Research Enhancement Assistance Program: Team Science (TS)

Purpose:

Team science has been growing in importance in biomedical and behavioral discoveries. For instance, NIH-funded extramural research, including that funded by research project (R) grants, has been producing mostly multi-author papers with increasing numbers of authors per paper over time. Other funding mechanisms at NIH designed to promote large-scale, multi-project Team Science (TS)—mainly program project or center (P) grants and cooperative agreements (U)—generate papers with greater numbers of authors. Greater numbers of authors are often associated with greater citation influence. When we look more closely at the impact of the shift, we see that collaboration is proving to move science forward in important and diverse ways.

To facilitate "team science" at HSC, the Division of Research and Innovation (DRI), working with the President's Research Council (PRC) and the DRI Research Advisory Committee (RAC), has developed a new initiative to support this approach. This Program Announcement (HSC-TS-001) will provide developmental support for a project or program that will ultimately result in a competitive and fundable grant application to an external funding agency that provides significant direct and indirect funding to establish a major ongoing and sustainable initiative of strategic HSC research interest. The proposal will be evaluated based on the merit of the scientific idea, and the strength and synergy of the proposed team. Awards are for a two-year, non-renewable period.

This program has the HSC values of *Collaboration* and *Be Visionary* as its underpinnings, with two opportunity pathways:

- Collaboration among team members to develop a project requiring interdisciplinary skills and approaches that are essential to exploring and/or developing a novel approach and solution to an existing problem within a defined area of strategic research interest to HSC. The current Research Areas of Strength at HSC, among many, include:

    - Cardiovascular Research
    - Genetics/Genomics
    - Health Disparities / Population Health
    - Prevention of Substance Use and Related Risk Behaviors
    - Neurodegenerative Disease, primarily Alzheimer's Disease
    - Vision Research

    Projects within this pathway would involve investigators with different types of expertise addressing the same problem from different scientific perspectives.

- Multi-project/Multi-Investigator Pathway: Multi-project grant applications share the following features: at least two interrelated research projects, connected to a theme with each capable of standing on its own scientific merit but complementing one another; collaboration and interaction among projects and investigators to achieve a common goal with synergy among projects. These are the so-called P and U category awards (as defined by NIH).

P01 / P20—multidisciplinary, multi-project research program headed by a PI or PIs who bring in other investigators to conduct research projects and share resources toward a common program goal.

P30 / P50—a center core grant that supports shared resources and facilities for a multidisciplinary research team or group of investigators focusing on a common research topic. P50 centers may also serve as regional or national resources for special research purposes.

U01 / U54—support for translational or implementation research from basic to clinical to population, including ancillary supportive activities that create a multidisciplinary focus on a disease or a biomedical problem.

R18 – support for dissemination and implementation (D&I) research that involves extension or adaptation of generally accepted and efficacious interventions that have been previously carried out in well-controlled settings to broader populations or settings.

R24—support for resource-related research projects or enhanced research infrastructure. One example is to facilitate the translation of laboratory and animal studies into novel resources for the treatment of disease.

Since this Team Science initiative is designed as a semi-annual program, there is no limit on the number of applications that can be submitted for consideration. Applications will be reviewed twice a year (exact dates to be announced, typically mid-December, mid-April). Requirements include:

- A faculty member can be a principal investigator (PI) on only one application per year,
- Existing faculty member and/or unit (department or college / school) discretionary funds must be committed to the endeavor. Where possible, a significant unit or investigator match is expected as a demonstration of unit investment and commitment to the project,
- To participate in this program, the PI(s) must be full-time regular tenure-track or tenured faculty member(s). Co-Investigators (Co-Is) may be in any faculty category. Graduate students, postdoctoral fellows, staff, and part time faculty are not eligible to serve as PIs or Co-Is.

Funding:

A maximum of up to $200,000 inclusive of any unit match funds over a two-year period per application; special attention will be given to the fiduciary credibility of the proposed TS budget and research plan. Funding will be released as major components of the project are completed (as shown in SMART goals). Up to three awards per year may be made, depending on availability of funds.

