

# Co-Clinical Imaging Research Resources Program (CIRP)

## CIRP Annual Virtual Meeting

May 3~4, 2023

<https://nciphub.org/groups/cirphub>

Animal  
Models



Co-Clinical  
Trials



Quantitative  
Imaging



Informatics



# Missions

- ❑ Review progress of CIRP program
- ❑ Disseminate research resources
- ❑ Identify challenges in the areas of animal models, co-clinical trials, quantitative imaging, and informatics
- ❑ Explore solutions for integration, harmonization, and/or standardization
- ❑ Collect suggestions/recommendations for future directions to meet the unmet needs of cancer research

# Agenda

## **PART I: CIRP Program Reports - Day 1**

Team Reports, Poster Power Pitch

## **PART II: CIRP Network and WGs – Day 2**

Talks, Demonstrations, Discussions, Integrations

## **PART III: Business and Management – Day 2**

## **PART IV: Electronic Posters – After April 27**

CIRP Members and Non-CIRP Investigators

**\*Meeting recordings will be available to all registered attendees after May 10.**

# All CIRP Web Resources Launched

Cancers	Diseases	Animals	Therapy	Imaging	Web Resource	When
Hematology	Myelofibrosis	GEMMs	Target Therapy	MRI	<b>U MICH:</b> <a href="https://umu24cirp.med.umich.edu/">https://umu24cirp.med.umich.edu/</a>	2024
Bone	Osteosarcoma	PDXs	Immunotherapy	MRI	<b>Stanford:</b> <a href="https://radweb.su.domains/cirp/">https://radweb.su.domains/cirp/</a>	2026
Breast	TNBC	PDXs	Chemotherapy	PET/MRI	<b>WUSTL:</b> <a href="https://c2ir2.wustl.edu/">https://c2ir2.wustl.edu/</a>	2022
	TNBC	PDXs	Chemotherapy	MRI	<b>BCM/UTA/Stanford:</b> <a href="https://miraccl.research.bcm.edu/">https://miraccl.research.bcm.edu/</a>	2024
	ER+/HER2-	PDXs	Hormone Therapy	PET	<b>WUSTL:</b> <a href="https://c2ir2.wustl.edu/">https://c2ir2.wustl.edu/</a>	2027
Colon	CRC	PDXs	Target/Immunotherapy	PET	<b>MDACC:</b> <a href="https://www.mdanderson.org/research/departments-labs-institutes/programs-centers/predict.html">https://www.mdanderson.org/research/departments-labs-institutes/programs-centers/predict.html</a>	2023
Lung	NSCLC	GEMMs	Target Therapy	PET	<b>UW:</b> <a href="https://sites.uw.edu/cocirp/">https://sites.uw.edu/cocirp/</a>	2026
Muscle	Sarcomas	GEMMs	RT/Immunotherapy	CT, MRI	<b>Duke:</b> <a href="https://sites.duke.edu/pcqiba/">https://sites.duke.edu/pcqiba/</a>	2022
Pancreas	PDA	GEMMs	Target Therapy	MRI	<b>UPENN:</b> <a href="https://pennpancreaticcancerimagingresource.github.io/">https://pennpancreaticcancerimagingresource.github.io/</a>	2023
Prostate	SCNC	PDXs	Chemotherapy	MRI	<b>UCSF:</b> <a href="https://coclinicalimaging.ucsf.edu/">https://coclinicalimaging.ucsf.edu/</a>	2025



# First Special Issue in 2023



an Open Access Journal by MDPI

IMPACT FACTOR 3.000 Indexed In: PubMed

### Advances in Co-clinical Quantitative Imaging Research

Guest Editors:

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Deadline for manuscript submissions:  
**closed (1 February 2023)**

#### Message from the Guest Editors

The National Cancer Institute's Co-Clinical Imaging Research Resource Program (CIRP) promotes the development of quantitative imaging resources for therapeutic or prevention co-clinical trials that study both patients and human-in-mouse models. The program facilitates consensus on quantitative imaging methods and standard operating procedures for co-clinical applications. CIRP is committed to the development of freely accessible, comprehensive information resources to guide co-clinical imaging investigations in the context of experimental design, protocol and software development, modeling and information extraction, biological and pathological validations, multiscale data integration, and preclinical-clinical correlations.

**Introduction: One review by NCI**

**Consensus: Four papers by working groups**

**Scientific advances: Eight papers by teams**

Review

## Animal Models and Their Role in Imaging-Assisted Co-Clinical Trials

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**Abstract:** The availability of high-fidelity animal models for oncology research has grown enormously in recent years, enabling preclinical studies relevant to prevention, diagnosis, and treatment of cancer to be undertaken. This has led to increased opportunities to conduct co-clinical trials, which are studies on patients that are carried out parallel to or sequentially with animal models of cancer that mirror the biology of the patients' tumors. Patient-derived xenografts (PDX) and genetically engineered mouse models (GEMM) are considered to be the models that best represent human disease and have high translational value. Notably, one element of co-clinical trials that still needs significant optimization is quantitative imaging. The National Cancer Institute has organized a Co-Clinical Imaging Resource Program (CIRP) network to establish best practices for co-clinical imaging and to optimize translational quantitative imaging methodologies. This overview describes

# Highlight of First CIRP Special Issue

Overview! *NCI Co-Clinical Imaging Research Resource*

Handbook! *Co-Clinical Trials Involving Quantitative Imaging*

Consensus! *Co-Clinical Imaging Metadata Information (CIMI)*

Resource! *Online Repository for Pre-Clinical Imaging Protocols (PIPs)*

SOPs! *Repeatability and Reproducibility of Mouse Diffusion Weighted MRI*

New Concept! *Molecular and Imaging Response Analysis of Co-Clinical Trials (MIRACCL)*

