



## **“Scientific Intelligence” provided through the Sophic Portfolio Manager**

The Sophic Portfolio Manager (SPM) was designed and configured to provide the National Cancer Institute with Scientific Intelligence on broad, complex cancer research projects. The Director of the Center for Cancer Research (CCR) has over 270 individual labs and over 3,000 scientists conducting research on 160+ cancer disease types. Each lab is engaged in several projects involving different research strategies, each with different anticipated outcomes. SPM provided CCR leadership with Scientific Intelligence - flexible, detailed, robust visibility into ongoing investments and progress in cancer research.

CCR Lab Annual Reports (free text Word or PDF documents and spreadsheets) identify results and document scientific findings that are published in scientific papers (Medline abstracts). Sophic used linguistic analysis methods and software (Biomax BioLT) to parse the Annual Reports in order to identify elements such as cancer sites, keywords describing each disease, research areas, scientific publications, Principal Investigators as lab leaders and authors, budgets, etc.

These Annual Report portfolio elements were then mapped into the Biomax BioXM Knowledge Management System to show complex graphical networks of scientific relationships. These visualized networks now provide management with oversight, accountability and the opportunity to align research projects, leverage multi-lab collaborations, change priorities and answer congressional inquiries about specific areas of interest such as Brain Cancer.

SPM can be configured to derive any type of scientific, disease or research information from free text files or databases. This flexible, highly configurable system can be maintained and refreshed with new data sources, as user needs change.

On the following pages, there are screen shots and explanations of use cases for the Sophic Portfolio Manager.

