. All proposed SPORE Cores must include a budgetary request. Shared resource cores may include non-hypothesis-driven research activities provided that the research is designed to improve Core services.

The shared resource cores within the SPORE should not duplicate any shared resource facilities that are already available to the research group. If a proposed Core appears to duplicate other facilities at the applicant institution(s), justification should be provided along with an explanation for why these institutional resources cannot be used for the SPORE activities.

For a SPORE application originating from an institution that is supported by an NCI Cancer Center Support Grant (P30), a list of existing Cancer Center Cores that will be shared with the SPORE should be included as part of the institutional resources in the **Overall Program Environment and Resources section**, along with a brief description of each that includes staffing, commitments and capabilities and any fees charged for its use. Where practical, use should be made of the Internal Review Board, Data and Safety Monitoring Boards (s), as well as clinical resources available throughout the Cancer Center. Whenever there is dependence on Institute-wide Core Resources, a letter of agreement from the Core Manager/Director should be included.

If any of the participating institutions has two or more ongoing SPORE awards, the application must address in the POC section and/or in the relevant Core sections how related (e.g., specimen banking) activities are coordinated across all SPOREs, as well as within the Cancer Center. For example, it might be anticipated that a request to support a Biospecimen Core at an institution with a CCSG and substantial ongoing SPORE support will be smaller, based on the infrastructure already in existence at the institution. Prior to an award, NCI will carefully review proposed SPORE Core activities and budgets for overlap with ongoing CCSG and SPORE Cores. It should be the objective of all involved Core directors to make sure that biospecimen-related, biostatistical, bioinformatics, and clinical activities are performed in a cost effective and coordinated manner.

If the SPORE will benefit from a funded institutional, local, state, or national resource/consortium, the funded resource should be described in the relevant sections of the Program Overview, POC, SC, and/or the Overall Program Environment sections of the application. The use of this pre-existing resource will be evaluated as part of the institutional commitment and/or the collaborative interactions component of the application.

For competing renewal applications, use of Core facilities and services by projects and the developmental programs during the current funding period should be clearly documented. A list of joint publications, including investigators from both the projects and the Cores, should also be included for the Core.

i. Biospecimen/Pathology Core (Required)

Each SPORE must have a dedicated Core for collecting and distributing human specimens related to the cancer site(s) specified for the SPORE grant. Specimens include fixed tissue, frozen tissue, paraffin blocks, slides, preserved cells, serum, plasma, urine, sputum samples, and other body fluids. This Core should be a specialized specimen resource that can be used for novel and robust biomarker development and accurate testing of translational hypotheses. Appropriate informatics capability for tracking, as well as linkage to clinical and follow-up data sets, should be demonstrated. Pre-analytical considerations should be addressed, and applicants are encouraged to describe the informatics system to be used for detailed annotation of parameters of collection and preservation of specimens. The specimen Core informatics should also include the essential pathological, clinical, and family history information needed for conducting a wide range of translational research activities. Networking with informatic systems at other sites, e.g. other SPOREs, is encouraged. The development, acquisition, storage, and usage of standardized reference specimens and materials are also strongly encouraged. This Core may also provide services related to the analysis of specimens (e.g., tissue microdissection, immunohistochemistry). Other research and development activities, such as analytic validation of assays, quality control, and establishment of new methods, may also be included if they are designed to improve Core services for the benefit of the SPORE.

The Biospecimen Core should be essential to the research activities of the SPORE as well as to those of other scientists within and outside the parent institution who are invested in translational research. A plan must be proposed for prioritizing distribution of biospecimens to SPORE scientists and others, both inside and outside the parent/consortium institution(s), based on the merit of the proposed translational cancer research projects. Competing renewal applications should also include a list of the studies and/or collaborations that benefited from this Core, as well as a summary listing the numbers and types of specimens accrued and distributed during the previous funding period.

ii. Administrative Core (Required)

An Administrative Core is now required for the SPORE and may provide information about the fiscal management, clerical support, manuscript preparation, meeting organization, data management, and quality control and communication aspects within the SPORE. The budgets for the Internal and External Advisory Boards described in the POC section of the application (see Section V of these Guidelines) should be included in the Administrative Core.

A budget to cover the travel of (up to) 10 investigators per SPORE to the annual NCI Translational Science Meeting and/or other workshops should be included within this Core together with a statement of commitment to attend SPORE-related meetings. Funds should not be requested for participation in grant review meetings, special emphasis panels, and other evaluation groups where reimbursement derives from other sources.

Allowable reimbursable activities for patient advocates associated with the SPORE may also be requested in this Core. In addition, any requests for discretionary funds (up to \$50,000 direct costs per year) should be included within the Administrative Core; institutions are encouraged to match this request.

iii. **Other Cores (Optional)**

Additional shared resource cores (e.g., clinical, biostatistical, animal, etc.) may also be proposed that are supportive of and provide essential services to at least one SPORE research project. These Cores may include other analytical or non-hypothesis driven research activities designed to enhance Core services. Only a single Core of each type is permitted. For example, an applicant may not propose more than one animal Core to support two different research projects.

**3. Developmental Research Program (DRP)**

Each SPORE must allocate a significant effort to support pilot projects that take maximum advantage of new research opportunities in the organ site or group of related cancers that are the focus of the SPORE. The pilot projects may be collaborative among scientists within one or more SPOREs, or with scientists outside the SPORE community including the international scientific community. High risk/high payoff pilot projects are especially encouraged. These pilot projects do not need to reach a human endpoint during the project period as do full projects. The application should describe the proposed institutional process for funding pilot projects that could generate feasibility data. New applicants may supply a short description of eligible projects as examples. Competing renewal applicants should supply track records of awarded pilot projects, and short descriptions of progress and major achievements in the DRP.

As a required component of a SPORE, a DRP must be maintained throughout the entire term of the grant. A minimum of \$50,000 direct costs per year from NCI must be requested for a DRP. Matching funds of \$50,000 or more are also generally promised by the parent institution. Most DRPs have a commitment of \$100,000 to \$300,000 direct costs per year, including the contribution(s) made by the parent and/or consortium institutions. These funds are intended to remain flexible and to support studies of a limited duration, usually of 2 years or less.

With the approval of the SPORE's External Advisory Board and the NCI TRP Program Director, DRP studies may become full projects as long as they have translational research potential within the SPORE. DRP funds should be used for research activities and cannot be used for the purchase of any large equipment. The NCI will monitor the activities of both SPORE and institutionally sponsored DRP projects during non-competitive years to ensure that the institutional commitment is being maintained.

**4. Career Development Program (CDP)**

The SPORE must demonstrate a consistent and significant commitment to a career development program (CDP) in translational research. As a required element of the SPORE, the CDP must be maintained throughout the entire term of the funding period. Funds from this program may be used to support junior faculty or established investigators who wish to develop or refocus their careers on translational research. This program is not a training program and does not support pre- or post-doctoral fellows, either pre-clinical or clinical. However, advanced post-doctoral or clinical fellows who provide a letter from an institution stating that the candidate will be joining its faculty within the year are eligible for this

program. Investigators supported by NCI career development awards (K series) may also be eligible for support through this program.

A minimum of \$50,000 direct costs per year from the SPORE budget must be dedicated to the program to support the salary and research costs of candidates with outstanding potential in translational research. The application should describe the number and types of positions (junior faculty, established investigators, and eligible advanced fellows) that will be made available, the criteria for eligibility and selection of candidates, and the selection process, including special efforts to recruit qualified women and minorities. New SPORE applicants should provide a short description of the types of potential candidates, the names and research activities of translational science mentors/advisors, and the process for monitoring progress of the candidates. Renewal applicants should provide this information in addition to their past performance on recruiting women and minorities, and the track records of awardees supported (publications, subsequent grants awarded, and faculty positions held) by the CDP program. Similar to the DRP, support of a CDP awardee should not exceed two years.

A financial contribution of \$50,000 or more direct costs per year from the parent and/or other institutions is encouraged in order to show commitment to the SPORE. Funds from the CDP should be used to support research activities, including partial salary support for the candidate, research personnel, supplies, travel, and/or other expenses. CDP funds should not be used for the purchase of any large equipment.

## 5. Program Organization and Capabilities (POC)

The SPORE must address its organization and capabilities, including the organizational, administrative, and scientific management of the SPORE. Further, the application should also explain how coordination and communication among the different projects and programs, shared resource cores and participating institutions will be achieved at the overall program level. Additionally, institutional commitment, integration within SPORE and the institution, availability of cancer patient population, data management, and planning and evaluation activities must also be addressed.

## 6. Scientific Collaboration (SC)

Each SPORE must demonstrate a commitment to both **horizontal** and **vertical** collaboration in completing preclinical projects and moving promising results along the pathway of translational/clinical development. This section should describe the arrangements, plans, milestones, and overall accomplishments of these collaborations. Data from specific experiments should not be described in this section, but instead should be detailed in the individual scientific SPORE projects.

First-time SPORE applications, who are not expected to have accomplished collaborative studies associated with their proposed projects, and renewal applications where the previous competitive application did not fall under these guidelines, are nonetheless, expected to set out plans for any future horizontal and vertical collaborations for direct translational projects that will eventually reach a clinical study and for translational projects in the reverse direction, such as projects in biomarker discovery, that will eventually require analytical and clinical validation.

Renewal applications, should describe for prior (in the previous funding period), current, or proposed projects where appropriate: planned, ongoing, and/or completed horizontal collaborative projects and programs with set milestones as part of the stated aims of the SPORE and explain how the joint effort(s) will further the translational goals of the SPORE.

In addition, the application should describe the efforts, arrangements, or the milestones toward, and the accomplishments of any vertical collaborations where promising SPORE results (that are ready for the next step in the translational pathway continuum) are handed off to other NCI-supported clinical trial mechanisms or to other governmental or non-governmental mechanisms. Where appropriate, other types of collaborative arrangements to advance favorable results to the clinic should also be described. These arrangements might include separate multi-institutional grants or contracts specifically for the continued development of SPORE concepts; Collaborative Research and Development Agreements with industry; or any other types of collaborative work that ultimately benefits patients.

#### **IV. ADVANCE COMMUNICATIONS with NCI STAFF**

##### **A. Initial Communications with NCI Staff**

Each prospective SPORE applicant is strongly advised to schedule a pre-application consultation with NCI TRP program staff. The consultation should be scheduled at least 4 to 6 months in advance of the application due date and is intended to help the Principal Investigator (along with one or more of his/her intended co-investigators) understand the Program and its translational objectives, and discuss strategies for preparing a competitive application. NCI staff will clarify the intent of the guidelines and current NCI budget allocations, and describe the peer-review process. The NCI staff can also answer questions about NCI-supported clinical trial and other collaborative resources that might be available beyond the funded activities of the SPORE. The following are examples of items that NCI staff find most helpful to guide applicants during pre-application sessions:

1. A brief description (1-2 pages) of the proposed translational research projects, along with their specific aims and the names of project co-leaders;
2. A brief description of the background and proposed responsibilities of the SPORE Director and key senior leaders of the SPORE, including their biosketches;
3. A diagram showing the proposed reporting, programmatic, and advisory structure of the SPORE and how it relates to the structure of the institution as a whole; and
4. A list of active peer-reviewed research grants, cooperative agreements, and contracts that form the research base of the scientific leaders of the SPORE.

Principal Investigators for resubmitted and renewal applications have also found it useful to schedule a pre-application discussion with TRP staff, since program and review policies may have changed since the previous submission.

