

**National Advisory Council for Human Genome Research**  
**September 18, 2023**  
**Concept Clearance for RFA**

**NHGRI Technology Development Coordinating Center (TDCC)**

**Purpose**

The National Human Genome Research Institute (NHGRI) proposes to issue a Request for Applications (RFA) to renew the NHGRI Technology Development Coordinating Center (TDCC). The proposed Center will build on the work accomplished during the initial TDCC project. This includes: (1) facilitating opportunities for new research collaborations to advance technology development and dissemination; (2) developing outreach strategies and resources to engage the broader biomedical research community; and (3) providing an Opportunity Funds Program to support innovative small-scale work. Through these activities, the TDCC will continue to provide an infrastructure for enhancing and advancing efforts supported by NHGRI's Genome Technology Program.

**Background**

As highlighted in the NHGRI 2020 Strategic Vision, advancing technology development is one of the key elements needed for sustaining and improving a robust foundation for genomics. The NHGRI [Genome Technology Program \(GTP\)](#), aims to accelerate innovation, development, and early dissemination of genomic technologies to advance basic and clinical research into human biology and disease. Over the past 20 years, the GTP has expanded from a focused investment on advancing nucleic acid sequencing to more broadly encompassing a wide set of initiatives including those supporting technologies to advance our understanding of gene regulation and genomic function, technologies to synthesize nucleic acids, and refinement of sequencing technologies for improved resolution at the single molecule level (Appendix I). NHGRI also supports investigator-initiated technology development projects that come in through NIH parent announcements. Across these research areas, inclusive of grants from targeted initiatives and the parent announcements, the program consists of over 60 active research projects (R01 and R21) and small business awards (R43 and R44). The NHGRI [Centers of Excellence in Genomic Science \(CEGS\)](#) program has an ongoing focus on technology development and there is a benefit to having crosstalk and coordination between CEGS and the GTP.

The TDCC was launched in 2021 to enable opportunities for collaboration among technology grantees, improve dissemination of technology advances and resources, and accelerate technology innovation. Over the past three years the TDCC has facilitated grantee meetings, developed a collaboration web portal for GTP grantees, and established scientific working groups to discuss research in progress and standards in genomic technologies. The TDCC hosts outreach events and webinars to discuss emerging technologies, and shares information about these events, supported technologies, publications, and resources through a publicly accessible [website](#). In the past year, the TDCC hosted a series of genome technology development outreach webinars where speakers, within and outside of the GTP, discussed emerging technological opportunities. The recordings have received over 10,000 views. The TDCC also oversees development and management of an Opportunity Funds Program that has supported nine early-stage research projects, resulting in four publications to date.

**Proposed Scope and Objectives:**

This concept proposes to renew the TDCC project through an open competition RFA. This renewal concept is focused on continuing and building on the activities of the TDCC to

enhance integration between components of the NHGRI GTP and outreach to the broader research community. The TDCC will be expected to work collaboratively with NHGRI-funded technology development grantees and NHGRI staff, as well as with other investigators and programs with interests in alignment with the GTP.

#### *Facilitating Opportunities for Collaboration*

The TDCC will organize annual meetings and conferences, as appropriate, for grantees of the GTP and CEGS programs. Annual meetings for both programs are expected to serve as venues to facilitate sharing of research findings, promote the exchange of ideas, and enable discussion of opportunities, challenges, and emerging needs in genome technology development. They also serve as opportunities for trainees to learn about careers in science through dedicated career panel discussions. The TDCC will establish standing scientific working groups focused on these topics as well as metrics and benchmarking approaches utilized to evaluate novel technologies. As part of these efforts, the TDCC will be expected to work with working group members to develop and organize recommendations that can be shared with the broader biomedical research community, and to mediate outreach to programs within and outside of NIH that have similar interests in technology development and advancing early dissemination.

#### *Developing Outreach Strategies and Resources*

The Center will develop outreach approaches and educational materials to engage program grantees and the broader research community. This may include activities such as webinars and presentations on technologies that range from overviews of basic technology concepts to new innovations in genome-based technologies, or information pertinent to technology dissemination and adoption. This would include information about the fundamentals of intellectual property protections and identifying relevant technology applications. The materials developed should be wide-ranging to target a variety of researchers at different career stages (from trainees to established investigators) and audiences (from technology developers to functional genomics researchers, to clinical geneticists). Commercialization is an avenue of dissemination strongly supported by NHGRI. The TDCC will identify opportunities to encourage and promote the NHGRI's Small Business Program's commercialization resources within the GTP. The TDCC will also be responsible for establishing a website for the GTP. The website will be used to share information about NHGRI-supported technologies, resources, events, and program advances. All resources, educational materials, and standard operating procedures produced by the TDCC will be developed such that they are portable and easily transferable, if needed.

#### *Supporting Innovative Small-scale Work*

The TDCC will manage and administer an Opportunity Funds Program. This program will support pilot projects in priority areas aligned with the GTP. These may include early-stage, proof-of-principle studies that could generate preliminary data for larger studies, activities to advance dissemination of methods or tools, and the development and validation of standard processes and materials that may aid new technology evaluation. The program will also enable new partnerships by encouraging collaborative projects. Funds for this program will be provided as part of the TDCC and disbursed to successful applicants as approved by NHGRI. The TDCC will be responsible for the solicitation, review, and selection of projects, and for regularly monitoring and reporting on progress.

TDCC applicants will include a Plan for Enhancing Diverse Perspectives. This plan will describe how the applicant plans to foster diversity, inclusivity, and accessibility both within the Center and across the GTP community. They should also propose how they will ensure that resources and events are accessible to a wide variety of potential users and participants.

