The Georgetown Database of Cancer (G-DOC)
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- An advanced platform for translational research
- Integrates clinical data with diverse “-omics” data
- Helps identify new therapeutic targets, as well as biologically relevant pathways and networks
- Provides opportunities for biomarker and drug discovery
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G-DOC makes it possible to seamlessly navigate between and integrate multiple biomedical data types.
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G-DOC is packed with analytic tools and features, and has a user-friendly interface with a “Quick Start” option.

**Getting Started with G-DOC**

**Quick Start**
Begin using GDOC in a few steps. Search by cancer types (diseases), microarrays and the all data currently available.

**Tutorials**
Watch step-by-step movies of workflows that are available within the G-DOC application.

**Features**

**Search**
- Biospecimens
- Clinical Data
- Browse Genome
- Compounds/Drug Targets
- Studies

**Analyze**
- Group Comparison / KM Plots
- Classification
- Correlations/Multi Omics
- Pathways/Networks
- Advanced Molecular Analysis (Gene Pattern)

**My GDOC**
- Notifications
- Saved Lists
- Saved Analysis
- Manage my groups / Request access
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Data Overview & “Quick Start” Features

• Graphical representation of all data currently residing in system, categorized by the data type available to any one particular study, along with patient and sample totals for each study

• Simplified workflow guiding a user from patient stratification (based on clinical outcomes) through a group comparison analysis with just a few clicks
Quick Start will allow new users to easily tap into the advanced analytic capabilities of G-DOC.
Search Capabilities

- Clinical-attribute based search with sortable results
- Fully-featured, web-based genome browser with ability to overlay “-omics” data from study-specific data sets
- Gene expression query for patient group subsets
- Compound and related 'target' search (properties and sketch-based), and visualize with 2D/3D molecule viewer
- Listings and descriptions of hand-curated scientific results, or 'findings' relevant to G-DOC
- Ability to save and/or export lists of patients from completed queries
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G-DOC supports detailed clinical criteria browsing for cohort selection and report generation. Data security is a priority.
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Study molecular interactions for the most relevant cancer drug targets using an interactive 3D viewer

- Protein: EGFR
- Source: .pdb
- Ligand: Hydrazone

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Browse for drugs of interest using chemical structure search function
Analysis Capabilities and Features

- Group comparison analysis of 2 patient subsets using multiple statistical methods for “-omics” data
- Kaplan-Meier Plot visualizations, for both clinical and genomic data
- Principal Component Analysis (PCA) for “-omics” data, with customizable scatter-plot
- Integrated TreeView heatmap and JBrowse genome viewers
- Export images of graphs/visualizations to local machine, for possible use in publications and collaboration
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Study gene expression and biological networks using Cytoscape and Ariadne Pathway Studio.
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JBrowse viewer provides integrated view of multiple data types, including gene expression, clinical outcome, and CNV.
Collaboration Features

• Ability to create collaboration groups within G-DOC and invite other users to join
• Collaboration groups can share a variety of information and results (e.g., gene lists, reporter lists, saved analyses) in a secure fashion
• Users can request access to groups
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Come under the G-DOC umbrella....
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GU Launch - Fall 2010

Public Launch - Winter 2010/11

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The Georgetown Database of Cancer (G-DOC) is a cutting-edge data integration platform and knowledge discovery system for the oncology and translational research communities. G-DOC users can access public and proprietary clinical and -omics data aggregated from across the Medical Center, along with a comprehensive set of advanced analysis and visualization tools, to generate and test hypotheses across biomedical disciplines.
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MY G-DOC

In G-DOC, you fully control who has access to your research data. While the most scientific value can often be obtained by sharing with other investigators or groups, ultimately it belongs to you. The security protocols already in place set allow you to have exactly the level of exposure for your data that you desire.
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Modern methods have allowed researchers to move into a new phase of therapeutic development called "rational drug design." G-DOC supports this type of research by providing both chemical and 3-dimensional structural information about drugs and the proteins to which they bind, as well as a state-of-the-art integrated viewer. The compound browser also supports chemical properties-based browsing of the drug collection stored in G-DOC.

G-DOC supports the use of pathways to advance the science of Cancer Research through the use of an integrated pathway browser, which permit the display of gene expression information within the context of these critical networks. It also supports further investigation into individual protein and chemical components through links with public databases.