

Pre-application webinar for [RFA-CA-15-014](#):
U54 CSBC Research Centers

Agenda:

1. *Begin presentation at 1:35 EST*
2. *Welcome and Introduction (Dan Gallahan)*
3. *RFA Presentation (Shannon Hughes)*
4. *Q&A*

Audio for webinar:

1-240-276-6338

Meeting access number:

734 099 630

Note: meeting audio is being recorded



Cancer Systems
Biology Consortium

Dan Gallahan

Dan.Gallahan@nih.gov

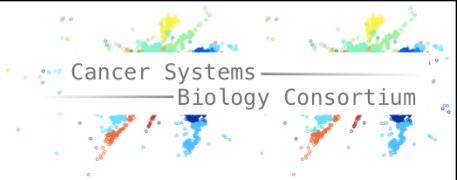
Shannon Hughes

shannon.hughes@nih.gov

October 1, 2015

The slides for this pre-application webinar provide information about RFA-CA-15-014:
“Research Centers for Cancer Systems Biology Consortium (U54)”.

Overall goal of the Cancer Systems Biology Consortium (CSBC)

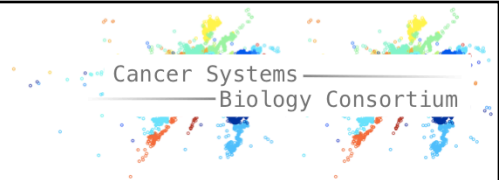


The CSBC is a community of systems biologists who aim to integrate experimental biology and computational models across multiple temporal and spatial scales towards a better understanding of cancer.

From the FOA:

Integrating around a team of [multi-disciplined investigators](#), the CSBC Research Centers are expected to [utilize the tools of systems biology](#) to develop a [comprehensive research program](#) in cancer biology. Employment of novel computational tools and mathematical models should [result in new mechanistic insights and hypotheses that are beyond the scope of normal intuition](#). Equally important is the [validation or testing of the models in an appropriate biological setting](#). The CSBC initiative is intended to further the field of cancer systems biology.

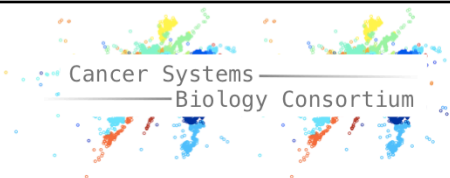
Systems Biology at NCI



- 10 years of the Integrative Cancer Biology Program (ICBP)
- 2014 – 2015 program evaluation
- New Initiative - Cancer Systems Biology Consortium (CSBC)
- Approved March 2015
- 2 New RFAs (U54 & U24) and 1 continuing PAR (U01)
- NCI will support systems biology well into the future

The Integrative Cancer Biology Program (expired RFA-04-013 & expired RFA-09-011) encouraged the application of systems biology approaches to cancer research from 2005-2015. The Cancer Systems Biology Consortium continues NCI's broad support for cancer systems biology.

Consortium Participants & Structure

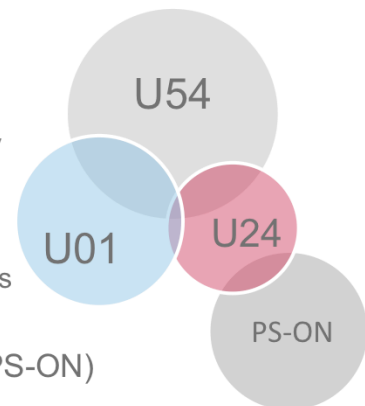


U54 CSBC Research Centers (8-10)

U24 CSBC/PS-ON Coordinating Center (1)

U01 Research Projects

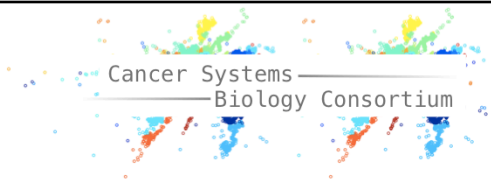
- 7+ U01 Collaborative Research in Integrative Cancer Biology (PAR-13-184)
- 5+ U01 Bridging the Gap Between Cancer Mechanism and Population Science (PAR-13-081)
- 12-15 (anticipated) U01 CSBC Specialized Research Projects (PAR, FOA Spring 2016)



U54s and U01s from Physical Sciences-Oncology Network (PS-ON)

The Cancer Systems Biology Consortium (CSBC) will be made up of new U54 Research Centers, one new U24 Coordinating Center, and several new and continuing ICBP U01 Research Projects. Importantly, the CSBC will share the U24 Coordinating Center with the Physical Science-Oncology Network, a similarly sized network of investigators employing physical science approaches to cancer research. For more information about the U24 Coordinating Center, please see RFA-CA-15-015. For more information about the Physical Science-Oncology Network (PS-ON), please see physics.cancer.gov.

