

Connection information for webinar:
[NOT-CA-18-015](#)

The webinar will start at 4:05pm EST

The NCI Human Tumor Atlas Network (HTAN)

Pre-application webinar slides for RFA-CA-17-036

“Human Tumor Atlas Network: Data Coordinating Center (U24)”

Please note:

All participants are muted upon entry

The webinar will be recorded



November 20, 2017

The Cancer Moonshot Initiative



2016 State of the Union Address

Goals

- *Accelerate progress in cancer, including prevention & screening*
 - From cutting-edge basic research to wider uptake of standard care
- *Encourage greater cooperation and collaboration*
 - Break down silos within and between academia, government, and the private sector
- *Enhance data sharing*
 - NCI Cancer Research Data Commons
 - Annotated patient-level clinical data and ‘omics

The Process



Vice President's Office



Federal Task Force



NIH/NCI

National Cancer Advisory Board

Blue Ribbon Panel (BRP)

BRP Working Groups (WG)

Cancer Immunology WG

Tumor Evolution and Progression WG

Pediatric Cancer WG

Blue Ribbon Panel Recommendations

- A. Network for **Direct Patient Engagement**
- B. Cancer **Immunotherapy** Clinical Trials Network
- C. Therapeutic Target Identification to **Overcome Drug Resistance**
- D. A National Cancer **Data Ecosystem** for Sharing and Analysis
- E. Fusion Oncoproteins in **Childhood Cancers**
- F. **Symptom Management** Research
- G. **Prevention and Early Detection:** Implementation of Evidence-Based Approaches
- H. Retrospective **Analysis of Biospecimens** from Patients Treated with Standard of Care
- I. Generation of **Human Tumor Atlases**
- J. Development of New Enabling **Cancer Technologies**



Cancer Funding in 21st Century Cures Act

Impact

- *Allows for funding of the BRP Recommendations*

The cancer research portion is named the Beau Biden Cancer Moonshot Initiative®

- *Specifies requirements for:*

Data sharing ([Cancer Moonshot Public Access and Data Sharing Policy](#))

Advancing health disparities research

“To support cancer research, such as the development of cancer vaccines, the development of more sensitive diagnostic tests for cancer, immunotherapy and the development of combination therapies, research that has the potential to transform the scientific field, that has inherently higher risk, and that seeds to address major challenges associated with cancer.”

Recommendation I: Generation of Human Tumor Atlases

I. Develop a 3D cancer atlas

Create dynamic 3D maps of human tumor evolution to document the genetic lesions and cellular interactions of each tumor as it evolves from a precancerous lesion to advanced cancer.

[BRP Pediatric Cancer Working Group Report \(pdf\)](#)

[BRP Cancer Immunology Working Group Report \(pdf\)](#)

[BRP Tumor Evolution and Progression Working Group Report \(pdf\)](#)

[Final Blue Ribbon Panel Report \(pdf\)](#)



The Human Tumor Atlas Network (HTAN)

Implementation of the combined recommendation from the Cancer Immunology, the Pediatric Cancer, and the Tumor Evolution and Progression BRP Working Groups

