

Introduction to Cellminer

Augustin Luna
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Research Fellow
Department of Biostatistics and Computational Biology
Dana-Farber Cancer Institute

Topics to be Covered

- Introduction to CellMiner
- Introduction to rcellminer

What is CellMiner?

- Website:
 - <http://discover.nci.nih.gov/cellminer>
- Retrieval and integration for NCI-60 datasets: molecular and pharmacological
- NCI-60
 - 60 human cancer cell lines from 9 tissues of origin: breast, central nervous system, colon, leukemia, melanoma, non-small cell lung, ovarian, prostate, and renal
 - Used by the Developmental Therapeutics Program of the National Cancer Institute to screen over 100,000 chemical compounds and natural products
- A subset of ~21,000 drugs is provided by CellMiner
- Drug activity levels expressed as 50% growth-inhibitory levels (GI50) were determined at 48 hours using the sulforhodamine B (SRB) assay
 - Determines cell density based on the measurement of total cellular protein

What is rcellminer?

- Website and Tutorial (Vignette):
 - <https://www.bioconductor.org/packages/release/bioc/html/rcellminer.html>
- Provides programmatic access to CellMiner NCI-60 data
- Data Types
 - Gene and protein expression
 - Copy number
 - Whole exome mutations
 - Activity data for ~21K compounds and information on their structure, mechanism of action, and repeat screens
- Easy visualization of compound structures, activity patterns, and molecular feature profiles
- Embedded R Shiny applications allow interactive data exploration

Embedded Shiny Applications

- Simplified web applications to do common data exploration tasks
 - Compare any two molecular and drug profiles
 - Find related structures
 - View information on repeat screening for drug compounds

Getting Help

- CellMiner
 - webadmin@discover.nci.nih.gov
- rcellminer
 - Augustin Luna: aluna [AT] jimmy [DOT] harvard [DOT] edu
 - Vinodh Rajapakse: vinodh [DOT] rajapakse [AT] nih [DOT] gov