



# Accelerating Cancer Research: *caBIG at the James*

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# Overview

- OSU's contributions to caBIG
- caGrid in action at the CCC-James
- Next steps for the CCC community
- Challenges and opportunities
- Discussion

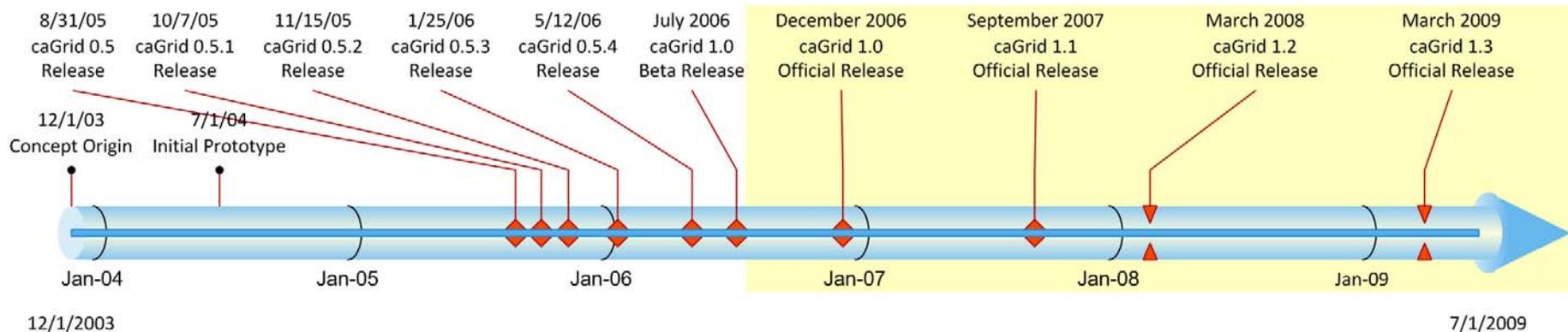
# What is caGrid to caBIG?

- The “G” in caBIG
  - **Ca**ncer **Bi**omedical **I**nformatics **Grid**
- Provides the software foundation which underlies the tools and applications of caBIG
- Analogous to the “*power grid*”
  - A multitude of *applications* with differing requirements can seamlessly be *plugged in* to a common infrastructure

