



The Informatics Technology for Cancer Research (ITCR) Program

Supporting Informatics Needs Across the Cancer Research Continuum

Informatics technology is essential to the field of cancer research, where the complexity and heterogeneity of the disease translate to unique challenges for data management and analysis. The NCI ITCR program aims to address these challenges by supporting investigator-initiated, research-driven informatics technology development spanning all aspects of cancer research.

Program Goals

- ✓ Encourage development of innovative informatics technologies that empower basic and translational research in cancer and targeted cancer treatment
- ✓ Promote development of interoperable informatics technologies that allow integration of multilevel data collected in basic science, prevention, epidemiology and population science, detection, diagnosis, and treatment
- ✓ Stimulate development of enabling tools for data sharing and data hosting
- ✓ Support dissemination and widespread use of informatics technologies through collaborative, open source development
- ✓ Foster a community of developers and users in cancer informatics technology
- ✓ Provide support using multiple mechanisms matched to different stages of informatics technology development

Funding Opportunities

Funding Opportunity Announcement	Description
Algorithm Development (R21) PAR-15-334	Development of innovative methods and algorithms in biomedical computing, informatics, and data science addressing priority needs across the cancer research continuum.
Prototyping & Hardening (U01) PAR-15-332	Development of enabling informatics technologies to improve the acquisition, management, analysis, and dissemination of data and knowledge in support of cancer research.
Enhancement & Dissemination (U24) PAR-15-331	Advanced development and enhancement of emerging informatics technologies to improve the acquisition, management, analysis, and dissemination of data and knowledge in support of cancer research.
Sustainment (U24) PAR-15-333	Continued development and sustainment of high-value informatics research resources to serve current and emerging needs across the cancer research continuum.



Unique Aspects of ITCR

Investigator-initiated Support

ITCR uses investigator-initiated research project grant mechanisms, relying on the investigator and their collaborators to identify the need and to propose the solution.

Enhanced Dissemination

Software developed is open source and freely available for use and modification by the research community. Code repositories for ITCR tools are listed at <http://itcr.nci.nih.gov/informatics-tools/all>.

Review Structure and Process

Applications are reviewed by Special Emphasis Panels coordinated by the NCI Division of Extramural Activities. This allows customized review panels to best fit the applications.

Trans-NCI Program

All four NCI extramural Divisions (Division of Cancer Biology, Division of Cancer Control and Population Science, Division of Cancer Prevention, Division of Cancer Treatment and Diagnosis) participate in ITCR, ensuring support for cancer research across the spectrum of needs.

Program Activities

Interaction, collaboration and interoperability among ITCR projects are supported through

- ✓ Monthly PI conference calls
- ✓ Annual face-to-face meetings
- ✓ Budget set-asides for collaborative projects
- ✓ Investigator-led working groups supporting technical and community outreach best practices

Informatics Tools

The current ITCR portfolio includes tools supporting OMICS, imaging, network biology, clinical research, as well as data standards. Details about these tools, including short, introductory videos, are available on the ITCR website.

Tool Name(s)	Category	Tool Description	Relevant Links
3D Slicer	Imaging	3D Slicer is the free open source software for medical image visualization and analysis.	Code Repository Project Info
Apache Clinical Text and Knowledge Extraction System (cTAKES)	Clinical	The tool extracts deep phenotypic information from the clinical narrative at the document-, episode-, and patient-level. The final output is FHIR compliant patient-level phenotypic summary which can be consumed by research warehouses or the DeepPhe native visualization tool.	Code Repository Project Info
Bioconductor	OMICS		
C-BIBOP	Imaging		
Cancer-Related Analysis of Variants Toolkit (CRAVAT)	OMICS		
Cancer Slide Digital Archive (CDSA)	Imaging		

For contact information and to learn more, please visit <http://itcr.nci.nih.gov>

Featured ITCR Tool
NDEX

Featured ITCR Tool
The TIES

Featured ITCR Tool
UC Santa Cruz Xena
Securely integrate and visualize your private functional genomics data with data from large consortiums such as TCGA and ICGC. Xena is also integrated with Galaxy, allowing access to a myriad of bioinformatics tools.

Featured ITCR Tool
CRAVAT

Click on the image to learn more about Xena

data from UCSC → laptop