##### **B. Letter of Intent**

Although it is not required and does not enter into the review of an application, all prospective applicants are requested (see PAR-10-003) to submit a Letter of Intent at least 30 days prior to the receipt date for the application. The Letter of Intent should include the following information:

- Descriptive title of proposed application and a list of titles for the anticipated components of the SPORE
- Name, address, and telephone number of the Principal Investigator
- Names of other key personnel
- Participating institutions
- Number and title of the funding opportunity (PAR)



It is also useful to include the information about the research base that is needed for the eligibility requirement to submit a SPORE application. The Letter of Intent allows NCI staff to estimate the potential review workload, begin to identify potential reviewers, and avoid conflicts of interest in the review. Furthermore, NCI staff can make sure that applicants are fully aware of all applicable NIH and NCI policies, that they meet eligibility requirements, and that they understand the peer review process before the applications are submitted. The Letter of Intent should be sent electronically or by mail to the NCI Program Director/Officer at the following address:

Rajeev K. Agarwal, Ph.D.  
 Program Director  
 Translation Research Program (TRP)  
 Division of Cancer Treatment and Diagnosis (DCTD)  
 National Cancer Institute (NCI)  
 National Institutes of Health (NIH)  
 6116 Executive Boulevard, Suite 700, MSC 8347  
 Bethesda, MD 20892-8347 (for regular mail delivery)  
 Rockville, MD 20852 (for courier/express delivery)  
 Email: [agarwalraj@mail.nih.gov](mailto:agarwalraj@mail.nih.gov)

SPORE applicants are exempt from the requirement to seek approval six weeks prior to submitting an application requesting \$500,000 or more in direct costs (see <http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-02-004.html> and <http://grants.nih.gov/grants/guide/notice-files/NOT-CA-02-029.html>). Applications, however, must adhere to the **budgetary cap restrictions** of the SPORE program as outlined below in Sections V.A.7 and 8, and V.D. in order to be reviewed.

## V. SPECIAL INSTRUCTIONS for PREPARATION of NCI SPORE (P50) APPLICATIONS

General instructions for the preparation of a grant application are contained in the U.S. Department of Health and Human Services Public Health Service Grant Application (PHS 398) (Rev. 06/2009). The following additional instructions are specifically for multi-project NCI SPORE P50 applications.

### A. Face Page

(PHS 398 Form Page 1; Instructions for PHS 398, Part 1. Section 4).

Type "**SPORE:**" immediately before your title. **Check the "yes" box in Item 2 and enter PAR-10-003, "Specialized Programs of Research Excellence (SPOREs) in Human Cancer for Years 2010, 2011 and 2012 (P50)."** Complete all other items on the face page of the application according to the PHS 398 instructions. This is page 1 of the application; all succeeding pages should be numbered consecutively.

Reminder: Multiple PD/PIs are not permitted for the SPORE grant (Item 3).

Items 7 and 8: Although there is no indirect cost budget cap, by NCI policy all competing SPOREs (both new and renewal applications) are subject to a **total cost budget cap of \$2.5 million**. Total costs include all direct and indirect costs from all participating institutions. Consortium indirect costs must be included in the total costs. Applications with requests exceeding this limit will not be reviewed. In non-competing years, budget requests can exceed the cap for annual cost-of-living increases (less than or equal to 3% of direct costs).

### B. Description/Project Summary, Performance Sites and Key Personnel

(PHS 398 Form Pages 2 and Form Page 2-continued; Instructions for PHS 398, Part 1. Section 4)

Follow instructions in the PHS 398 instructions for completing the Project Summary, Performance Sites, Key Personnel, Other Significant Contributors, and Human Embryonic Stem Cells.

The Project Summary/Description serves as a succinct and accurate description of the overall SPORE when it is separated from the application. State the SPORE's broad, long-term objectives and specific aims. State the contribution of each component project and shared resource core to the translational research goals of the SPORE. The second component of the Description is **Relevance**. Using no more than two or three sentences, describe the relevance of the work proposed in the overall SPORE to **public health**. Use plain language that can be understood by a general, lay audience.

Under Performance Sites, list the applicant institution and all other sites where work proposed in the SPORE will be conducted. The names of involved institutions should be spelled out in full for the first mention with the acronym in parenthesis. The acronym may be used subsequently. The Key Personnel list for the entire SPORE should begin with the PD/PI, followed alphabetically by all leaders/directors, co-leaders, co-investigators, consultants and consortium collaborators involved in all projects, developmental programs, and shared resource cores, whether receiving salary or not, who will provide effort and/or significant intellectual input into the proposed research. List other personnel who will be other collaborators or consultants under "Other Significant Contributors."

### C. Table of Contents

Instead of using the Table of Contents page in the PHS 398 form, which is primarily for single project R01 applications, use PHS 398 Continuation Pages to prepare a Table of Contents following the format shown in Appendix A of these SPORE Guidelines.

A detailed Table of Contents that enables reviewers to find specific information readily is very important. Identify **projects** by number, title, and project co-leaders' names. Identify **shared resource cores** by letter, title, and Core director names. Do not include unnumbered pages, and do not use suffixes, such as 5a, 5b, for pages or for projects. Identify the Developmental Research Program as such and not by a number or letter, and identify the Career Development Program as such and not by a number or letter, as well. For renewal/competing continuation or resubmitted/amended applications, renumber all projects and shared resource cores in sequence even if an existing or previously reviewed project or shared resource core is discontinued or deleted. Deleted Component(s) should be identified as described in the Program Overview section instructions.

### D. Budget for Overall SPORE

(PHS 398 Instructions (Part 1, Section 4))

Follow the instructions closely in preparing a detailed composite budget for all requested support for the first year. PHS Form Page 4: Detailed Budget for Initial Budget Period should be used for the first year requested budget. A summary budget for the entire proposed period of support should be prepared using Form Page 5. In each Form, the composite budgets should be summarized by project, shared resource core and developmental program in the different expense categories, i.e., personnel, equipment, and supplies.

Summarize the distribution of effort of all key personnel on each project and shared resource core. This information can be presented in a tabular form such as that shown in Appendix B:

Sample Table of Distribution of Professional Effort and placed after all of the budget requests as shown in the sample Table of Contents in Appendix A.

Reminder: Budget requests for renewal/competing continuation SPORE grant applications must also not exceed a total cost (direct plus indirect cost) of \$2.5 million.

#### **E. Biographical Sketch and Research Support Information**

(PHS 398 Biographical Sketch Format Page; Instructions for PHS 398, Part 1, Section 4)

Biographical sketches are required for all key personnel and all consultants participating in the projects and shared resource cores. Place all the Biographical Sketches together in one section following the overall budget for the program. Place the biographical sketch of the Principal Investigator first, followed by the biographical sketches of all other personnel in alphabetical order. It is helpful if each person is identified by listing the project, shared resource core or developmental program in the upper left corner of the biographical sketch

Follow the instructions on the “Biographical Sketch Format” page closely. Following the educational block, complete sections A, B, C and D as directed in the PHS 398 instructions:

- i. Personal statement. Briefly describe why your experience and qualifications make you particularly well-suited for your proposed role(s) in the SPORE (e.g., PD/PI, Project Leader/Shared Resource Core Director, and participating investigator).
- ii. Positions and Honors. List in chronological order previous positions, concluding with the present position. List any honors. Include present membership on any Federal Government public advisory committee.
- iii. Publications. NIH encourages applicants to limit the list of selected peer-reviewed publications or manuscripts in press to no more than 15. Do not include manuscripts submitted or in preparation. Each investigator may choose to include selected publications based on recency, importance to the field, and/or relevance to the proposed research. Articles should be cited as described in the PHS 398 Citation format. Note that copies of publicly available publications are not acceptable as Appendix material.
- iv. Research Support. List both selected ongoing and completed research projects for the past three years. Follow the instructions provided in the PHS 398 document.

#### **F. Program Overview**

The Program Overview section should summarize the overall goals and research strategies for the entire SPORE. Page limits for each section are given below.

1. **Introduction to the Overall Application:** (Resubmission applications only) **One** page limit. Summarize your response to the reviewers’ critique of the previous application.
2. **Overall SPORE Goals and Specific Aims:** **One** page limit. State the organ site cancer(s) to be studied and succinctly list the specific objectives and goals of the SPORE as a whole. Summarize the expected outcomes(s) of the SPORE as a whole, including the impact that the results of the proposed translational research will have on prevention, early detection, diagnosis and/or treatment of organ-site specific cancer.
3. **Overall Research Strategy:** (Thirty page limit)

Organize the overall Research Strategy Section in the specified order and using the instructions provided below. Start each section with the appropriate section heading: Overall Significance, Overall Innovation, and Overall Approach. Preliminary studies (for new applications) and overall progress (for renewal applications) should be included in this section as well. This section should be used to discuss the overall translational strategies that will be employed in the SPORE to reach human endpoints within the five-year funding period. In addition, PIs of renewal applications should succinctly address the most significant translational research achievements in the current funding period of support, including results that were the basis of further movement across translational and clinical trial programs, and their potential impact on human cancer. Renewal applications should also discuss the use of the SPORE's flexibility to drop projects that are not meeting translational research milestones and replace those projects with new, promising projects during the current funding award period. If you wish, you may discuss all the projects together for overall significance, innovation and approach for the SPORE, or discuss each project separately.

- i. Overall Significance
  - a. Explain the importance of the proposed translational goals, including the overarching problems or critical barriers to translational progress in the organ site(s) that the proposed SPORE addresses.
  - b. Explain how the SPORE as a whole will improve scientific knowledge, technical capability, and/or clinical practice in prevention, detection, diagnosis or treatment of cancer in the specific organ site(s).
  - c. Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive translational research for the organ site(s) will be changed if the overall aims are achieved.
- ii. Overall Innovation
  - a. Explain how the overall SPORE challenges and seeks to shift current translational research or clinical practice paradigms.
  - b. Summarize novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used in the projects and/or shared resource cores.
  - c. Summarize how the SPORE as a whole will refine, improve, or provide new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions in translational cancer research.
- iii. Overall Approach
  - a. Summarize the global strategies, methodologies, and analyses that will be used to accomplish the overall specific aims and objectives of the SPORE.
  - b. Address potential problems, alternative strategies and benchmarks for success in achieving the aims of the overall SPORE.
  - c. Explain how the SPORE as a whole will establish strategies to enhance feasibility and manage high risk aspects of the work, particularly if any of the proposed projects or aims in the shared resource cores are in the early stages of development.

- d. Discuss the collaboration of applied researchers (e.g., clinical researchers, epidemiologists) with basic investigators in the design and implementation of translational research that is most likely to have an impact on human cancer.
  - e. Explain how the proposed research projects, developmental programs, and shared resource cores will, together, address the overall goals and aims of the SPORE more effectively than if the projects were done independently.
  - f. Explain how each shared resource core component is justified and will provide centralized high quality services to the SPORE as a whole and produce an economy of effort and/or save overall costs compared to each project in the SPORE performing its own tests, assays, animal derivations, clinical studies, etc.
- iv. Preliminary Studies (for New Applications)

For new applications, summarize the preliminary studies that led to developing the SPORE application. More detailed preliminary studies sections should be included in the individual research projects and shared resource cores.

- v. Progress Report (for Renewal Applications)

For renewal applications, summarize the major achievements of the overall SPORE in the current funding period. More detailed progress reports should be included in the individual research projects, developmental programs, and shared resource cores. Discuss new research opportunities that have arisen from SPORE research in the current funding period. If an overall major scientific achievement of one or more collaborative studies have emerged during the current funding period it should be summarized briefly in this section, but described in detail in the Scientific Collaboration (SC) section of the application, including the nature, logistics, and milestones, of moving the SPORE research across translational and clinical trial mechanisms. Specific scientific data of the collaborations from each project should be included under individual research projects.

Explain any significant changes to the program during the current funding period, including the use of the SPORE “flexibility option”, and any new directions proposed in the new funding period. For renewal and resubmission applications, include new, continuing, completed, and discontinued projects, indicating the previous number/letter of each component, as a summary of changes in the SPORE since the last review. Explain the decision to discontinue or substantially modify previous projects or shared resource cores and/or to propose new projects or shared resource cores, and how that affects the overall SPORE. Discuss how recommendations of the External Advisory Board, Internal Advisory Board (if any), and the SPORE leadership have influenced the modification, discontinuation, or initiation of any projects or shared resource cores.

Discuss any opportunity or problems that arose in moving a discovery forward for commercialization during the past funding period. Report any patent or licensing activities related to the translational research supported by the SPORE.

#### **4. SPORE-Related Publications**

List all publications and accepted manuscripts which have resulted from and which cites the SPORE grant. Using an asterisk, denote each publication that is a result of formal collaborations among different projects within the SPORE, with other SPOREs, or with other funded NCI networks, such as the NCI Cooperative Groups or the Early Detection Research

Network (EDRN). For publicly available citations, PMC submission identification numbers (PMCID), if required, should accompany the full reference. Information about the requirement for PMCID can be found at <http://publicaccess.nih.gov/>. Copies of these publications may no longer be included as appendix material.