# OSU & caBIG

- Over six years of continuous informatics research and development

## caGrid Development Timeline

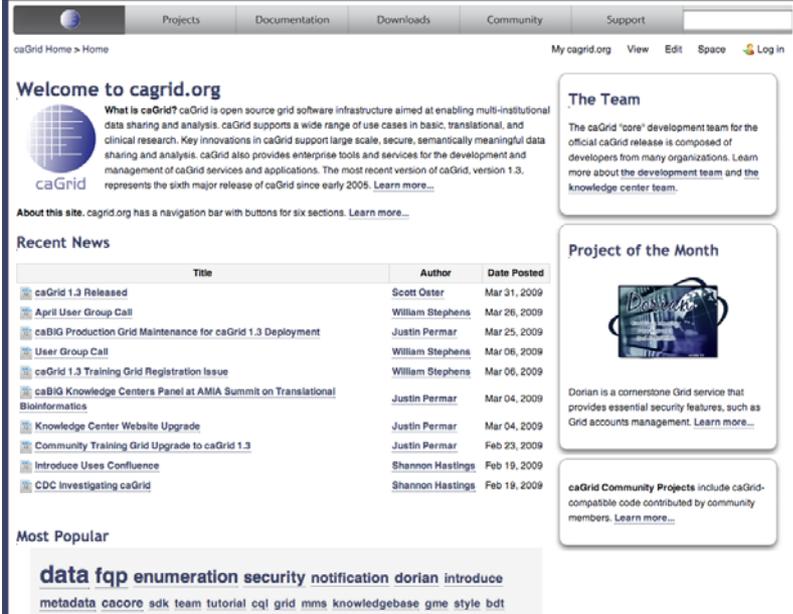


# OSU & caBIG: Focus Areas

- **Using today's standards so as to have an interoperability platform**
- **Metadata Infrastructure**
  - Allows you to annotate your data in a way that is recognized and retrievable
  - CaBig creates this language, and CaGrid provides the infrastructure to find and manage data stored in that language
- **Security**
  - We have infrastructure that tie all of our systems together while meeting each others' security guidelines
  - This makes it easier to “get connected”
- **Facilitating access to the Grid**
  - We've developed a platform that makes it easy for you, the non-computer scientist, to put your data on the Grid which in turn allows others to see it, use it, and allows you to get in the game (and tools for my administrator to grant you access if I want to!)
- **Facilitating Grid wide operations**
  - We develop the tools that allow you to use the data for your purpose, no matter who on the Grid has those tools
- **Quality**
  - Every time something is added, the system is rechecked for deliverables

# Knowledge Center

- We work with researchers and CCC directors to understand how caGrid can be helpful to them, in order to foster: scientific research, clinical efficiencies, cost savings, etc
- We provide comprehensive resource and consulting service for groups adopting caGrid and using caGrid
- We foster a dynamic, active caGrid community by promoting knowledge sharing among community members.
- We provide a test environment for teams building caBIG/caGrid applications.
- We provide the community with a method of contributing to caGrid



The screenshot shows the caGrid website's Knowledge Center. The page has a navigation bar with links for Projects, Documentation, Downloads, Community, and Support. The main content area includes a 'Welcome to cagrid.org' section with a logo and a brief description of caGrid. Below this is a 'Recent News' section with a table of articles. To the right, there are two sidebars: 'The Team' and 'Project of the Month'. At the bottom, there is a 'Most Popular' section with a list of search terms.

Title	Author	Date Posted
<a href="#">caGrid 1.3 Released</a>	<a href="#">Scott Oster</a>	Mar 31, 2009
<a href="#">April User Group Call</a>	<a href="#">William Stephens</a>	Mar 26, 2009
<a href="#">caBIG Production Grid Maintenance for caGrid 1.3 Deployment</a>	<a href="#">Justin Permar</a>	Mar 25, 2009
<a href="#">User Group Call</a>	<a href="#">William Stephens</a>	Mar 06, 2009
<a href="#">caGrid 1.3 Training Grid Registration Issue</a>	<a href="#">William Stephens</a>	Mar 06, 2009
<a href="#">caBIG Knowledge Centers Panel at AMIA Summit on Translational Bioinformatics</a>	<a href="#">Justin Permar</a>	Mar 04, 2009
<a href="#">Knowledge Center Website Upgrade</a>	<a href="#">Justin Permar</a>	Mar 04, 2009
<a href="#">Community Training Grid Upgrade to caGrid 1.3</a>	<a href="#">Justin Permar</a>	Feb 23, 2009
<a href="#">Introduce Uses Confluence</a>	<a href="#">Shannon Hastings</a>	Feb 19, 2009
<a href="#">CDC Investigating caGrid</a>	<a href="#">Shannon Hastings</a>	Feb 19, 2009

**Most Popular**

[data](#) [fqp](#) [enumeration](#) [security](#) [notification](#) [dorian](#) [introduce](#)  
[metadata](#) [cacore](#) [sdk](#) [team](#) [tutorial](#) [cql](#) [grid](#) [mms](#) [knowledgebase](#) [gme](#) [style](#) [bdt](#)