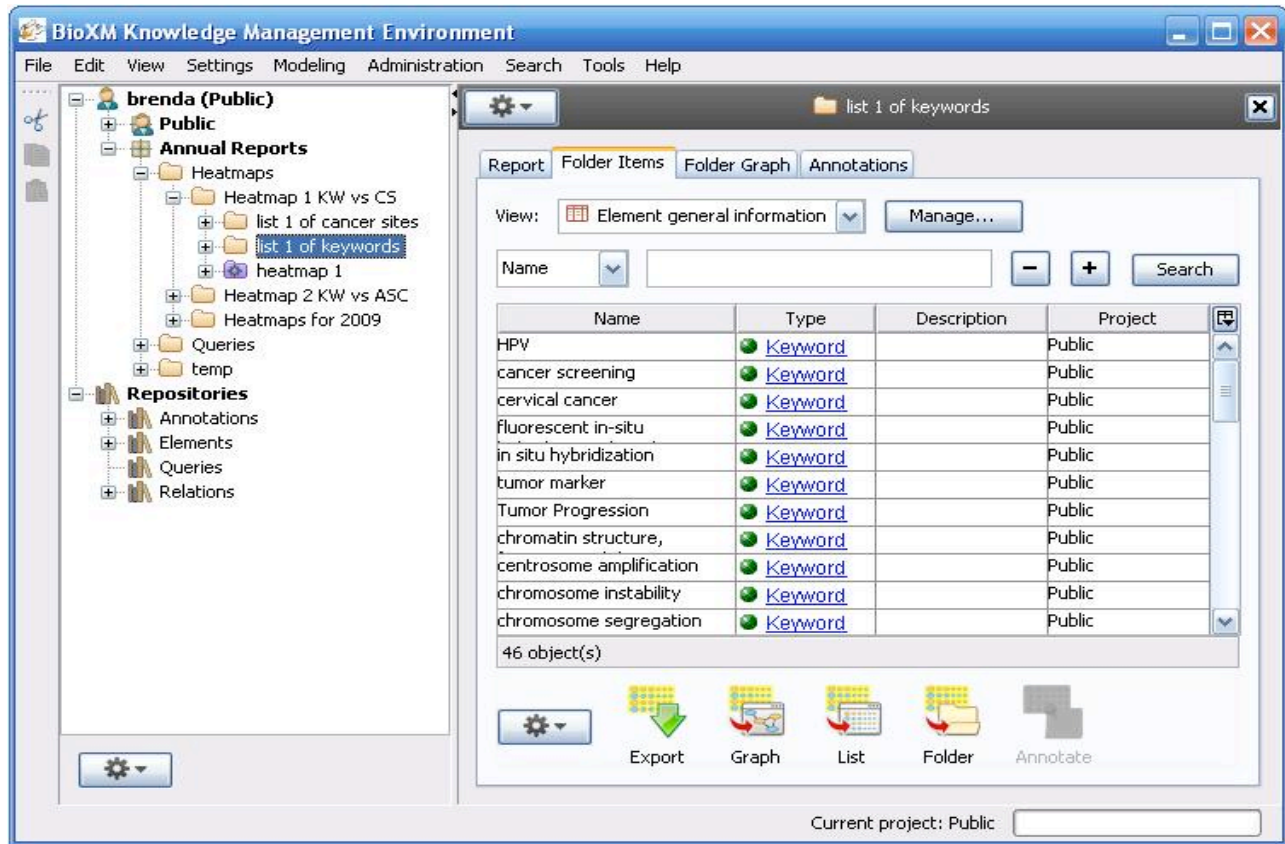


Figure 1. This is the “list 1 of keywords” folder. It contains 46 objects. To see the heatmap for the selected keywords and cancer sites, press the smart folder “heatmap 1”.