## 5. Literature Citations

Each citation should include names of all authors, full title, name of book or journal, volume, pages and year of publication.

### G. Program Organization and Capabilities (POC)- Twelve page limit (PHS 398 Continuation Pages)

#### i. Introduction: (Resubmission applications only) One page limit.

Briefly address how any changes made to the SPORE address the main weaknesses and problems noted in POC in the previous review.

#### ii. Succinctly address each of the following items (twelve page limit).

1. **Leadership:** Discuss the leadership qualifications, both scientific and administrative, and the time commitment of the Principal Investigator for the overall successful conduct of the SPORE. Detail the plans for the organizational, administrative, and scientific management of the SPORE program. Describe and/or diagram the chain of authority for decision making and administration within the program. Leadership with respect to initiating, facilitating, and implementing successful translational/clinical research collaborations should be discussed in the Scientific Collaboration section.
2. **Institutional Commitment:** Discuss the institutional commitment to the SPORE in the form of facilitating the research objectives of the SPORE by providing support for recruitment of scientific talent, providing discretionary resources to the SPORE director, assignment of specialized research space, cost sharing of resources, and other assurances proposed by the applicant institution.
3. **Integration within SPORE and the Institution:** Provide a narrative or table showing how the proposed shared resource cores will be used by the proposed SPORE projects and how the SPORE integrates with existing Cancer Center/institutional resources (e.g., use of clinical data and safety management systems, biostatistics Cores, etc.) Explain how coordination and communication among the different projects and programs, shared resource cores and participating institutions will be achieved at the overall program level. [Note: SPORE projects are not required to interact with each other.]
4. **Cancer Patient Population:** Describe the access to cancer patients and populations for conducting current and projected therapeutic, prevention, detection, and control research within the SPORE and collaborating institutions. For competing renewal applications, document the accomplished translational goals, including evidence of human subject enrollment on clinical/population research studies during the past funding period.

5. **Data Management:** Describe the development and use of bioinformatics capabilities of the SPORE as they relate to the Cancer Center, institution, or activities of other NIH/NCI initiatives for overall data management.
6. **Planning and Evaluation Activities:** Discuss the planning and evaluation of SPORE activities, e.g., the evaluation of the translational research productivity of existing projects and shared resource cores, the process for the discontinuation of projects of low productivity and their replacement with new, more promising projects, and the initiation of activities in response to important translational research opportunities. Describe the establishment of the required External Advisory Board and the recommended Internal Advisory Board (if proposed). Either list the membership or describe areas of expertise for each group, as well as the role of each group in planning and evaluation processes.

#### H. Scientific Collaboration (SC) - Twelve page limit (PHS 398 Continuation Pages)

i. **Introduction:** (Resubmission applications only) **One** page limit. Briefly address how any changes made to the SPORE address the main weaknesses and problems noted in SC in the previous review.

ii. **Succinctly address each of the following items (twelve page limit).**

1. **Horizontal Collaboration:** Describe the nature, logistics, timelines, milestones, agreements and/or any other pertinent aspects of planned, ongoing, and completed collaborations that the SPORE has entered into for projects and developmental programs in which groups work together to accomplish a set of research aims. Discussion of barriers to collaboration and the process for overcoming obstacles in achieving goals is appropriate in this section. The specific role of SPORE leadership in initiating and implementing successful collaborations should be discussed here instead of in the POC section. Specific discussion of scientific data and conclusions reached from experimental results should be included in the individual research projects and developmental program sections.
2. **Vertical Collaboration:** Describe the planned, ongoing, or completed integration of scientific achievements from the SPORE across NCI-sponsored clinical trial mechanisms (grant, cooperative agreements, and contracts), and other government and non-government mechanisms in order to rapidly and seamlessly move promising translational concepts from the bench to the bedside and beyond into clinical practice. New applications should describe potential collaborative arrangements for developing therapeutics, and biomarkers and for expanding population and cancer prevention studies beyond the limits of the SPORE, should early clinical studies prove to be successful. First renewal applications that have not yet reached the 5-year period in which they must show a human endpoint should give a timeline with milestones of where each project is on the translational continuum and what collaborative arrangements will be made if the SPORE studies are successful. Second renewal applications should demonstrate a successful model of collaborative translational research and clinical studies using Phase I/II Consortia, the CTSU, Cooperative Groups, pharmaceutical industry collaboration, and/or other types

of vertical collaboration. Describe the role of SPORE leaders in the successful hand-off of promising SPORE projects that were ready for the next step on the translational/clinical development pathway.

Renewal applications, where the previous competitive renewal application did not fall under these guidelines, will be considered for submission and review as a first-time application for this Scientific Collaboration section only.

### **I. Required Statements and Letters of Support**

Place all institutional statements and letters of support relative to the overall SPORE after the Scientific Collaboration (SC) section.

### **J. Overall Program Environment and Resources**

(Resources Format Page PHS 398)

Briefly summarize the overall institutional environment and resources that are relevant to effective implementation of the SPORE. This may include NCI-supported clinical and laboratory facilities, participating and affiliated units, patient population, geographic distribution of space and personnel, consultative resources, and relevant collaborations with investigators currently funded under other mechanisms. Detailed Resources for each specific project and shared resource core proposed should be provided within those sections as described below in Section K. Individual Research Projects and Section L. Shared Resource Cores.

Describe any special equipment and laboratories within the program that enhance the overall potential for success of the SPORE.

### **K. Individual Research Projects**

All projects must have at least two project co-leaders (one basic and one clinical or applied), and a budget. Number the projects as 1, 2, 3, etc. Separately numbered subprojects (e.g., Subprojects 3A and 3B) are not allowed. Subcontract services or other activities should be included in the project or Core they support, and should not be numbered as separate subprojects. A sample Table of Contents outline for a project is included in Appendix A of these Guidelines.

#### **1. Title Page**

Do not use the PHS 398 Face Page for individual projects. Use PHS 398 Continuation Pages. Clearly denote the project number, the title of the project and the project co-leaders' names and professional degree(s).

#### **2. Description/List of Key Personnel** (PHS 398 Form Page 2a and b).

The title of "Principal Investigator" is reserved for the Principal Investigator of the overall SPORE. The leaders of individual projects should be referred to as "Project Co-Leaders."

#### **3. Omit the PHS 398 Table of Contents form.** There should be only one overall Table of Contents at the beginning of the application.

#### **4. Detailed Budget and Budget for Entire Proposed Period of Support** (PHS 398 Form Pages 4 and 5) Follow instructions in the PHS 398 form Part 1, Section 4).



A detailed budget is required for the first year and a budget summary for the future years. In the upper left-hand corner of the initial year and total budget forms, identify the project or shared resource core. Follow the instructions in the PHS 398 form (Sections 4.4 and following) closely in preparing the budgets for individual projects and shared resource cores.

The budget justifications should be explicit. State the role/proposed contribution of all proposed personnel and clearly explain and justify other categories of expenses, including any increases or decreases for future years. The commitment for each of the project co-leaders should be equal to or greater than 0.6 calendar months per year level of effort.

If collaborative efforts or "purchased services" involving other institutions or organizations are anticipated, itemize all costs associated with such third-party participation, including any applicable indirect costs, on separate budget pages and enter the total under the "Consortium/ Contracted Costs" direct costs budget category. For details, refer to "Consortium Agreements," available on the Web at [http://grants2.nih.gov/grants/policy/nihgps\\_2003/NIHGPS\\_Part12.htm](http://grants2.nih.gov/grants/policy/nihgps_2003/NIHGPS_Part12.htm).

The budget pages for subcontracts should be identified by project or shared resource core and the name of the subcontract institution. They should be placed in the application in sequence after the main budget pages for the project or shared resource core.

Reminder: The total budget (direct and indirect) for the SPORE must not exceed \$2.5 million for the first year and \$2.5 million plus increments for cost of living for each subsequent year of the funding period.

5. Do not include **Biographical Sketches** in the projects, since they are grouped following the Overall Budget for the SPORE (see Section V. E. of this guide).
6. **Resources:** (PHS 398 Resources Format Page). Follow the instructions on the PHS 398 Resources Format Page.

Identify the facilities to be used for the project (laboratory, clinical, animal, computer, office, other). If appropriate, indicate their pertinent capacities and capabilities, relative proximity and extent of access by the project. Describe only those resources that are directly applicable to the proposed work in the project. Provide information about any Other Resources available to the project (e.g., institutional machine or electrical shop or reagents, information, personnel in other projects or shared resource cores in the program) and the extent to which they will be available to the project.

Describe how the scientific environment in which the research will be done contributes to the probability of success (e.g., institutional support, physical resources, and intellectual rapport within the program). In describing the scientific environment in which the work will be done, discuss ways in which the proposed studies will benefit from unique features of the scientific environment or subject populations. The use of specific resources for collaborative arrangements within the program or outside of the program should be detailed in this section; all other aspects of collaborative arrangements should be discussed in the SC section of the application.

List only those resources specific to the individual project. If there are multiple performance sites, describe the resources available at each site.

Describe any special facilities used for working with biohazards or other potentially dangerous substances. Note: Information about Select Agents must be described within that section of the Research Plan, 5.5.11 (Select Agent Research)

## 7. Research Plan: (PHS 398 Continuation Pages)

For each research project, follow the PHS 398 instructions for preparing a research project grant. Do not exceed the specified page limits. All tables, graphs, figures, diagrams, and charts must be included within the page limit.

- i. Introduction to the Project (Resubmission applications only). **One** page limit.
- ii. Specific Aims. **One** page limit.

State concisely the translational goals of the proposed project and summarize the expected translational outcomes(s), including the impact that the results of the project will exert on the human disease site(s) involved. List succinctly the specific objectives of the project, e.g., to test a stated hypothesis, to generate new hypotheses relevant to translational research, to solve a specific problem that has yet been unsolved in the field, to challenge an existing paradigm or clinical practice, to address any critical barrier(s) to progress in the field of translational cancer research, or to develop new technologies, detection methods, or biomarkers appropriate for testing in human cancer patients or populations at risk for cancer.

- iii. Research Strategy. Do not exceed **12 pages** for all parts of the Research Strategy section, including the Preliminary Studies (for New Applications) and Progress Report (for Renewal Applications).

Organize the Research Strategy in the specified order, using the instructions provided below. Start each section with the appropriate section heading. Experimental details should be cited using the Bibliography and References Cited section and need not be detailed in the Research Strategy.

NOTE: Provide clear and specific cross references to information in other sections of the application (such as the Personal Statement in the Biosketches; power calculations or recruitment and retention strategies for participants in clinical trials in the Human Subjects section; or methods for derivation of animal strains or power calculations for animal experiments in the Vertebrate Animals section) so reviewers can find all information necessary for evaluation of the project easily. In cases where the applicant wishes to provide a short video clip as part of the application, a hyperlink must not be included. A short video may be included in the appendix (use a DVD, if needed), and a few selected “still shots” from the video may be incorporated into the application under preliminary studies or methods, or wherever it is most appropriate, with clear references to the full video in the appendix.

### a) Significance

- Explain the importance of the problem or the critical barrier to progress in translational cancer research that the proposed project addresses.
- Explain how the proposed translational science project will improve scientific knowledge, technical capability, and/or clinical practice in the organ site(s) studied.

- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive organ site research will be changed if the proposed aims are achieved.

b) Innovation

- Explain how the project challenges and seeks to shift current translational research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s)
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

c) Approach

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Unless addressed elsewhere include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the specific stated aims and the overall aim of reaching a human end-point within the five year funding period.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.
- Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised. A full discussion of the use of Select Agents should be included within the Research Plan as designated in the PHS 398.

Preliminary Studies for New Projects. For new projects, include information on Preliminary Studies as part of the Approach section. Discuss the preliminary studies, data, and/or experience of the co-leaders of the project that are pertinent to the project. Discuss any preliminary plans for vertical and/or horizontal collaborations in the SC section.

Progress Report for Renewal Applications. For renewal applications, provide a Progress Report as part of the Approach section. Provide the beginning and ending dates for the period covered since the last competitive review.

Summarize the specific aims of the previous project period and the importance of the findings, and emphasize the progress made toward their achievement. For completed aims, state whether the work will be continued outside the SPORE through another trans-NCI funded mechanism or other non-NCI funded mechanisms and refer to the SC section where this will be more fully described. Explain any significant changes to the specific aims and any new directions that will be taken. A list of publications, manuscripts accepted for publication, patents, and other printed materials should be included in the next section and is not included in the 12 page limit for the Research Strategy section.