The TS Program will have internal review by PRC and RAC members as well as external content experts, if needed.

Research Proposal Components (similar to that of an NIH application):

1. Face Page
2. Budget
3. Budget Justification
4. Biographical Sketch for the PI/Team Leader and each investigator (use current NIH format)
5. Research Plan (6-page limit)

The Research Plan should propose a single integrated program of research addressing a significant scientific question with a single set of specific aims sufficient to accomplish a well-defined goal within the allowable period. The Plan should be highly innovative, develop new concepts, address critical issues, and be sufficiently challenging that a single investigator alone is unlikely to advance the field.

   a. Specific Aims (1-page limit)
   b. Background: Significance and Innovation (2 pages)
   c. Preliminary Studies } 4 page limit for sections c-d
   d. Research Design and Methods }
   e. References (no page limit)

6. Team Management Plan (describe MPIs, if applicable, and team members and their scientific contributions to the project)
7. Vertebrate Section (if applicable)
8. Human Studies (if applicable)
9. SMART (Specific, Measurable, Achievable, Realistic, Time-bound) goals (2-page limit)

The proposal should provide "SMART" goals to be accomplished by the end of every six months of the project, where SMART stands for Specific, Measurable, Achievable, Realistic, and Time-bound. The SMART goals should be tangible and measurable outcomes that the proposed work is likely to produce. There should be a description of major milestones that are tied to the funding (e.g., hiring of staff and purchase of equipment (> $5000), launch of pilot data collection, analysis, presentation or publication). There should also be a description of how this work will lead to extramural funding and the planned funding program to which this project will be submitted.

10. Literature Cited
11. Brief Summary of Team Members' available time/effort to the project. NIH biosketches should list current as well as pending support.
12. Equipment justification and quote (if essential; see Budget below)

Budget

The following restrictions apply to requested funds.

	Allowable	Not Allowable
Faculty Salary		X
Student/Postdoc Salary	X	
Tuition		X
Administrative/Staff Salary	X	
Supplies	X	
Furniture/Equipment	X*	
Computers/Software	X	
Alterations/Renovations	X*	
Travel	X*	
Indirect Costs/Subcontracts		X
Participant Incentives/Hospital Per Diem	X	

- **Departmental/College or School matching funds, if any, will be considered in the criteria for review. Funds beyond salary cost-sharing are encouraged. Provide a description of the funds that are available and a chart string for those funds, along with a signed written commitment from the account holder. There may be multiple contributors and this information should be included for each funding source. At the time of the award, there will be a direct transfer to DRI for the allocation of those funds to the project for the first year.**

NOTES:

* Laboratory equipment costing over $5,000 must have clear and **significant justification.**

* Domestic travel only. Such travel funds must be directly related to core components of the proposed research plan, such as data collection.

* Alterations and Renovations must be project-essential and justified.

Funds are for a non-renewable, two-year period. No-cost extensions (NCE) are not allowed, except in extenuating circumstances. All extension and re-budget requests must be approved by the Vice President for Research and Innovation.

Criteria for Review

NIH Standard review criteria will be used: (see NIH Guidance on Center and Program criteria; see below). Note that teams may be asked to present to the Council during the final review stage.

Overall impact (1-9):

An overall impact score that reflects the likelihood for this TS project to exert a powerful influence on research fields involved and the TS environment at HSC. Successful applications

should demonstrate how the proposed projects are visionary and transformative.

Significance (1-9):

- Does the project address a critical barrier to progress in the field?
- Does this project aim to accomplish what cannot be accomplished by individual R01s?
- How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

- How will the project facilitate large-scale, multi-project team science at HSC?

