caBIG™ Fact Sheet

What Is caBIG™?

The cancer Biomedical Informatics Grid™ (caBIG™) initiative, overseen by the National Cancer Institute Center for Biomedical Informatics and Information Technology (NCI-CBIIT), was conceived to address the needs of all constituencies in the cancer community—researchers, clinicians, patients—to share data and knowledge, simplify collaboration, speed research to get diagnostics and therapeutics from bench to bedside faster and more cost-effectively, and ultimately realize the potential of Personalized Medicine. caBIG™ also addresses a critical problem facing both basic and clinical researchers today—an explosion of data that requires new approaches for collection, management, and analysis. Although initially focused on cancer research and care, caBIG™ technology is widely applicable to other therapeutic areas.

"caBIG™ is an example of a new approach to organizing medical research in the future that is really both an experiment and yet a transformation at the same time. No single individual or organization can manage the amount of data that we deal with now in biomedical research. Ideally, this information must be available online, in real-time, so doctors, patients, and organizations like ours can use it quickly. This is really creating a new community of research. That's what caBIG™ is. It's not just a technology; it's a cultural change."

– John Niederhuber, M.D., Director–National Cancer Institute

Why Researchers Use caBIG™

caBIG™ tools and infrastructure allow researchers and clinicians to collaborate with colleagues in their own institutions or across the globe simply and securely, leveraging shared expertise and large multidisciplinary data collections that allow complex biological questions to be asked and answered faster and more effectively than ever before.

"What is required in cancer research to find definitive answers is a system to share data and leverage all the events in the cancer world. It is impossible to succeed without embracing that notion. The concept of caBIG™ is, therefore, right on target."

– Kim Lyerly, M.D., Director–Duke Comprehensive Cancer Center

Who Is Using caBIG™?

As of May 2008, 46 NCI-designated Cancer Centers and 16 Community Cancer Centers are in the process of getting connected to caBIG™ tools and infrastructure, and the community of users is growing steadily. The researchers and clinicians at these institutions recognize the current capabilities and future potential provided by caBIG™ to speed basic and clinical research by providing connectivity to data.

"I quickly recognized how important it is for Lombardi, and for all cancer centers, to have access to the kinds of tools that caBIG™ provides. The tissue repositories, the genomics repositories, and the evolving clinical database, are all elements of potential high value for cancer centers as they attempt to develop systems biology and systems medicine tools."

– Louis Weiner, M.D., Georgetown University

caBIG™ Fact Sheet

But it is not just researchers who are embracing caBIG™ technology. More than 1000 software developers from over 200 organizations have contributed to the development of caBIG™ tools and services to date, with more tools becoming caBIG™-compatible in the near future.

caBIG™ in Action:
The Cancer Genome Atlas (TCGA)

caBIG™ forms the information infrastructure of The Cancer Genome Atlas, an integrated database of molecular and clinical data. caBIG™ provides the connectivity, data standards, and tools required to collect, organize, share, and analyze the diverse research data from multiple laboratories and among different institutions that populates this database. The TCGA web portal provides researchers and clinicians the ability to easily perform complex queries on this database, giving them unprecedented opportunities to discover and develop a new generation of targeted diagnostics, therapies, and preventives for cancer.

To learn more about TCGA,
visit **http://cancergenome.nih.gov/**

caBIG™ Tools

caBIG™ is founded on four key principles: **Open Access, Open Development, Open Source,** and **Federation**. These principles have guided the development of interoperable software tools, data standards, and a computing infrastructure conceived to advance basic and clinical research. To make it easy for users to get started, three "bundles" have been created: The Clinical Trials Compatibility Framework and the Life Sciences Distribution, which provide grid-enabled tools and services, and the Data Sharing and Security Framework, which provides guidelines and model documents to address data sharing and security issues.

Key caBIG™ Tools (as of May 2008)

Clinical Trials Compatibility Framework	Life Sciences Distribution	Data Sharing and Security Framework
• Cancer Adverse Event Reporting System (caAERS) • Cancer Central Clinical Participant Registry (C3PR) • Cancer Data Exchange (caX-change) • Patient Study Calendar (PSC) • Clinical Trials Data Management System (CDMS) Integration • Clinical Trials Object Data System (CTODS) • caGrid	• caArray • Cancer Genome-Wide Association Studies (caGWAS) • caTissue Core • geWorkbench • National Cancer Imaging Archive (NCIA) • Clinical Trials Object Data System (CTODS) • caGrid	• Data Sharing and Intellectual Capital (DSIC) guidelines and model contract

How Do I Get Connected to caBIG™?

NCI-CBIIT welcomes new users—whether they adopt caBIG™ technology or adapt existing tools to become caBIG™-compatible. Your organization can join the growing community of academic and commercial organizations that are implementing caBIG™ and gaining the benefits of data sharing and collaboration with other researchers. A variety of programs, products, and services are being put in place to facilitate the adoption or adaptation of caBIG technologies **(https://cabig.nci.nih.gov/getting_connected/).**

In addition to other general information on the caBIG™ Web site **(http://www.cabig.nci.nih.gov)**, other resources to help you get connected more easily include:

The **NCI-CBIIT Application Support Group** is dedicated to helping you use caBIG™ tools and resources to maximum benefit: To learn more about the NCI-CBIIT Application support group, visit **http://ncicb.nci.nih.gov/support.**

The **Enterprise Support Network (ESN)** provides expertise and implementation help to ease and expedite the integration of caBIG™ technology. To learn more about the ESN, visit **https://ccabig.nci.nih.gov/esn.**

What Is the Future of caBIG™?

The caBIG™ infrastructure is continually improving and expanding the available set of tools, data, and services to reflect the changing needs of basic and clinical researchers. But beyond simply the tools, caBIG™ is expanding globally, with initiatives linking cancer researchers in the United Kingdom as well as countries in Latin America and Asia. caBIG™ is also expanding outside of cancer research, as a model for improving collaboration, data sharing, and patient outcomes for other diseases. As the integration of genomic data into electronic health records accelerates, caBIG™ is poised to connect clinical research with clinical care.

"caBIG™ will drive clinical trials of the future. It will be the way that we bring genomics, proteomics, and clinical data together for each patient in a clinical trial."

– John Niederhuber, M.D.

"Our collaboration with NCI lays the groundwork for global collaboration, enabled by interoperable technology from caBIG™, that will revolutionize how cancer research is conducted."

– Prof. Sir Alex Markham, Chair of the NCRI Informatics Management Board

How Do I Find out More about caBIG™?

The **caBIG™ Community Web site** provides tools and resources, including training modules, email newsletters, teleconferences, webcasts, and town hall meetings. You can sign up for informative newsletters that will keep you up to date on caBIG™.

For further information about caBIG™, visit **https://cabig.nci.nih.gov** (for information about caBIG™ technologies, policies, projects and organization) and **http://cabig.cancer.gov** (for general information)

To subscribe to future updates, news, and case studies on caBIG™, please visit **http://cabig.cancer.gov/eail_signup.asp.**

NATIONAL CANCER INSTITUTE

F 0 0 9