**8. Bibliography and References Cited/Progress Report Publication List**  
(PHS 398 Continuation Pages: Instructions for PHS 398, Section 5.5.5)

For publicly available citations, PMC submission identification numbers (PMCID), if required, should accompany the full reference. Information about the requirement for PMCID can be found at <http://publicaccess.nih.gov/>. Each citation should include names of all authors, full title, name of book or journal, volume, pages and year of publication. Copies of these publications may no longer be included as appendix material.

Publications related to progress in the project (for Renewal Applications). List all publications and accepted manuscripts which have resulted from the research conducted during the current funding period. Using an asterisk, denote each publication that is a result of collaborations within the SPORE, with other SPOREs, or with other funded NCI networks, such as the NCI Cooperative Groups or the Early Detection Research Network (EDRN). Copies of these documents are not to be included in the Appendix material. Each citation should include names of all authors, full title, name of book or journal, volume, pages and year of publication.

**9. Human Subjects** (Refer to PHS 398 Part I. Item 4 Human Subjects Research and PHS 398 Part II: Supplemental Instructions for Preparing the Protection of Human Subjects Section of the Research Plan)

Address all six required points thoroughly. Power calculations justifying the number of subjects required for the proposed studies, and plans for recruitment and retention of subjects should be included in the appropriate sections of the Human Subjects narrative. Although this section has no specific page limit, be succinct.

If clinical trials are proposed in any year, describe the plans for monitoring data and safety of the trials.

**10. Inclusion of Women, Minorities and Children** Follow the instructions in the PHS 398 form. Include the required Targeted/Planned and Inclusion Enrollment Table for each clinical study proposed.

**11. Vertebrate Animals** (Refer to Instructions for PHS 398, Part 1, Section 5.5.10.)

Address all five required points relating to use and care of vertebrate animals. Procedures involved in derivations of new animal strains and power calculations justifying the number of animals required should be included in the appropriate sections of the Vertebrate Animals narrative. Although this section has no specific page limit, be succinct.

**12. Select Agent Research**

(Follow the Instructions for PHS 398, Part 1, Section 5.5.11)  
<http://www.cdc.gov/od/sap/docs/salist.pdf>

**13. Multiple PD/PI Leadership Plan**

Not applicable.

**14. Consortium/Contractual Arrangements**

(PHS 398 Continuation Pages: Instructions for PHS 398, Part 1, Section 5.5.13)

Explain the programmatic, fiscal, and administrative arrangements to be made between the applicant organization and the consortium organization(s).

### **15. Letters of Support**

(PHS 398 Continuation Pages: Instructions for PHS 398, Part 1, Section 5.5.14)

Attach appropriate letters specific to the project detailing the nature and extent of participation. Group Biographical Sketches for consultants or collaborators with the other SPORE personnel directly after the Overall Program Budget.

### **16. Resource Sharing Plans(s)**

(PHS 398 Continuation Pages)

Follow all instructions in the PHS 398, Part 1, Section 5.5.15 for addressing:

- Data Sharing Plans
- Sharing Model Organisms
- Genome-Wide Association Studies (GWAS)

### **17. CHECKLIST**

Do not include a separate Checklist for each project. For multi-institutional projects, provide all checklists at the end of the completed application. Clearly indicate to which institution each Checklist applies.

## **L. Shared Resource Cores**

(PHS 398 Continuation Pages)

The leaders of Shared Resource Cores should be referred to as Core Directors

To aid in the review process, it is suggested that a narrative or table showing the estimated or actual proportional use of shared resource cores by each project be included in the application after the table showing the distribution of professional effort within the program. (See Appendix C: Sample Table of Distribution of Core Resources).

For each shared resource core component, follow instructions for the Individual Research Project, as described above and in the Instructions to the PHS 398, Part 1, Sections 4.2 through 5.5. The general format for a shared resource core follows that of a project except for the Research Plan. A sample table of contents outline for sections of a shared resource core application is provided in Appendix A of these Guidelines.

#### **1. Title Page**

Do not use the PHS 398 Face Page for shared resource cores. Use PHS 398 Continuation Pages. Clearly denote the shared resource core letter, the title of the Core, and the Core director's name and professional degrees.

#### **2. Description/List of Key Personnel**

(PHS 398 Form Page 2a and b).

Provide a summary of the services, facilities, equipment, etc, that the shared resource core will provide, and which projects in the program the shared resource core will serve.

#### **3. Omit the PHS 398 Table of Contents form.**

**4. Detailed Budget and Budget for Entire Proposed Period of Support**  
(PHS 398 Form Pages 4 and 5) Follow instructions in the PHS 398 form (Part 1, Section 4), and the instructions for project budgets above. For each Core, a Core Director effort commitment level should be equal or greater than 0.6 calendar month per year.

#### **5. Biographical Sketch**

Do not include Biographical Sketches in the shared resource cores, since they are grouped following the Overall Budget for the SPORE (see section V.E. of these Guidelines.)

**6. Resources**  
(PHS 398 Resources Format Page)

Follow the instructions on the PHS 398 Resources Format Page and that given in Section J above for projects. List only those resources specific to the shared resource core.

#### **7. Shared Resource Core Services Plan**

**Do not exceed the specified page limits.** All tables, graphs, figures, diagrams, and charts must be included within the page limit.

- i. Introduction to the Shared resource core for resubmission applications (**One page limit.**)
- ii. Specific Aims (**One page limit.**)
- iii. Core Services Strategy (Do not exceed **12 pages** for the Core Services Strategy including Preliminary Data and Progress Report/Summary of Services Provided in the Current Funding Period)

#### **Biospecimen/Pathology Core (Required)**

Describe the plans for collecting and distributing human cancer site-specific and/or related specimens, including fixed tissue, frozen tissue, paraffin blocks, slides, preserved cells, serum, plasma, urine, sputum samples, and other body fluids, as appropriate for the cancer site. Describe the plans for achieving detailed annotation of parameters of collection and preservation that are pertinent to the pre-analytic and analytic considerations of potential SPORE studies as well as essential pathological, clinical, and family history information needed for conducting a wide range of translational research activities. Describe the informatics that will be used for tracking specimens, as well as linkage to clinical and follow-up data sets. Networking with informatics systems at other SPORE sites is encouraged, but is not required. Address development, acquisition, storage, and usage of standardized reference specimens and materials, and any other services related to the analysis of specimens (e.g., tissue microdissection, immunohistochemistry) that will be provided. Describe and justify any research activities to improve Core services and how they will benefit the SPORE.

Provide a plan for prioritizing distribution of biospecimens to SPORE scientists and others, both inside and outside the parent/consortium institution(s), based on the merit of the proposed translational cancer research projects. Renewal applications should also include a list of the studies and/or collaborations that benefited from this Core, as well as a summary listing the numbers and types of specimens accrued and distributed during

the previous funding period. If significant collaborations have emerged from this Core, over and beyond the distribution of specimens, the data should be discussed in this section, but the details of the collaboration itself, including the strategy for moving the project through the translational research pathway to the clinic should be discussed in the Scientific Collaboration Section.

### **Administrative Core (Required)**

Describe the plans for the fiscal and data management of the SPORE. Quality control and communication aspects of the grant, particularly if more than one institution is involved in the SPORE should be discussed. Budgets for the Internal and External Advisory Boards, costs for travel to the NCI Translational Science Meeting and other appropriate workshops and NCI-related activities, and allowable advocate associated costs should be included in the Administrative Core. Discretionary funds of up to \$50,000 per year may be requested in this section. Renewal applications should detail how these funds were spent during the current funding period.

Note that although budgets for the Advisory Boards are to be requested in the Administrative Core, all the details concerning the Boards themselves are to be discussed (and will be reviewed) in the POC section (see section V. G of these Guidelines).

### **Other Cores (Optional)**

Additional shared Cores (e.g., clinical, biostatistical, animal, etc.) may also be proposed that are supportive of one or more of the research projects of the SPORE. These Cores should provide essential services to at least one SPORE project and may also include other analytical or non-hypothesis driven research activities designed to enhance a service. Clinical and Biostatistical Cores are strongly encouraged.

Describe the facilities and/or services that will be provided by the shared resource core, and provide the rationale for centralizing them in the Core, rather than including them in individual projects. Indicate why the shared resource core is an essential part of the SPORE, and how provision of the proposed services will facilitate accomplishment of the proposed goals and objectives of the SPORE as a whole. Address plans for prioritization of services (if necessary).

If a Clinical Core is proposed, the application also should discuss how duplication in the reporting of clinical trial data to the NCI will be avoided.

#### *Preliminary Studies for New Applications*

Summarize the preliminary studies that support the ability of the Core to provide the proposed services

#### *Progress Report/Summary of Services in Current Funding Period*

For renewal applications, use of the Core facilities and services by projects and developmental programs during the current funding period should also be clearly documented. A list of joint publications, including investigators from both the projects and the Cores, should also be included in the preliminary studies/progress report for the Core.

**8. List publications stemming from completed shared resource core activities in the current funding period as described above for Projects.**

**9. Include Items in the PHS 398 instructions Part 1 Section 5 as appropriate.****M. Developmental Research Program (DRP)**

(PHS 398 Continuation Pages)

Follow instructions for the Individual Research Projects, as described above and in the Instructions to the PHS 398, Part 1, Sections 4.2 through 5.5. The general format for the DRP follows that of a project except for the Research Plan. A sample table of contents outline for sections of the DRP is provided in Appendix A of these Guidelines.

**1. Title Page**

Do not use the PHS 398 Face Page for the DRP. Use PHS 398 Continuation Pages. Clearly denote the Developmental Research Program, and the DRP's leader or co-leaders' name(s) and professional degrees.

**2. Description/List of Key Personnel** (PHS 398 Form Page 2a and b)

3. Omit the PHS 398 Table of Contents form.

**4. Detailed Budget and Budget for Entire Proposed Period of Support**

(PHS 398 Form Pages 4 and 5)

Follow instructions in the PHS 398 form (Part 1, Section 4), and the instructions for project budgets above.

The DRP, as a required component of a SPORE, must be maintained throughout the entire term of the grant. A minimum commitment of \$50,000 direct costs per year from SPORE funds per year **MUST** be proposed for a DRP. Matching funds of \$50,000 or more are also generally promised by the parent institution. Most DRPs have commitments of between \$100,000 and \$300,000 direct costs per year, including the contribution(s) made by the parent and/or consortium institutions. The NCI will monitor the activities of both SPORE and institutionally sponsored DRP projects during non-competitive years to ensure that the institutional commitment is being maintained. DRP funds should be used for research activities and cannot be used for the purchase of any large equipment. [The commitment of a DRP leader should be equal to or greater than 0.4 calendar months per year level of effort.](#)

**5. Biographical Sketch**

Do not include Biographical Sketches in the DRP, since they are grouped following the Overall Budget for SPORE (see section V.E. of these Guidelines.)

**6. Resources**

(PHS 398 Resources Format Page)

Follow the instructions on the PHS 398 Resources Format Page and that given in Section J above for projects. List only those resources specific to the DRP.

**7. DRP Plans and/or Examples. Do not exceed the specified page limits.**

All tables, graphs, figures, diagrams, and charts must be included within the page limit.

i. Introduction to the DRP for resubmission applications (**One** page limit.)



- ii. Specific Aims (**One** page limit.)
- iii. DRP Plans for the SPORE with examples of types of projects being considered (Do not exceed 12 pages for the DRP Plans including samples and Progress Report/Summary in the Current Funding Period)

Clearly describe the process for solicitation of DRP projects and the institutional review process for funding pilot and/or collaborative projects that generate feasibility data. These funds are intended to remain flexible and to support studies of 2 years or less. The expectation is that successful feasibility studies that have translational potential will replace full projects that are not progressing satisfactorily toward their translational research objectives within the SPORE or projects that have been completed.

New applications should describe the methods to be used to set up the DRP within the SPORE and the process to be established for the continuous reviewing and funding of the pilot and collaborative projects based on quality and importance to the overall SPORE goal. New applicants may also supply a short description of eligible projects as examples. Competing renewal applicants should include their track records of funding pilot projects, methods of monitoring and assessing ongoing pilot projects, and short descriptions of other potentially eligible projects.

