

National Cancer Institute

NCI Director's Update

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National Cancer Advisory Board
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U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES

National Institutes
of Health

NCI – Dec. 2009

- **Closing out FY2009**
- **The outlook for FY2010**
- **ARRA investments
advancing cancer
science**



NCI FY2009

FY2008 operating budget \$4.83B

FY2009 appropriation \$4.96B

Change, FY08 to FY09 +2.9% (\$139M)

FY2009 ARRA \$1.26 billion

Congratulations to NCI's budget office and administrative staff for closing the books on FY09 with a balance of \$4,432, a lapse rate of .00008%.

NCI FY2009 (annual)

- RPGs funded at the 16th percentile **plus extensive exceptions (20% success rate)**
- *R01s funded at the 22nd percentile **plus extended payline and exceptions (183 awards)**
- NCI funded **1,235 competing RPGs** in FY2009 (plus **543 RPGs funded under ARRA**)
- NCI added 2 new Cancer Centers: **Medical University of South Carolina and Emory University**

FY2010 NCI Budget

- **The federal government is under a Continuing Resolution until December 18**
- **2010 appropriations bill has passed the House but not the Senate**
 - House: \$5.15B (3.7% increase)
 - Senate: \$5.04B (1.7% increase)

For planning purposes, NCI is using the Senate number, the lower of the two levels.

FY2010 NCI Budget

Will need to take into account mandatory increased expenses:

Federal cost of living incr.	\$12M – \$15M
Rent and utilities	\$25M – \$30M
Small business set-aside	\$2M – \$3M
NIH-wide assessments	\$15M – \$20M

FY2010 Payline

- Estimated at 16th percentile under Senate level (~20% success rate)
- Strive to make sure success rate does not fall below 20%
 - CSR has not seen a large increase in applications for FY2010
- Must plan for an anticipated large jump in FY2011 applications, as a result of ARRA

We need to focus on success rate.

ARRA at NCI

RPGs including SBIR/STTR	\$379,106
Cancer Centers	97,083
Training	13,761
Other Research	11,201
(includes some funding of TCGA, proteomic centers and administrative supplements)	
Clinical Cooperative Groups	19,821
R&D Contracts	318,458
RMS	6,023
Total obligated in FY09	\$845,453

(Dollars in thousands)

ARRA at NCI in FY10

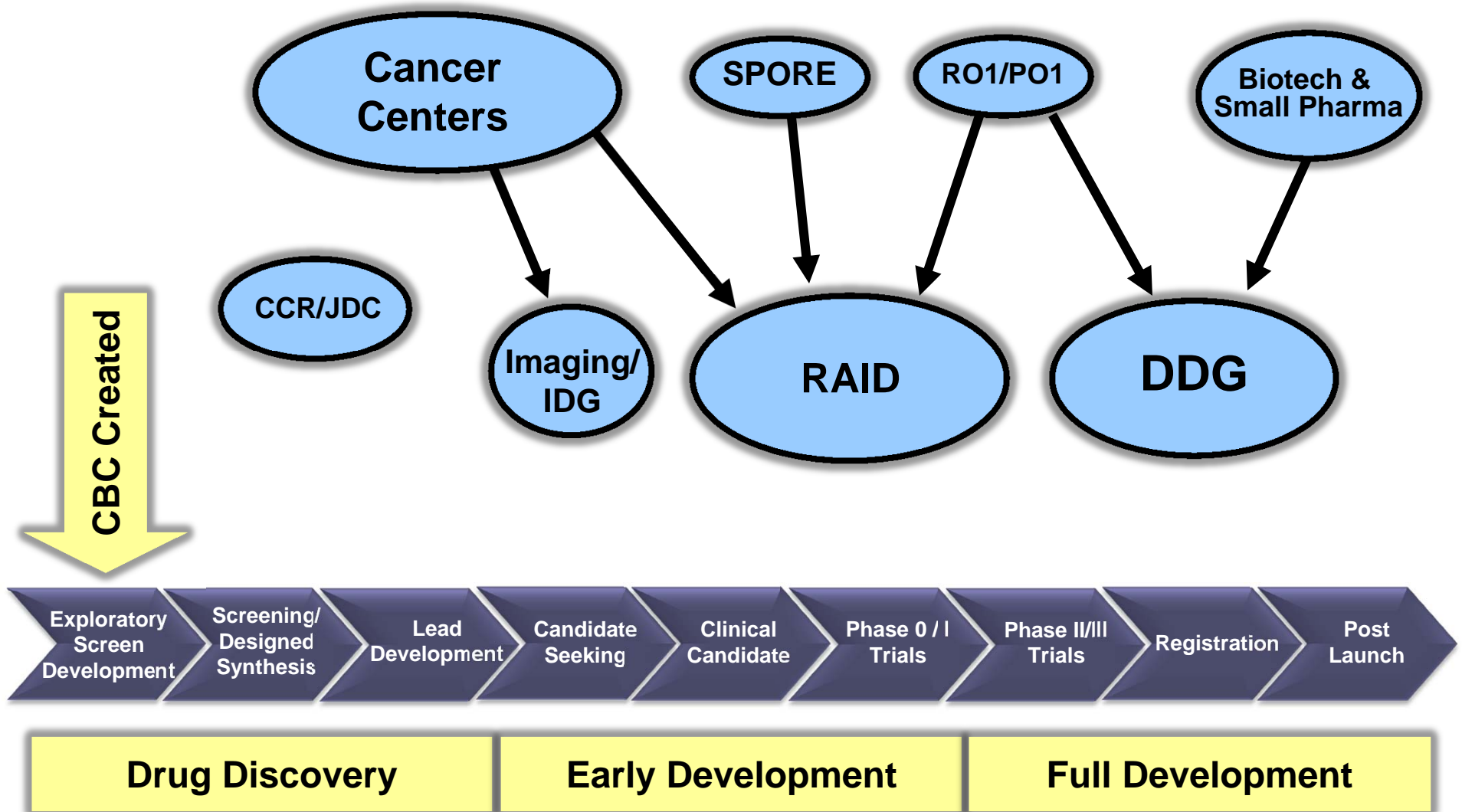
- NCI **obligated** or **committed** all available ARRA funds prior to Sept. 30, 2009
- Remaining balance (~\$400M) will be used to cover FY09 ARRA commitments and a limited number of FY10 NCI projects
 - NCI will not solicit competitive revisions or general administrative supplements in FY10
- Specific NCI opportunities:
 - Program specific administrative supplements
 - R&D contracts for the academic community

ARRA Funding: A Once in a Lifetime Opportunity

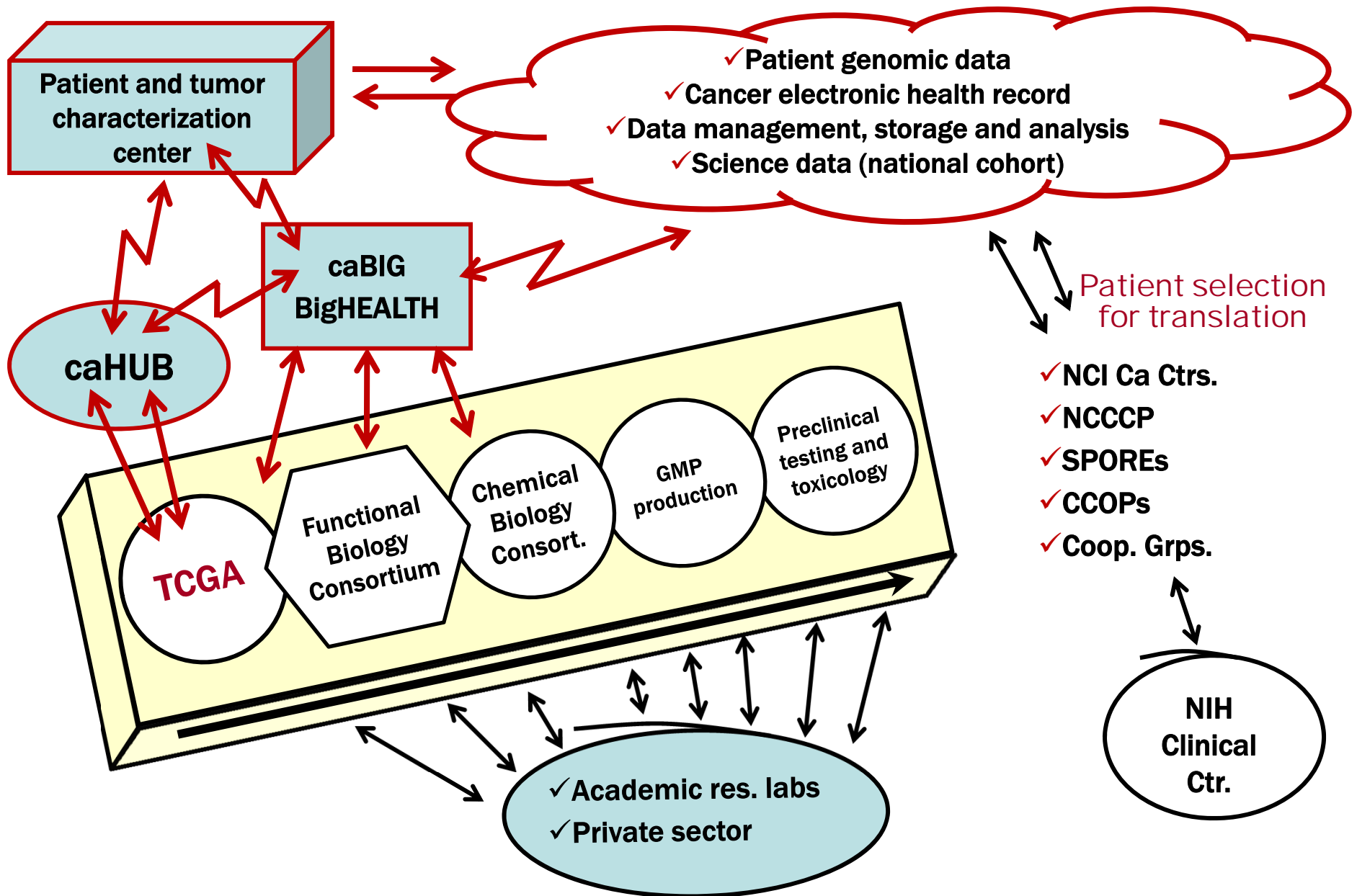
- **Careful and thoughtful planning by NCI**
 - Make investments that would otherwise have taken years to begin
 - **Generate interest in this exciting science among legislators on Capitol Hill**

