

Contract Research & Provision

Long term-culturable patient-derived tumor organoid

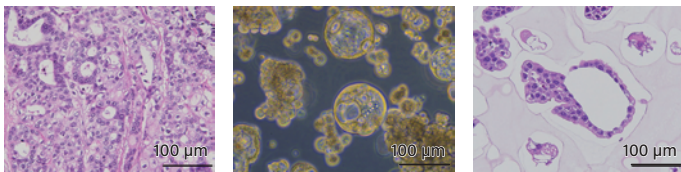
F-PDO®

Patient-derived tumor organoid (PDO) established from Japanese patients in Fukushima project.

Features

- ✓ Characteristic similarity between F-PDOs and source tumor tissues have been confirmed by analyses of histological, whole exome and comprehensive gene expression
- ✓ The assay system for F-PDOs makes it possible to evaluate anticancer agents under conditions that are more reflective of clinical conditions than conventional methods

Images of endometrial F-PDO and the source tumor



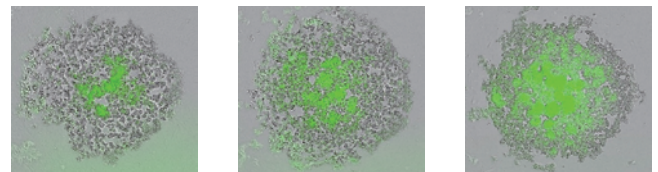
HE stained image of the tumor tissue

Phase-contrast image

HE stained image

Apoptosis activity assay (caspase activity)

Lung F-PDO (EGFR L858R: erlotinib-sensitive mutant)



No treatment

25 μM paclitaxel

25 μM erlotinib

- ✓ Drug sensitivity of F-PDOs differ from conventional cancer cell lines that may not reflect the characteristic of the source tumor tissues
- ✓ Possible to grow and maintain by *in vitro* culture
- ✓ Possible to assay under clinical conditions using various high-throughput methods
- ✓ Possible to xenograft into immunodeficient mice
- ✓ HLA type has been identified

Providable data

- Growth inhibitory activity
- Comparative analysis of conventional anticancer agents
- Gene expression analysis
- Whole exome analysis
- Clinical information
- Gene expression and genome analyses of the source tumor tissues of F-PDOs

✉ Contact information

Summit Pharmaceuticals International

For purchase orders and inquiries regarding F-PDO products and the related service, please contact Summit Pharmaceuticals International Co. who is the official distributor.



Website

<http://www.summitpharma.co.jp/english/index.html>



Email address

organoids.japan@summitpharma.co.jp

For more details and technical information, please refer to the following site:

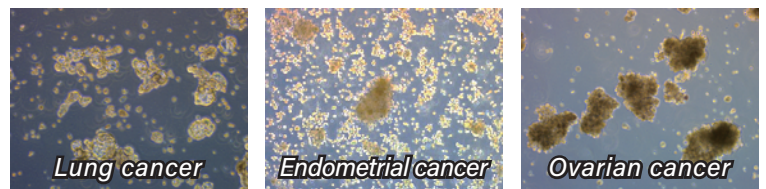


<https://www.fmu.ac.jp/home/trc/en/contract-research-provision/f-pdo/>

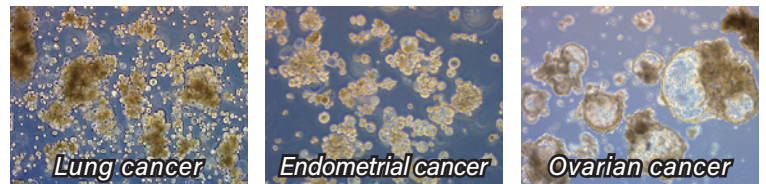


F-PDO[®] lines

Uterine cancer	34	Pancreatic cancer	2
Lung cancer	23	Kidney cancer	2
Ovarian cancer	13	Fallopian tube cancer	1
Colorectal cancer	5	Bile duct cancer	1
Brain neoplasms	2	Gastric cancer	1
Peritoneal cancer	4	Bone tumor	1
Malignant melanoma	6	Esophageal cancer	1
Soft tissue tumor	3	Leukemia via PDX	3
Breast cancer	2	-	-



