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Current and up-coming analysis tools for the NCI-60 in CellMiner: Resources for data integration and systems pharmacology

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The CellMiner web-application; a suite of tools that provides rapid access to multiple forms of molecular and pharmacological data available for the NCI-60. These tools also aid in the integration of this high-throughput data in a manner doable by the non-bioinformaticist. The integration tools are accessed in the "NCI-60 Analysis Tools" section. These include the "Cell line signature" tool, which provides i) transcript levels, ii) compound activities, and iii) microRNA levels for the NCI-60. Access to the exome sequencing data will be demonstrated, including use of the "Graphical output for DNA:Exome sequencing". The individual forms of data may in turn be integrated using the "Cross-correlation" tool for up to 150 genes (transcript levels), microRNA levels and drug activities. The data may also be integrated using "Pattern comparison", which allows the input of any pattern (for the NCI-60), and from that pattern correlates all gene transcript and microRNA levels, and compound activities. Several indevelopment tools are also demonstrated. The first of these are "aCGH copy number" for the determination of DNA copy number variations. Second is "Genetic variant summation", which provides rapid visualization of gene variant versus drug relationships. Each of these tools permits the user to search for potential relationships in a manner specific to their area of expertise and interest. Expertise in computer science or bioinformatics is not required. The data is available at no cost to the scientific public.

Biography

William C. 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 web site, 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.

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