

# Oncology Cell Panel Screening Platform



WuXi Biology, Oncology & Immunology Unit



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OncoWuXi Newsletter

We offer a comprehensive cell screening panel of **over 600 authenticated, well-validated human cancer cell lines across 50 cancer types**. Our cancer cell line panel provides powerful tools for cancer research and drug discovery.



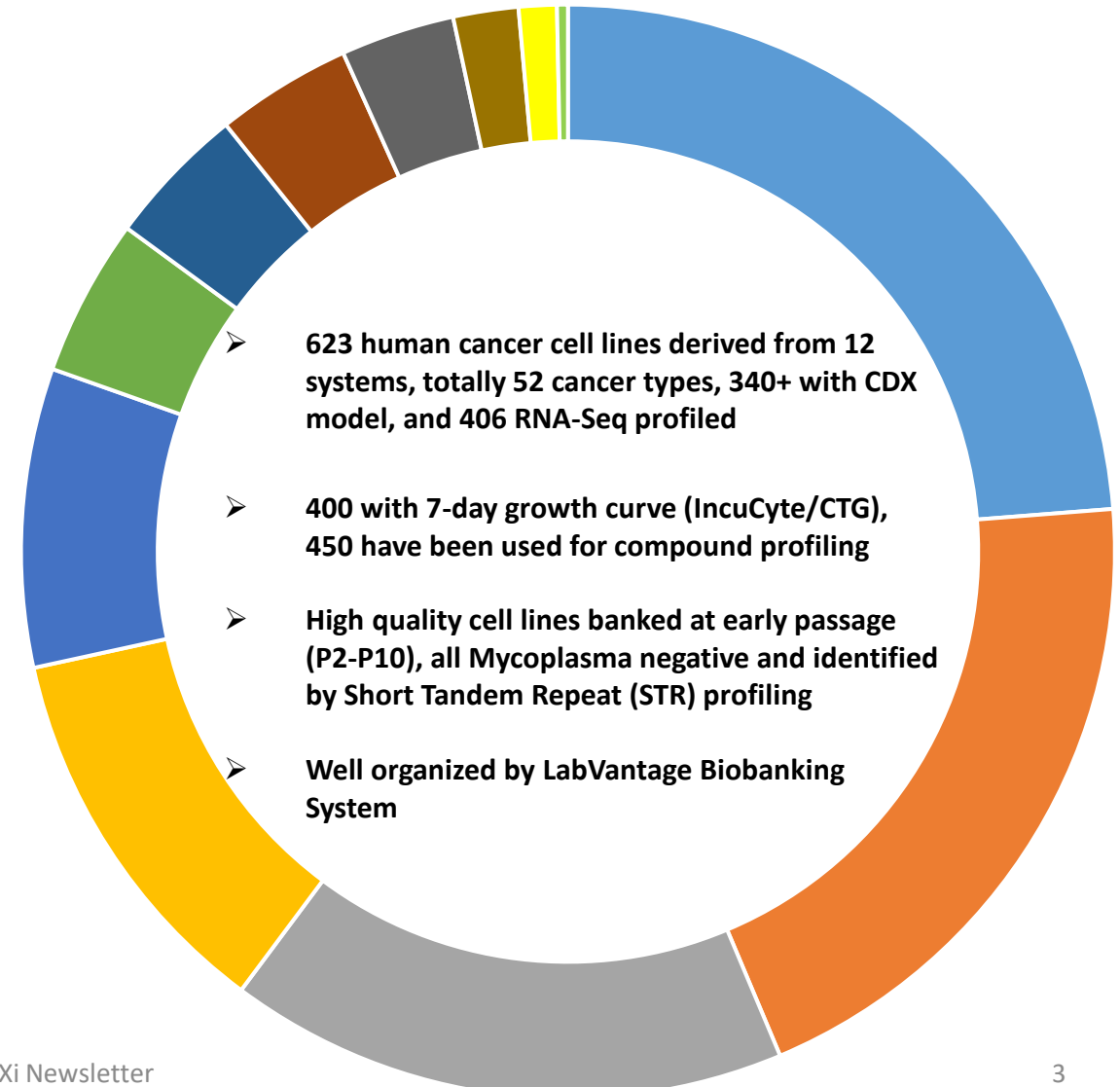
- ❖ Flexible and diverse service models: **Economic panel package & Customized cell line selection strategy**
- ❖ High quality cell banking system: mycoplasma-proof, STR verified and RNA-Seq profiled
- ❖ Single agent and combination compound screening for potency (% inhibition & EC50) and synergy (combination index CI)
- ❖ Professional design with stringent quality control of study results
- ❖ A database of cell growth curve and Standard of Care (SoC) validation data provides guidance for cell model selection
- ❖ Optional bioinformatics analysis for in-depth mechanism study
- ❖ Integrated with downstream pharmacology services, with 340+ CDX models ready-for-use