Mechanism of Support & Funding: CSBC U54 Research Center



Mechanism of support: U54, Specialized Center-Cooperative Agreements

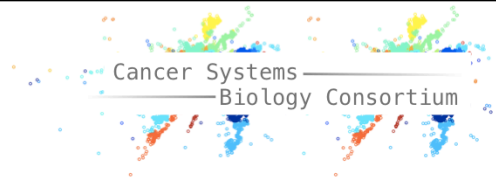
*The spectrum of activities comprises a **multidisciplinary attack** on a specific disease entity or biomedical problem area. These differ from a program project in that they are usually developed in response to an announcement of the programmatic needs of an Institute or Division and subsequently **receive continuous attention from its staff**. Centers may also serve as **regional or national resources** for special research purposes, with funding component staff helping to identify appropriate priority needs.*

Application Type: All submissions will be **Type 1 (new applications)**

Budget: Not to exceed **\$1.5M per year (direct costs)** per Center. Cap is exclusive of 3rd part F&A costs.

Project Period: Not to exceed **5 years**.

CSBC U54 Leadership Expertise



From RFA-CA-15-014:

...this FOA encourages the use of the multi-PD/PI mechanism (but it is not required).

The CSBC Research Center contact PD/PI ... must be a scientist with formal training and/or expertise in cancer systems biology, with contributions demonstrating substantial impact on the field.

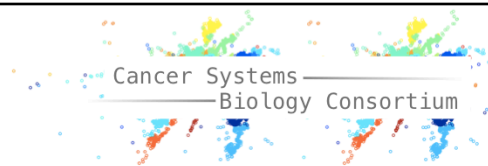
[If the contact PD/PI does not satisfy the above statement:] ***The leadership team must also include a PD/PI or other senior investigator with expertise and substantial contributions in the field of cancer research.***

Effort commitment requirement: **2.4 person-months per year for single PD/PI**
1.2 person-months per year for multiple PD/PI (2+)

The contact PD/PI for the CSBC U54 Research Center must be an expert in cancer systems biology. Expertise should be established through demonstration of substantial contributions (publications, etc) to the field. Investigators with a wide-range of formal training may satisfy this requirement (i.e. cancer biology, engineering, computer science). If expertise in cancer systems biology cannot be demonstrated, it is required that the leadership team also include a PD/PI or other senior investigator with expertise in cancer research.

Note: For applications with a single PD/PI, the minimum effort commitment is 2.4 person-months per year. For applications with multiple (2 or more) PD(s)/PI(s), the minimum effort commitment is 1.2 person-months per year per PD/PI.

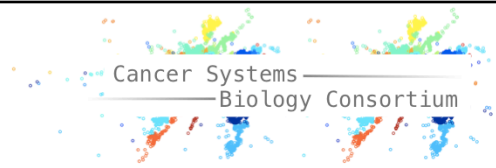
Scientific Area of Interest



Scientific questions should be of high importance and not readily addressable through other research mechanisms or initiatives due to their non-intuitive nature. Examples of such cancer-related issues that would require a systems biology effort might include, *but are not limited to*:

- Dynamic, predictive models that provide a robust and actionable understanding of the effect of multiple biological interactions and/or **incorporate multi-scale, spatial analysis over varying resolution scales** to describe cancer initiation, progression and metastasis.
- Models of networks and signal transduction pathways capable of **predicting phenotypes** in cancer, including but not limited to biochemical, statistical, graphical, logic, and relational modeling techniques. Phenotypes might be predicted at the molecular, cellular, tissue or organ level.
- Predicting and validating **critical genetic and epigenetic changes** in the initiation and progression of cancer.
- Modeling the **molecular and cellular communication** within and across cells of the tumor eco-system, including but not limited to the tumor micro-environment and the immune system.
- **Integration of data obtained through new imaging modalities**, such as super-resolution microscopy and cryo-electron microscopy (cryo-EM), into systems biology modeling frameworks to predict tumor phenotypes on multiple spatial scales.

