

Drug-Target Mapping with Dose-Response Metabolomics

Understanding drug interactions and off-target effects with Next-Generation Metabolomics™

There are many aspects in pharmaceutical drug evaluation such as toxicity testing, drug synergy investigation, dose-response studies, and off-target effect identification. Untargeted metabolomics of untreated and drug-treated samples is a common way to perform dose-response studies, however it does not recognize off-target effects. Another hindrance of performing dose-response metabolomics with untargeted assays is the intense data processing requirements. Next-Generation Metabolomics™ eliminates these barriers in dose-response metabolomics so untargeted assays at multiple drug concentrations can be performed. The ability to perform dose-response metabolomics provides the power to identify chemicals that may target multiple proteins, gain insight into binding affinities of drugs, and enables drug-target mapping. Panome Bio™ can help you with your drug evaluation studies by providing a global profile of metabolites and biomarkers with our Next-Generation Metabolomics capabilities, we handle the experimental design as part of our comprehensive workflow, and you receive clear results in our personalized data analysis reports.

Highlights

Next-Generation Metabolomics™

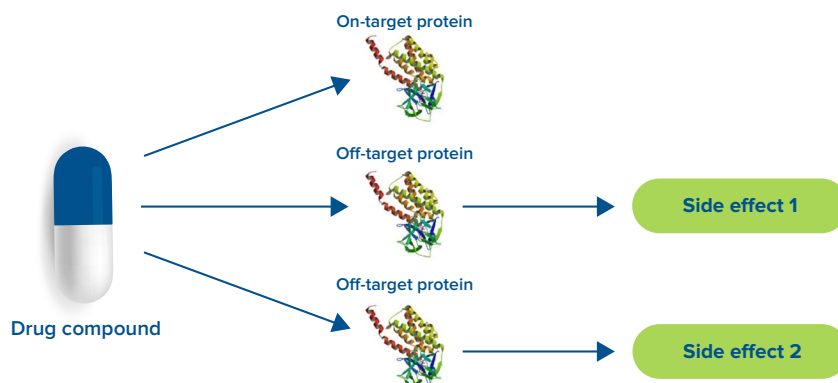
Through an untargeted analysis and robust computational methods we provide an unbiased and global view of metabolism. We then use next-generation methods to decrease the complexity of datasets, allowing more impactful experimental designs than previously possible, including multi-omic integration, longitudinal analysis, large cohorts >1k, and more.

Comprehensive Workflow

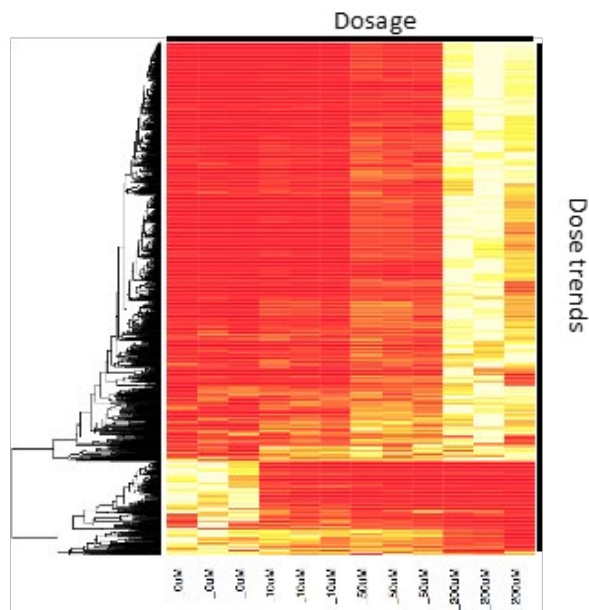
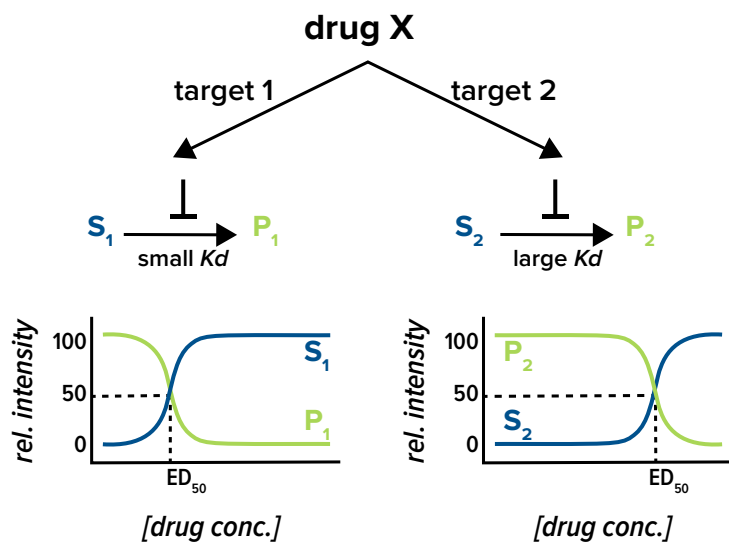
Starting from sample preparation, to experimental design and data analysis, we handle all aspects of your metabolomics screen.

Personalized Data Analysis Report

Metabolomics data is complex, personalized data analysis reports provide a straightforward interpretation of your results. We work with you to define an analysis plan that will meet your needs.



Small molecules often interact with more than one protein leading to unwanted off-target effects. Using dose-response metabolomics, chemicals can be evaluated for interaction with multiple proteins at various concentrations.



An example of a dose-response study - Drug X binds target 1 with high affinity while it binds target 2 with low affinity. Off-target effects occur at target 2 at high concentrations of drug.

Next-Generation Metabolomics can deconvolute large data sets common in dose-response studies. A heat map can be used to depict dose-response trends. In this example, >1000 features were identified to have significant responses to increase in dosage.

Read more about this topic: Yao et al., Anal Chem. 2020. Jan 21; 92(2): 1856–1864.

Panome Bio™ - Biomarker Discovery with Next-Generation Metabolomics™



Panome Bio can help you profile and discover biomarkers with Next-Generation Metabolomics while saving time and resources. Our next-generation methods can take your research beyond A versus B studies and into more complex experiments such as drug-target mapping, metabolic kinetics, and longitudinal analysis. Our technology provides you with a global and unbiased view of metabolism with quantitative accuracy while our computational methods provide a clear view of your complex metabolomics data. Contact us to start a project!

Contact Us



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