- 8. List publications stemming from the DRP in the current funding period as described above for Projects.
- 9. Include Items in the PHS 398 instructions Part 1 Section 5 as appropriate.

#### **N. Career Developmental Program (PHS 398 Continuation Pages)**

Follow instructions for Individual Research Projects, as described above and in the Instructions to the PHS 398, Part 1, Sections 4.2 through 5.5. The general format for the CDP follows that of a project except for the Research Plan. A sample table of contents outline for sections of the CDP is provided in Appendix A of these Guidelines.

##### **1. Title Page**

Do not use the PHS 398 Face Page for the CDP. Use PHS 398 Continuation Pages. Clearly denote the Career Development Program, and the CDP's leader or co-leader's name(s) and professional degrees.

##### **2. Description/List of Key Personnel (PHS 398 Form Page 2a and b)**

##### **3. Omit the PHS 398 Table of Contents form.**

##### **4. Detailed Budget and Budget for Entire Proposed Period of Support (PHS 398 Form Pages 4 and 5)**

Follow instructions in the PHS 398 form (Part 1, Section 4), and the instructions for project budgets above.

The CDP, as a required component of a SPORE, must be maintained throughout the entire term of the grant. A minimum commitment of \$50,000 direct costs per year from SPORE funds per year **MUST** be proposed for a CDP. Matching funds of \$50,000 or more are also generally promised by the parent institution. Most CDPs have commitments of between \$100,000 and \$300,000 direct costs per year, including the contribution(s) made by the

parent and/or consortium institutions. The NCI will monitor the activities of both SPORE and institutionally sponsored CDP projects during non-competitive years to ensure that the institutional commitment is being maintained. CDP funds should be used to support research activities, including partial salary support for the candidate, research personnel, supplies, travel, and/or other expenses, and cannot be used for the purchase of any large equipment. [The commitment of a CDP leader should be equal to or greater than 0.4 calendar months per year level of effort.](#)

## 5. Biographical Sketch

Do not include Biographical Sketches in the CDP, since they are grouped following the Overall Budget for SPORE (see section V.E. of these Guidelines.)

## 6. Resources

(PHS 398 Resources Format Page)

Follow the instructions on the PHS 398 Resources Format Page and that given in Section J above for projects. List only those resources specific to the CDP.

## 7. CDP Plans and/or Examples. Do not exceed the specified page limits. All tables, graphs, figures, diagrams, and charts must be included within the page limit.

- i. Introduction to the CDP for resubmission applications (**One** page limit.)
- ii. Specific Aims (**One** page limit)
- iii. CDP Plans for the SPORE with examples of types of candidates being considered (Do not exceed **12 pages** for the CDP Plans including examples, Progress Report/Summary in the Current Funding Period)

Clearly describe the plans for this program including the policies, criteria, and processes for selecting candidates (e.g., advanced post-doctoral fellows who are ready to transition to a faculty position within one year, junior faculty, and established investigators), including the special efforts that will be made to recruit qualified women and minorities. The plan should include the number and types of positions that will be made available, the criteria for eligibility and selection of candidates, a description of the selection process, and the process for mentoring or advising junior level candidates or monitoring the progress of all candidates. New applicants should provide short descriptions of potential candidates, as well as the names and research activities of mentors/advisors. Renewal applicants should provide this information in addition to their past performance on recruiting women and minorities and the track record of awardees supported on the SPORE. Support of a CDP awardee should not exceed 2 years.

Similar to the DRP, outstanding career development projects may be promoted to full projects to replace those that are not meeting their translational research objectives within the SPORE or projects that have been completed. Successful CDP awardees may be provided continued support as project co-leaders of the promoted projects .

8. List publications stemming from the CDP in the current funding period as described above for Projects.
9. Include Items in the PHS 398 instructions Part 1 Section 5 as appropriate.

## O. Appendix Materials and PDF Files of Submitted Applications

Follow the standard instructions in the PHS 398 form for limits on what may be submitted as Appendix materials for each project, shared resource core, DRP, and CDP (<http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-07-018.html>; <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-10-077.html> ) and for preparing the Appendix materials. Each project, shared resource core, DRP, and CDP in the SPORE is equivalent to an R01-type application for the purposes of allowable Appendix materials.

**All** Appendix Materials for paper applications submitted on the PHS 398 form **MUST** be submitted as bookmarked PDF files on CDs. A summary listing of all the items included in the Appendix is encouraged, but not required. When including a summary, it should be the first file on the CD.

Use a separate file for each component (project, shared resource core, DRP or CDP) and name the file with the component name. Follow the standard instructions for preparing the CDs:

- Use PDF format only. The files should be prepared as PDF version no higher than 1.4 for compatibility with NIH programs and software.
- Where possible, applicants should avoid creating PDF files from scanned documents. NIH recommends producing the documents electronically using text or word-processing software and then converting the document to PDF format. Scanned document images should be checked for legibility.
- Label each disk with the date, Principal Investigator's Name, Grant Number (if available), grant title, and applicant institution.
- If burning CD-ROM disks on a Mac, select the ISO 9660 format.
- Do not use compression techniques for the electronic files.
- Do not use password protection, encryption, digital signature and/or digital certification in the PDF files.

NCI SPORE applications are scanned by central NIH offices to produce black and white images and black and white double sided copies for the reviewers. Figures in the application that do not reproduce well in black and white may be included in the Appendix. However, all figures included in the Appendix must be included in the application, although they may be reduced in size in the application. Images not included in the application cannot be included in the Appendix.

If your application contains a large number of color illustrations or charts and graphs that will not reproduce well in black and white, you may also submit a CD with a bookmarked PDF file of the entire application as one of the two copies of the application sent to the NCI Referral Office on the due date. Such CDs will be accepted only at the time of application submission. The PDF file should be bookmarked at major subdivisions of the application so that reviewers can navigate through the file and find individual components easily. The files should be saved as PDF version no higher than 1.4 for compatibility with NIH programs and software.

For materials that cannot be submitted on CD (e.g., medical devices, prototypes, video tapes), applicants should contact the Scientific Review Officer for instructions.

**Appendix materials should be included with the copies of the application sent to the NCI Referral Office on the receipt date.**

## **VI. SPECIAL INSTRUCTIONS FOR PREPARATION OF RESUBMITTED (AMENDED) APPLICATIONS**

Currently, the NIH allows only one resubmission/amendment (A1) (see <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-09-003.html>). NOTE that all resubmission/amended applications must use the most current PHS 398 form and be prepared in the new application format with the page limits and structure described in these Guidelines.

The receipt dates for resubmission/amended applications are the same as for new and competing renewal applications (see PAR 10-003).

As of October 2010, the NIH instituted a policy of a time limit between the submission of a New or Renewal application and Resubmitted (A1) application in order to stimulate new ideas and elicit extensive modifications in research goals and plans for scientific fields that may have had significant advances during the intervening period. A resubmitted application must be received within 37 months of the original due date. (see <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-10-140.html>)

Prepare a resubmitted/amended application according to instructions provided in Section V of these Guidelines. A resubmitted/amended application will not be reviewed if substantive changes are not clearly apparent and identified.

- A. Each time an application is submitted for review, a new Letter of Intent is requested (but not mandatory) to the TRP 4 weeks in advance of the submission due date. See Section IV – Advance Communication with NCI Staff.
- B. The Table of Contents should be adjusted to include a listing for the “Introduction to the Resubmitted/Amended Application” in the Program Overview before the Overall SPORE Goals and Specific Aims. Similarly, an “Introduction to the Resubmitted/Amended Application” should be inserted before the Specific Aims page for the individual projects, shared resource cores, DRP, CDP, POC and SC.
  - i. The “Introduction to the Resubmitted/Amended Application” section within the SPORE Overview may not exceed **one page** and should provide a general summary of the overall additions, deletions, and changes that have been made to the application as a whole to address the overarching issues raised in the previous review. References to specific statements in the previous summary statement are not necessary.
  - ii. Each resubmitted project, shared resource core, DRP, CDP, POC, and SC should include an “Introduction to the Resubmitted/Amended Application” that delineates in greater detail the changes made in that specific component of the application to address the issues raised in the previous review. The Introduction for each individual component (project, Core, DRP, CDP, POC, and SC) of the SPORE should be placed before the Specific Aims for that component and may not exceed **one page**. References to specific statements in the previous summary statement are not necessary.
- C. Incorporate a discussion of any work done since the previous review into the Preliminary Results/Progress Report sections of the Program Overview as well as all resubmitted projects, resubmitted shared resource cores, DRP, CDP, POC, and SC.
- D. Throughout the application, amended portions or passages must be clearly identified to facilitate the review of the amended aspects of the application. The preferred method is to use a vertical line in the right margin to mark amended areas of the application. An easily differentiable font, such as italics, of the size required in the PHS 398 form, also may be

used. Neither grayed background nor strikeout of the old text should be used since they make the application difficult for the reviewers to read.

**It is important to read through the entire application before submission to ensure that all sections of the resubmitted application, including biographical sketches, Program Overview, Program Organization and Capabilities, Scientific Collaboration, Developmental Research Program, Career Developmental Program, Project and Core descriptions, specific aims, research strategy sections, literature cited, human subjects and animal sections, and budgets and budget justifications, etc., have been correctly and properly updated.**

## **VII. SPECIAL INSTRUCTIONS for REVISION/COMPETING SUPPLEMENT APPLICATIONS**

As stated in the Foreword, requests for supplemental funding for SPOREs are rare and may be awarded only in unusual and compelling circumstances. Instructions for submission of a revision/competing supplement application are therefore not given here and those awardees who wish to submit such an application are encouraged to speak first with their Program Officer at the TRP.

**VIII. APPLICATION SUBMISSION PROCESS**

**Specific application due dates are given in PAR-10-003. The review schedules for all SPORE applications submitted to the NCI, including all new, renewal, and resubmitted/amended, are presented in the table below. Incomplete applications will be deferred to the next review cycle or administratively withdrawn and returned to the applicant without review. All competing renewal applications should be submitted in a timely fashion to avoid a possible gap in support for the SPORE.**

<i>Letter Of Intent</i>	<i>Application Receipt</i>	<i>Peer Review</i>	<i>Council Review</i>	<i>Earliest Start Date</i>
Dec 20, 2011	Jan 20, 2012	May/June 2012	Oct 2012	Dec 2012
April 22, 2012	May 22, 2012	Sep/Oct 2012	Jan 2013	April 2013
Aug 20, 2012	Sep 20, 2012	Jan/Feb 2013	May 2013	July 2013

- A. General instructions for submission of an NCI SPORE Grant Application are described in the PHS 398 (Part I Section 3). Applicants are strongly encouraged to include a cover letter with the original application. The letter is only for internal agency use and will not be shared with peer reviewers. Place the cover letter at the beginning of the original application only. The cover letter should include:
  - i. Application title
  - ii. Funding Opportunity Announcement (FOA) number and title.
  - iii. The organ site or related cancers to be studied.
  - iv. For late applications, a justification for why the application should be accepted after the stated receipt date. (See NOT-OD\_06-086, NIH Policy on Late Submission of Grant Applications, and NOT-OD-07-026, NIH Policy on Late Submission of Grant Applications – Clarification for Multiple PI Applications and New Submission/Receipt Dates)
  
- B. Packing and submission of the application and copies.

Mail the **original** and **three** identical, single-sided copies of the complete application to the NIH Center for Scientific Review (CSR) using the address label included in the PHS 398 application kit. **DO NOT BIND/CLIP SECTIONS OF THE APPLICATION SEPARATELY** since this will cause problems with processing and scanning/duplication of the application. Use rubber bands or string to package an individual application as one document. Applications must be sent by U.S. mail or by commercial carrier. Personally delivered packages will not be accepted by the CSR mailroom.