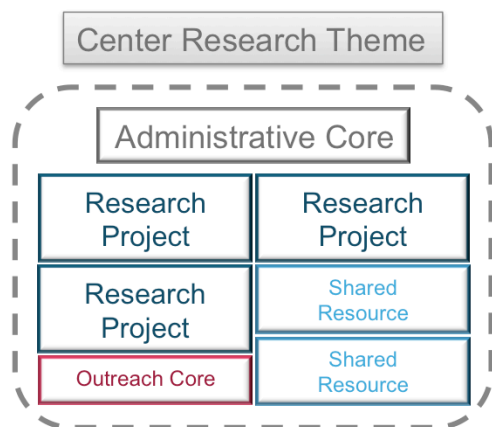
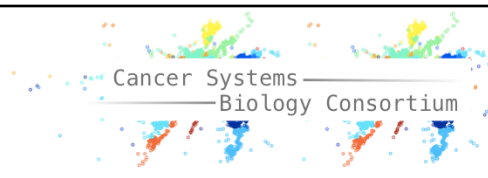
Scientific Area of Interest (cont.)



Scientific questions should be of high importance and not readily addressable through other research mechanisms or initiatives due to their non-intuitive nature. Examples of such cancer-related issues that would require a systems biology effort might include, *but are not limited to*:

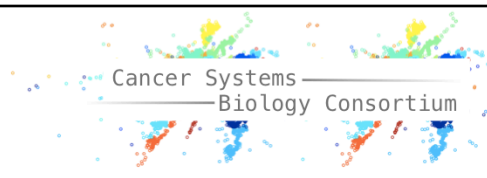
- Prediction and validation of **early disease indicators** through systematic modeling of genetic factors and other high-risk disease phenotypes.
- Development of modeling techniques that **span the scale between basic cellular mechanism and patient/population**-level response or phenotype.
- *In silico* modeling to **predict effective treatment**. This includes predicting tumors most likely to benefit from a given treatment; converting transient responses into durable responses; and identifying rational combinations to address the emergence of resistance in *future* clinical trials.
- **Systems analysis of cancer completed in endogenous settings** (*in vivo* or *ex vivo*), with consideration of the tumor microenvironment, tumor heterogeneity, and tumor plasticity.

Organization of Individual CSBC U54 Research Centers



Each U54 Research Center will be organized around one central research theme with each Research Project and Core (Shared Resource or Outreach) contributing directly towards advancement of that theme. The FOA invites a broad range of research themes addressing an important problem in cancer research.

Application & Submission Information



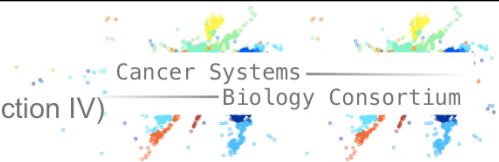
Component Types Available in ASSIST	Research Strategy / Program Plan Page Limits	Required number of Components
Overall	12	1
Admin Core (use for Administrative Core)	6	1
Project (use for Research Projects)	12 <i>per Research Project</i>	2-3
Core (use for Shared Resource Core and Outreach Core)	6 <i>per Core</i>	0-2 (Shared Resource*) 1 (Outreach)

*Proposed Shared Resource Cores must support two or more Research Projects

Please note: Page limits for Research Projects and Cores are on a per project/core basis. For example, an application with two proposed Research Projects may submit one 12 page Research Strategy per project. NIH's web-based service for the preparation and submission of grant applications, ASISST, must be utilized for this FOA.

Overall Component –

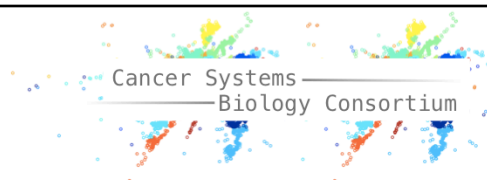
Research Strategy (12 page limit, FOA Part 2 – Section IV)



- **Research Theme:** Define the overall research theme of the Research Center. Include brief background and rationale.
- **Research Center Organization:** Provide a concise description of Center structure and address how the whole is more than a sum of its parts. Include a description of Center expertise.
- **Research Projects:** Address the rationale for each project and its contribution to advancing the overall Research Theme.
- **Intra-Center Projects:** Briefly state how the intra-Center pilot projects will be incorporated into the efforts advancing the Research Theme.
- **Shared Resource Core(s),** if applicable: Explain the need for the shared resource and state what Research Projects it will support.
- **Outreach Core:** Briefly state plans for outreach programs.
- **Research Center Scientific Integration:** Applications should demonstrate that the use of the U54 Center mechanism is essential to accomplishing the goals that would not occur without the climate, facilities, and research resources that a Research Center can uniquely provide.