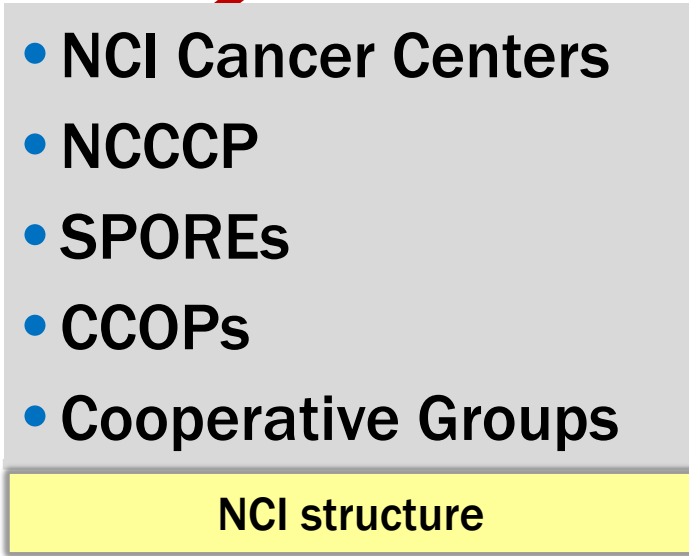
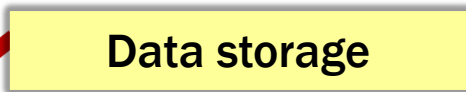
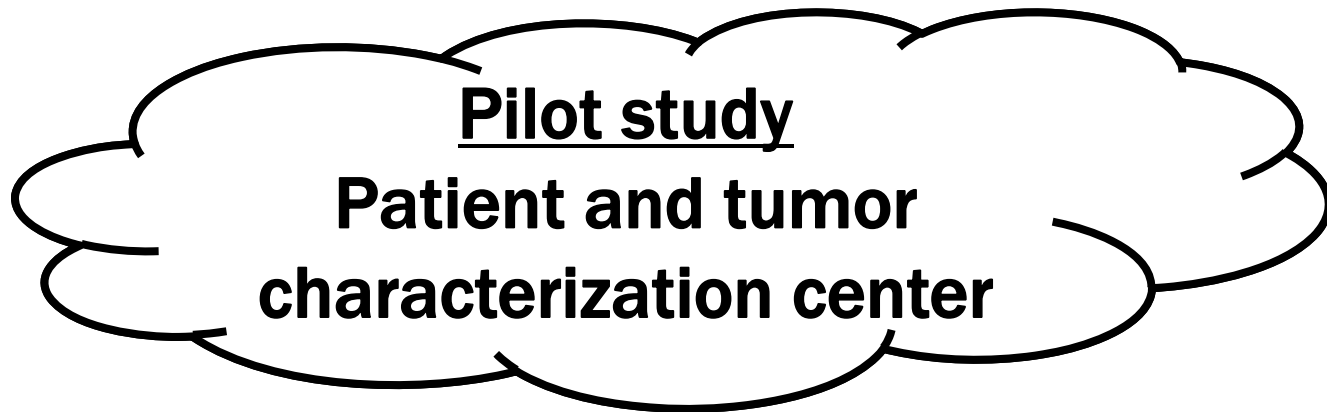


The NCI Experimental Therapeutics (NExT) Pipeline

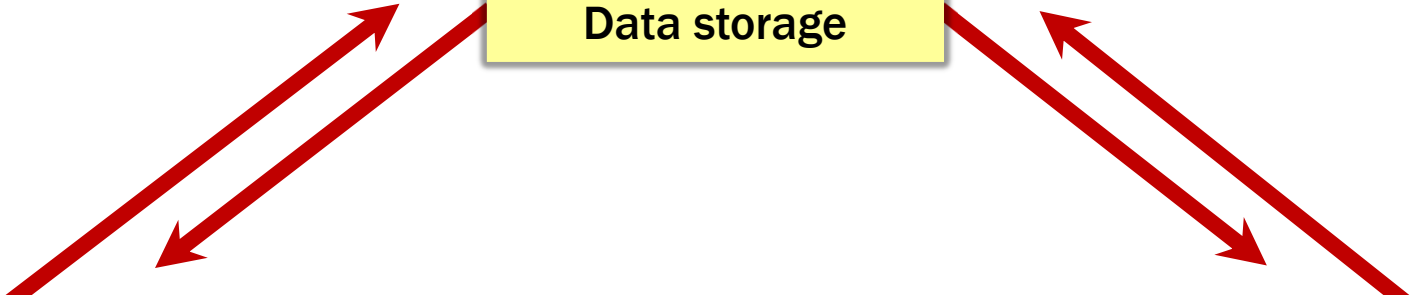


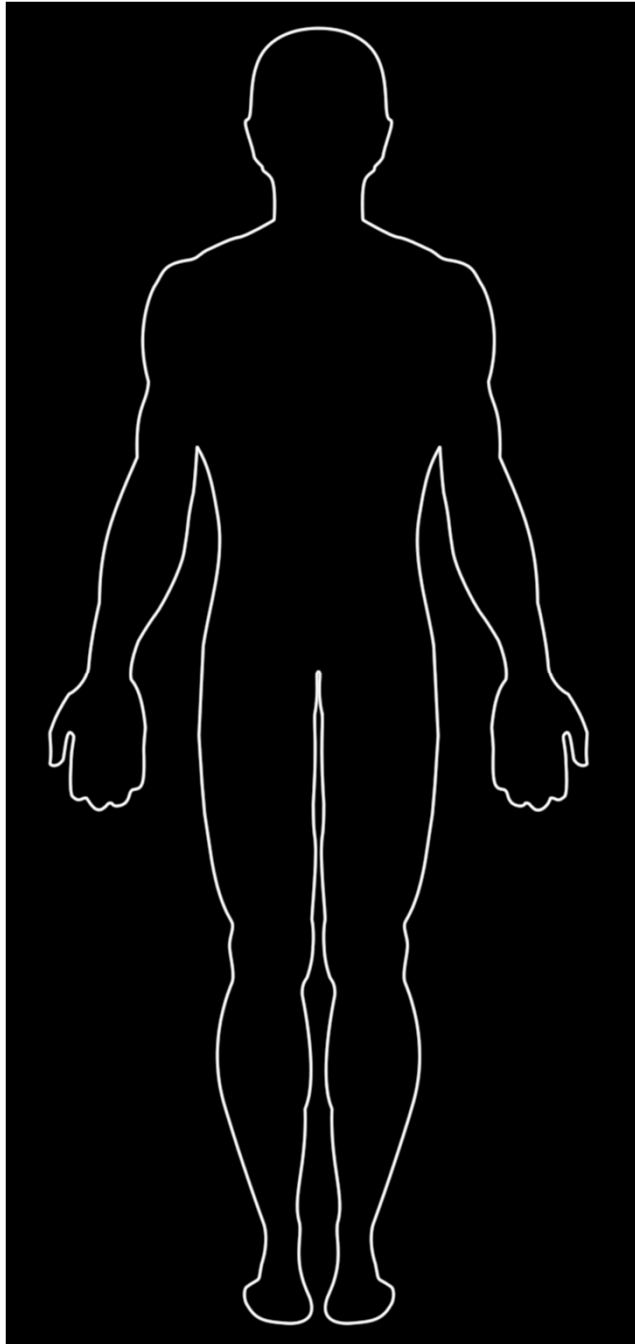
TCGA: Informing Science and Medicine



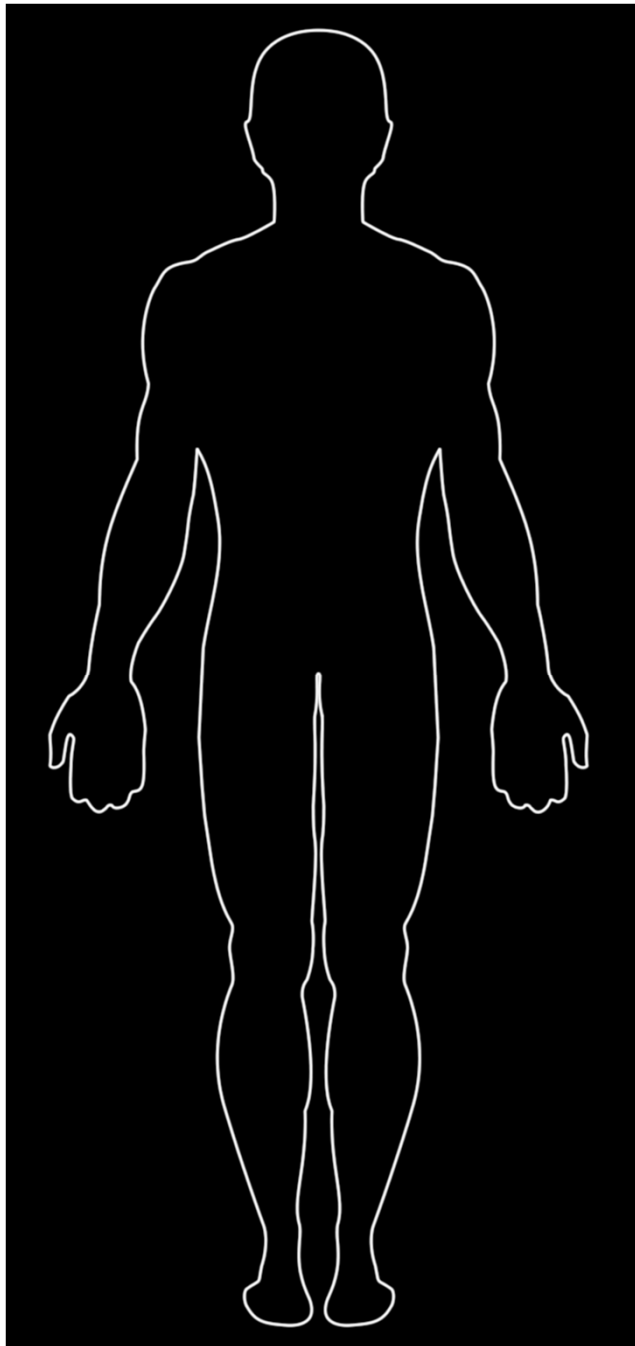


Point of Care Diagnostics



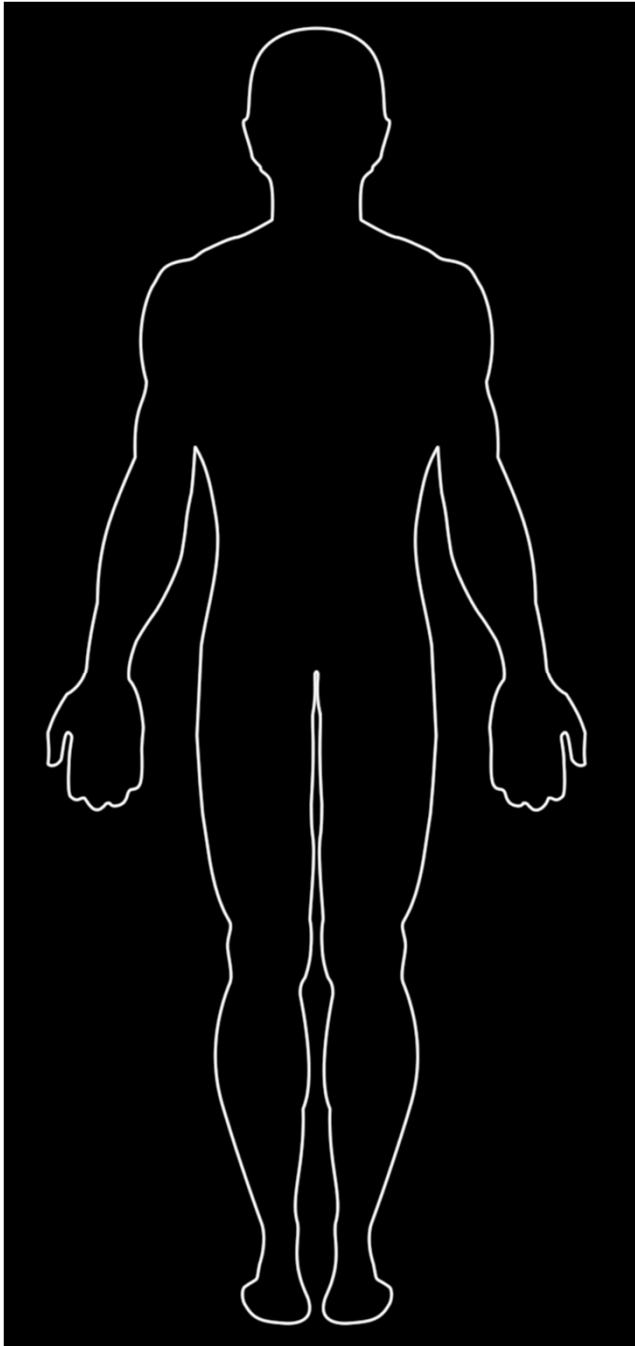


- Make every cancer patient a part of a national clinical trial
 - Consent for electronic health record and patient data
 - Patient and tumor genomic characterization