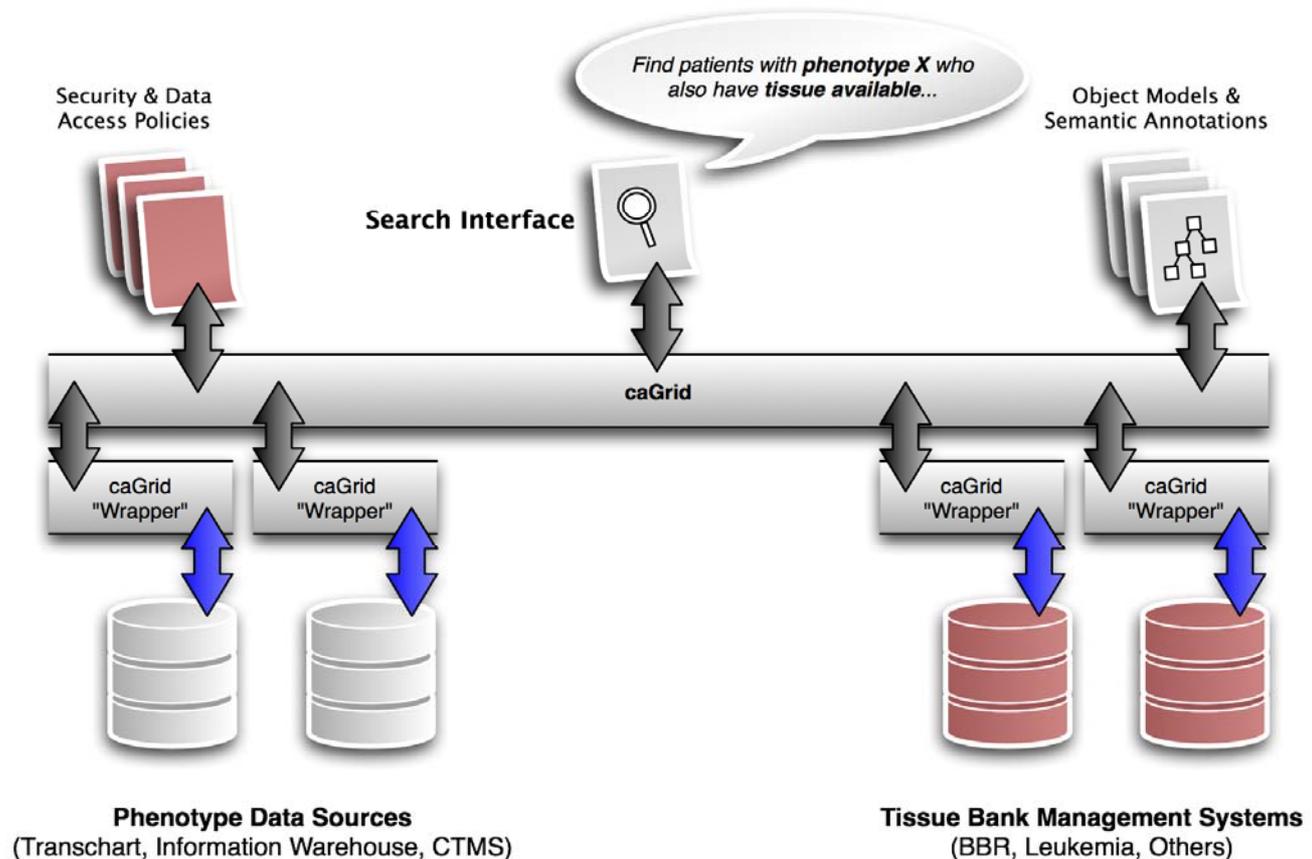
<http://www.cagrid.org>

# caGrid Knowledge Center Collaborations

- Getting Connected with caBIG®
- Comprehensive Cancer Centers
- Public Health Grid
- Biomedical Informatics Research Network (BIRN)
- Clinical and Translational Science Awards (CTSA)
- Informatics for Integrating Biology and the Bedside (I2B2)
- Cardio Vascular Research Grid (CVRG)
- The Cancer Genome Atlas (TCGA)
- TINT (Mayo and U of Minn)
- University of Louisville-SNP and Genotype Data Management System
- caArray
- NCRI ONIX (United Kingdom)