The Research Strategy section of the Overall Component should follow the standard format as required in the SF424 (R&R) Application Guide (PHS 398 Research Plan Form). Additionally, the FOA asks applicants to specifically address these bulleted points within the Research Plan of the Overall component.

Administrative Core – Research Strategy (FOA Part 2 – Section IV)



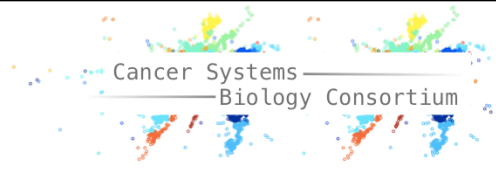
Describe the Admin Core structure using three sub-sections (6 page Research Plan limit):

- **Center logistics and communication:** Describe the strategies for communication across the Research Center leadership, between project teams of multidisciplinary investigators, and between the Research Center and the NCI. State who will be the lead for each level.
- **Intra-Center pilot projects:** State how one-year intra-Center pilot projects will be solicited, selected, and evaluated. Note: Admin Core budget includes \$50K for intra-Center pilot projects.
- **External Advisory Committee:** Each Research Center will recruit external experts (outside the center) to serve as scientific advisors. Describe the general composition, range of expertise, and utilization. **DO NOT state specific names in application or contact individuals.**

The FOA asks applicants to specifically address these bulleted points within the Research Plan of the Administrative Core component *in lieu* of following the standard format. Although each U54 Research Center is expected to name an External Advisory Committee upon award, please do not name specific individuals who may comprise the committee. Naming of specific individuals may hinder the ability to convene an appropriate NCI review panel.

Note that the Administrative Core budget must include at least \$50,000 per year for Center pilot projects. Travel of Center PD/PI to the CSBC Annual Investigator Meeting must also be included in the Administrative Core Budget.

Research Projects – Research Strategy (FOA Part 2 – Section IV)



Each application should consist of 2-3 Research Projects (12 page Research Plan limit per Research Project)

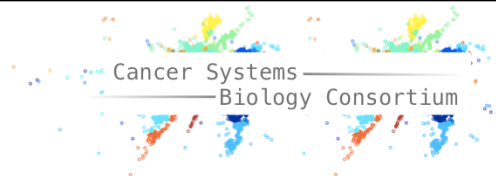
The Research Projects constitute the most important activities of the Research Center and should focus on *innovative approaches that integrate systems biology and cancer research perspectives...*

Additional aspects to address within the Research Plan:

- How does the Project contribute to the Research Center's overall research theme?
- State the multidisciplinary aspects of the Research Project and how it benefits from the unique scientific expertise of Research Center personnel.
- How will the project team take advantage of the Research Center infrastructure to allow for alternative approaches or perspectives?
- Highlight any innovative systems biology approaches utilized within the project.
- If the Research Project will utilize the Shared Resource Core(s), describe how the Core(s) capabilities impact the proposed project.

The Research Strategy section of each Research Project should follow the standard format as required in the SF424 (R&R) Application Guide (PHS 398 Research Plan Form). Within the standard sub-sections outlined in the instructions, address the additional bullet points listed in the FOA (and rephrased briefly here).

Shared Resource Cores – Research Strategy (FOA Part 2 – Section IV)



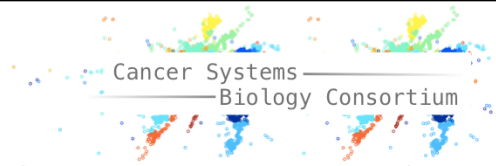
Each application should consist of 0-2 Shared Resource Cores (6 page Research Plan limit *per* Shared Resource Core)

- The Shared Resource Cores may be **physical or virtual infrastructures** (e.g. cloud-based computing or storage) providing a biological, computational or engineering resource.
- Each Shared Resource Core is **expected to support two or more Research Projects**.
- Issues to be addressed include, but are not limited to: value of the Core services to the Research Center and Research Projects, integration between the Core and Research Projects, quality control, procedures for selecting Research Projects to use the Core and allocating resources, cost effectiveness, and increased efficiency.