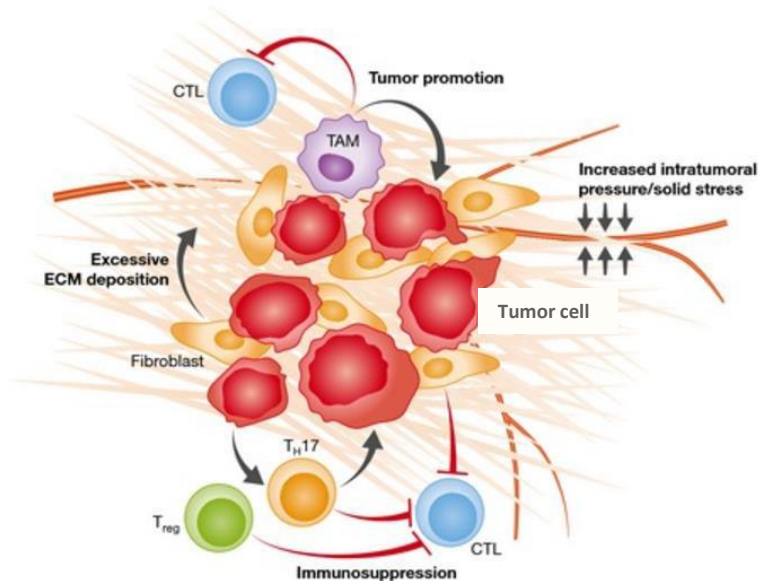
- **High-resolution maps** of the dynamic 3-dimensional architecture of an individual tumor, that
- Describes the **molecular, cellular and physiological events** that occur within individual cancer cells, the cancer mass, the tissue of origin and sites of metastasis, including the molecular, cellular and soluble components that can influence the immune response to the cancer, in order
- To enable **predictive modeling** to refine therapeutic choices for patients.
- Specific critical time points are mentioned: **transition from premalignancy to cancer, locally invasive to metastatic, and the response to and development of resistance to therapy.**
- Initial focus on **exemplary pediatric and adult cancers**, including at least one adult cancer in which immunotherapy responses have been good and one in which such responses have been poor.

Spatial context is emphasized in the BRP recommendation

- Molecular, cellular and tissue-level interactions facilitate critical transitions in cancer.
- Gaps in our knowledge make it difficult to predict prognosis or develop risk stratification, precision screening and treatment strategies.

A **comprehensive tumor atlas** will inform:

- Understanding of tumor heterogeneity and evolution
- Contribution of non-tumor components, such as stromal and immune cells, ECM
- Identification of markers of progression and drug resistance
- Development of early intervention strategies and robust therapies.



The Human Tumor Atlas Network (HTAN)

Goal: Pilot-scale, high-priority human tumor atlases that facilitate basic and clinical scientific discovery regarding important transitions during tumorigenesis.

Components of the HTAN:

- Human Tumor Atlas (HTA) Research Centers (U2C)** focused on construction of dynamic 3D tumor atlases.
[RFA-CA-17-034](#)
- Pre-Cancer Atlas (PCA) Research Centers (U2C)** focused on characterization of pre-malignant lesions.
[RFA-CA-17-035](#)
- HTAN Data Coordinating Center (HTAN-DCC)** (U24s) focused on HTAN data and Network coordination.
[RFA-CA-17-036](#)

Human Tumor Atlas Network

High Priority Tumors for HTA Research Centers:

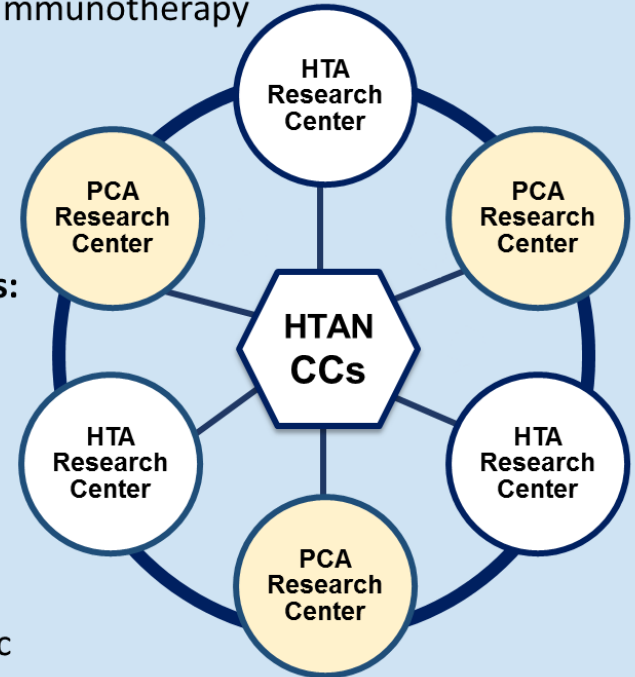
- * (Non)Responsive to immunotherapy
- * Highly metastatic
- * High-risk hereditary
- * Pediatric

Tumor Criteria for PCA Research Centers:

- * Public health impact
- * Access
- * Feasibility
- * Partnerships

Transitions:

- Pre-cancer → Cancer
- Invasive → Metastatic
- Responsive → Resistant



The Human Tumor Atlas Network (HTAN) (Cont)

What is a human tumor atlas?