Center for Scientific Review  
 National Institutes of Health  
 6701 Rockledge Drive, Suite 1040  
 MSC 7710  
 Bethesda, MD 20892-7710 (for United States Postal Service (USPS) Express or Regular Mail)  
 Or  
 Bethesda, MD 20817 (for Express/Courier/Non-USPS delivery)

Send **two** identical, single-sided copies of the original application and a CD containing appendix material or (optionally) **one single-side copy and one** CD with a PDF version of the book marked application and appendices (similar to the table of contents as shown in Appendix A), under separate cover to:

Referral Officer  
 Program Coordination and Referral Branch  
 Office of Referral, Review and Program Coordination  
 Division of Extramural Activities  
 National Cancer Institute  
 6116 Executive Blvd., Room 8040A, MSC 8329  
 BETHESDA, MD 20892-8329 (for U.S. Postal Service express or regular mail)  
 Rockville, MD 20852 (for non-USPS delivery)  
 301-496-3428  
 301-402-0275 (FAX)  
[ncirefof@dea.nci.nih.gov](mailto:ncirefof@dea.nci.nih.gov)

## IX. REVIEW PROCEDURES

### A. Policies

The NCI Scientific Review Officer (SRO) serves as the Designated Federal Official (DFO) with legal responsibility for managing the review and ensuring that the review is conducted according to relevant laws, regulations, policies, and established NIH and NCI policies and procedures. The SRO provides guidance and direction with respect to review policies, procedures and criteria; the functions of the NCI staff; conflict of interest policies; implications of the Privacy Act; the need for confidentiality of the proceedings; the necessity of addressing gender, minority, and children representation in clinical study populations; and other policy and logistical matters. During the review, the NCI program director serves as a resource, as needed, concerning the history and development of the SPORE program, changes in program direction for resubmitted and renewal applications, and other relevant programmatic matters.

- The NCI is committed to the conduct of impartial, high-quality peer review of grant applications submitted by the scientific community and to the maintenance of an objective review process.
- The Research Programs Review Branch (RPRB), Division of Extramural Activities, NCI, which is responsible for managing the peer review of NCI SPORE applications, is organizationally independent from the NCI extramural program units. The Research Programs Review Branch has responsibility for and autonomy in the conduct of initial review activities.
- The conduct of peer review of NCI SPORE applications shall be in all particulars consistent with, and subject to, NIH and PHS peer review practices and policies.
- NCI SROs are responsible for managing the scientific and technical review of SPORE applications, including the selection of reviewers; management of SEPs; and the documentation of review panel findings and recommendations.
- The responsibility for communications between the applicant and NCI staff changes during the various phases of the application process. Prior to submission of the application, NCI TRP staff members are the appropriate contact. From submission of the application until the peer review has been completed, all contacts should be made through the SRO. Following

the peer review, TRP staff members again become the contact for communications with the applicant.

- Efforts are made to avoid both real and apparent conflict of interest in review of SPORE applications. In addition, the confidentiality of both review materials and reviewer deliberations is maintained. Direct contact between applicants and reviewers is prohibited. Instead, any questions or concerns should be brought to the attention of appropriate NCI staff as indicated above.
- To maintain the focus of the peer review process on scientific merit, previous and current pay lines and funding policies are not discussed and are not relevant.

#### **B. Application Receipt and Referral**

SPORE applications, like all other PHS grant applications, are received and processed initially by the NIH Center for Scientific Review (CSR) and are assigned to NCI. The NCI referral office subsequently assigns the application to the SPORE program area, the TRP. Finally, RPRB review staff group the SPORE applications for review based on scientific content and recruit appropriate reviewers for each Special Emphasis Panel (SEP) .

#### **C. Application Administrative Review**

Upon receipt, the SRO reviews the application for conformance to NIH policies and Program Staff accepts the application based upon responsiveness to NCI SPORE Guidelines. If there are administrative or policy deficiencies that can be resolved easily post-submission, the SRO will contact the Principal Investigator with the remedial action necessary. If there are extensive deficiencies in the structure, organization or format of the application, or the application fails to address required NIH policies in ways that cannot be resolved quickly, the application will be returned to the applicant without further consideration. The applicant may submit a complete application for a later receipt date.

#### **D. Review Format**

All review panels are constituted as SEPs. The SEP reviewers evaluate and score projects, shared resource cores, DRP, CDP, POC, and SC, and assign an overall impact/priority score to the entire SPORE application.

The SEP membership will include (a) senior investigators, many of whom have experience with SPORE grants, and who can view the proposed science from an overall translational science perspective, and (b) specialists for specific scientific areas. Key members of the previous review panel will be included for continuity of review of resubmitted/amended applications. In organizing the review panel membership, conflicts of interest, either real or apparent, will be managed according to NIH policy.

The SEP meeting date will be determined by the NCI SRO according to the availability of the reviewers and NCI review staff.

The SEP will convene in a face-to-face meeting in the Washington, DC, metropolitan area or elsewhere at the convenience of the reviewers. The SRO will provide an introductory orientation on NIH and NCI review policies and procedures and administrative and logistic matters relating to the review. Then, each application will be evaluated by the reviewers. The reviewers will evaluate and rate each project and shared resource core component, the two developmental programs, the POC, and the SC, and then evaluate the overall SPORE. The review panel will then assign the final overall impact/priority score to the SPORE application.



NCI SROs prepare the summary statement using the minimally edited reviewers' comments as well as summaries of the discussion prepared by selected SEP members and/or the SRO.

#### E. Communications with the Principal Investigator

Prior to the review, the SRO will contact the Principal Investigator to obtain background information relevant to the application and names of investigators collaborating with the members of the applicant group and other investigators who may be in conflict with the group. Applicants may suggest types of expertise that are required to review the application. However, **neither the SRO for the review nor the TRP staff may accept names of specific potential reviewers from any member of the applicant group either directly or indirectly.**

#### F. Communications with NCI Program Staff

Shortly after receipt of the applications, the SRO contacts appropriate NCI TRP staff to discuss programmatic issues related to the review of submitted applications and for recommendations for prospective reviewers, where appropriate. However, all review-related communications with actual or potential reviewers are through the SRO.

#### G. Selection of Reviewers

The size and composition of each SEP review panel will be determined by the particular details of the applications to be reviewed. It is the responsibility of the SRO to make these determinations based upon thorough understanding of the work proposed in the applications and consultation with NCI TRP staff and other NCI review staff, as appropriate. The review panel members are recruited based on the scientific areas, methods and approaches proposed in the applications grouped for review each review cycle. The SEPs convened for SPORE reviews therefore change every review cycle.

The roster for each SEP will reflect the areas of expertise required to review all applications grouped for review by that SEP. Because all SPORE applications are required to reach a human endpoint within 5 years of the funding period, one or more patient/ consumer advocates will be included in the review group. These individuals, who have full discussion and scoring privileges, often address clinical or population-based study issues related to protection, recruitment and retention of human subjects in the proposed research.

In identifying prospective qualified reviewers, the SRO takes full advantage of many available resources, including existing databases of experienced reviewers, lists of grantees and contractors, and consultation with recognized authorities in the scientific community. The SRO, as well as TRP staff, will identify reviewers who, because of collaboration, affiliation, bias or other issues, should be excluded from the review. **As noted above, applicants are prohibited from suggesting names of prospective reviewers.** The SEP roster will be available on the NIH Web site (<http://era.nih.gov/roster/#sep>) approximately 30 days before the review meeting.

The Chairperson of the review panel will generally be a senior investigator experienced in the review of complex multidisciplinary applications and generally knowledgeable in the scientific areas to be reviewed. The Chairperson has responsibility for ensuring that each application receives a fair and unbiased discussion and that the reviewers adhere to the SPORE review criteria and the NCI SPORE scoring guidelines. Each application will have an assigned Discussion Leader who will briefly introduce the application by summarizing the research scope, goals and objective of the proposed SPORE and providing a brief description of each proposed project and shared resource core for the review panel. The Discussion Leader will also draft a

summary of the committee discussion of the overall SPORE for inclusion in the summary statement.

## X. REVIEW CRITERIA

Peer review of NCI SPORE applications emphasizes a synthesis of two major aspects of the SPORE application: (1) review of the merit of each individual research project and shared resource core and (2) review of the overall program as a collaborative translational research effort including the developmental programs (DRP and CDP), POC, and Scientific Collaborations (SC).

The review criteria for both the overall SPORE and the individual projects are Significance, Investigators, Innovation, Approach, and Environment (NIH Guide Notice **NOT-OD-09-025**, December 2, 2008 – see <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-09-024.html>). The sections below give more detail about how these review criteria are applied to the overall program and to the individual projects. The review criteria for shared resource cores, the developmental programs, the POC, and the SC, are also listed below.

The goals of NIH supported research are to advance our understanding of biological systems, to improve the control of disease, and to enhance health. In their written critiques, reviewers will be asked to comment on each of the criteria in order to judge the likelihood that the proposed research will have a substantial impact on the pursuit of these goals. Each of the review criteria will be addressed and considered in assigning the overall impact/priority score, and weighted as appropriate for each application. Note that an application does not need to be strong in all categories to be judged likely to have major scientific impact and thus deserve a high impact/priority score. For example, an investigator may propose to carry out important work that by its nature is not innovative, but is essential to move a field forward.

### A. Review Criteria for the Overall Program

1. **Overall Impact:** Reviewers will provide an overall impact/priority score on a 9-point scale (1=exceptional; 9=poor) to reflect their assessment of the likelihood that the SPORE as a whole will exert a sustained, powerful impact on translational cancer research, in consideration of the following five core review criteria and additional review criteria for the individual projects and Cores, developmental programs, POC, and SC listed below (as applicable).
2. **Core Review Criteria:** Reviewers will consider each of the five review criteria below in the determination of scientific and technical merit. An application does not need to be strong in all categories to be judged likely to have major scientific impact. For example, a project that by its nature is not innovative may be essential to advance a field.
  - i. **Significance:** Does the program as a whole address an important translational research problem or a critical barrier to progress in the field? If the aims of the program are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the program change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?
  - ii. **Investigators/Overall Program Leadership:** Are the PI, collaborators, and other researchers well suited to the program? If Early Stage Investigators or New Investigators, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? Do the investigators have complementary and integrated expertise for

proposed collaborations; are their leadership approach, governance and organizational structure appropriate for the SPORE? Are the qualifications and experience of the PI and other senior scientists appropriate for the work proposed? Do they provide effective scientific, administrative, and collaborative leadership, as demonstrated by selection of individual projects for scientific excellence and translational feasibility? Have they established effective developmental programs for pilot studies as well as for building careers in translational research in organ-site specific cancers?

- iii. **Innovation:** Does the overall program challenge and seek to shift current research or clinical practice paradigms in the context of translational research for a particular organ site by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed? Does the SPORE seek out high risk/high payoff projects that are based on solid preclinical preliminary studies, and that have a good chance of achieving a human endpoint within the five year funding period?
- iv. **Approach:** Are the overall strategies, methodologies, and analyses, including biostatistical methods well-reasoned and appropriate to accomplish the specific aims of the SPORE? Are potential problems, alternative strategies, and milestones for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed so that the 5 year goal of a human endpoint can be achieved? Are there plans for collaboration? What is the overall quality of the projects and the adequacy of services provided by the shared resource cores (if proposed)? For renewal applications, has there been adequate progress during the current funding period and have the projects reached a human endpoint or are they about to? Has there been demonstration of both horizontal and vertical collaboration? Are the plans for
  - a. Protection of human subjects from research risks, and
  - b. Inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed?
- v. **Environment:** Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional commitment to the SPORE, support, equipment and other physical resources available to the program adequate for the project proposed? If more than one institution is involved in the SPORE, in what way will the institutions act synergistically to implement the goals of the SPORE? Will the program benefit from unique features of the scientific environment, subject populations, or overall collaborative arrangements?

## **B. Review Criteria for Individual Research Projects**

Before the review meeting, each reviewer assigned to a project will give a separate score (9-point scale (1=exceptional; 9=poor)) for each of five core review criteria (Significance, Investigator(s), Innovation, Approach, and Environment). For all applications, even those not discussed by the full committee, the scores of the assigned reviewers for these criteria will be reported on the summary statement.

Reviewers will provide an impact score for each project (9-point scale (1=exceptional; 9=poor)) that reflects the likelihood that the project will exert a sustained, powerful influence on the

research field(s) involved, in consideration of the following five core review criteria, and additional review criteria listed below (as applicable).