These proposed new shared resources **must not duplicate analogous resources** already established in the applicant institutions (although supplemental funding to such existing resources may be requested).

The Research Strategy section of each Shared Resource Core should follow the standard format as required in the SF424 (R&R) Application Guide (PHS 398 Research Plan Form).

Outreach Core – Research Strategy (FOA Part 2 – Section IV)



Each application should consist of one Outreach Core (6 page Research Plan limit)

- A minimum of **\$100K direct costs per year** must be allocated to the Outreach Core
- The Outreach Core will serve to promote cancer systems biology **at all career stages** and to disseminate advances and capabilities of cancer systems biology to the cancer research and broader communities.

Potential activities include, but are not limited to:

Seminar Series: Hosting of speakers that compliment the capabilities and advances of the CSBC.

Workshops: Small focused meetings that bring together critical researchers in areas of cancer systems biology.

Personnel Exchanges: Exchange of graduate students, postdoctoral fellows, or investigators within a Research Center or across the Consortium

Cross-training: early stage and established investigators in the various areas of systems biology to cross train within the CSBC or at NCI-funded programs

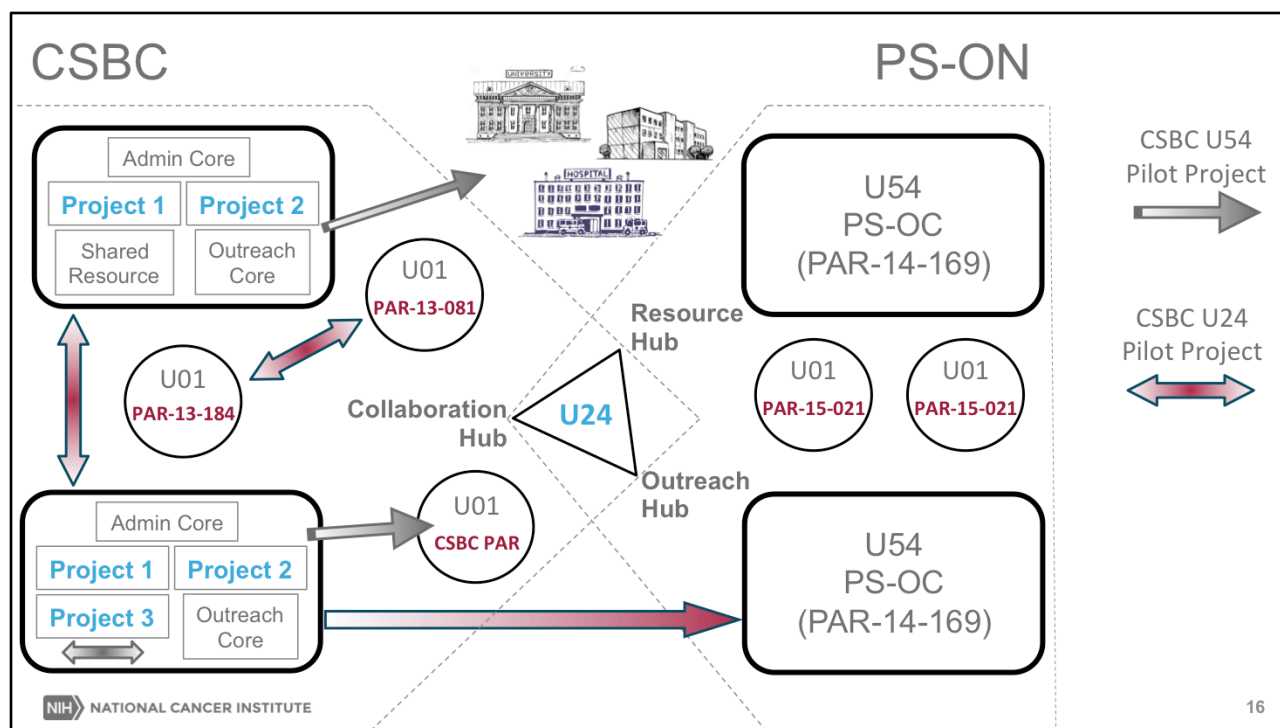
Center Website

Research Center Annual Meeting

Think Tanks: Small meetings of investigators at all stages of career development to identify gaps in knowledge

Research Center Newsletter

The Research Strategy section of the Outreach Core should follow the standard format as required in the SF424 (R&R) Application Guide (PHS 398 Research Plan Form).