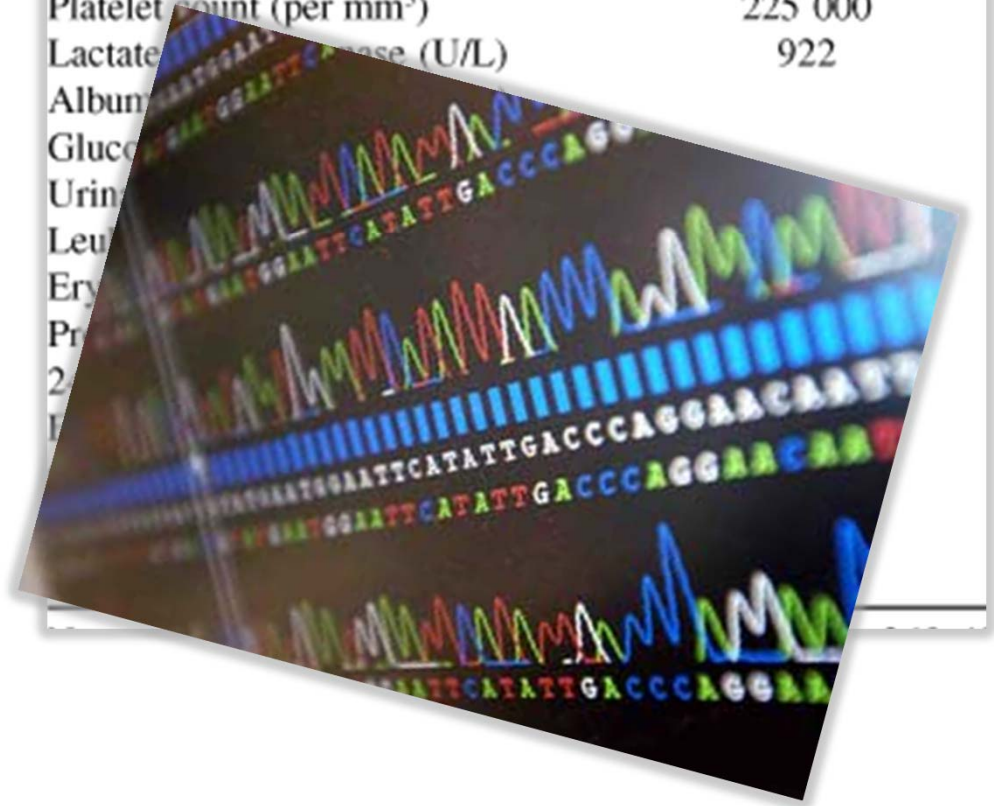
caEHR

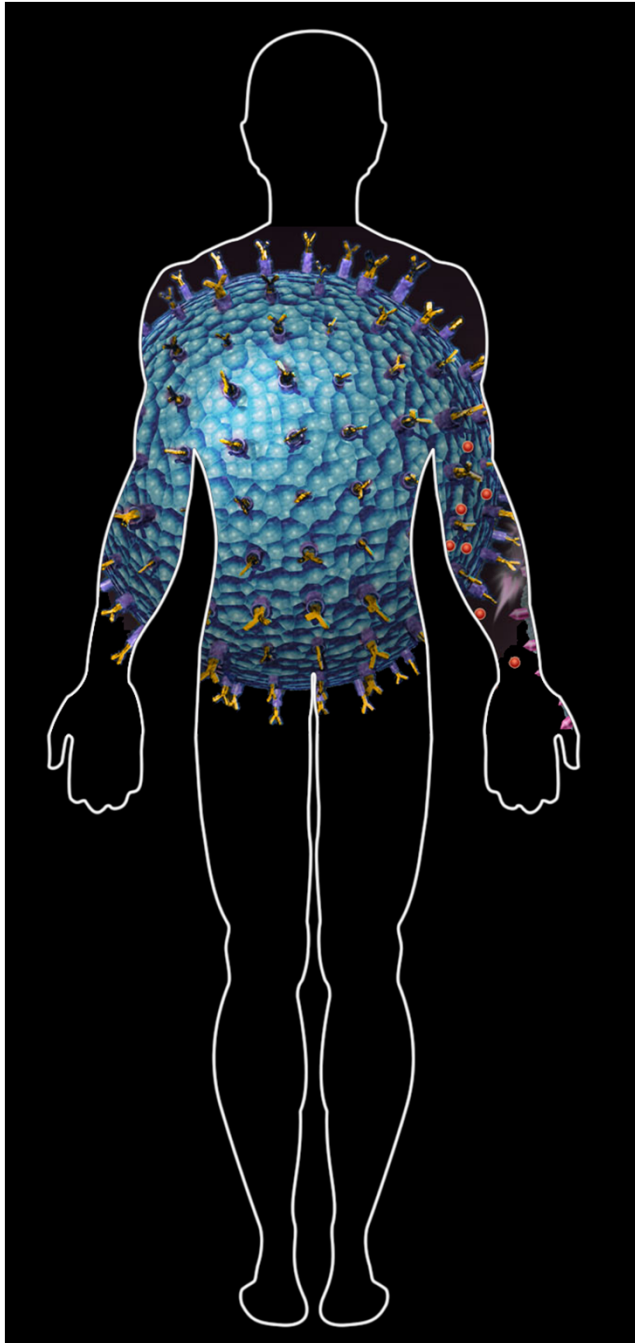
Urea (mg/dL)	89
Creatinine (mg/dL)	1.8
Sodium (mEq/L)	
Potassium (mEq/L)	4.7
Hemoglobin (g/dL) / Hematocrit (%)	10.6 / 32
White cell count (per mm ³)	4860
Platelet count (per mm ³)	225 000
Lactate dehydrogenase (U/L)	922
Albumin / Globulins (mg/dL)	
Glucose (mg/dL)	
Urinalysis	
Leukocytes (per field)	2
Erythrocytes (per field)	10
Protein (g/L)	> 1
24h-proteinuria g/day	
Erythrocyte sedimentation rate (mm)	
C reactive protein (mcg/mL)	
C4 (mg/dL)	
C3 (mg/dL)	



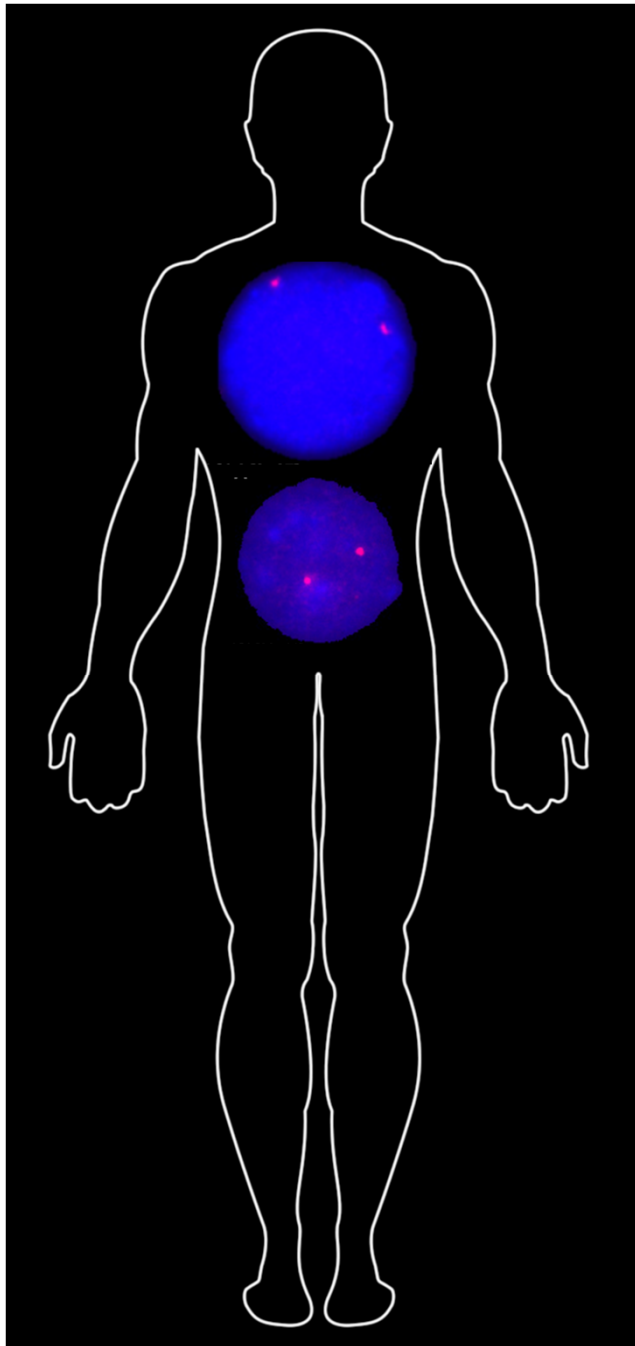
Tissue characterization

Urea (mg/dL)	89
Creatinine (mg/dL)	1.8
Sodium (mEq/L)	
Potassium (mEq/L)	4.7
Hemoglobin (g/dL) / Hematocrit (%)	10.6 / 32
White cell count (per mm ³)	4860
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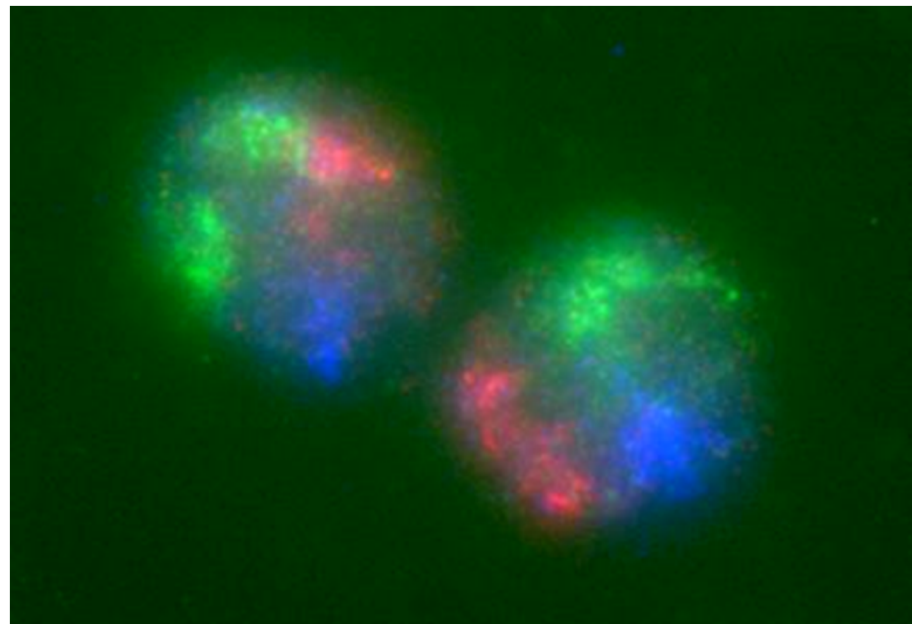


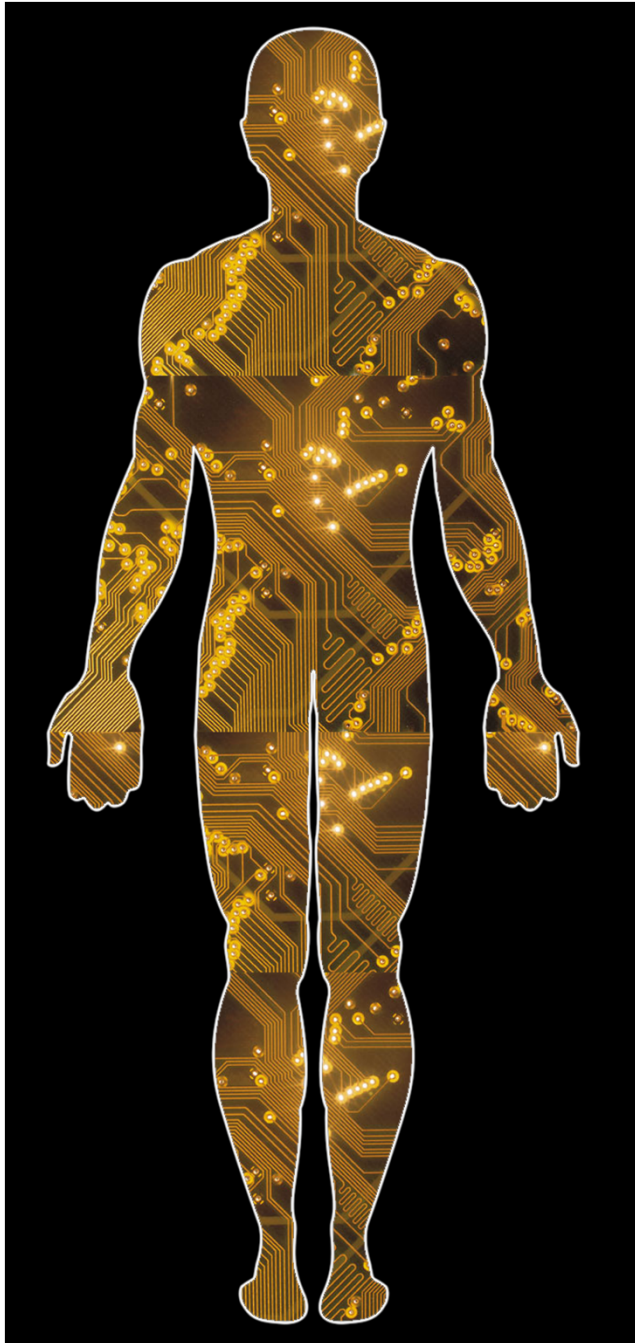
- **Genomic changes**
 - Copy number
 - Regulation of expression/epigenetics (transcription factors and micro RNAs)
 - Regulation of translation
 - Mutations



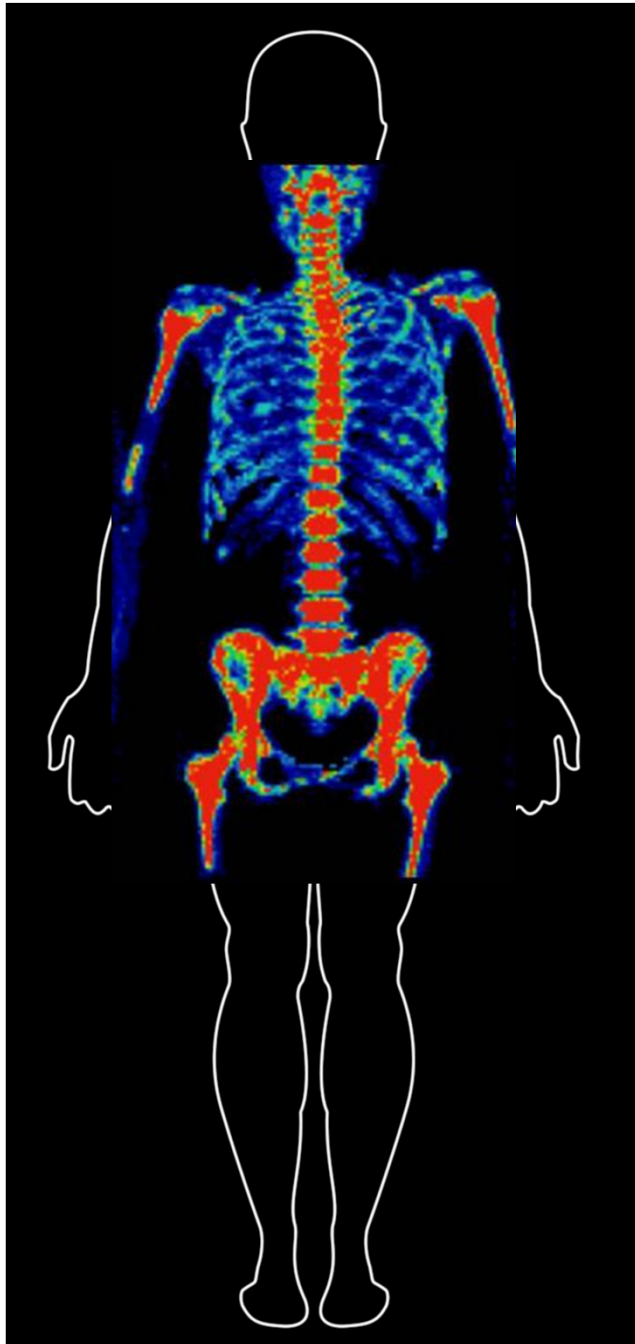
- Biomarkers

- Chromatin biology:
gene position can
distinguish cancer
from normal cells





- **Circulating tumor cells**
 - **Microchip technology**
 - **Real-time genotyping**
 - **Detection of early invasive disease**
 - **Targeting circulating metastatic precursors**