## Advances in Imaging Methods & Tools for Murine!

- ❖ *Tibia Bone Marrow by MRI*
- ❖ *Orthotopic pancreatic ductal adenocarcinoma by MRI*
- ❖ *Specific-Metabolite by Hyperpolarized <sup>13</sup>C MRI*
- ❖ *Response to Combined Targeted Therapy by [<sup>18</sup>F]FSPG PET*
- ❖ *Lymphocyte Burden by Photon Counting CT and Radiomic Analysis*
- ❖ *Mouse Tibia Volume Segmentation by Deep Learning*
- ❖ *Web-Based Application for Biomedical Image Registry, Analysis, and Translation (BiRAT)*



# New This Year...

## CIRP Meeting Call for Electronic Posters

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The NCI Co-Clinical Imaging Research Resources Program (CIRP)  
Call for Electronic Posters, 2023 CIRP Annual Virtual Meeting

Date: May 03-04, 2023

Venue: WebEx Meeting

Event and Registration Website:

<https://events.cancer.gov/cip/cirp>



### About the CIRP Annual Meeting

This meeting will focus on how quantitative imaging methods are optimized to improve the quality of imaging results for co-clinical trials of adult and pediatric cancers and what co-clinical quantitative imaging information is currently available at NCI co-clinical imaging research resources.

The CIRP network was formed in 2018 based on a trans-NCI initiative, with joint effort of Cancer Imaging Program at Division of Cancer Treatment and Diagnosis, Division of Cancer Biology, and Division of Cancer Prevention. The mission is to advance the practice of precision medicine by establishing consensus-based best practices for co-clinical quantitative imaging to enable disease detection, risk stratification, and assessment/prediction of response to therapy. Seven of the nine CIRP teams will demonstrate their web-resources at this meeting. Previous CIRP annual meetings can be found at <https://ncihub.org/groups/cirphub>

### Call for Electronic Posters

This call for posters is open to all CIRP and non-CIRP affiliated investigators pursuing research within the scientific scope of the CIRP network. Investigators are invited to present electronic posters on research progress achieved in their laboratory that are relevant to the scientific scope of CIRP network. Examples of topics include, but are not limited to:

1. The use of Patient Derived Xenografts (PDXs) and Genetically Engineered Mouse Models (GEMMs) in therapeutic co-clinical trials.
2. The use of quantitative imaging methods to assess and/or predict response in co-clinical therapeutic trials that employ GEMMs or PDXs in the preclinical arm.
3. Advances in preclinical quantitative imaging, image acquisition, data processing and analysis, and methodological development.
4. Informatics tools and methods for preclinical quantitative imaging of cancers.
5. Integration of cancer -omics, pathology with preclinical and/or clinical quantitative imaging information.
6. Resources to support co-clinical trials research.

Please send your one-page abstract to the NCI program staff, Huiming Zhang, PhD ([zhanghui@mail.nih.gov](mailto:zhanghui@mail.nih.gov)) by March 22, 2023. For more details, please see the event site: <https://events.cancer.gov/cip/cirp>.

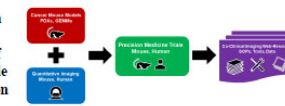
## CIRP Network Solicit Associate Members

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The NCI Co-Clinical Imaging Research Resources Program (CIRP)  
Solicits Associate Members  
<https://imaging.cancer.gov/>

**CIRP Mission:** Advance the practice of precision medicine by establishing consensus-based best practices for state-of-the-art quantitative imaging methodologies in the preclinical and clinical settings to enable disease detection, risk stratification, and assessment/prediction of response to therapy. CIRP will provide publicly accessible web resources of quantitative imaging to support precision medicine research. All ten CIRP projects include four essential components: GEMMs or PDX models, co-clinical trials, quantitative imaging in preclinical and clinical settings, and state-of-art informatics to support web-resources.



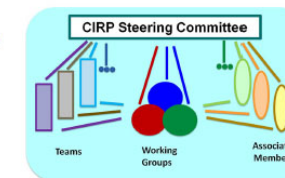
CIRP four components

**CIRP Network:** Comprises a steering committee and three working groups (WGs), including animal models and co-clinical trials (AMCT), imaging acquisition and data process (IADP), and informatics and outreach (IMOR). The missions of the WGs are to develop consensus on important issues of co-clinical quantitative imaging and establish general guidance.



CIRP teams

**CIRP Solicits Associate Members:** CIRP invites NCI and NIH supported academic investigators with expertise in animal models, co-clinical trials, quantitative imaging, and informatics to join the CIRP network as associate members. The associate members will participate alongside CIRP investigators to contribute the development of consensus on important co-clinical imaging issues, expand the scientific scope of CIRP, and accelerate dissemination of CIRP resources.



CIRP Network

### CIRP Associated Members Engagements:

- Join quarterly teleconferences of CIRP WGs
- Participate in CIRP WG projects
- Collaborate with the CIRP teams
- Attend and contribute to CIRP annual hybrid meeting
- Contribute and disseminate CIRP web resources

**How to Apply for CIRP Associate Membership:** for more information, please contact the program director of CIRP, Huiming Zhang, PhD, Email: [zhanghui@mail.nih.gov](mailto:zhanghui@mail.nih.gov).