For the purposes of this FOA, a comprehensive human tumor atlas is defined as the **multidimensional molecular, cellular, and morphological mapping** of human cancers, complemented **with critical spatial information** (at the molecular, cellular, and/or tissue level) that **facilitate visualization of the structure, composition, and multiscale interactions** within the tumor ecosystem.

Human Tumor Atlas Network

High Priority Tumors for HTA Research Centers:

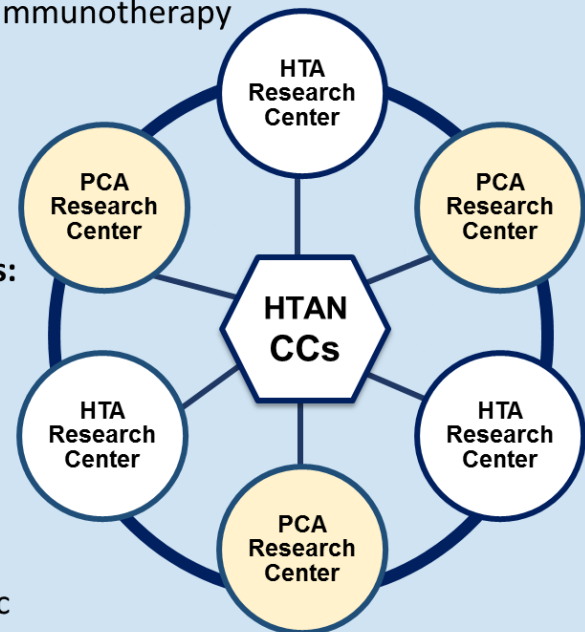
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Tumor Criteria for PCA Research Centers:

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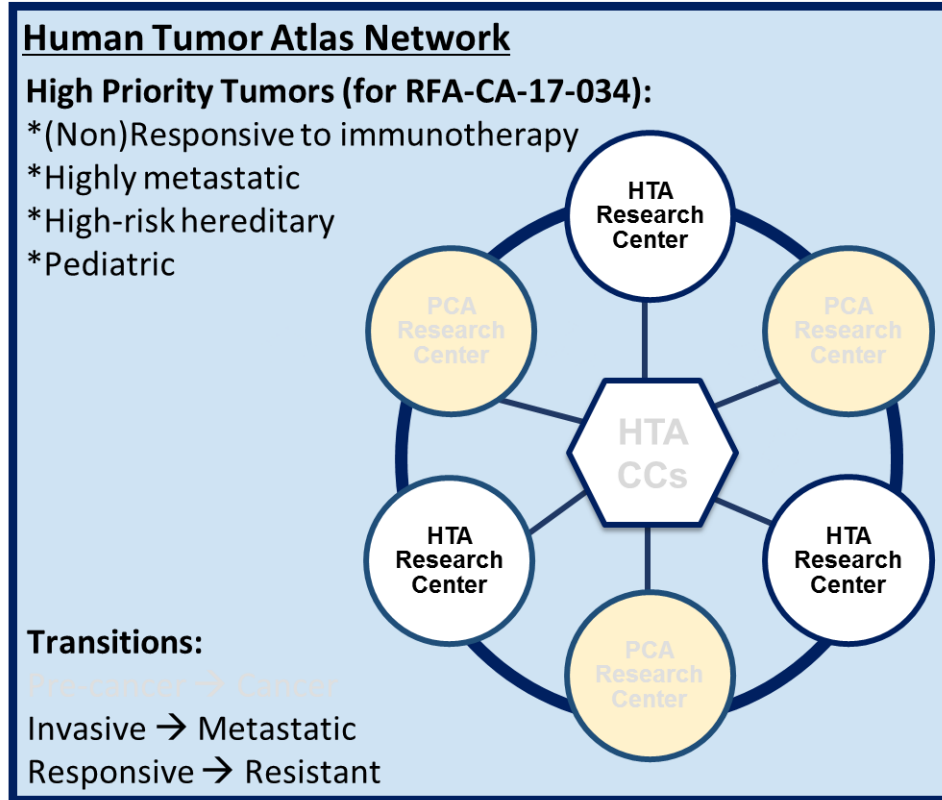


RFA-CA-17-034: HTA Research Centers (U2C)

From the FOA:

Tumor atlases ... must focus on one of the following three important transitions in cancer:

- ***The transition from locally invasive to metastatic cancer*** ... atlases characterizing multiple metastatic sites, atlases describing the transition into or out of tumor dormancy, atlases capturing colonization of early disseminated tumor cells at distant sites.
- ***The dynamic response to therapy*** ... atlases describing a positive response to traditional, targeted and/or immuno-therapies, atlases that describe no response, incomplete response, or negative response to traditional, targeted and/or immuno-therapies.
- ***The development of therapeutic resistance***, ... atlases describing the transition from responsive to traditional, targeted, and/or immuno-therapy to resistant to that therapy.



RFA-CA-17-035: PCA Research Centers (U2C)

From the FOA:

A human pre-cancer atlas is a multidimensional cellular, morphological and molecular **mapping of human pre-malignant tumors**, complemented with critical **spatial** information (at cellular and/or molecular level) that facilitate visualization of the structure, composition, and multiscale interactions within the tumor ecosystem **over time** resulting in progression or regression of the tumors.

Each PCA Center will lead the construction of **at least one pre-cancer atlas**.

Selection of organ sites must be based on the following **four criteria**: *Impact on Public Health; Access to Technologies and Biospecimens; Feasibility of Atlas Construction; Synergistic Partnerships for Maximizing Resources.*

Human Tumor Atlas Network

High Priority Tumors for HTA Research Centers:

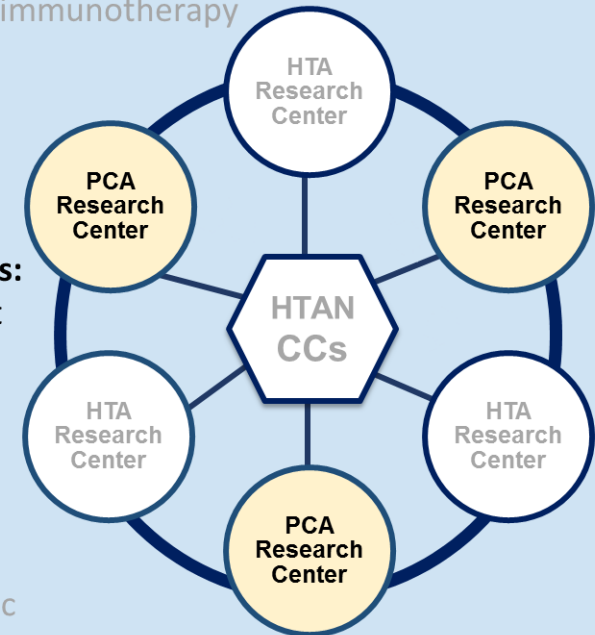
- * (Non)Responsive to immunotherapy
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Tumor Criteria for PCA Research Centers:

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- * Partnerships

Transitions:

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RFA-CA-17-036: HTAN-DCC (U24)

The HTAN-DCC will have **two major areas** of responsibility: (1) **Data Standards, Storage, Analysis, and Dissemination** (2) **Consortium Coordination**

The DCC will work closely with the U2C Research Centers to **collect, store, curate, and disseminate** all data, metadata, analysis and visualization tools, computational models, and **completed atlases** generated by the HTAN. The DCC will **lead the development of HTAN data and analysis standards**. The DCC will also **coordinate HTAN activities** including Network Steering Committee meetings and working groups.

Since it is difficult to predict the exact volume and types of data that will be generated by the HTAN, the **HTAN-DCC will need to be flexible in their implementation of HTAN data coordination**.

