

**Collaborative Interdisciplinary Team Science  
in NIDDK Research Areas (R24)  
PAR-13-305**

NIDDK uses the R24 grant mechanism to support applications that assemble an interdisciplinary, collaborative team of creative, independent, and funded investigators to address a complex and important problem relevant to the mission of NIDDK. The team should be able to provide an integrative plan of working together to effectively address the complex challenge at hand. This team science approach could be used to generate a research resource, which may include discovery-based or hypothesis-generative approaches, to advance the relevant area of biomedical research.

**Purpose and Research Objectives**

The purpose of an R24 is to provide support for interdisciplinary research teams focused on innovative approaches to answer a single critically important research question or problem relevant to the mission of NIDDK. An R24 project is expected to support discovery or hypothesis-generating research or to develop unique resources or technologies that are needed to move a particular field forward. Collectively, the team should bring together the necessary, and appropriate, expertise to answer one complex problem, or challenge. Formation of the team of investigators should result in a greater contribution to meeting the challenge than would occur if each team member worked individually, and submission of a multi-PD/PI application is encouraged if it facilitates the team aspect of the approach. R24s can support basic, translational, or clinical science. Teams may also support integrated basic and clinical studies with the intent of accelerating translation of basic science to the clinic. NIDDK expects investigators forming collaborative teams to be funded and productive investigators who now wish to integrate their interests and efforts to facilitate a synergistic approach to the challenge not possible through other grants mechanisms. Support for resource development, generation, or utilization can be included to enhance the catalytic and transformative nature of the proposed studies. However, individual projects and cores are not allowed.

**R24 applications should have the following characteristics**

- The formation of an interdisciplinary team that will develop a synergistic approach to investigate a single critically important research question or to generate a research resource for the scientific community.
- The question addressed should represent a major gap in our knowledge and thus have the potential to be paradigm-shifting.
- Team members should be established, independent and creative investigators with active research support.
- Team members, who can be at the same or different institutions, should be a highly collaborative and interactive group.

**The R24 grant mechanism is not intended to support**

- Traditional investigator-initiated and highly focused studies (best supported by the R01 or P01 mechanism).
- Research that is the logical extension of ongoing work.
- Core (or related) services to supplement the budgets of existing R01-type efforts.
- Groups of investigators at the same institution who would normally interact and collaborate in the absence of a collaborative grant.

**Prior Consultation with NIDDK**

Consultation with NIDDK staff at least 3 months (and preferably 6 months) prior to the application due date is strongly encouraged for submission of the Collaborative Interdisciplinary Team Science in NIDDK Research (R24) application, including resubmission applications. If requested, NIDDK staff will consider whether the proposed R24 meets the goals and mission of the Institute, whether it addresses one of more high priority research areas, and whether the application is best fit to the R24 activity code. NIDDK staff will not evaluate the technical and scientific merit of the proposed R24; technical and scientific merit will be determined during peer review using the review criteria indicated in this FOA. During the consultation phase, if the proposed project does not meet NIDDK's programmatic needs or is not appropriate for this R24 FOA, applicants will be strongly encouraged to consider other Funding Opportunities.

### Examples of Successful R24 Applications

Below are three examples of successful R24 applications. Successful projects should apply cutting edge technology to a project that can be paradigm shifting or enable major advances in science relevant to NIDDK.

- Bringing together expertise in mitochondrial biogenesis, bioenergetics, chemical screening, and medicinal chemistry, a team of investigators will address the hypothesis that modulating mitochondrial physiology may act towards reversing or preventing type 2 diabetes and obesity. The integrated team will aim to discover a diverse set of small molecules that act at multiple levels of mitochondrial biology to modulate cellular energetics in vivo. These studies aim not only to gain a better understanding of the role of mitochondrial metabolism to metabolic disease, but also to potentially identify drug targets for treatment of these diseases.
- A multidisciplinary team with expertise in basic science, clinical practice, and bioinformatics will apply a systems biology approach to define the complex network of pathways and cellular responses that lead to the onset and progression of diabetic complications. The integrated team approach will allow the investigators to discover essential cellular responses, identify which responses are amenable to therapeutic intervention, and discover biomarkers for alterations associated with complications. By defining these pathways in humans, the team may be able to uncover the molecular responses that cause complications and can be reversed by therapy.
- Using genomics technologies, a group of investigators will comprehensively characterize the clinical, pathological, genetic, and molecular phenotypes of inherited bone marrow failure (BMF) and myelodysplastic syndromes (MDS) to identify previously unknown genetic causes of BMF and MDS. The results of these studies will provide resources for the research community, including evidence-based algorithms for diagnosis and workup of marrow failure and MDS, centralized highly specialized hematopathology review, comprehensive next-generation sequencing-based testing for iBMF/MDS mutations, and a repository of clinically annotated biological samples.