Total: 104 lines



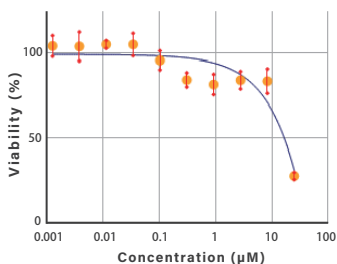
Growth inhibitory assay using paclitaxel

F-PDOs

Lung cancer

RLUN004

(adenosquamous carcinoma)

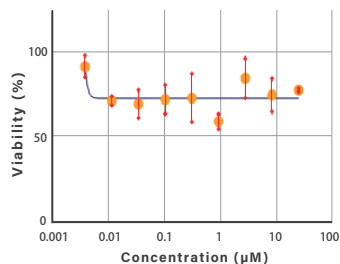


Low sensitivity

Lung cancer

RLUN002-1

(adenocarcinoma)

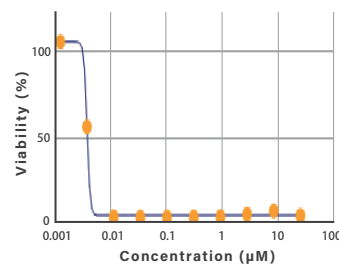


Cancer cell lines

Lung cancer

LK-2

(squamous cell carcinoma)

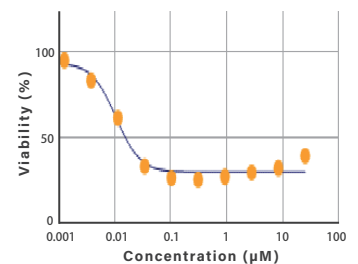


High sensitivity

Lung cancer

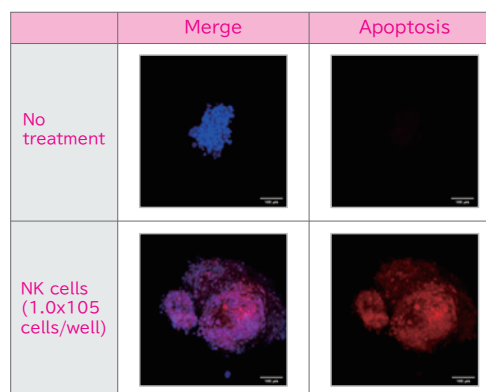
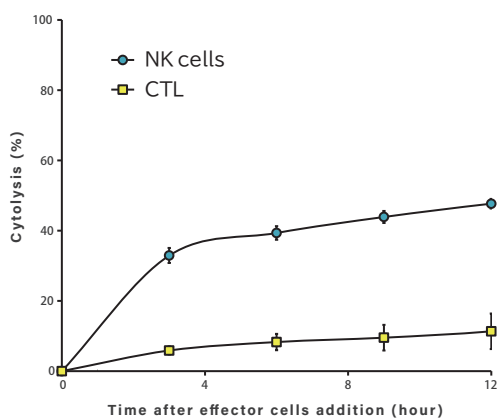
NCI-H1975

(adenocarcinoma)



Cytotoxic activity using CTL and NK cells

Lung RLUN021 F-PDO : effector cells = 1 : 10



Blue : nucleus Red : apoptotic cells

NK cells and CTLs caused cytotoxicity to about 50% and 15% of lung cancer-derived F-PDO, respectively. Image analysis also confirmed the induction of apoptosis by NK cells.

Reference

Higa et al., J Vis Exp. 172, e62668 (2021), Takahashi et al., Oncol. Lett. 21, 406 (2021), Takahashi et al., Cells. 8, 481 (2019), Tamura et al. Oncol. Rep. 40, 635-646, (2018)