# More than 600 Human Cancer Cell Lines for Panel Screening

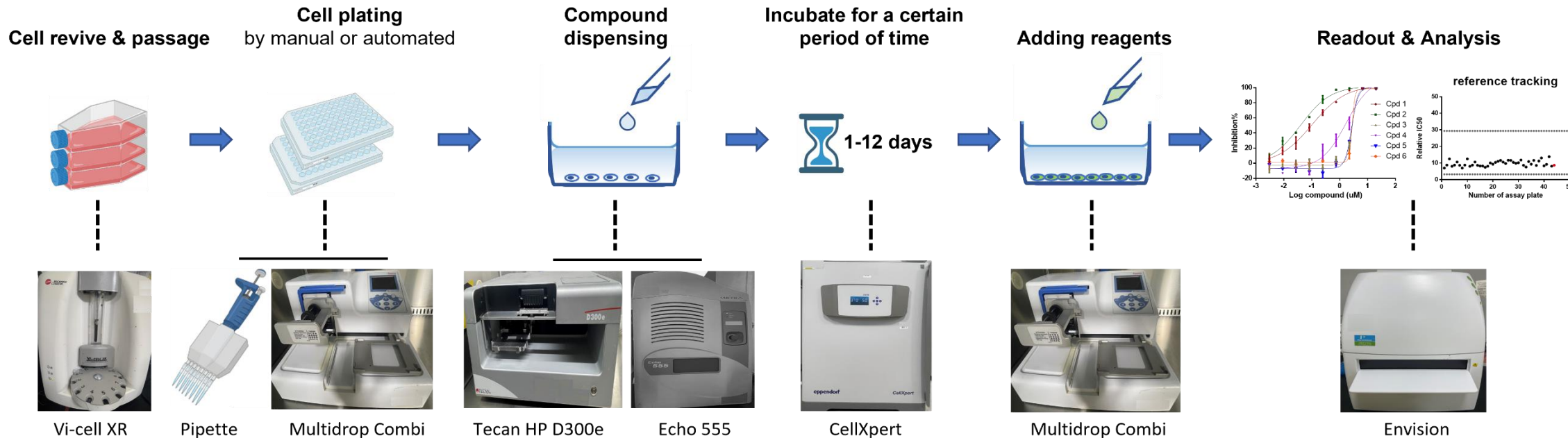
Cancer Types by System	Cancer Type	# of cancer type	# of each system
Lung	Lung	148	148
Digestive System	Colon	36	124
	Liver	19	
	Pancreatic	24	
	Esophageal	16	
	Gastric	15	
	Cecum	6	
	Rectal	4	
	Cholangiocarcinoma	2	
	Gastrointestinal stromal tumor	1	
	Duodenal cancer	1	
Blood and Lymph System	Lymphoma	52	103
	Leukemia	40	
	Myeloma	10	
	Thymic carcinoma	1	
Breast	Breast	71	71
Reproductive System	Ovarian	21	55
	Endometrial	14	
	Cervix	8	
	Uterus Sarcoma	3	
	Gestational choriocarcinoma	1	
	Prostate	7	
	Testicular germ cell tumor	1	