Investigators (1-9)

- Are the PI, collaborators, and other researchers well suited to the project?
- If Early-Stage Investigators or those in the early stages of independent careers, do they have appropriate experience and training?
- If established, have they demonstrated an ongoing record of accomplishments that have advanced their field?
- For multi-PI projects, do the investigators have complementary and integrated expertise?
- Does the project team have investigators from multiple units or disciplines at HSC?
- Is there a compelling description of how team members from different disciplines will contribute to coherently solving the problem in a unique and substantial way?
- If new teams without a history of collaboration at HSC are proposed, how likely are the teams to successfully collaborate?
- From existing TS teams, it is demonstrated that they have already collaborated and worked synergistically, resulting in products (if any).

Innovation (1-9)

- Does the application challenge and seek to shift current research or clinical practice paradigms 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?

Approach (1-9)

- Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project?
- Have investigators included plans to address weaknesses in the rigor of prior research that serves as the key support for the proposed project?
- Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed?
- Are potential problems, alternative strategies, and benchmarks for success presented?
- For multi-projects proposals, are individual projects scientifically rigorous on their own and complement other related projects to create new synergy?
- How will the project foster collaboration and efficiencies, ensuring appropriate prioritization of research, needed course corrections and problem identification and resolution?
- Are there appropriate SMART goals? Successful applications are expected to have well-developed deliverables, outcomes, and future grant application plans.

Team environment (1-9)

- Are there appropriate support, equipment and other physical resources available to the investigators adequate for the project proposed?
- Are there any matching financial and non-financial support from the units of proposed investigators?
- Has a team management/communication and work process plan been presented?

Budget

Departmental/College or School matching funds, if any, will be considered in the criteria for review. Funds beyond salary cost-sharing are encouraged. Provide a description of the funds that are available and a written signed commitment from the account holder for the direct use of those funds.

Budget inflation will not be reviewed favorably. Realistic budget estimations will be considered. Equipment requested should be justified and clear regarding the purpose and need for the equipment to meet the stated goals of this proposed work.

Timeline (included in Research Plan)

Provide a detailed timeline for the study, including data collection, and justify the need for the length of the proposal.

Provide details on how the data collected from this proposal will be used for future grant proposals, giving estimated deliverables and timeline where possible. What specific grant funding mechanism will be targeted? Provide details of the program announcement (RFA or PA) for which the data obtained from this team science effort will improve chances of securing it. Include timeline of grant proposal submissions (first submission and resubmission).

SMART GOAL expectations

Whether a project achieved targeted SMART goals will be evaluated every six months by a subcommittee appointed by the DRI.

Review and Evaluation Process:

Proposals will be reviewed first by REAP and then by a subset of the RAC, with ad hoc external reviewers as needed (particularly to evaluate content area). Recommendations for awards will be made to the PRC with a final review and recommendation to the Vice President for Research and Innovation for final decisions. Applications will be accepted twice per year (starting December 2021, then April 2022, etc.). Written feedback will be provided to applicants using NIH Summary Sheet format.

Allocations of Funds

Post-award grant administration will be provided by REAP. A brief written progress report along with a financial report showing project expenditures are due every 6 months and remaining funds will be provided upon satisfactory progress report evaluation. Funding will be provided in four 6-month tranches (Tranches 1, 2, 3, and 4). The DRI may request that the team provides a presentation on current progress toward the originally stated goal. Detailed annual progress report, along with a financial report, is due 30 days prior to completing each funding year period.

When justified, funding requests can be frontloaded up to 50-75% in the first or second Tranches so that more funds can be allocated at the beginning of the project.

No funds will be transferred to the principal investigator unless all HSC regulatory requirements have been fulfilled (IRB approval, IACUC approval, RCOI Training and Annual Disclosure documents, Biosafety review, safety training, etc.). In the event that regulatory requirements or SMART goals are not met, the DRI will delay the distribution of funding.

All intellectual property arising from funded project activities will be governed by the policies of HSC.

Program Evaluation: At regular intervals, this program (HSC-TS-001) will be evaluated for changes needed, effectiveness, and relevant process improvements.