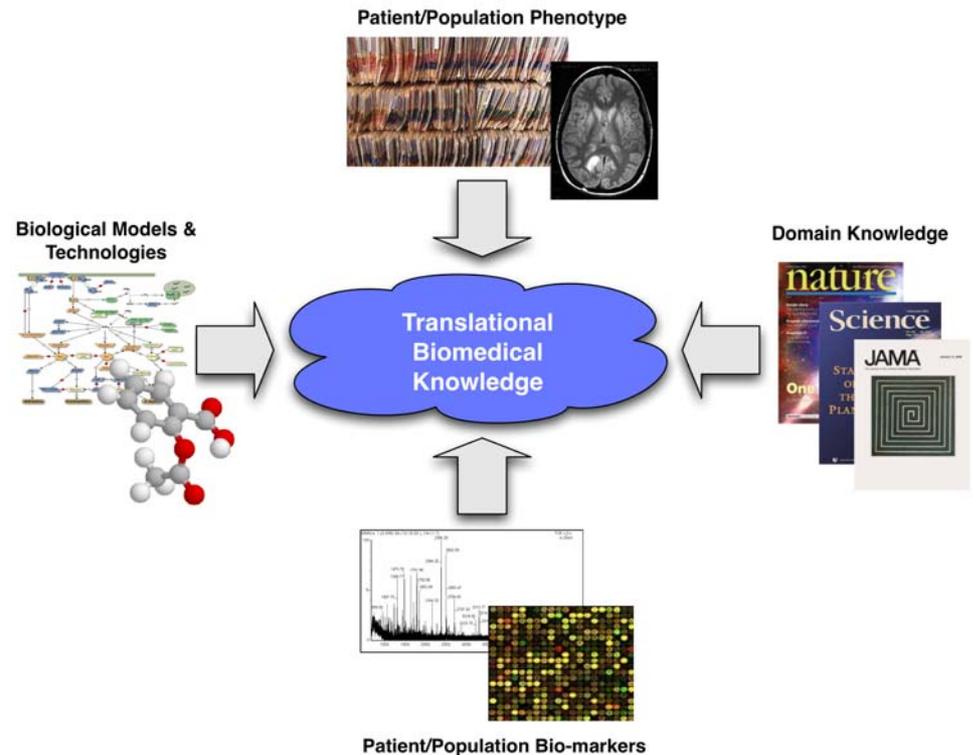
# Example of caGrid in Action at the CCC-James: Universal Bio-specimen Collection & Annotation

Grid-enabled Cancer Tissue Query System (gCTQ)



# Opportunities for the CCC Community

- Eliminate information silos in order to support multi-disciplinary research methodologies
- Execution of high-throughput, large-scale phenotyping studies
  - Contemporary version of “Card Studies”
    - “Are people with a history of smoking also obese?”
- **Generation of integrative, translational biomedical knowledge**



# Challenges and Opportunities

- **Challenges:**

- Funding model

- CCC metrics and the contracting systems currently employed by caBIG (we need NCI funding to build grids!!)
- Time frames incompatible with sustainable development and implementation cycles (e.g., short term contracts)

- Ability to engage key stakeholders in order to couple basic science, clinical research, and informatics efforts (what is my incentive?)

- Scalable approaches for technology deployment and systems interoperability

- Community-centered governance vs. centralization

- Who is accountable and responsible @ OSU?

# Challenges and Opportunities

- **Opportunities:**

- Demonstrating the role of caBIG platforms as wonderful tools that enable novel scientific discoveries
  - Currency of success in the academic biomedical and life sciences communities
- Creating a discovery engine spanning the CCC community...you have a mutation (in California) and I have a trial (in Ohio)!!
- Realization of economies of scale related to data collection, management, and exchange (if we all do this individually, we all pay...if we all do it together, we share the cost...that is the beauty of the Grid).
- Greater transparency and reproducibility of scientific methods through the use of open platforms and tools and the systematic sharing of data

# The OSU Team

- Michael A. Caligiuri, MD
- Herb Smaltz, Ph.D.
- **Phillip Payne, Ph.D.**
- **Scott Oster, M.S.**
- **Stephen Langella, M.S.**
- **Shannon Hastings, M.S.**
- Justin Permar
- David Ervin
- Calixto Melean, M.S.
- Joseph George
- Bill Stephens
- Sara Honacki
- Keith Gasper
- Albert Lai, Ph.D.
- Bob Rice, Ph.D.
- Tara Borlawsky, M.A.
- Rakesh Dhaval, M.S.
- Mark Snider
- Bart Kelsey
- Omkar Lele
- Tim Randles
- Jack Frost
- Jillian Bickle