Cancer Types by System	Cancer Type	# of cancer type	# of each system
Brain and Nervous System	Glioblastoma	9	29
	Neuroblastoma	8	
	Medulloblastoma	4	
	Astrocytoma	3	
	Neurofibromatosis	2	
	Neuroglioma	1	
	Neuroepithelioma	1	
	Primitive neuroectodermal	1	
	Skin	Melanoma	
Epidermoid Carcinoma		1	
Neuroendocrine skin carcinoma		1	
Urinary System	Bladder	15	25
	Kidney	10	
Bone and Soft Tissue	Osteosarcoma	7	21
	Rhabdomyosarcoma	6	
	Ewings Sarcoma	3	
	Synovial sarcoma	3	
	Fibrous Histiocytoma	1	
	Fibrosarcoma	1	
Head and Neck	Head and Neck	2	12
	Tongue	4	
	Mouth	1	
	Nasal septum	1	
	Nasopharyngeal cancer	1	
	Pharyngeal	2	
	Salivary gland	1	
	Endocrine System	Thyroid	
Adrenal		1	
Eye	Retinoblastoma	2	2

Cancer Types by System



# Standard Practice for Panel Profiling



- LabVantage Biobanking System with high quality cell storage source
- Standardized cell recovery and culture to ensure the cells are in good condition and in the logarithmic growth phase
- Appropriate seeding density according to the growth curve and cell doubling time
- Target-based customized protocol and plate map design for dosages and treatment time

- Systematic compound manage and storage model
- Proper vehicle selection based on the nature of test article
- Diversified automatic dosing system for both aqueous or organic solution
- Cross QC for compound position

- Ensure adequate incubation condition for short-term or long-term treatment
- Pay attention to the precipitation of test compound
- Endpoint confluence 60%-80%
- Optional WuXi AppTec integrate services, e.g. FBS binding test, LC-MS concertation test, permeability test

- Standardized QC criteria: Z factor > 0.5, CV <15%
- Rich experience in data analysis and optimal parameters to fit the curve and EC50s determination
- Reference QC tracking

# Economic Cell Panel Package

Economic cell panel packages provide a **cost-effective** cytotoxicity and efficacy study of your test articles on well-validated cell line matrix. The screening cell line packages are established by deep analysis of drug sensitivity, tumor genomics with RNA-Seq and encompassing large-scale cancer types. The service packages are diverse. You could choose the full-scale, common & rare or a more focused, tissue-specific cancer types panel according to your drug development process.



## Service content and advantage

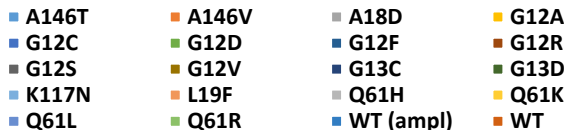
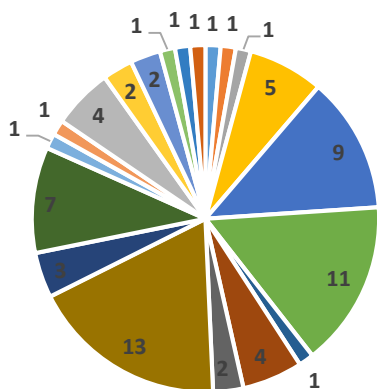
- ❖ Seeding density from cell growth curve
- ❖ Select from high quality cell banking system
- ❖ Growth Inhibition measured by ATP levels
- ❖ Automatic drug delivery system
- ❖ QC against Standard of Care (SoC)
- ❖ Flexible selection of cell line matrix
- ❖ Identifying sensitive and resistant cells
- ❖ Single drug or combination drug
- ❖ Cost saving
- ❖ Optional bioinformatics analysis for genotyping
- ❖ Integrated with *in vivo* CDX model

Panel#	Item	Cancer type#	Cell line#
1	Large scale of cancer type	50	210
2	Common cancer type	14	142
3	Rare cancer type	36	68
4	NSCLC focused	NSCLC	40~50
5	Other Lung cancer focused	Lung only	90~100
6	Breast cancer focused	Breast only	60~70
7	KRAS mutation 3D CTG	13	~70

