



CLINICAL PROTEOMIC
TECHNOLOGIES FOR CANCER

<http://proteomics.cancer.gov>



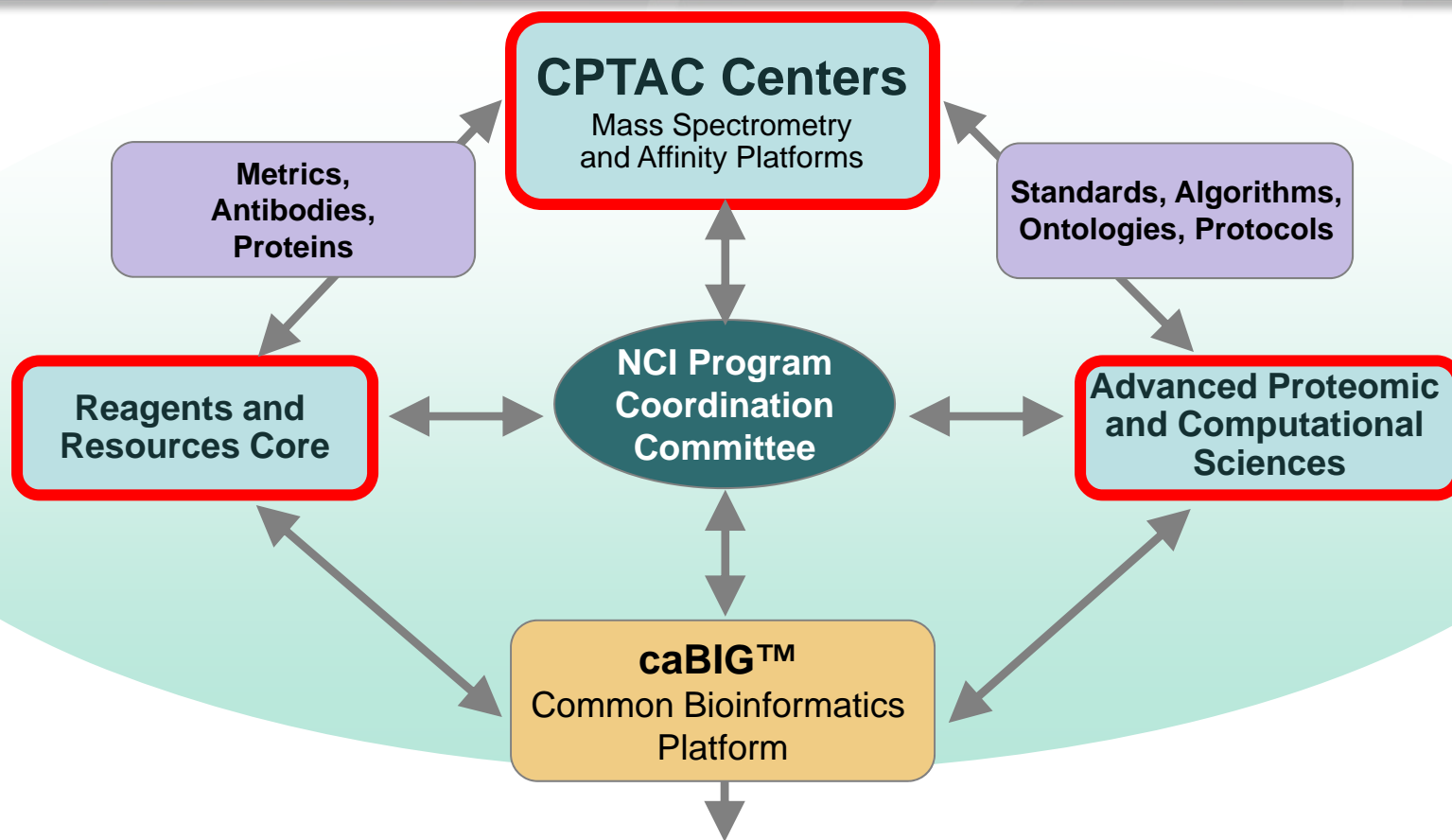
Update: Clinical Proteomic Technologies for Cancer (CPTC)