The TDCC will work closely with NHGRI program staff in the development of approaches and strategies relevant to meeting the TDCC's objectives. These will include plans for evaluating progress within the Center and opportunities to seek and incorporate input from grantees and other users of the TDCC's resources.

**Relationship to Ongoing Activities:**

The TDCC will continue to support the GTP, which consists of a series of technology development initiatives. Some technology development grants received through NIH parent R01 and R21 announcements, as well as the small business omnibus solicitations may be related to activities of the program. These grants will be invited into the GTP and encouraged to participate in TDCC activities. The TDCC will continue to collaborate with the CEGS program, and will identify opportunities to synergize with other NHGRI programs actively seeking and utilizing new genomic technologies (e.g., [GREGoR](#)). The TDCC may also collaborate with programs at other NIH Institutes or Centers that have ongoing and complementary technology development activities such as NCI's [Innovative Molecular Analysis Technologies \(IMAT\)](#) Program and [NIBIB's Biomaterials Network](#), the latter of which is establishing its own technology development coordinating center modeled after the NHGRI TDCC.

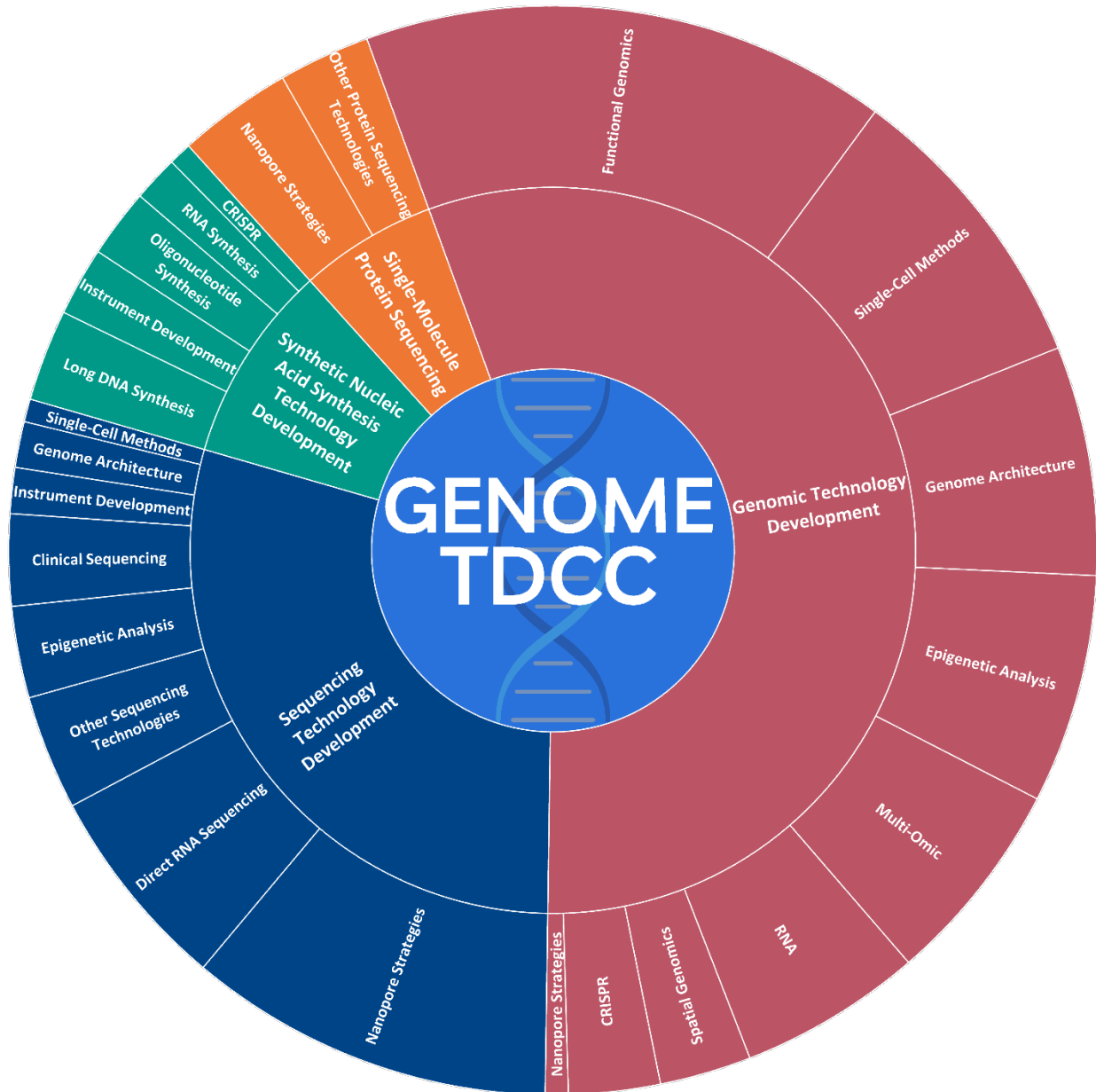
**Mechanism of Support:**

Renewal of the TDCC, initially funded in response to [RFA-HG-20-019](#), will continue to use the U24 mechanism (Resource-Related Research Projects--Cooperative Agreements).

**Funds Anticipated:**

NHGRI intends to support one award at \$1.5M total costs/year for five years starting in FY25. This budget includes \$750K total costs/year for the Opportunity Funds Program.

**Appendix I. Genome Technology Program Grant Categories**



Categories of funded Genome Technology Program grants by initiative (inner circle) and research area (outer circle). Interactive wheel with underlying grant information can be found at <https://genometdcc.org/chart/>.