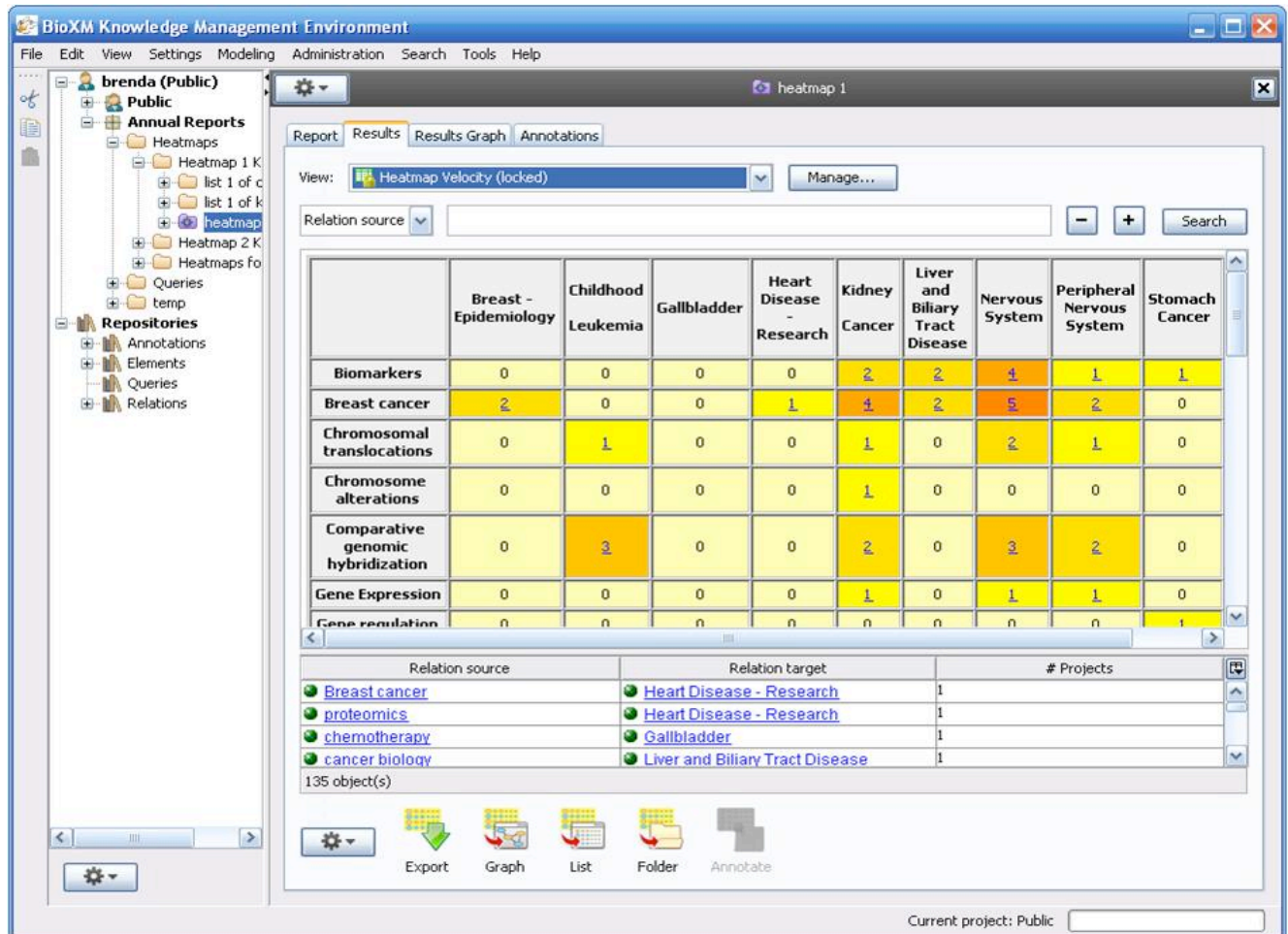


Figure 2. The heatmap show hot spots of resources committed to a specific disease area and it show areas of potential value that do not have resources or activities. This dashboard provides leaders with information required to adjust the focus of an organization to concentrate on new areas of research judged to have high potential.

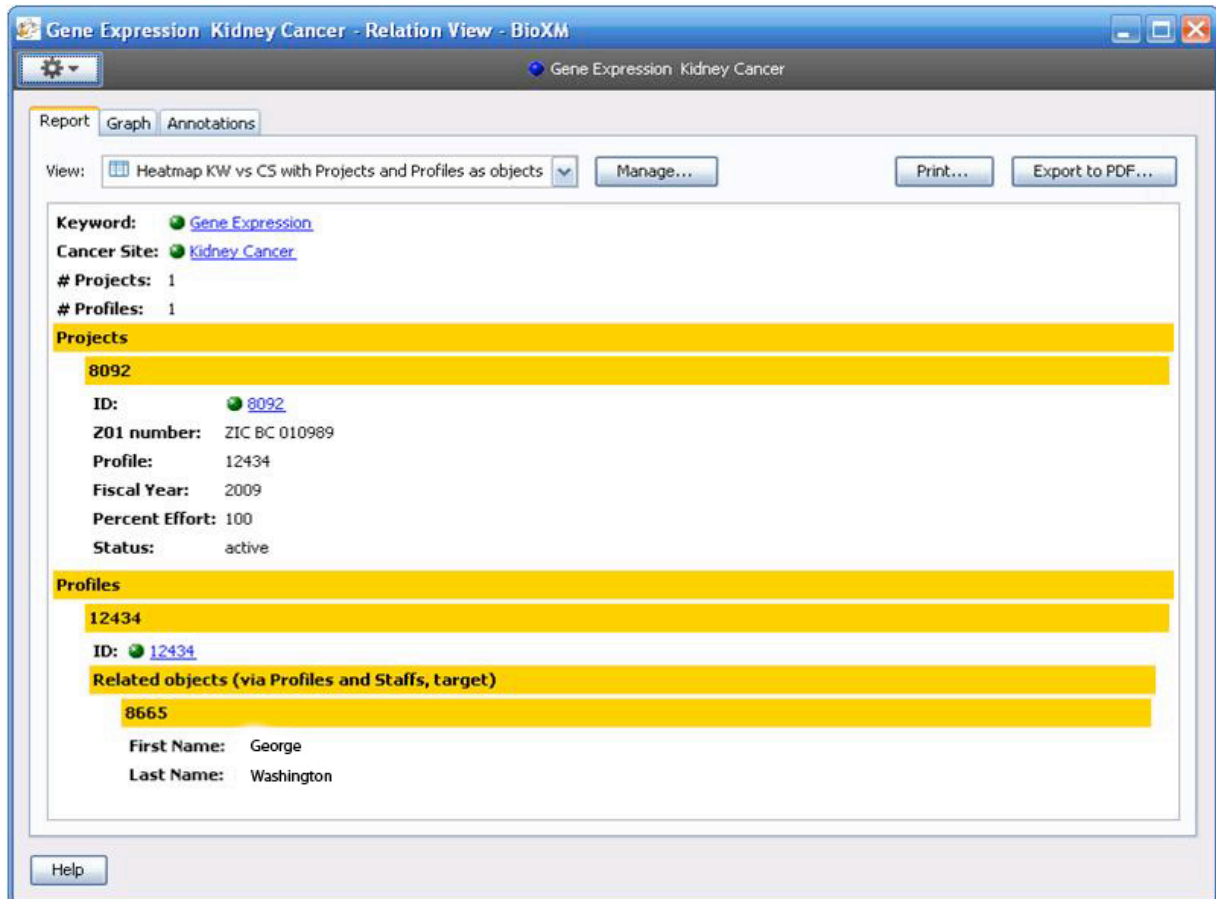


Figure 3. Users can drill down to easily access detailed information in all the non-zero cells by clicking on the cell. This provides additional information related to projects and profiles. The example above uses keywords for a cancer site – “kidney cancer” - to find relationships with “gene expression.” The pair-wise report highlights the intersection of information in SPM.