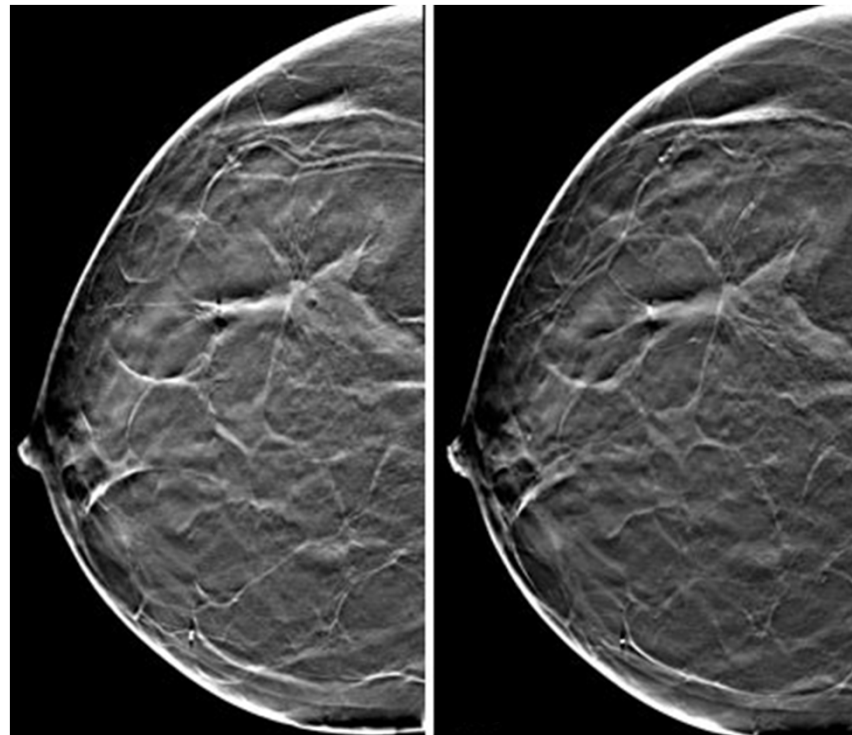


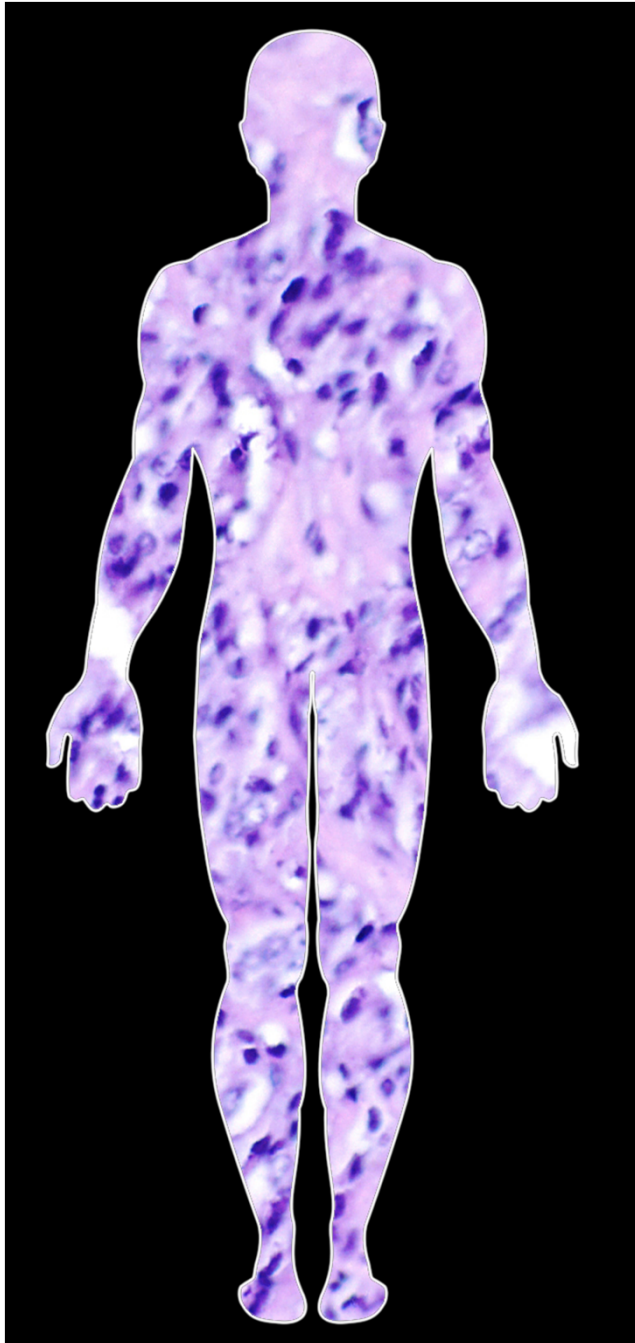
- **Imaging**

- **FLT-PET**

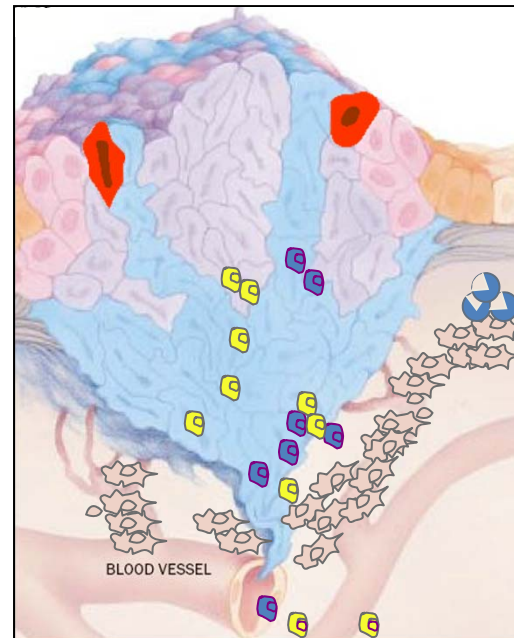
- **subcellular imaging**

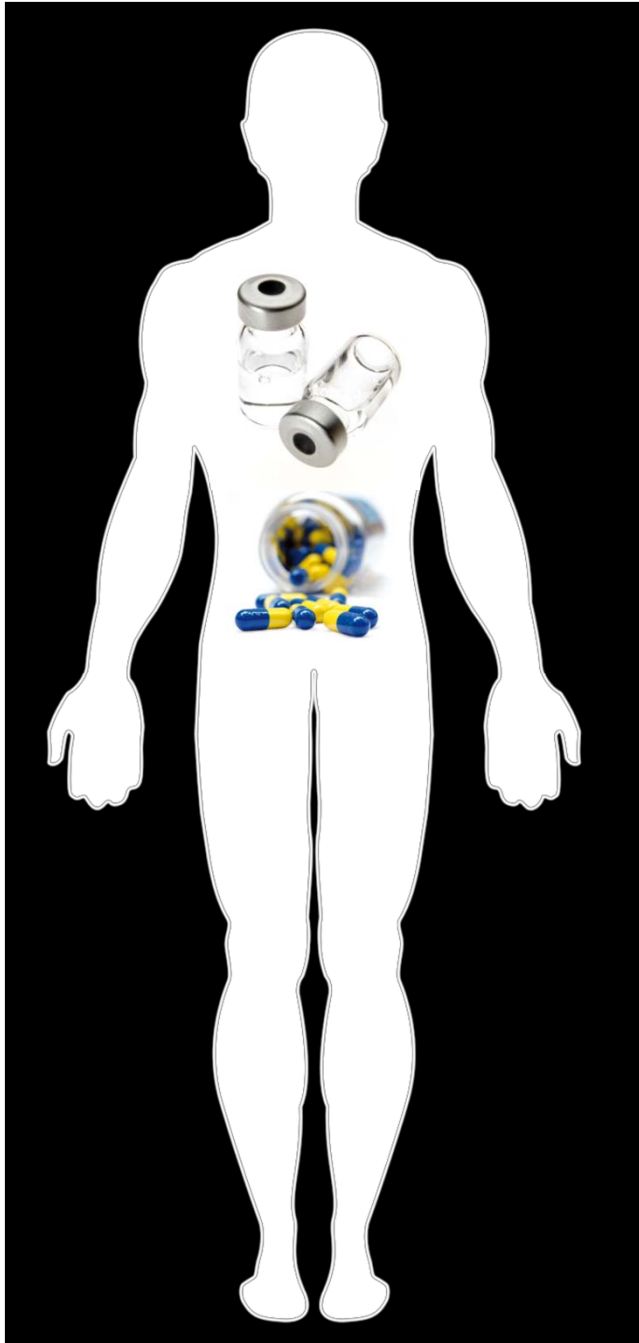
- **tomosynthesis**



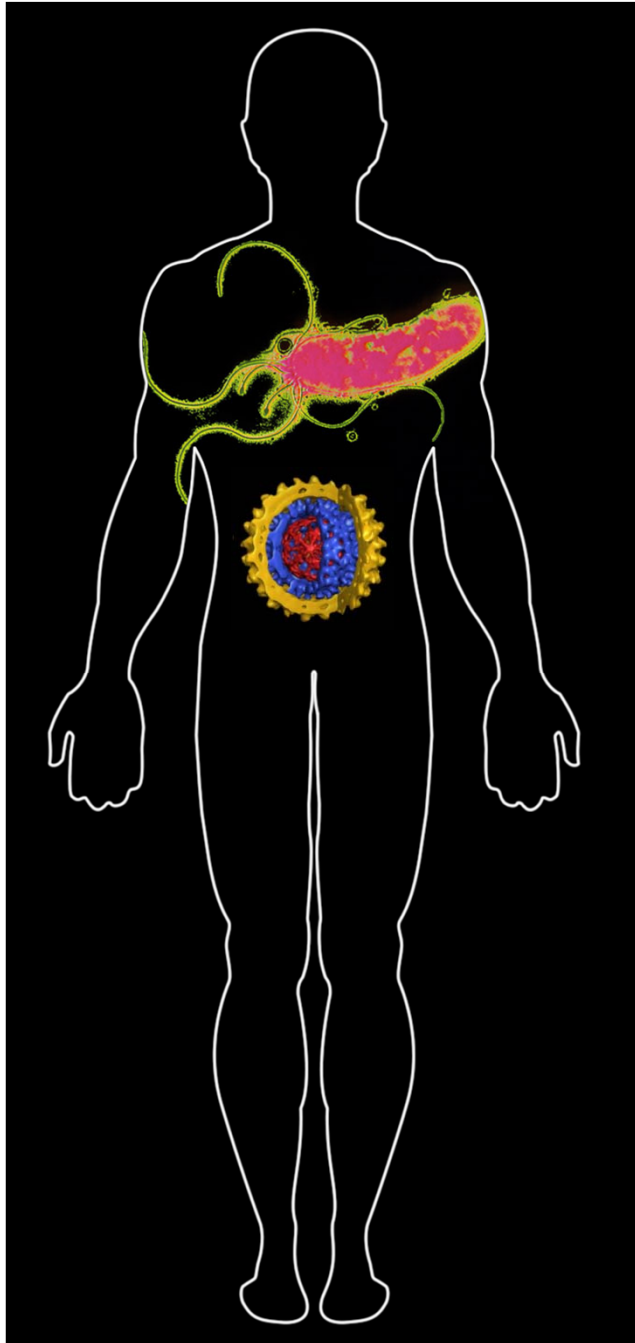


- Targeted therapy
 - Oncogenes
 - Tumor microenvironment
 - Signaling pathways





- **Combination therapy**
 - **Small molecules**
 - **Biologics**
 - **Immunotherapy**
 - **Cytokine biology**
 - **Therapeutic sequence is important**



