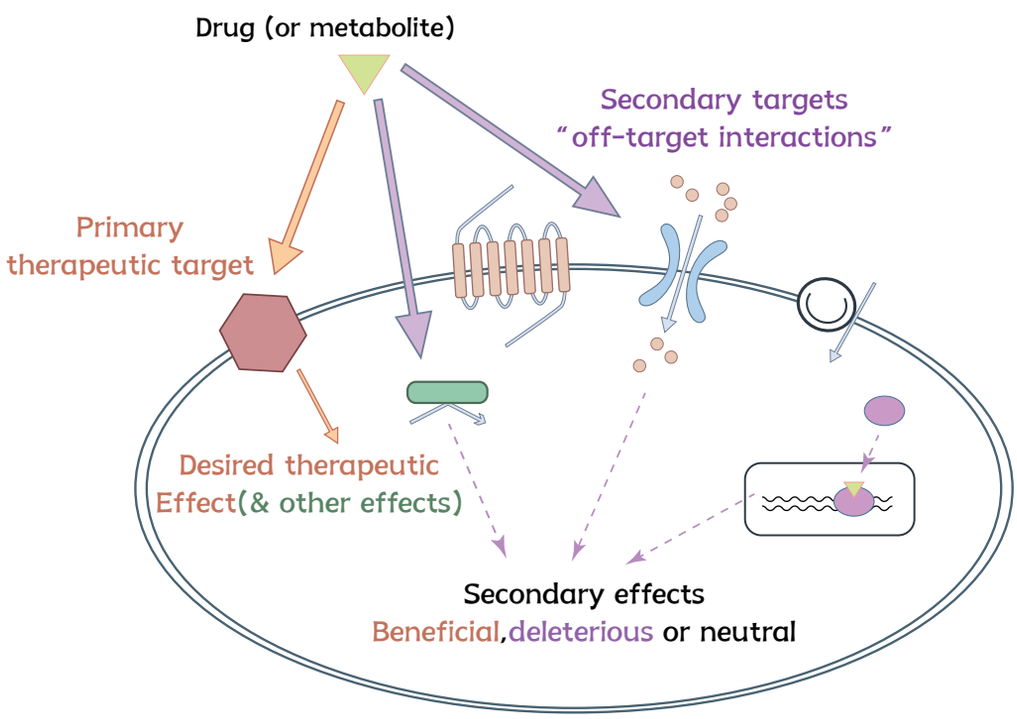
ICE Bioscience

In Vitro Safety Pharmacology Profiling

Harnessing Functional Assays for Deeper Insights into Drug Safety

In vitro safety pharmacology profiling is a pivotal process in the early stages of drug discovery that involves screening new drug candidates against a variety of targets such as receptors, transporters, enzymes, and ion channels to predict potential safety liabilities. This type of profiling is crucial for selecting lead compounds and for designing selectivity-focused structure-activity relationship studies, which aim to mitigate off-target effects while maintaining or improving the drug's potency at the primary target. The use of such safety profiling can also contribute to a decreased attrition rate in clinical development by better predicting potential adverse effects of new chemical entities early on.

ICESTP™ SafetyOne44 and ICESTP™ SafetyMax90, developed by ICE Bioscience, are cutting-edge functional safety panels designed to revolutionize pharmaceutical research. Our panels provide a competitive advantage, enabling early identification of potential off-target adverse drug reactions (ADRs) and informed decision-making, ultimately leading to the development of safer and more effective drugs.

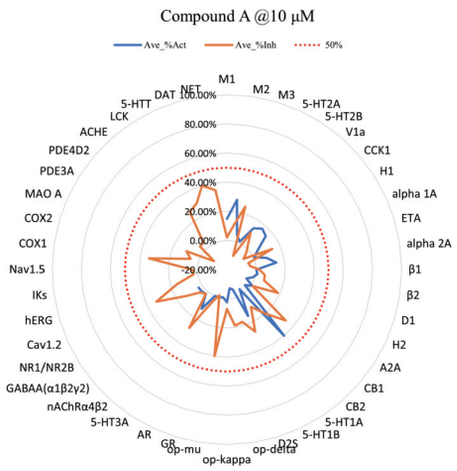


Advantages of functional assays over binding assays:

- **Direct Measurement of Functional Activity:** Functional assays directly measure the pharmacological effect of a compound on a target, providing more relevant insights into its potential therapeutic and side effect profiles compared to binding assays, which only indicate the ability of a compound to bind to a target.
- **Better Prediction of Clinical Outcomes:** By assessing the actual effect on target activity, functional assays offer a more accurate prediction of a compound's clinical efficacy and safety, enhancing drug development efficiency.
- **Identification of Agonists and Antagonists:** Unlike binding assays, functional assays can distinguish between agonists, antagonists, and inverse agonists based on their effects on target function, crucial for understanding a compound's pharmacodynamics.
- **Dynamic Range of Response:** Functional assays provide a dynamic range of response, allowing for the detection of partial agonists or partial antagonists, which is not possible with binding assays that only provide binary outcomes (bind or not bind).

ICESTP™ SafetyOne44 Panel

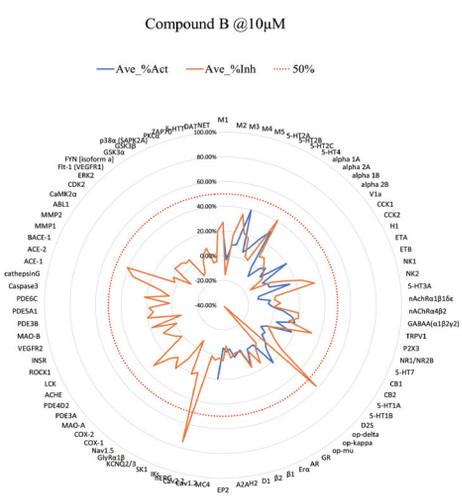
The ICESTP™ SafetyOne44 Panel developed by ICE Bioscience is grounded in the strategy of in vitro safety pharmacology profiling, focusing on a comprehensive set of 44 clinically relevant targets, including GPCRs and ion channels. Its design aims at early detection of potential safety concerns by screening compounds against a broad spectrum of biological targets associated with adverse drug reactions. This approach facilitates the efficient optimization of lead compounds, enhancing their safety profiles and reducing the risk of late-stage development failures.



Pharmacology data for ICESTP™ SafetyOne44

ICESTP™ SafetyMax90 Panel

The ICESTP™ SafetyMax90 Panel developed by ICE Bioscience expands the in vitro safety pharmacology profiling with an additional 46 important targets, focusing on critical physiological systems such as the central nervous system, cardiovascular system, metabolism, and immunity. By including these additional targets, ICESTP™ SafetyMax90 Panel aims to enhance early detection of adverse drug reactions and off-target effects, thereby facilitating the development of safer and more effective therapeutic compounds. This extension aims to provide comprehensive data for lead optimization, building robust Structure-Activity Relationship (SAR) models, and driving chemical design. Importantly, it focuses on designing out potential off-target related liabilities based on SAR knowledge. This approach underscores the importance of a wide-ranging and thorough pharmacological assessment in drug development.



Pharmacology data for ICESTP™ SafetyMax90

Targets	SafetyOne44	SafetyMAX90
GPCR	24	37
Ion Channel	8	15
Enzyme	7	32
Nuclear Receptor	2	3
Transporter	3	3
Total Functional Assays	74	138
TAT	3-4 weeks	6-8 weeks

Features

- Fast turnaround time
- All human targets
- Various functional assays
- Both agonist and antagonist modes are available
- Includes a reference compound in each run