# KRAS Mutant Panel Profiling

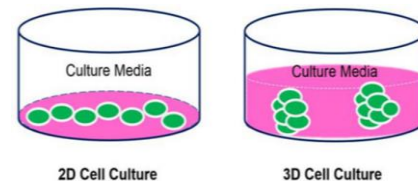
## Summary of KRAS Mutation Types

Types of KRAS mutation



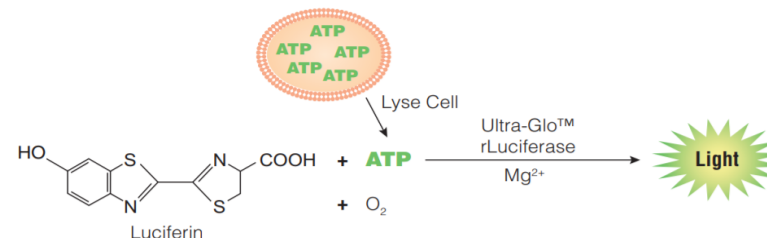
Types of KRAS mutation	Cell line #	CDX model #	RNA-Seq #
A146T	1	1	1
A146V	1	1	1
A18D	1	0	0
G12A	5	3	3
G12C	9	8	9
G12D	11	7	6
G12F	1	0	0
G12R	4	0	1
G12S	2	1	1
G12V	13	9	9
G13C	3	2	2
G13D	7	7	7
K117N	1	0	1
L19F	1	1	1
Q61H	3	3	2
Q61K	2	1	1
Q61L	2	2	1
Q61R	1	1	1
Wild Type (ampl)	1	1	1
Wild Type	1	0	1

## CellTiter-Glo® 3D Cell Viability Assay principle

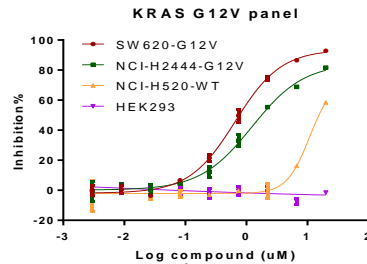
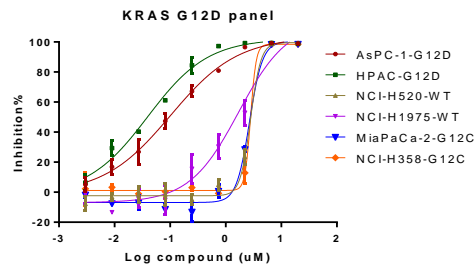
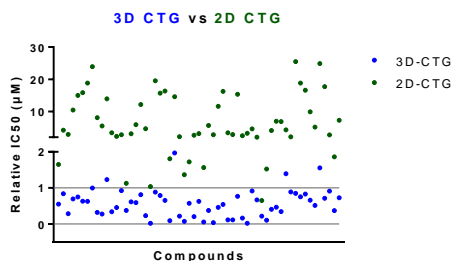


Compared with the 2D tumor model, the phenotype of cells in the 3D tumor model is closer to the expected results of oncogenes and tumor suppressors.

	CellTiter-Glo	CellTiter-Glo 3D
Applicable cell size	<350 μm	700 μm
lysis ability	++	+++++