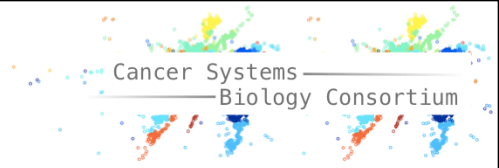
The overall structure of the Cancer Systems Biology Consortium (CSBC) and Physical Science-Oncology Network (PS-ON):

At the interface of the CSBC and the PS-ON is the U24 CSBC/PS-ON Coordinating Center. The Coordinating Center will have three 'hubs': the Resource Coordinating Hub, the Collaboration and Pilot Project Hub, and the Outreach Hub. The U24 Coordinating Center will provide opportunities for interactions between the CSBC and the PS-ON. Importantly, the U24 Coordinating Center budget includes a restricted fund for **CSBC-initiated** Pilot Projects (Red Arrows). These funds will be distributed after review by the CSBC Steering Committee and the NCI to promote pilot projects within the CSBC or between the CSBC and the PS-ON. On this diagram those projects are referred to collectively as "CSBC U24 Pilot Project".

Within each CSBC U54 Research Center there must be at least \$50K annually budgeted for "CSBC U54 Pilot Projects" (gray arrows) that may be utilized to promote collaboration within the Center or between the Center and an outside collaborator (two examples illustrated; one between a U54 Center and an outside organization; one between a U54 Center and a CSBC U01 Research Project).

An annual CSBC Investigators Meeting, organized by the U24 CSBC/PS-ON Coordinating Center, will bring together CSBC scientists to share findings and build collaborations. While the meeting will be organized by the U24 CSBC/PS-ON Coordinating Center and the NCI Program Staff, the CSBC U54 Administrative Core budget must contain funds for travel of the Center PD/PIs (and, optionally, others) to the Annual Meeting.

Information about CSBC/PS-ON U24 Coordinating Center

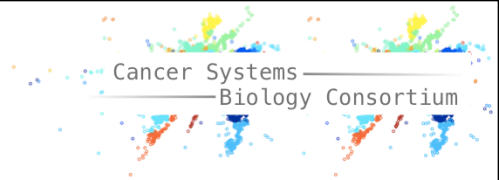


Several aspects of the CSBC will be coordinated through the U24 Center, which has three main “hubs”:

- **The Resource Coordinating Hub:** A curated source of CSBC and PS-ON research output.
 - CSBC U54 Research Centers will be expected to share data and models through the Resource Coordinating Hub. Hub structure will be determined by U24 Awardee and NCI Program Officials.
- **The Collaboration and Pilot Project Hub:** Funds for CSBC-led research projects.
 - *Starting Year 2 of the U24 Award*, restricted funds are allocated to support CSBC-led research projects (“CSBC Pilot Project Fund”). Final approval of projects by CSBC Steering Committee & NCI. Budget details: \$100K DC (Yr 2) and \$300K DC (Yr 3-5).
- **The Outreach Hub:** Centralized resource for Outreach activities across the CSBC and PS-ON.
 - The Outreach Hub will coordinate activities that may span CSBC members (for example, summer research programs) and serve as a central information source.

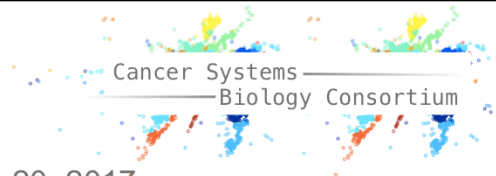
For more information about the U24 CSBC/PS-ON Coordinating Center, please see the slide deck for the RFA-CA-15-015 pre-application webinar.

Key Dates



	Pre-Application Webinar	Letters of Intent Due Dates	Application Due Dates	Review Dates	Earliest Anticipated Start Dates
Round 1	September 28, 2015	Oct 20, 2015	Nov 20, 2015	Feb-Mar, 2016	July 2016
Round 2	TBD, estimated May 2016	Aug 9, 2016	Sept 9, 2016	Oct-Nov, 2016	March 2017 (?)
Round 3	TBD, estimated Jan 2017	Mar 20, 2017	April 20, 2017	June-July, 2017	Nov 2017 (?)