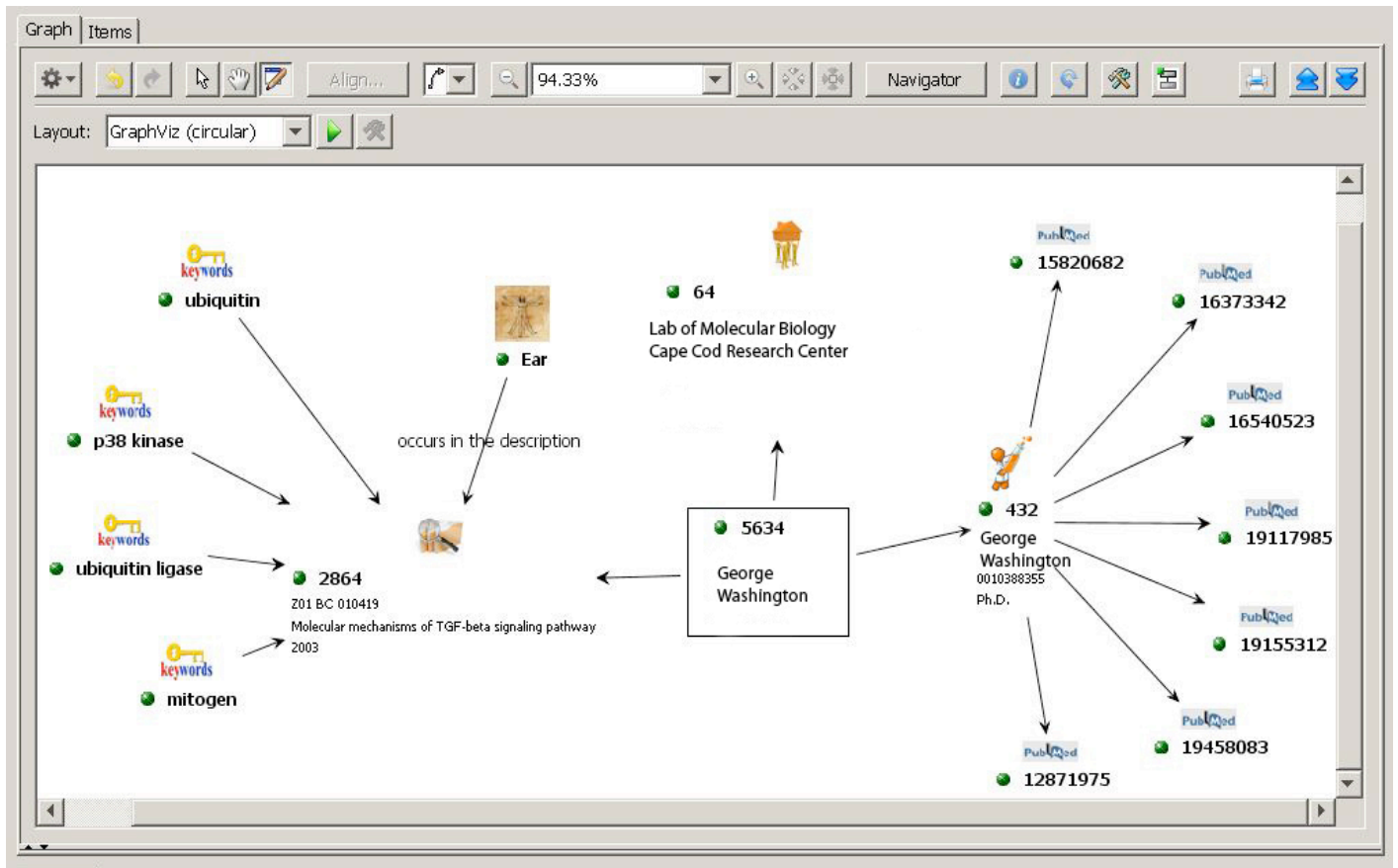


Figure 4. This is a BioXM graphical view of a NCI Center for Cancer Research Annual Report (Z01 BC 010419), which shows the complex networks for relationships between keywords and the specific disease (ear cancer) that are mapped to this project, the Principal Investigator who is working on this project, the PI's affiliation, and his publications.