1. **Significance:** Does the project address an important problem or a critical barrier to progress in the field? Does this study address an important translational research goal or barrier for the particular organ site or related group of organs? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?
2. **Investigators:** Is there adequate evidence of co-leadership of the project by basic and applied/clinical investigators in the conception, design, and proposed implementation of the project? Are the Project co-leaders, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? Do the investigators have complementary and integrated expertise; are their leadership approaches, governance and organizational structures appropriate for the project?
3. **Innovation:** Does the project challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions in the context of translational research? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research? Are the concepts novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?
4. **Approach:** Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Will the research achieve a human endpoint within the five year project period? Is it likely the study will be completed within the project period? If the project is ongoing and has changed research direction, is there appropriate rationale for the new approach? Are the plans for (1) protection of human subjects from research risks and (2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed? Note: Aspects of collaboration unrelated to scientific data should be reviewed in the SC section and not in the SPORE Research Projects section.
5. **Environment:** Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements? In the case of multiple institutions involved in a single SPORE, is there an adequate plan for communication among investigators to achieve the goals of the grant? Is there evidence of institutional support? Is there evidence of effective use of SPORE Cores?

**C. Review Criteria for Shared Resource Core(s)**

Each Shared Resource Core must provide essential functions or services for at least one project.

**1. Biospecimen/pathology Core (Required)**

- Does the proposed plan for this Core adequately address the development, annotation, and maintenance of a human cancer site-specific specimen resource, including linkage of specimens with pre-analytical parameters and pathological, clinical, and family history data that maximize their potential use in translational research?
- Does the proposed plan adequately address and prioritize the distribution of specimens within and outside the SPORE? For competing renewal applications, is there clear documentation of the use of specimens by SPORE investigators within full and developmental projects, as well as details, if applicable, about the distribution and use of SPORE collected specimens outside of the SPORE and/or institution?
- If applicable, does the proposed plan adequately address the performance of analyses on specimens (e.g., tissue microdissection, immunochemistry) and/or develop new technologies and methodologies that enhance or benefit activities of the SPORE? For competing renewal applications, is there clear documentation that demonstrates these analyses were critical to the success of certain projects and are worthy of continued support, if requested?
- Is there sufficient evidence of experienced personnel dedicated to the activities of specimen collection, annotation, quality control, storage, distribution, and analysis? Is there sufficient oversight of the collection of initial and follow-up clinical information, data entry, and maintenance of database and computer networks? For competing renewal applications, the performance and relative time commitments of these individuals should also be evaluated based on the past accomplishments of the Core.
- Does the proposed plan give sufficient evidence that the activities of the Core are well integrated with those of the projects and that the investigators within the projects are working closely with those of the Core to meet project objectives?
- Does the proposed plan adequately augment and/or complement any existing specimen resource supported by a Cancer Center Support Grant (CCSG; P30 grant mechanism) or other funding mechanism(s)? Do investigators applying from institutions with a CCSG and multiple SPORE grants address how their Core will benefit from already established infrastructure, databases, etc., that will enable this proposed specimen Core to be more cost effective and efficient?
- Does the proposed plan adequately address if and how the investigators will obtain written informed consent for all prospectively collected tissues/specimens in a manner that will protect patient confidentiality?

**2. Administrative Core (Required)**

- Does the plan for this Core adequately address how the SPORE will be managed administratively including the fiscal and data operations?
- Are the communication aspects of the SPORE facilitated by the Administrative Core adequately addressed, particularly if there is more than one institution involved in the proposed research?

- Is there evidence that appropriate clerical and administrative personnel and quality controls are in place for the smooth running and total integration of the SPORE? Are the qualifications, experience, and commitment of the Shared Resource Core Director(s) and other key personnel adequate and appropriate for providing the proposed facility or services?
- Will this Core provide adequate meeting/travel support, and support for the advisory boards?
- For renewal applications, if discretionary funds were requested, has the disposition of these funds been adequately addressed?

**3. Other shared resource cores will be evaluated based on the following criteria:**

- Is the proposed Shared Resource Core well matched to the needs of the overall SPORE? Does it provide essential facilities or services for one or more scored research projects? For renewal applications, does the application demonstrate the use of each Core by SPORE projects during the previous funding period?
- Does the proposed plan demonstrate that the activities of the Core are well-integrated with those of the projects and that the investigators within the projects are working closely with those of the Core to meet project objectives?
- What is the overall quality of the proposed Core services? Are there adequate quality control processes proposed for the facilities or services provided by the Shared Resource Core (including procedures, techniques, and quality control)? What are the criteria for prioritization and usage of Shared Resource Core products and/or services?
- Are the qualifications, experience, and commitment of the Shared Resource Core Director(s) and other key personnel adequate and appropriate for providing the proposed facilities or services?
- Will the proposed shared resource core(s) provide cost effective services to the SPORE? Are there adequate plans to augment and/or complement an existing shared resource supported by an NCI Cancer Center Support grant (P30), if applicable?
- Is the environment for the shared resource core adequate to support the program as proposed?

**D. Review Criteria for the Developmental Research Program (DRP)**

- Will the proposed plan for the DRP attract new ideas and pilot studies within and/or outside of the SPORE institution(s)? Is the plan for periodic review and funding of a spectrum of pilot projects, as well as for promoting pilot projects with translational research potential to full projects within the SPORE adequate?
- For renewal applications, did the DRP generate a strong publication record? Were any high-risk/high-impact projects funded through the DRP? Did data produced by the DRP lead to success in the competition for outside funds? Did any DRP projects reach

translational potential and become full SPORE projects? Was funding from DRP used for collaborative projects with other institutions/programs?

#### **E. Review Criteria for the Career Development Program (CDP)**

- Is the proposed plan to select promising candidates for independent careers (academic, industrial, governmental) in translational cancer research adequate? Is the plan for recruitment, retention and communication with awardees adequately addressed? For renewal applications, are the research activities, independent grant awards, publication(s), and promotion/current status of individuals who have been supported by the CDP addressed?
- Does the proposed plan address how the investigators will seek out and include qualified women and minorities in the program?
- Does the proposed plan address periodic review of the CDP awardees and the role of mentors/advisors?
- For renewal applications, did any CDP projects become full SPORE projects?

#### **F. Review Criteria for Program Organization and Capabilities (POC)**

- **Leadership:** Are the scientific qualifications, involvement, leadership and time commitment of the PI sufficient for requirements of the proposed SPORE? (Leadership for collaborations will be reviewed in the SC section.)
- **Institutional Commitment:** Is the institutional commitment for facilitating the research objectives of the SPORE (e.g., special facilities, recruitments, discretionary funding) documented and sufficient?
- **Integration within the SPORE and the Institution:** Are the activities of SPORE projects and proposed COREs integrated? Does the entire SPORE integrate with the existing cancer center/institute (e.g., use of clinical data and safety management systems, biostatistical and other COREs, etc.)?
- **Cancer Patient Population:** Is the access to patients and populations for conducting current and projected therapeutic, prevention, detection, and control research adequate to ensure likely success of the SPORE? For competing renewal applications, documentation of accomplished translational goals, including evidence of human subject enrollment on clinical/population research studies (if applicable) during the current funding period should be provided.
- **Data Management:** Are the plans for and/or track record of the overall data management and/or bioinformatics capabilities of the SPORE as they related to the Cancer Center, institution, and/or activities of other NIH/NCI initiatives sufficient for the requirements of the proposed SPORE?
- **Planning and Evaluation of Activities:** Are the plans for and/or track record of evaluating the translational research productivity of existing projects and COREs adequate for the requirements of the proposed SPORE? Are the plans for and/or track record of use of

advice from internal and external advisors sufficient? For competing renewal applications, is there evidence that the flexibility available to the SPORE has been used effectively?

#### G. Review Criteria for Scientific Collaboration (SC)

- **Horizontal Collaborations:** Do any/many of the proposed projects (and the Developmental Research Program, if appropriate) detail scientific collaboration with other SPOREs, other NIH/NCI programs, or other government or non-government organizations such that information, expertise and resources are shared to complete translational goals within the SPORE more rapidly and efficiently? Are the plans to promote collaborative projects by the SPORE leadership adequately addressed? For new SPORE applications, are there plans described for collaborative projects, and are these plans sufficient? For competing renewal applications, have proposed milestones and timelines in collaborative activities been reached? Were the participation in and outcome of collaborative projects and Programs contributory to the overall translational goals of the SPORE?
- **Vertical Collaborations:** For competitive renewal applications, has the SPORE participated in trans-NCI mechanisms, or has it partnered with ongoing trials for SPORE-initiated biomarker studies, or has it used other grant or contract mechanisms to expand clinical studies that were begun in the SPORE, collaboratively outside the P50 mechanism, or has it partnered with industry to continue the development of a SPORE concept? Have proposed milestones and timelines in collaborations been met? Has the SPORE leadership played an important role in moving SPORE concepts through translational/clinical development so that patients can most quickly reap the benefits of SPORE research? For new applications, is there a plan for potential collaborative agreements in developing cancer therapeutics and biomarkers, and for expanding population and cancer prevention studies beyond the limits of the SPORE, should early clinical studies prove to be successful?

- H. As applicable for the overall program, each research project, developmental program, and shared resource core proposed, reviewers will consider **the following additional items in the determination of scientific and technical merit, but will not give separate scores for these items:**

**Protections for Human Subjects.** For research that involves human subjects but does not involve one of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects, 2) adequacy of protection against risks, 3) potential benefits to the subjects and others, 4) importance of the knowledge to be gained, and 5) data and safety monitoring for clinical trials.

For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials.

**Inclusion of Women, Minorities, and Children.** When the proposed project involves clinical research, the committee will evaluate the proposed plans for inclusion of minorities and members of both genders, as well as the inclusion of children.



**Vertebrate Animals.** The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following five points: 1) proposed use of the animals, and species, strains, ages, sex, and numbers to be used; 2) justifications for the use of animals and for the appropriateness of the species and numbers proposed; 3) adequacy of veterinary care; 4) procedures for limiting discomfort, distress, pain and injury to that which is unavoidable in the conduct of scientifically sound research including the use of analgesic, anesthetic, and tranquilizing drugs and/or comfortable restraining devices; and 5) methods of euthanasia and reason for selection if not consistent with the AVMA Guidelines on Euthanasia. For additional information, see <http://grants.nih.gov/grants/olaw/VASchecklist.pdf>.

**Resubmission Applications.** When reviewing a Resubmission application (formerly called an amended application), the reviewers will evaluate the application as now presented, taking into consideration the responses to comments from the previous scientific review group and changes made to the project.

**Renewal Applications.** When reviewing a Renewal application, the reviewers will consider the progress made in the last funding period.

- Has adequate progress been made in projects, shared resource Cores, the developmental programs, and SC since the previous competitive review?
- Were the previous specific aims accomplished, and are the proposed research goals logical extensions of work during the current funding period?
- Has scientific collaboration occurred, as indicated by joint publications and new collaborative aims and/or projects?
- Were any significant changes to the SPORE during the current funding period, including the use of the SPORE “flexibility option” and any new directions proposed in the new funding period adequately explained?
- Has a translational project been completed and been moved forward on the translational/clinical developmental continuum to a later phase of product/intervention development?
- Is there adequate justification for adding new projects and/or deleting previous components?

**Biohazards.** Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

## I. Additional Review Considerations

As applicable for the overall program, each research project and shared resource core proposed, reviewers will address each of the following items, but will not give scores for these items and should not consider them in providing an overall impact/priority score.

**Budget and Period Support.** Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

**Select Agent Research.** Reviewers will assess the information provided in this section of the application, including 1) the Select Agent(s) to be used in the proposed research, 2) the registration status of all entities where Select Agent(s) will be used, 3) the procedures that will be

used to monitor possession use and transfer of Select Agent(s), and 4) plans for appropriate biosafety, biocontainment, and security of the Select Agent(s).

**Applications from Foreign Organizations.** SPORE applications from foreign organizations are not permitted. However, if a component of the SPORE is from a foreign organization, reviewers will assess whether the project or resource presents special opportunities for furthering research programs through the use of unusual talent, resources, populations, or environmental conditions that exist in other countries and either are not readily available in the United States or augment existing U.S. resources.

**Resource Sharing Plans.** Reviewers will comment on whether the following Resource Sharing Plans, or the rationale for not sharing the following types of resources, are reasonable:

1. Data Sharing Plan ([http://grants.nih.gov/grants/policy/data\\_sharing/data\\_sharing\\_guidance.htm](http://grants.nih.gov/grants/policy/data_sharing/data_sharing_guidance.htm));
2. Sharing Model Organisms (<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-04-042.html>); and
3. Genome Wide Association Studies (GWAS) (<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-07-088.html>).