- Infectious agents and cancer

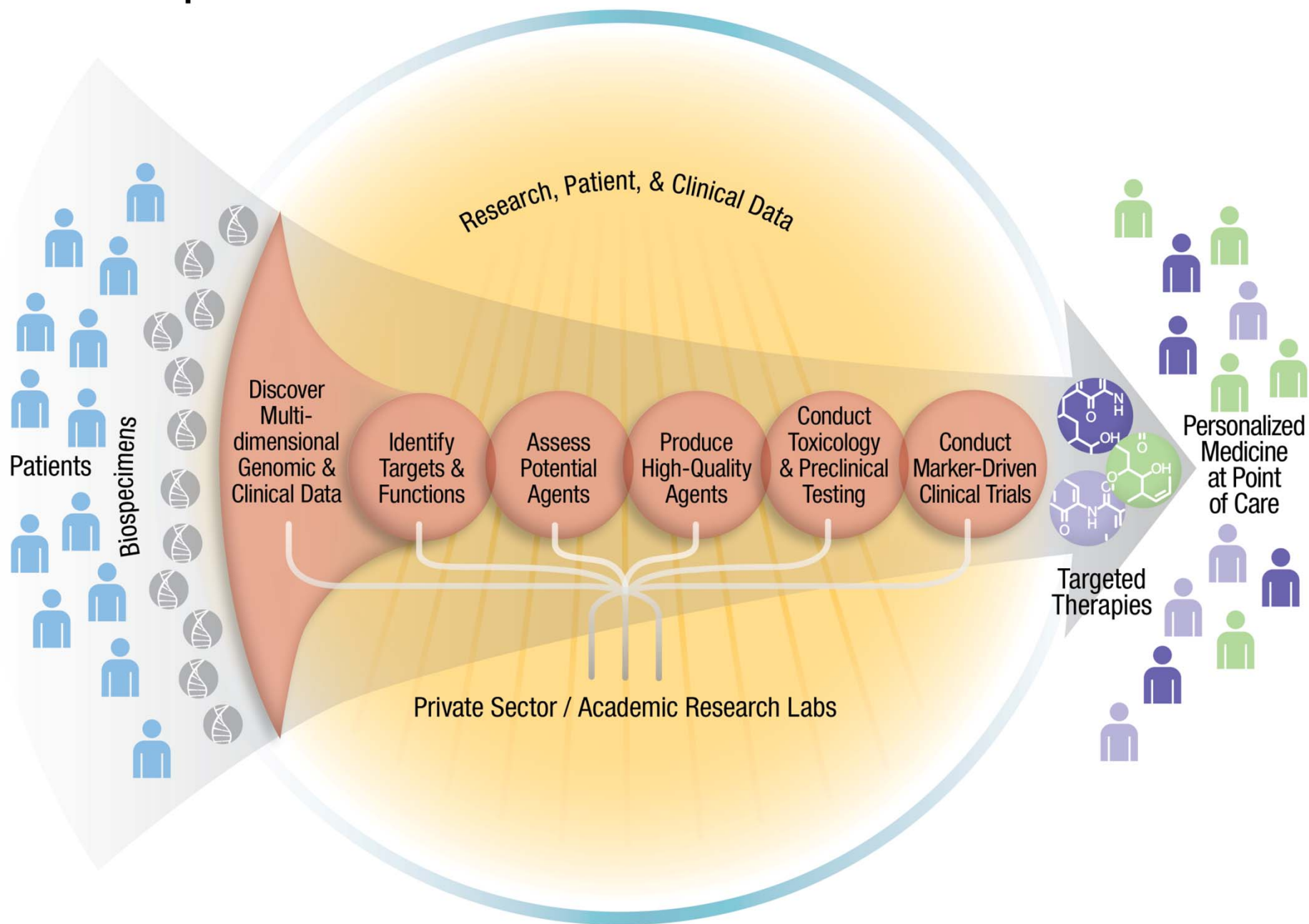
- HPV

- Hepatitis B and C

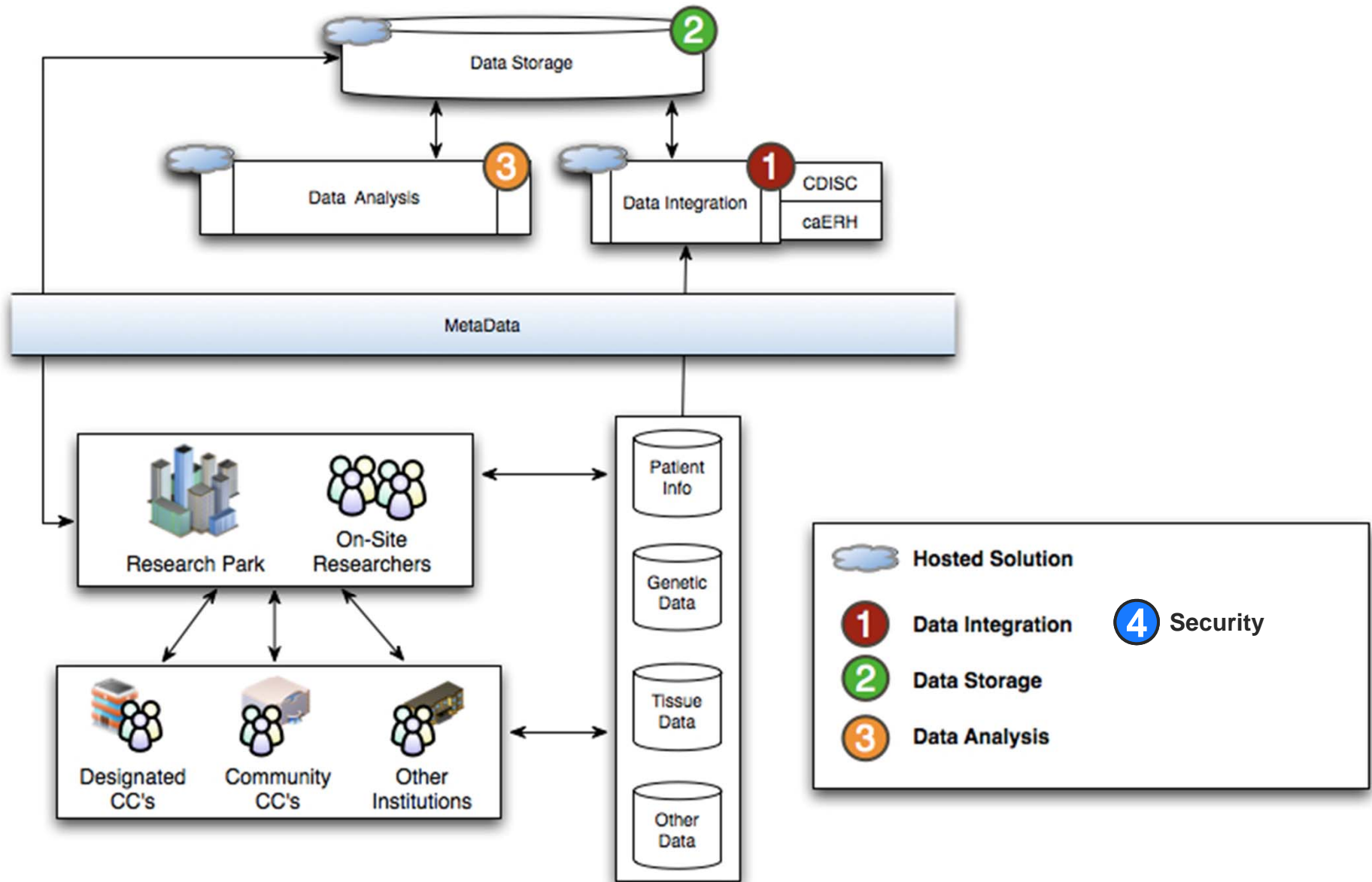
- EBV

- Helicobacter pylori

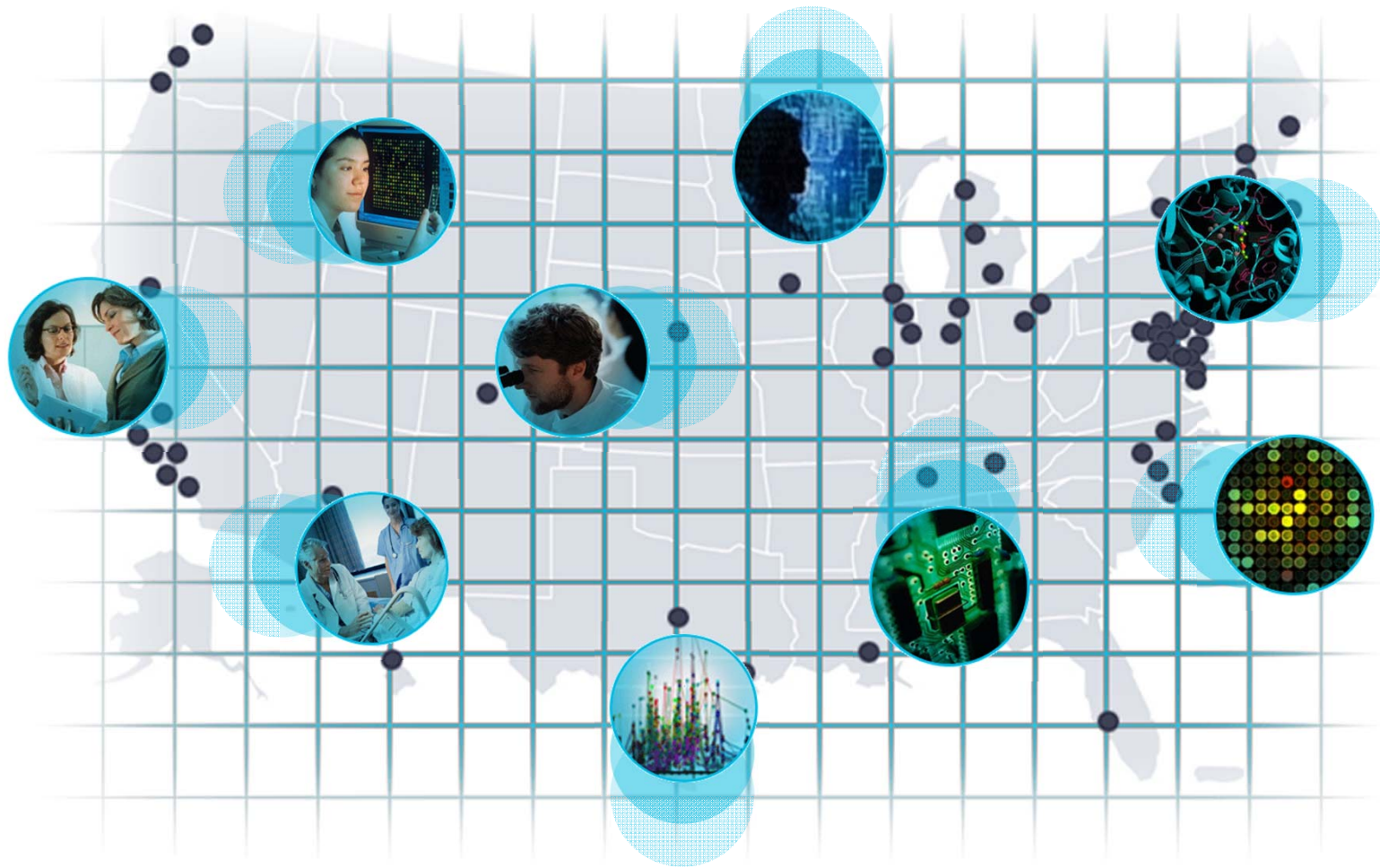
NCI Therapeutics Platform

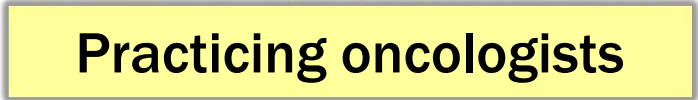
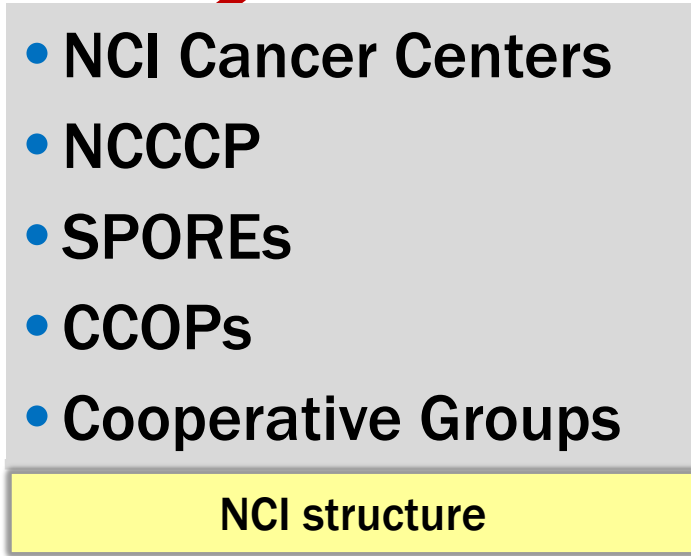
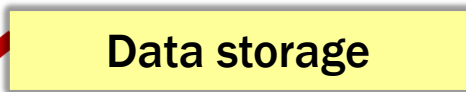
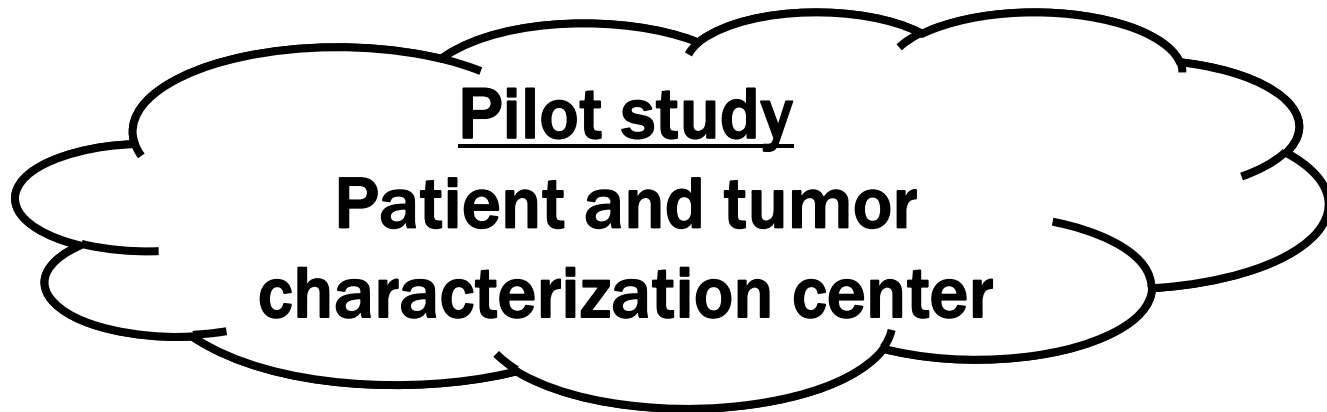


Patient Data: Connected and Protected

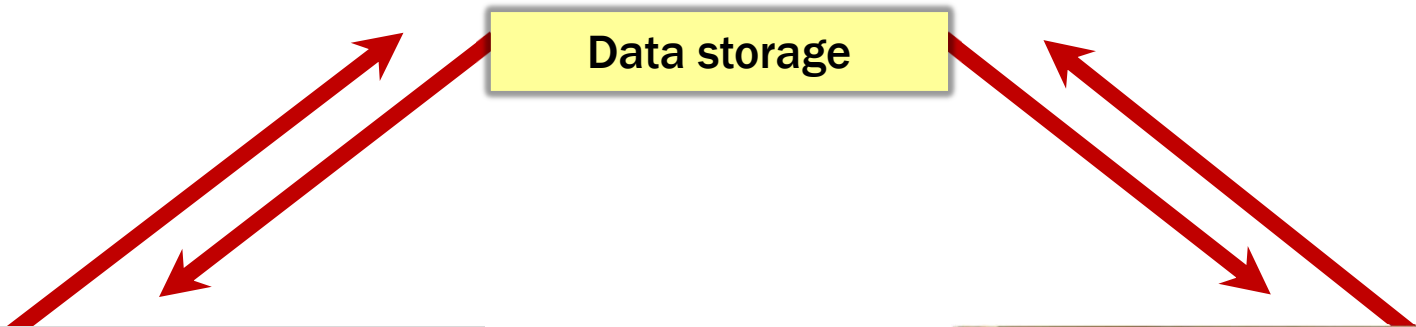


Connected Through caBIG[®]





Point of Care Diagnostics



Dr. Francis Collins' Five Themes as NIH Director

- **Apply high-throughput technologies to fundamental biology**
- **Translation**
- **Science to inform healthcare reform**
- **Global health**
- **Empower the biomedical research community**

How Do We Move Ahead?

- Obama administration supports science
- Emphasis not on what we've done or on capacity, but on seeing science impact patients and decrease cost
 - Economic impact is a key factor
- But there is tremendous pressure on the discretionary portion of the federal budget
 - Will support translate into new resources?