## Representative data of 3D-CTG with reference compound



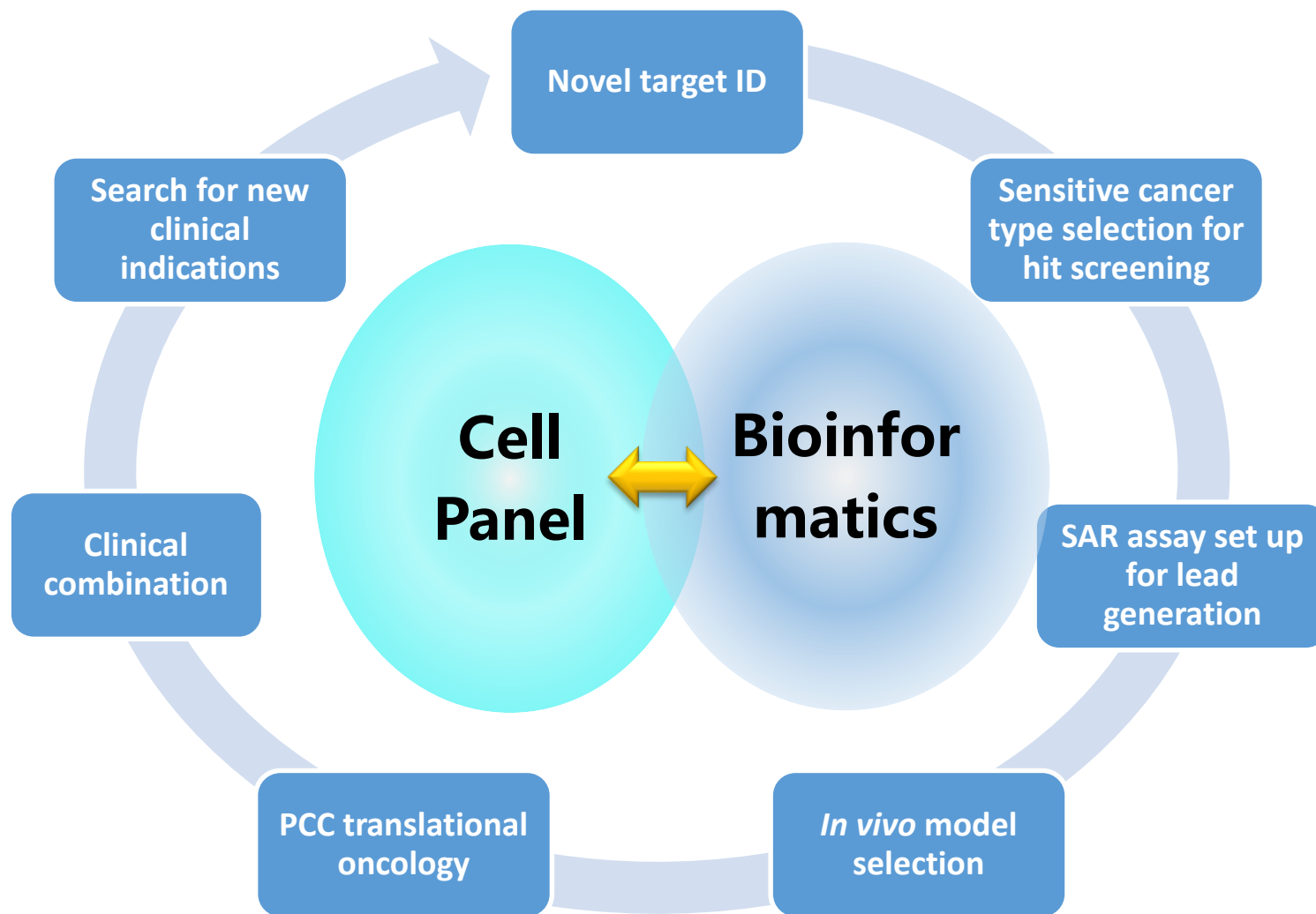
- For screening of compounds targeting KRAS, 3D-CTG is more sensitive and suitable than 2D-CTG.
- Good sensitivity of 3D microtissues after comparing with different viability assays.
- Based on a simple model that effectively simulates tumor formation *in vitro*, ULA microtissues plate is utilized.

## Customized Cell Panel Service

The screening is performed with **customized cell line panel** based on the nature of target and the specific question to be addressed.