Letter of Intent (LOI)



Due date: **October 20, 2015**; August 9, 2016; March 20, 2017

Highly encouraged, but not required

Standard elements:

- Descriptive title of CSBC Research Center
- Name(s), address(es), telephone number(s) of the PD(s)/PI(s)
- Names of other key personnel
- Participating Institution(s)
- Number and title of funding opportunity

Additional recommended information:

- **Provide a brief (3-5 sentence) description of the overall research theme**
- **Include relevant expertise and Keywords**

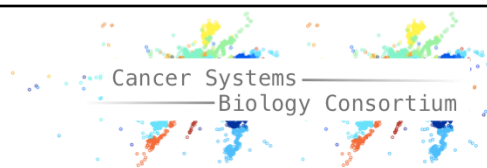
Letters of intent should be sent via email to:

Dan Gallahan
Dan.Gallahan@nih.gov

Or

Shannon Hughes
shannon.hughes@nih.gov

Application & Submission Information



Electronic submission is required for RFA-CA-15-014

NIH's **Application Submission System & Interface for Submission Tracking (ASSIST)** is available for the electronic preparation and submission of multi-project applications through Grants.gov to NIH. Applications to this FOA must be submitted electronically; paper applications will not be accepted. ***ASSIST replaces the Grants.gov downloadable forms*** currently used with most NIH opportunities and provides many features to enable electronic multi-project application submission and improve data quality, including: pre-population of organization and PD/PI data, pre-submission validation of many agency business rules and the generation of data summaries in the application image used for review.

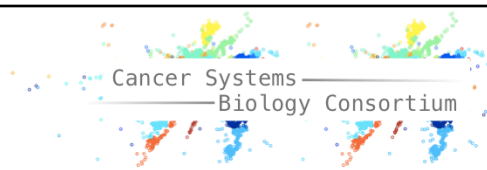
ASSIST Website: <https://public.era.nih.gov/assist/public/login.do>

ASSIST Webinar: http://grants.nih.gov/grants/webinar_docs/webinar_20130813.htm

Problems accessing or using ASSIST?

Contact the eRA Commons Help Desk: <http://grants.nih.gov/support/index.html>

Application & Submission Information



Electronic submission is required for RFA-CA-15-014

You are strongly encouraged to upload and test your application in ASSIST at least five days prior to the application deadline. This will allow time to correct any formatting or technical errors. Once the deadline passes (5:00 PM local time on November 20th) you will *no longer be able to access your application to correct errors.*

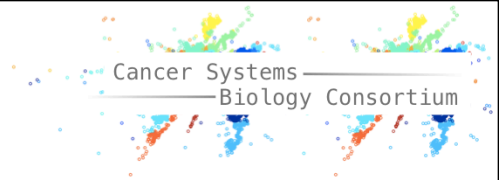
ASSIST Website: <https://public.era.nih.gov/assist/public/login.do>

- Familiarize yourself with ASSIST early.
- Pay attention to the order of the application components to save time and reduce errors.

Problems accessing or using ASSIST?

Contact the eRA Commons Help Desk: <http://grants.nih.gov/support/index.html>

New NIH Biosketch required



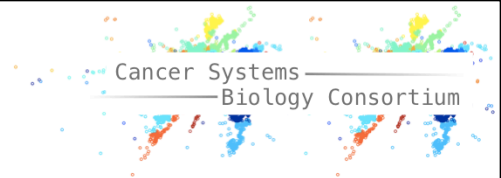
All research applications are required to utilize the new NIH Biosketch format:

See [NOT-OD-15-032](#) for general information and tools -- including instructions and a sample.

Frequently asked questions are addressed at:

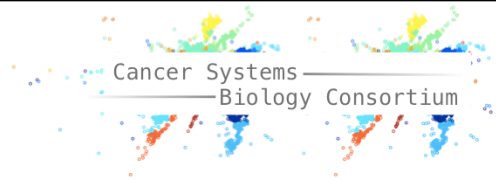
http://grants.nih.gov/grants/policy/faq_biosketches.htm

Application Review Information



- Consider the **FOA-specific review criteria** defined in Part 2, Section V
- Overall impact scores provided for Overall Component, Administrative Core, Research Projects, Outreach Core & Shared Resource Core(s).
- Individual Criterion Scores for Overall Component and Research Projects include:
 - Significance
 - Approach
 - Investigator(s)
 - Environment
 - Innovation
 - Integration
- Scores for Cores (Administrative, Outreach, Shared Resource) will be based on bulleted lists defined in Part 2, Section V.

Contact Information



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Slides from this webinar will be available on the Division of Cancer Biology website:
dcb.nci.nih.gov/News



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