## **NCI Image Repositories for Imaging AI**

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## The Cancer Imaging Archive (TCIA)



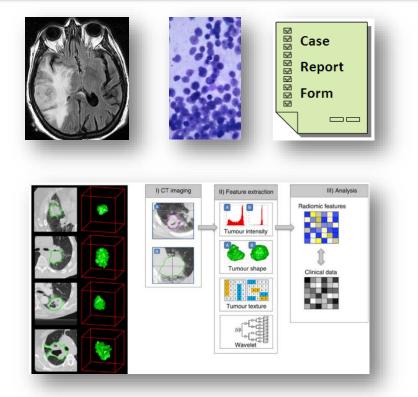
Mission: Provide image repository services to encourage data sharing for cancer imaging research



#### http://cancerimagingarchive.net

## **TCIA Overview**





- Collection proposals reviewed by TCIA Advisory Group
- 110 collections consisting of patient-level data from ~47,300 subjects available for download
- Covers radiology, radiation therapy, and pathology
- Wide variety of cancers & phantoms
- Most have associated supporting data
  - Demographics/outcomes/therapy
  - Image analyses (annotations, segmentations, features)
  - **o** Genomics/Proteomics
- REST API
- TCIA Data Science / AI publications: 98 manuscripts in 74 journals

#### http://cancerimagingarchive.net

## National Cancer Data Ecosystem for Sharing and Analysis

### Cancer Moonshot<sup>SM</sup>

#### Overarching goals – Jan. 2016

- Accelerate progress in cancer, including prevention & screening
  - From cutting edge basic research to wider uptake of standard of care

#### Encourage greater cooperation and collaboration

- Within and between academia, government, and private sector
- Enhance data sharing



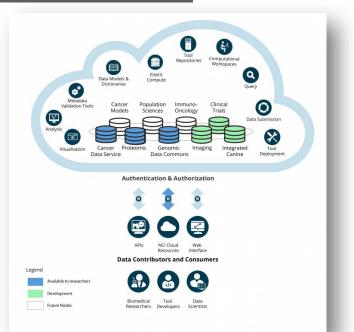
#### Build a National Cancer Data Ecosystem

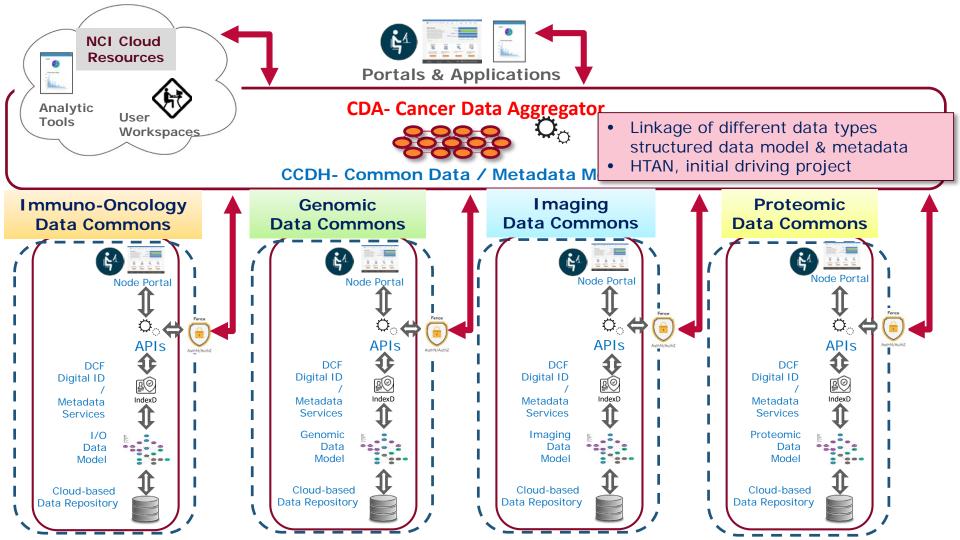
- Enhanced <u>cloud-computing</u> platforms
- Services that <u>link disparate information</u>, including clinical, image, and molecular data
- Essential underlying <u>data science infrastructure</u>, standards, methods, and portals for the Cancer Data Ecosystem
- Establish <u>sustainable data governance</u> to ensure long-term health of the Ecosystem.
- Develop standards and tools so that data are interoperable.

## **Cancer Research Data Commons (CRDC)**

A data science infrastructure to connect repositories, analytical tools, and knowledge bases

- Virtual, expandable, secure research infrastructure
- Storage and elastic compute
- Analysis, sharing, and archival of results
- Cross-domain analysis of large datasets





**NCI Imaging Data Commons (IDC)** 

#### Cloud resource that connects researchers with

- cancer image collections
- robust infrastructure with imaging data, metadata and experimental metadata from disparate sources
- resources for searching, identifying and viewing images
- additional data types in other CRDC nodes.

# 

#### Implementation:

- Google Cloud Platform
- OHIF viewer
- Non-restrictive Open Source
- DICOM as prime standard *Public release: Fall 2020*



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