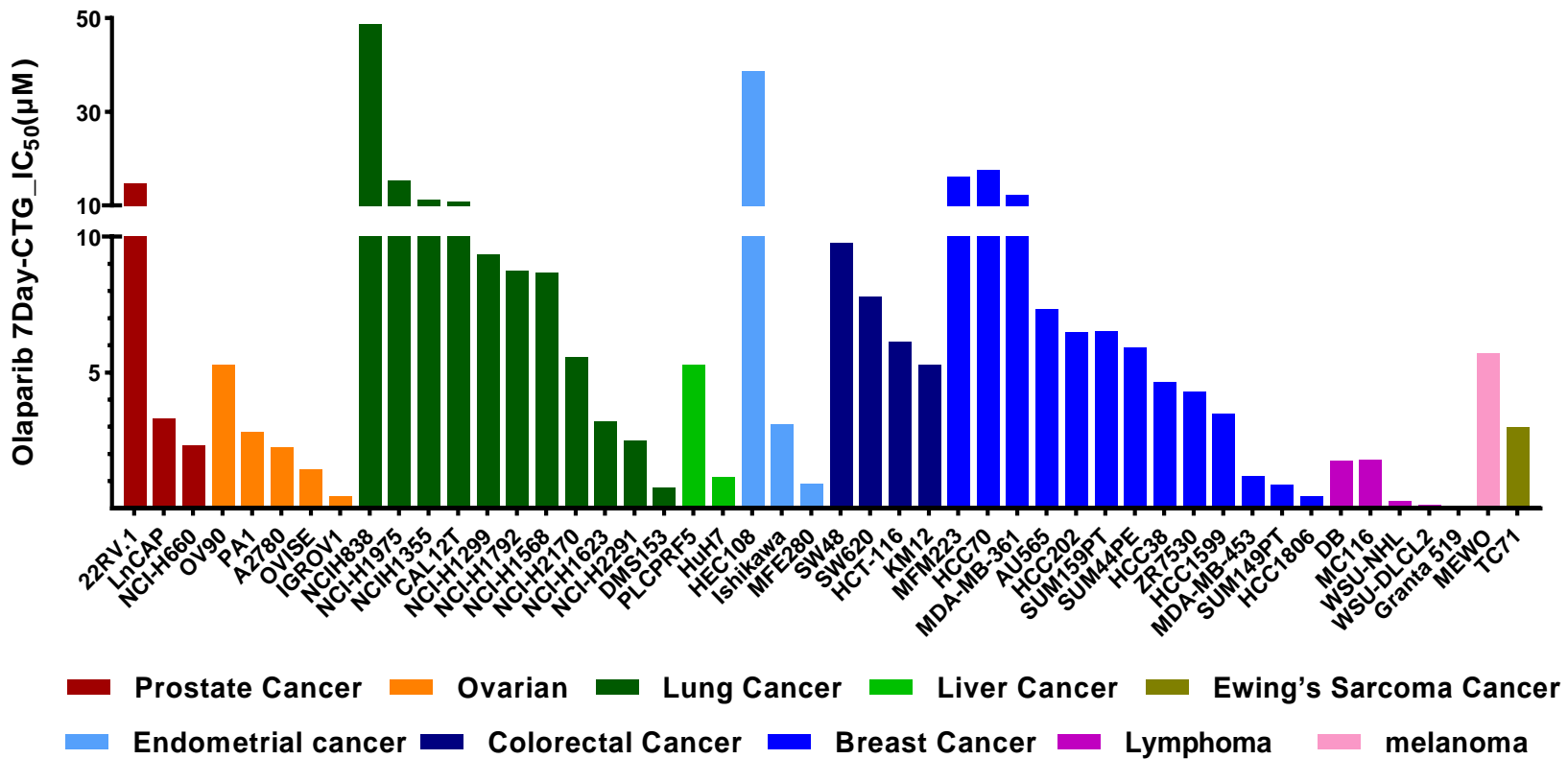
Bioinformatics could assist selecting cell lines matrix and data analysis with specific genomic signature or mutation, as well as sensitive & resistant cancer types.

Customized cell screening tests can address numerous research questions throughout the discovery of anti-cancer drugs.