*Henry Rodriguez, PhD, MBA
Program Director
National Cancer Institute*

NCAB Presentation
February 5, 2008

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CANCER
INSTITUTE

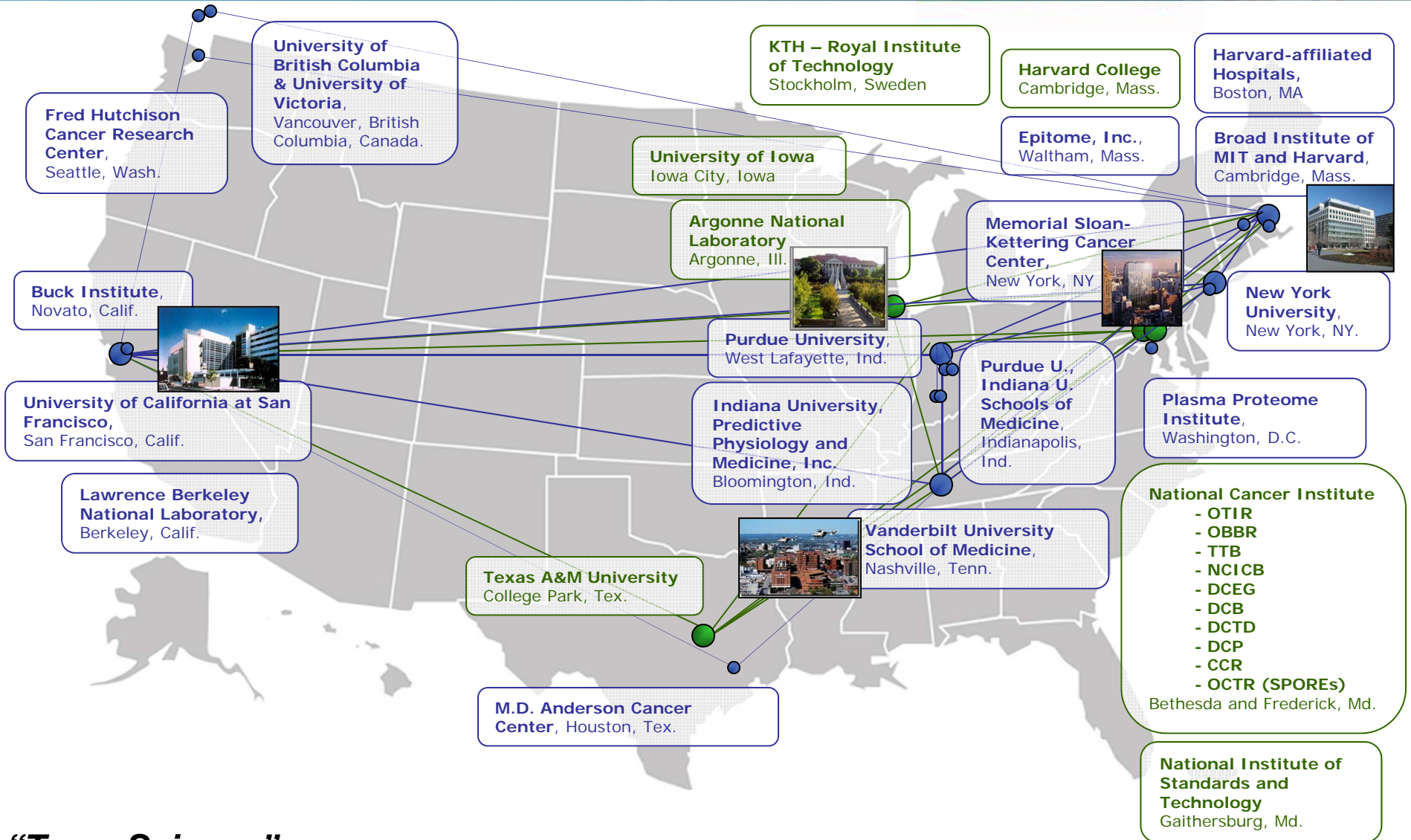
Clinical Proteomic Technologies for Cancer (Team Science)