Human Tumor Atlas Network

High Priority Tumors for HTA Research Centers:

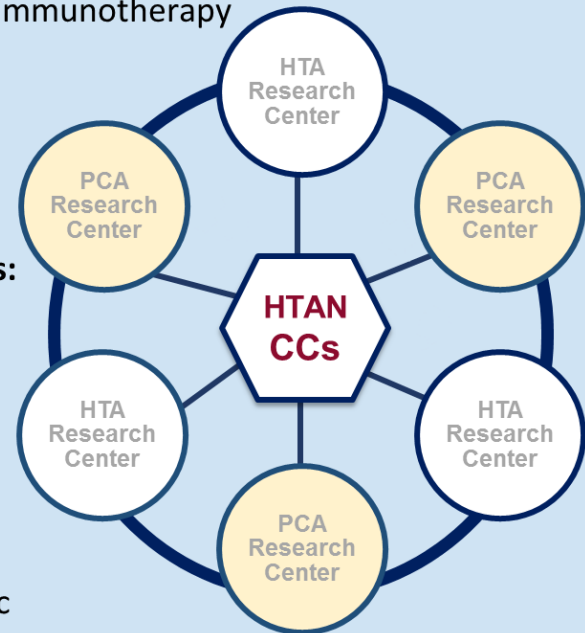
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Tumor Criteria for PCA Research Centers:

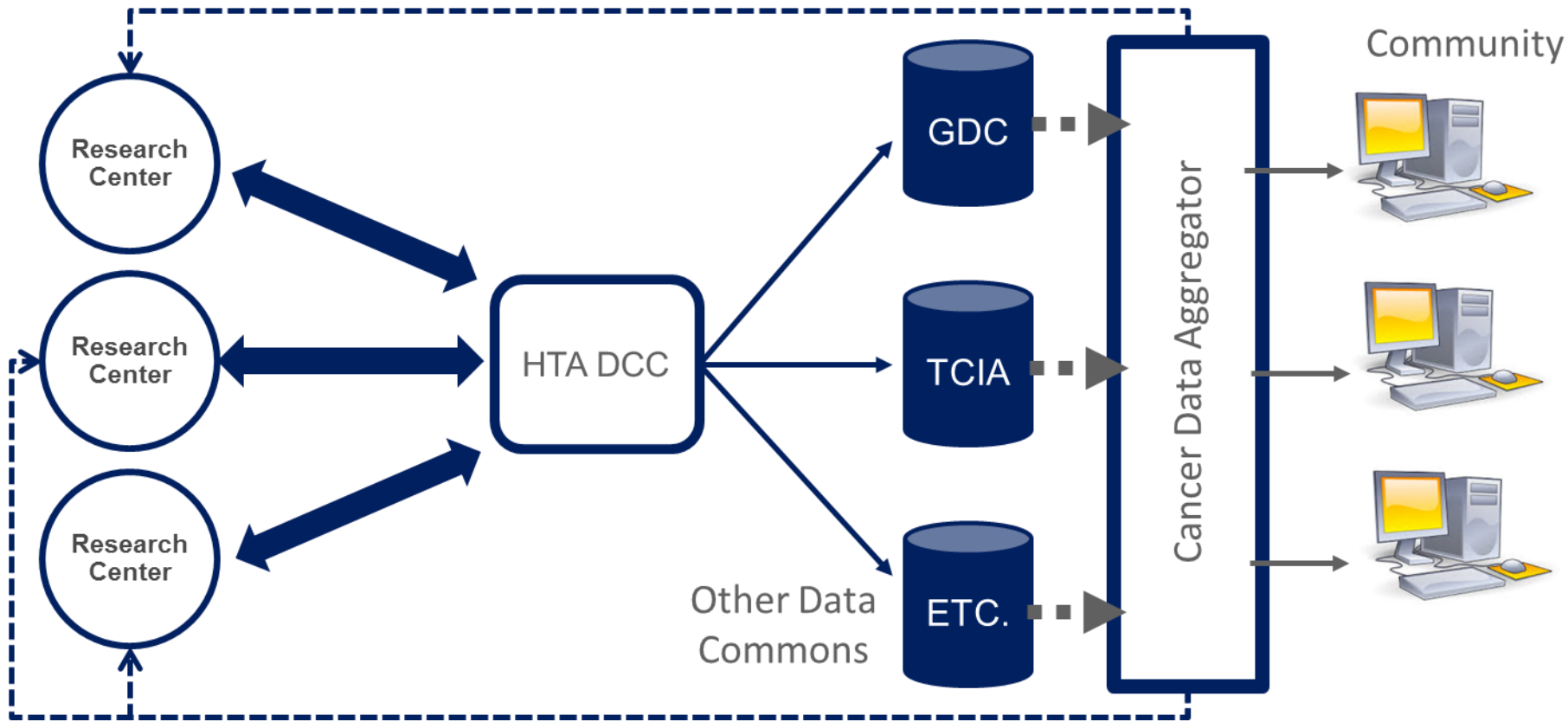
- *Public health impact
- *Access
- *Feasibility
- *Partnerships

Transitions:

- Pre-cancer → Cancer
- Invasive → Metastatic
- Responsive → Resistant



Proposed data flow for HTAN:



RFA-CA-17-036: HTAN-DCC – Mechanism of Support & Budget

Mechanism of support: **U24**, Resource-Related Research Projects--Cooperative Agreements

To support research projects contributing to improvement of the capability of resources to serve biomedical research.

Application Type: New applications only

Budget: Not to exceed **\$1.0M direct costs per year** for years 1 & 2, and **\$2.35M direct costs per year** for years 3-5.

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

RFA-CA-17-036: HTAN-DCC – Research Strategy Instructions

30 page limit, FOA Part 2 – Section IV

Do not use standard Research Strategy subsections (Significance, Innovation, Approach), instead address the following sub-sections:

Sub-section A: DCC Vision and Management – This section will describe the **overall goals** and vision of the DCC, how **progress will be monitored**, and how **communication** will be handled within the DCC and across the HTAN.

Sub-section B: Data Standards, Storage, Analysis, and Dissemination – This section will describe how data will be **managed and shared**, **interactions** with data producers, and data **dissemination**.

Sub-section C: Network Coordination and Outreach – This section will describe approaches for **coordinating Network activities** interacting with outside collaborators.

Sub-section D: Health Disparities – If applicable, this section will describe how the proposed research address questions in minority or health disparities.

RFA-CA-17-036: HTAN-DCC – Research Strategy Instructions A

Sub-section A: DCC Vision and Management

- *Overview and Goals* – Describe **goals and quantitative deliverables** of the HTAN-DCC.
- *Milestones and Progress* – Describe **milestones with metrics that will document progress** towards the achievement of the ultimate goals.
- *Management and Communication Plan* – Describe how the DCC will manage the proposed project, who will oversee the day-to-day activities, and how the **management structure will support achievement of the proposed goals and milestones**

RFA-CA-17-036: HTAN-DCC – Research Strategy Instructions B

Sub-section B: Data Standards, Storage, Analysis, and Dissemination

- *Data Portal Development* – describe **development of a data portal** that supports submission of and access to HTAN data, tools, computational, models, and atlases
- *Data Security* – describe approaches for **adhering to all data security** requirements
- *Data Storage & Access* – describe approaches for **storing and managing access** to HTAN data
- *Information Technology & Technology Development* – describe IT approaches for **managing HTAN Data**
- *Interactions with HTAN Data Producers* – describe approaches for interacting with data producers to **establish data standards, common data processing pipelines**, etc.
- *Data Wrangling* – how will the DCC work with **data producers to ensure timely data submission**
- *Implementation of Analysis & Visualization Tools* – plans to **implement widely used tools**
- *Centralized Access and Comparative Analysis of Atlases* – describe approaches for **sharing and disseminating completed atlases**
- *Data Export and Dissemination* – Describe plans to **deposit data in public databases**

RFA-CA-17-036: HTAN-DCC – Research Strategy Instructions C

Sub-section C: Network Coordination and Outreach

- *Web Portal Development* – describe a plan for developing and maintaining the main HTAN **Web Portal that will constitute the main entry point** for the sharing of resources and information related to HTAN activities
- *HTAN Activity Coordination* – describe plans to provide the **administrative infrastructure necessary to facilitate and coordinate all common activities** of the HTAN
- *Outreach, Documentation and User Support* – describe plans to provide outreach to the user communities to **educate the community about the HTAN and its data, resources, tools, and completed atlases and provide user support**

Sub-section D: Health Disparities

- If applicable, address how **health disparity populations or data will be integrated** into the proposed studies.

RFA-CA-17-036: HTAN-DCC – Data Sharing Plan

All applications must include a data sharing plan

Addressing the Cancer Moonshot Open Access Pilot Program: Utilizing the provision outlined in the 21st Century Cures Act, NCI has established a data sharing policy for projects that are funded as part of the Beau Biden Cancer MoonshotSM Initiative that requires applicants to submit a Public Access and Data Sharing Plan that: (1) describes their proposed process for making resulting publications and to the extent possible, the underlying primary data immediately and broadly available to the public upon publication and; (2) if applicable, provides a justification to NCI if such sharing is not possible. **NCI will give competitive preference and funding priority to applications that comply with the strategy described [here](#).** The data sharing plan will become a term and condition of award. Data and computational tool sharing by HTAN members will follow FAIR (findable, accessible, interoperable, and reusable) principles as defined [here](#).

[NCI Cancer Moonshot Public Access and Data Sharing Policy](#)

[The FAIR Guiding Principles for scientific data management and stewardship](#)

RFA-CA-17-036: HTAN-DCC – Budget Instructions

From the FOA:

Leadership Effort Commitment: The HTAN-DCC contact PD/PI must commit and maintain through the life of the award a minimum of **1.8 person-months of effort**. For applications with multiple PDs/PIs, a minimum effort of 1.8 person-months is required for the Contact PD/PI and **1.2 person-months of effort per additional** PD/PI is required.

HTAN DCC Administrator: Based on the complexity of the HTAN-DCC, the DCC PD(s)/PI(s) are **strongly encouraged to propose and budget for an HTAN-DCC Administrator** to manage day-to-day operations and work with the DCC PD(s)/PI(s), NCI staff, and HTAN Investigators to manage and coordinate the DCC activities.

Travel Funds: The budget should **include funds to support travel for HTAN activities**, including but not limited to supporting the travel and participation of PD(s)/PI(s) and other HTAN-DCC members at the semi-annual HTAN Steering Committee meeting and annual site visits.

Human Tumor Atlas Key Dates

	Pre-Application Webinars	Letters of Intent Due Dates	Application Due Dates	Review Dates	Earliest Anticipated Start Dates
RFA-CA-17-034	November 16, 2017	Dec 18, 2017	Jan 18, 2018	Spring 2018	September 2018
RFA-CA-17-035	November 14, 2017	Dec 18, 2017	Jan 18, 2018	Spring 2018	September 2018
RFA-CA-17-036	November 20, 2017	Dec 18, 2017	Jan 18, 2018	Spring 2018	September 2018

RFA-CA-17-036: HTAN-DCC – *Letter of Intent (LOI)*

Due date: **December 18, 2017; highly encouraged**, but not required

Required elements:

- Descriptive title of HTA 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:

- **If possible, submit LOI prior to December 18**

RFA-CA-17-036: HTAN-DCC – Review Information

Consider the **FOA-specific review criteria** defined in Part 2, Section V

Applications will compete for available funds with all other recommended applications submitted in response to this FOA. Following initial peer review, recommended applications will receive a second level of review by the National Cancer Advisory Board.

The following will be considered in making funding decisions:

- Scientific and technical merit of the proposed project as determined by scientific peer review.
- Availability of funds.
- Relevance of the proposed project to program priorities.
- **Compliance with Beau Biden Cancer Moonshot Open Access and Data Sharing Policy**

Applications will be **reviewed by a Special Emphasis Panel** convened by the NIH Center for Scientific Review

Contact Information

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Contact information for all HTAN RFAs:

HTAN Data Coordinating Center Team ([RFA-CA-17-036](#)): NCI_HTAN_Data@mail.nih.gov

Human Tumor Atlas (HTA) Team ([RFA-CA-17-034](#)): NCI_HTAN_HTAU2C@mail.nih.gov

Pre-Cancer Atlas (PCA) Team ([RFA-CA-17-035](#)): NCI_HTAN_PCAU2C@mail.nih.gov

Slides and FAQs will be available

Search terms: Moonshot HTAN (scroll to bottom of page)