# Case study: Olaparib Sensitivity Test in Different Cancer Cell Lines

Cell Lines: 48  
Cancer Types: 10  
Treatment time: 7 days  
Measurement: IC50

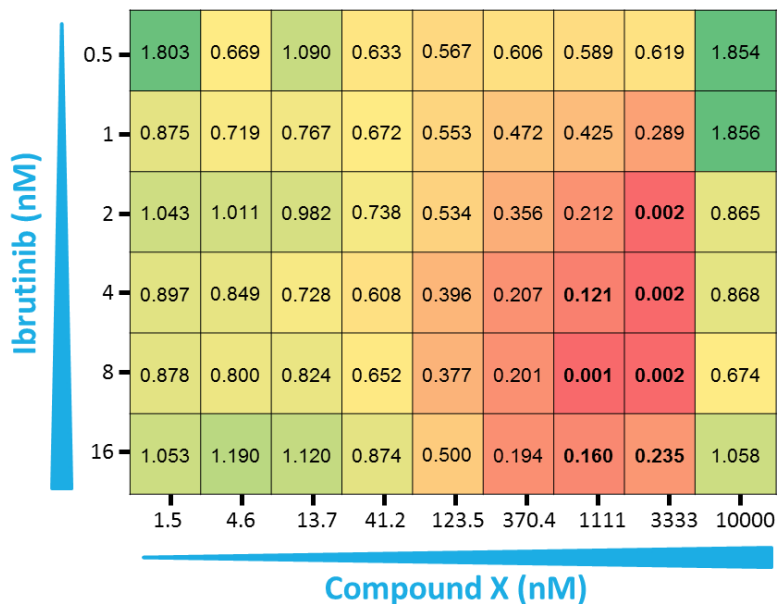




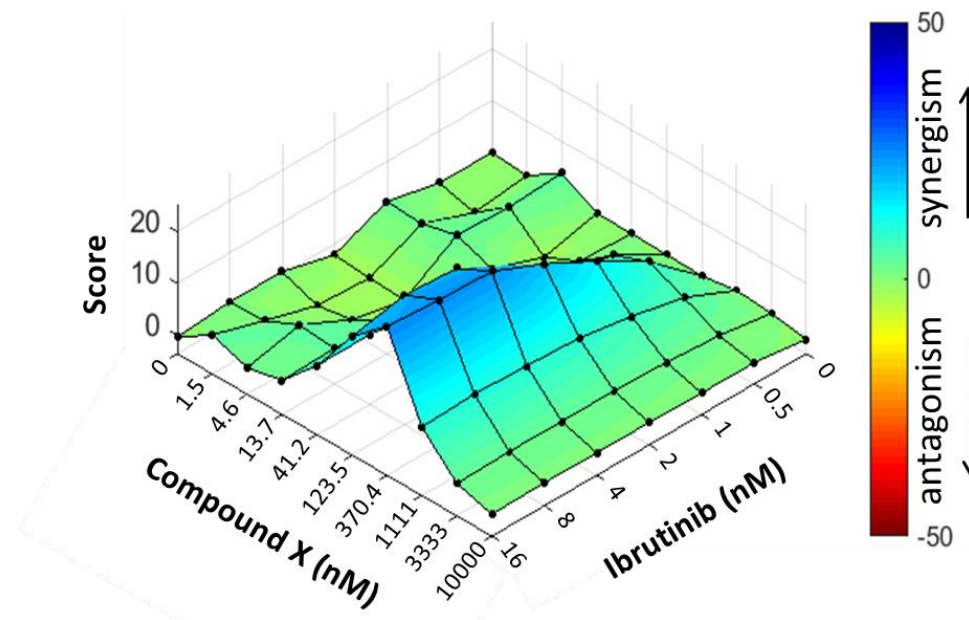
# Drug Combination Panel

## ➤ Custom drug combination study

- Study combination drug responses to identify synergistic and antagonistic interactions with Combination Index (CI) calculation
- Flexibility in assay formats, dose range, and treatment times



CI < 1 synergism  
 CI = 1 additive effect  
 CI > 1 antagonism



Surface model of synergy distribution

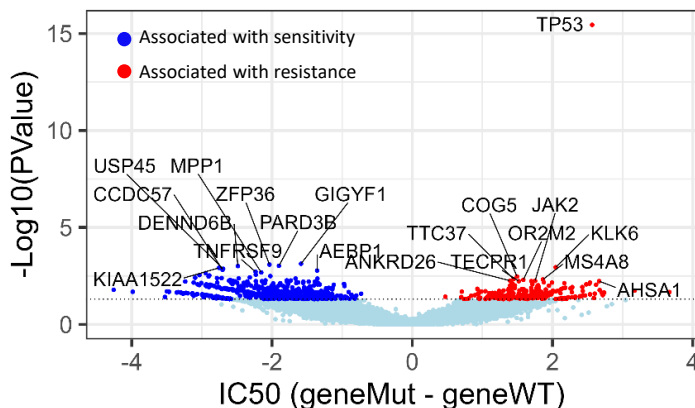
- Quantitative analysis demonstrated synergy of Compound X with ibrutinib, including at its lower dose.

