



SCREEN IN 3D

Cancer Drug Screening & Profiling

HIGH THROUGHPUT
SERVICES

Personalised medicine
Miniaturisation
Combinatorial studies
3D & Co-Culture



SCREEN IN 3D

INTRODUCTION

The challenges in developing successful cancer therapeutics is not just limited to the discovery of new drug therapies. Intra-patient tumor heterogeneity, rapid development of drug resistance/tumor relapse and adverse drug reactions post treatment pose enormous challenges there is immense need for ex vivo platforms that show high reliability and predictability.

In recent years 3D ex vivo microfluidic technologies have emerged as important tools in cancer research and drug discovery. These platforms show great promise in various applications, including rapid genome sequencing, drug activity profiling, and assessing changes at the molecular level post drug treatment.

WHY USE ONCOSCREEN



RELEVANCE

Making drug discover more closely relevant to what happens in the body



REDUCE COSTS

Allowing drug companies to do 1000x more testing for the same dollar spend



COMBINE

Facilitating combination therapy that cancer drug companies and health services need



REDUCE RISKS

Reducing drug companies' risk of failure



PERSONALISE

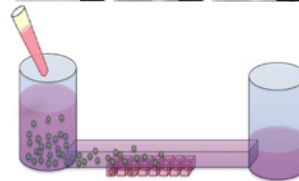
Providing a companion diagnostic platform to the personalised medicine sector

OUR SERVICES

MODELS

- Cell Lines (standard/CRISPr)
- Patient Derived Tumor Cells
- PDXs

ASSAY FORMAT

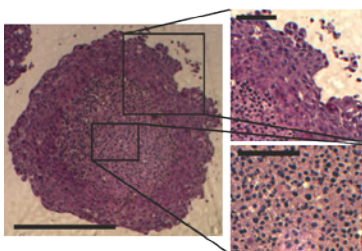


Cell line screening device

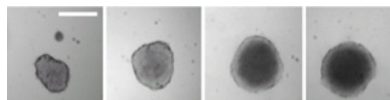
COMPOUNDS

- Small/targeted Molecules
- Antibodies

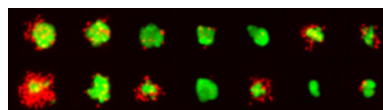
READOUTS



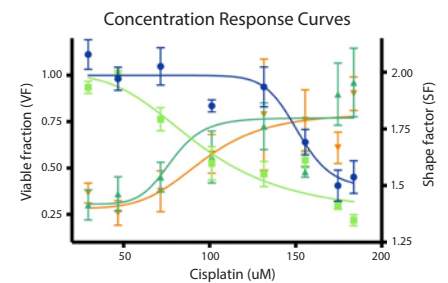
IHC evaluation



Spheroid shrinkage/growth



Viability

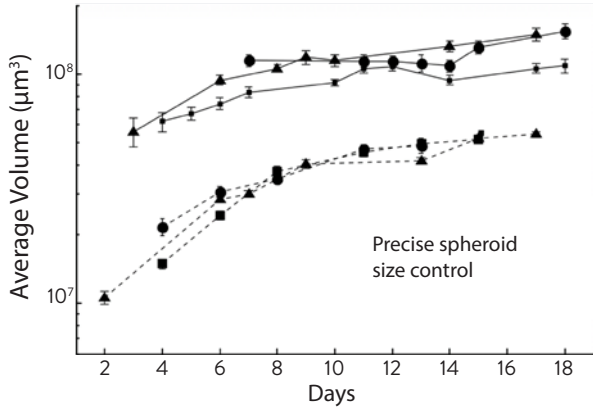


Spheroid shape factor and viable fraction

OUR SERVICE OFFERS MULTIPLE END-POINTS

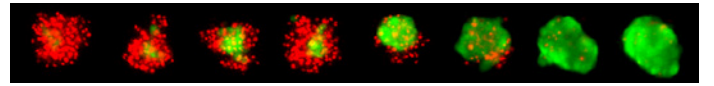
We offer multiple end point measurements to assess spheroid growth, health and drug effects, in addition to facilitating immunohistochemistry studies.

1. SPHEROID GROWTH



2. VIABILITY (LIVE/DEAD CELL STAINING)

Single treatment



150 μM \longrightarrow 15 μM

Cisplatin, Docetaxol, Enzalutamide,
Abiraterone, Temozolomide

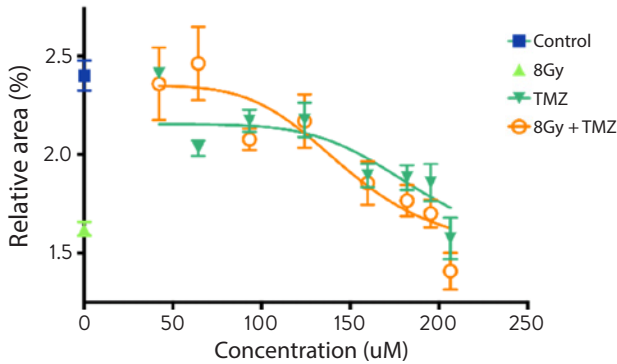
Dead - Propidium Iodide

Live - Flurescein Diacetate

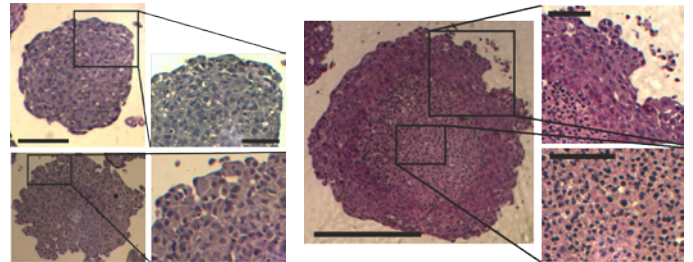
2. VIABILITY (LIVE/DEAD CELL STAINING)