## J. Scoring

All components of the SPORE (Research Projects, Program Organization and Capabilities, Scientific Collaborations, Developmental Programs, and Shared Resource Cores) are scored numerically using the 9-point scale (1 =exceptional; 9=poor) scoring scale. Any of these components can be rated Not Recommended for Further Consideration (NRFC) if the component lacks significant and substantial merit.

For each discussed application, a final numerical impact/priority score from 1 (exceptional) to 9 (poor) will be given by each eligible SEP member (those without conflicts of interest). Each reviewer's overall impact/priority score will reflect his/her evaluation of the likelihood that the overall SPORE will have a sustained powerful impact on translational cancer research rather than a simple average of the reviewer's scores for the projects, the shared resource cores, the developmental programs, SC, and the POC .

Reviewers will focus on the scored projects and their shared resource cores in the context of the, developmental programs, the POC and SC of the program, excluding any components not recommended for further consideration, in assigning the final overall impact/priority score. However, inclusion of components of poor quality will be considered evidence of poor judgment by the Principal Investigator and the program senior leadership. Reviewers do not have the option to select only the better components of the program to improve the overall impact/priority score.

If an application has many major weaknesses and therefore is likely to have low impact relative to all SPORE applications normally received by the NCI, the review panel may chose to expedite the discussion/ or to not discuss the application. An entire application can be not recommended for further consideration if it lacks significant and substantial merit; does not have four scored projects, a scored Specimen/Pathology and Administrative shared resource and scored developmental programs; or presents serious ethical problems in the protection of human subjects from research risks, use of vertebrate animals, biohazards, and/or select agents.

## XI. SUMMARY STATEMENT

The summary statement is the official record of the review of the application. The summary statement includes administrative information about the application, the final overall impact/priority score if the application was discussed, codes for the committee's determination of the adequacy of protections for human subjects and animal welfare, and several narrative sections conveying the opinions and recommendations of the reviewers assigned to the application. The summary statement for applications discussed during the review meeting will include a Resume and Summary of Discussion, an Overall Critique section summarizing the strengths and weaknesses of the Overall Program, summary paragraphs listing the strengths and weaknesses and the final impact score/rating of each project, shared resource core, developmental program, SC, POC, and resumes for human subjects, vertebrate animals and other additional review criteria, which are prepared by the SRO.

The summary statement will also contain individual reviewers' criterion scores for projects, along with the essentially unedited critiques for all projects, shared resource cores and other components of the application. Applicants should note that some reviewers may not have updated their critiques after the review meeting to reflect their final opinions after the discussion. However, the overall Resume and Summary of Discussion, the Overall Critique section, and the summary paragraphs prepared by the SRO will reflect the final opinions of the review committee.

For applications that are not discussed during the meeting, the summary statement may not include an Overall Critique section, but it will include the individual reviewer's criterion scores for projects along with the essentially unedited critiques for all projects, shared resource cores, and other components of the application..

The SRO prepares the summary statements as soon as possible after each review meeting. Each summary statement is released as soon as it is completed. Depending on the number of applications that were reviewed in each SEP, summary statements are usually completed within 6 weeks after the review meeting, and all summary statements will be released no later than two months prior to the next receipt date to provide sufficient time for applicants who may need to resubmit the application. The Principal Investigator(s) can access the summary statement through the NIH eRA Commons (<http://commons.era.nih.gov>) after it has been finalized and released by the SRO.

The summary statement will be transmitted to the NCAB for second level peer review, to the NCI official file and to the appropriate NCI staff.

## XII. AWARD

The award and administration of SPOREs are subject to the same policies and procedures as other research grants. These policies and cost principles are set forth in the current PHS Grants Policy Statement, other NIH and NCI issuances and Federal legislation and regulations.

Following review by the NCAB, scored applications are considered for funding by the NCI. When an award is made, it is the policy of NCI that meritorious projects reviewed as part of the SPORE be funded as part of the SPORE even though other funding may be available. Duplicate funding will not be awarded.

NCI program staff may administratively delete funding or reduce the duration of support for components of SPOREs that are judged by peer review to be less meritorious and/or nonessential to the conduct of the SPORE.

With these Guidelines, the NCI program staff may reduce SPORE funding to support only three scientific research projects in cases where the **overall impact score is within the funding range for the fiscal year** but one or more project(s) (not the required project) are judged significantly less

meritorious compared with the overall impact score. The exercise of this option by the NCI staff is expected to be a rare event. Under no circumstances may the applicant submit a SPORE application with less than four research projects.

### **XIII. QUESTIONS FOR REVIEW**

Questions related to NCI SPORE review may be directed to:

Referral Officer  
Program Coordination and Referral Branch  
Office of Referral, review, and Program Coordination  
Division of Extramural Activities (DEA)  
National Cancer Institute (NCI)  
6116 Executive Boulevard, Room 8041, MSC 8329  
Bethesda, MD 20892 (for U.S. Postal Service express or regular mail)  
Rockville, MD 20852 (for non-USPS delivery)  
Telephone: (301) 496-3428  
FAX: (301) 402- 0275  
Email: [ncirefof@dea.nci.nih.gov](mailto:ncirefof@dea.nci.nih.gov)

## APPENDIX A

### SAMPLE TABLE OF CONTENTS

#### **SECTION I**

Face Page

Description, Project/Performance Sites, Senior/Key Personnel, Other Significant Contributors and Human Embryonic Stem Cells

Table of Contents

Detailed Summary Budget for SPORE Initial Budget Period

Budget for Entire Proposed SPORE Period Direct Costs Only

Table of Distribution of Professional Effort in the SPORE

Table of Percentage Distribution of Shared Resource Core Effort To Projects

Biographical Sketches and Research Support Information

#### **SECTION II**

Program Overview

Introduction to the Overall Application (for resubmission applications)

Overall Program Goals and Specific Aims

Overall Research Strategy

- Overall Significance
- Overall Innovation
- Overall Approach
- Program Related Publications
- Literature Citations

Program Organization and Capabilities (POC)

Introduction to the Program Organization and Capabilities (for resubmission applications)

##### POC Issues

- Leadership
- Institutional Commitment
- Integration within the Institution
- Cancer Patient Population
- Data Management
- Planning and Evaluation Activities
- Other issues relating to coordination, communication, administration, and scientific management of the SPORE Program.

Scientific Collaboration (SC)

Introduction to the Scientific Collaboration (for resubmission applications)

##### SC Issues

- Horizontal Collaborations including leadership and arrangements
- Vertical Collaborations including leadership and arrangements

Institutional Statements and Letters of Support

Individual Research Project 1

- Title Page (Title, Project Co-Leaders Names, Degrees)
- Description, Performance Sites, Senior/Key Personnel, Other Significant Contributors, and Human Embryonic Stem Cells
- Detailed Budget for Initial Budget Period
- Budget for Entire Proposed Period of Support
- Resources
- Detailed Budget for First 12-Month Period for Any Included Consortium/Subcontract Arrangement
- Budget Estimate for Each Year of Any Included Consortium/Subcontract Arrangement
- Resources for Consortium/Subcontract Arrangement
- Research Plan
  - Introduction to Resubmission Application (if applicable)
  - Specific Aims
  - Research Strategy
- Progress Report Publication List (for Renewal Applications)
- References/Literature Cited
- Human Subjects
  - Inclusion Enrollment Report (Renewal Applications Only)
  - Protection of Human Subjects
  - Inclusion of Women and Minorities
  - Targeted/Planned Enrollment Table
  - Inclusion of Children
- Vertebrate Animals
- Select Agent Research
- Consortium/Contractual Arrangements
- Letters of Support
- Resource Sharing Plan(s)

#### Shared Resource Core Component A

- Title Page (Title, Core Director(s) Name(s), Degree(s))
- Description of Core Service Plan, Performance Sites, and Key Personnel
- Budget for the First 12-Month Period
- Budget Estimate for Each Year of Requested Support
- Resources
- Shared Resource Core Services Plan
  - Introduction to Resubmission Application (if applicable)
  - Specific Aims
  - Core Services Strategy
- Progress Report Publication List and Bibliography (for Renewal Applications)
- References/Literature Cited
- Human Subjects
  - Inclusion Enrollment Report (Renewal Applications Only)
  - Protection of Human Subjects
  - Inclusion of Women and Minorities
  - Targeted/Planned Enrollment Table
  - Inclusion of Children
- Vertebrate Animals

- Select Agent Research
- Consortium/Contractual Arrangements
- Letters of Support
- Resource Sharing Plan(s)

#### Developmental Research Program

- Title Page (Title, DRP Leader, Name, Degree)
- Description, Performance Sites, Key Personnel
- Detailed Budget for Initial Budget Period
- Budget for Entire Proposed Period of Support
- Resources
- Detailed Budget for First 12-Month Period for Any Included Consortium/Subcontract Arrangement
- Budget Estimate for Each Year of Any Included Consortium/Subcontract Arrangement
- Resources for Consortium/Subcontract Arrangement
- DRP Plans for the SPORE
  - Introduction to Resubmission Application (if applicable)
  - Specific Aims
  - DRP Plans for the SPORE with examples of types of projects being considered for new applications and a track record of funded pilot projects, ongoing pilot projects and other potentially eligible projects for renewal applications.
- List of Publications
- Human Subjects
  - Inclusion Enrollment Report (Renewal Applications Only)
  - Protection of Human Subjects
  - Inclusion of Women and Minorities
  - Targeted/Planned Enrollment Table
  - Inclusion of Children
- Vertebrate Animals
- Select Agent Research
- Consortium/Contractual Arrangements
- Letters of Support
- Resource Sharing Plan(s)

#### Career Developmental Program

- Title Page (Title, CDP Leader, Name, Degree)
- Description, Performance Sites, Key Personnel
- Detailed Budget for Initial Budget Period
- Budget for Entire Proposed Period of Support
- Resources
- Detailed Budget for First 12-Month Period for Any Included Consortium/Subcontract Arrangement
- Budget Estimate for Each Year of Any Included Consortium/Subcontract Arrangement
- Resources for Consortium/Subcontract Arrangement
- CDP Plans for the SPORE
  - Introduction to Resubmission Application (if applicable)
  - Specific Aims

- CDP Plans for the SPORE with examples of types of candidates being considered for new applications and a track record with numbers and types of candidates recruited, ongoing projects and potential candidates for renewal applications.
  - List of Publications
  - Human Subjects
    - Inclusion Enrollment Report (Renewal Applications Only)
    - Protection of Human Subjects
    - Inclusion of Women and Minorities
    - Targeted/Planned Enrollment Table
    - Inclusion of Children
  - Vertebrate Animals
  - Select Agent Research
  - Consortium/Contractual Arrangements
  - Letters of Support
  - Resource Sharing Plan(s)
- Checklist(s) - Include a Checklist for each participating institution



**APPENDIX B**  
**SAMPLE TABLE of**  
**DISTRIBUTION OF PROFESSIONAL EFFORT (%) IN THE SPORE**

<b>Participating Investigator</b>	<b>Project 1</b>	<b>Project 2</b>	<b>Project 3</b>	<b>Project 4</b>	<b>Core A</b>	<b>Core B</b>	<b>Core C</b>	<b>Application Total</b>
Dr. A. (Principal Investigator)	20*		15		15*			50
Dr. B.						10*		10
Dr. C.		25*	10				20*	55
Dr. D.				30*				30
Dr. E.	30		30*					60
Dr. F.						30		30
Dr. G.		25					25	50
Dr. H.							25	25
Dr. I.				50				50

\*Project Leader/Core Director

First lines should be reserved for project and Core directors; other investigators should follow thereafter.

**APPENDIX C**  
**SAMPLE TABLE of**

**PERCENTAGE DISTRIBUTION OF SHARED RESOURCE CORE EFFORT TO PROJECTS**

<b>Project</b>	<b>Project 1</b>	<b>Project 2</b>	<b>Project 3</b>	<b>Project 4</b>	<b>DRP</b>	<b>CDP</b>	<b>Total (100%)</b>
Core A: Administration	15	15	15	15	20	20	100
Core B: Biospecimen/Pathology	30	5	10	30	20	5	100
Core C: Biostatistics and Bioinformatics	5	40	5	10	20	20	100