Community Resources

- Integrated Searchable Proteomic Database
- Standardized Reagents
- Proteomic Standards
- Highly Qualified Biospecimens
- Optimized Technology Platforms
- New Technologies

CPTAC Team Network: Supporting Expertise



“Team Science”

Integration with Investigator Grants (highlights)

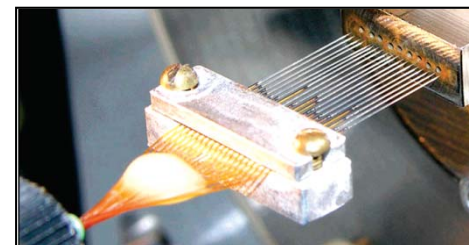
Computational Tools:

- **New proteomic algorithm to identify mutant or modified proteins (MyriMatch)**
 - David L. Tabb, Vanderbilt University (*J. Proteome Res.* 6: 654-661, 2007)
- **Computational platform that uses pattern information to quantify peptides in MS data (PEPPER)**
 - D. R. Mani, Broad Institute (*Molecular and Cellular Proteomics* 5(10): 1927-41, 2006)
- **Analysis and Statistical Validation of Proteomic Datasets (PeptideProphet)**
 - Alexey I Nesvizhskii, University of Michigan (*J. Proteome Res.*, 7 (01), 254–265, 2008)

Platform Development:

- **Ultra-sensitive, multi-emitter nanoESI source**
 - Richard Smith, Pacific Northwest Laboratories (*Anal. Chem.* 80, 143-149, 2008)

19 ESI emitters



Reagents Core (A Public Resource for QA Proteomic Reagents)

• Antigen Production

- Argonne National Laboratory
 - targeting 1261 cancer-related antigens (*Polanski and Anderson, Biomarker Insights 2:1-48, 2006*)
 - Spike-in materials & Ab production

• Monoclonal Antibody Production

- private sector

• Antibody Characterization/Validation

- NCI-Frederick (mAb Characterization Lab)
- NCI-CCR (Tissue Array Program)
- Human Protein Atlas
- Harvard Institute of Proteomics

• Hybridoma and Antibody Distribution

- Developmental Studies Hybridoma Bank (DSHB) at the University of Iowa
- no IP; microvolume distribution

CLINICAL PROTEOMIC TECHNOLOGIES INITIATIVE FOR CANCER
ANTIBODY DATABASE

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CPTI ANTIBODY DATABASE

Home Page

Clinical Proteomic Technologies Initiative

Established: 2005

The objective of the **Clinical Proteomic Technologies Initiative (CPTI)** is to build the foundation of technologies, data, reagents and standards, analysis systems, and infrastructure needed to systematically advance our understanding of protein biology in cancer and accelerate discovery research and clinical applications.

The overall objective of the five-year, \$104 million Clinical Proteomic Technologies Initiative for Cancer (CPTI) is to build the foundation of technologies, data, reagents and reference materials, analysis systems, and infrastructure needed to systematically advance our understanding of protein biology in cancer and accelerate discovery research and clinical applications.

The goals of the Clinical Proteomic Technologies Initiative for Cancer are to:

- ▶ Enhance technical abilities to identify and measure proteins accurately and reproducibly in biological systems
- ▶ Advance proteomics as a reliable, quantitative field that can accelerate discovery and translational research

For more information about the Clinical Proteomic Technologies Initiative for Cancer, please visit:
<http://proteomics.cancer.gov>

Hot Topics

- ▶ **"Tumour prevention by a single antibody domain targeting the interaction of signal transduction proteins with RAS"**
- ▶ **"Targeted Inhibition of EG-1 Blocks Breast Tumor Growth"**
- ▶ **"Combined serum IgG response to Helicobacter pylori VacA and CagA predicts gastric cancer"**
- ▶ **"Radionuclide therapy of cancer with radiolabeled antibodies"**
- ▶ **"Antitumor serum IgG response to Helicobacter pylori VacA and CagA predicts gastric cancer"**
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**Target:
3 mAbs/antigen**

Collaborations:

