Genomics-2013
International Conference on
OMICS Group Conferences
Accelerating Scientific Discovery
Functional and Comparative Genomics & Pharmacogenomics
November 12-14, 2013 DoubleTree by Hilton Hotel Chicago-North Shore, USA

# The current state of comparative genomics and pharmacogenomics, and the application of the NCI-60 resources and CellMiner tools to these problems

**William C. Reinhold**

*National Cancer Institute, USA*

## Abstract

Molecular biology and pharmacology are increasingly integrating high-throughput data, with the goal of a more personalized form of medicine. However, impediments in the field include rapid access to the data in a usable format, and the ability to integrate multiple forms of data in an understandable manner. We have begun to address these issues for the NCI-60, cancerous cell lines from nine tissues-of-origin, using our CellMiner web-application (http://discover.nci.nih.gov/cellminer). Our databases are reflective of the field in general, and we currently provide 16 which are public. These are made available using our "Query Genomic Data" tools. Integration of these datasets is facilitated by the "NCI-60 Analysis Tools". These enhance integration for data including transcript expression of 26,065 genes and 360 microRNAs, and drug activity of 20,602 compounds including 110 Food and Drug Administration (FDA)-approved and 54 in clinical trial drugs. 143,501 genetic variants (SNPs and somatic mutations) are identified. Expertise in computer science or bioinformatics is not required. Examples of prior translational results include the identification of a novel gene of pharmacological importance (SLFN11 for DNA-damaging agents), and the identification of a novel compound for the treatment of the core binding factor (CBF) subset of adult acute myeloid (AML) and pediatric acute lymphocytic leukemias (ALL). This data is available at no cost to the scientific public.

## Biography

William Reinhold is currently operating as facility head of the Genomics and Bioinformatics Group in the Laboratory of Molecular Pharmacology. He has been a part of this section since April 1998, working with John N. Weinstein, and then Yves Pommier. He has been central in generating multiple datasets for the NCI-60 cancerous cell lines, available at the CellMiner web-application at http://discover.nci.nih.gov/cellminer/. His activities include running the website, the dissemination and interpretation of this data, and encouraging and facilitating collaborations. He received his B.S. in Biochemistry from the University of Maryland in 1978, and currently has 67 peer-reviewed publications.