# Multi-omics Profiling by Bioinformatics Core

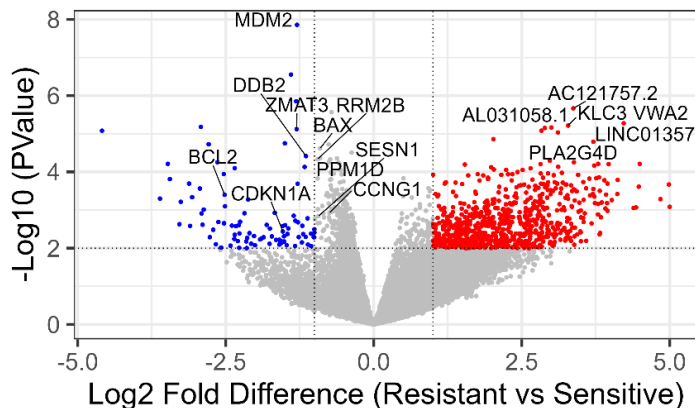
Our bioinformatics service is capable of discovering potential biomarkers related to drug response.

- Data analysis on multiple platforms (RNA-Seq/WGS/WES)
- Identification of the mode of action and suitable biomarkers
- 2000+ PDX models and cancer cell lines

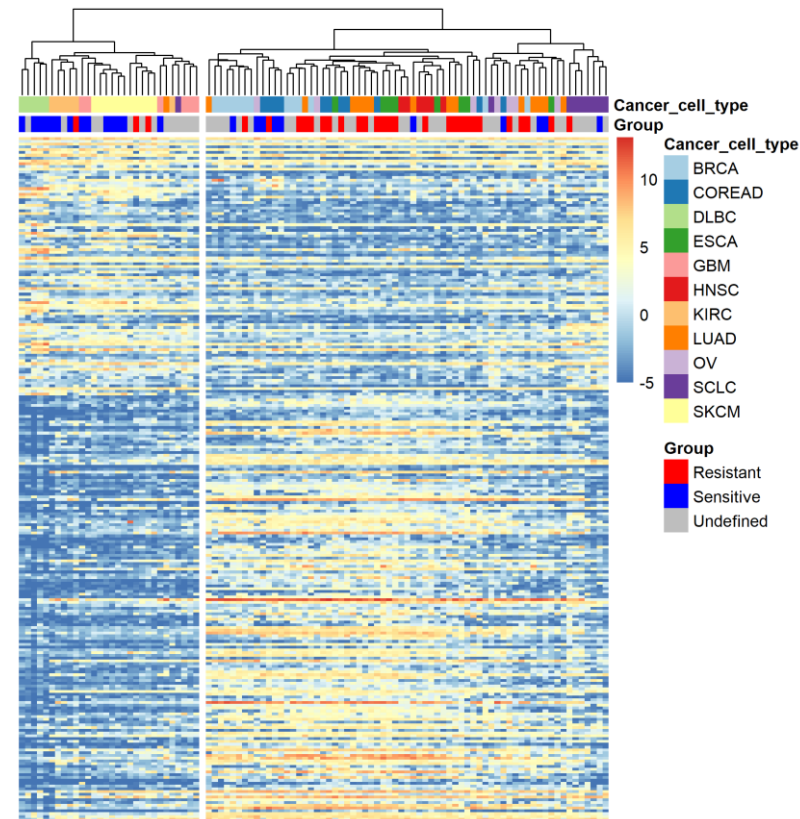
**(A) Mutation identified by WGS/WES**



**(B) Differential gene expression in response to drug treatment by RNA-Seq**



**(C) Unsupervised hierarchical clustering of cells with differential expression genes**



- (A) Genetic feature profiling in a panel of 143 human cancer cell lines revealed that TP53 mutations strongly indicate cell resistance to Nutlin-3a, an MDM2 inhibitor.
- (B) Gene expression differential profiling for 97 cell lines showed that in addition to MDM2, a panel of genes (BCL2, BAX, DDB2, CDKN1A, CCNG1, RRM2B and PPM1D) associated with TP53 signaling pathway were downregulated, supporting the pivotal role of TP53 signaling pathway in Nutlin-3a efficacy.
- (C) Unsupervised hierarchical clustering 97 cancer cell lines using the differential expression genes from Panel (B) indicated that DLBCL cells seems to be more sensitive to Nutlin-3a treatment.



# OUR COMMITMENT

*Improving Health. Making a Difference.*

For questions and requests, please email to [OIU-BD-Translation@wuxiapptec.com](mailto:OIU-BD-Translation@wuxiapptec.com)



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