Combination (radiotherapy and chemotherapy)

Relative area increase of U87 spheroids after exposure to temozolomide (TMZ) and/or x-ray exposure

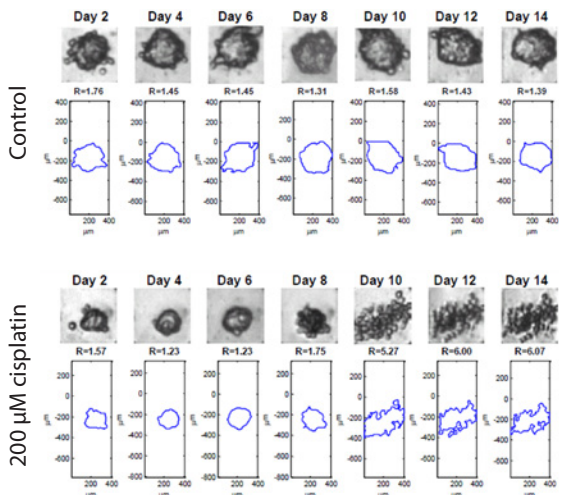


3. IMMUNOHISTOCHEMISTRY

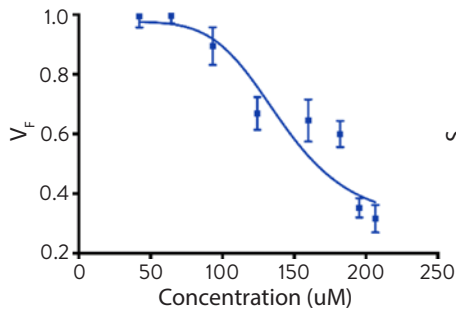


Spheroid retrieval and evaluation of specific biomarkers

4. ASSESSMENT OF SPHEROID VIABLE FRACTION AND SHAPE FACTOR

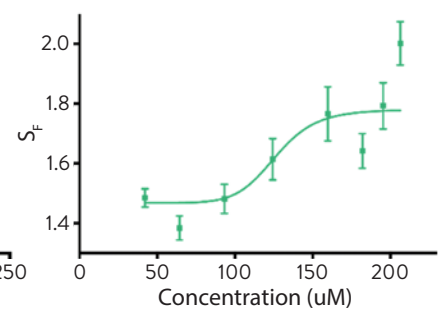


Viable fraction of UVW spheroids after cisplatin treatment



	Vf - UVW - Cisplatin
EC50	= 141.6

Shape factor of UVW spheroids after cisplatin treatment

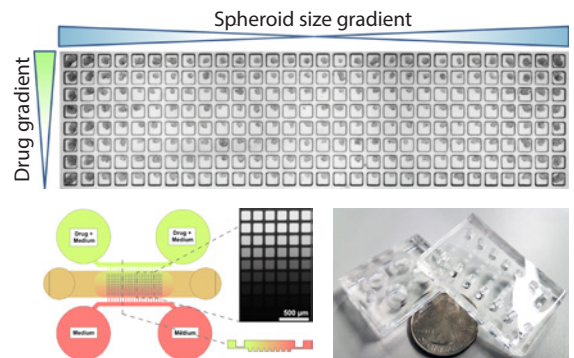


	Sf - UVW - Cisplatin
EC50	= 126.4

Assessment of tumor spheroid size and volume shrinkage post Cisplatin exposure using custom software image analysis tools

MICROFLUIDIC TECHNOLOGY ALLOWS

- Data throughput >100-fold than any other spheroid technology
- As low as 10k cells generates up to 100 spheroids
- Compatibility with robotic handling and microscopy interfacing
- Cost-effective screening: up to 8 concentration points per device (single and combinations)
- Radio-chemo combinatorial tests
- Long term culture of 3D multicellular spheroids



VALIDATED MODELS

CELL LINES INCLUDING

- Glioma
- Liver cancer
- Prostate CRISPr with known mutation

PATIENT DERIVED TUMOR MODELS

- Ovarian cancer
- Prostate cancer
- Lung
- Breast

PATIENT DERIVED XENOGRRAFT MODELS (PDX)

- Pancreatic cancer

MODELS UNDER DEVELOPMENT

- Immunotherapy models
- Oncolytic virus studies
- Custom cell line development and patient derived tumor models available

SETTING UP SERVICE PROJECT

1. CHOOSE MODEL TYPE

- Cell lines (standard)
- CRISPr cell lines
- Patient derived tumor models
- Patient derived xenograft models

2. INDICATE END POINTS OF INTEREST

- Tumor Spheroid shrinkage
- Spheroid viability (Live/Dead cells)
- Proteomics/transcriptomics analysis
- Cytokine profiling
- FACS analysis
- Assess apoptotic events
- IHC based Biomarker analysis

