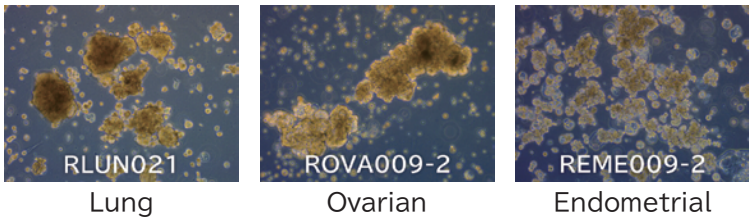


Evaluation of immune response using F-PDO[®] and immune cells

Cancer immunotherapy-related cell assays using F-PDO[®]

In vitro immune oncology assays using F-PDO[®]



- Challenges of the conventional approach
 - ➔ Difficult to build an evaluation system
 - ➔ Cost is very high

F-PDO is one solution

- Fukushima project constructs assay system for immune oncology

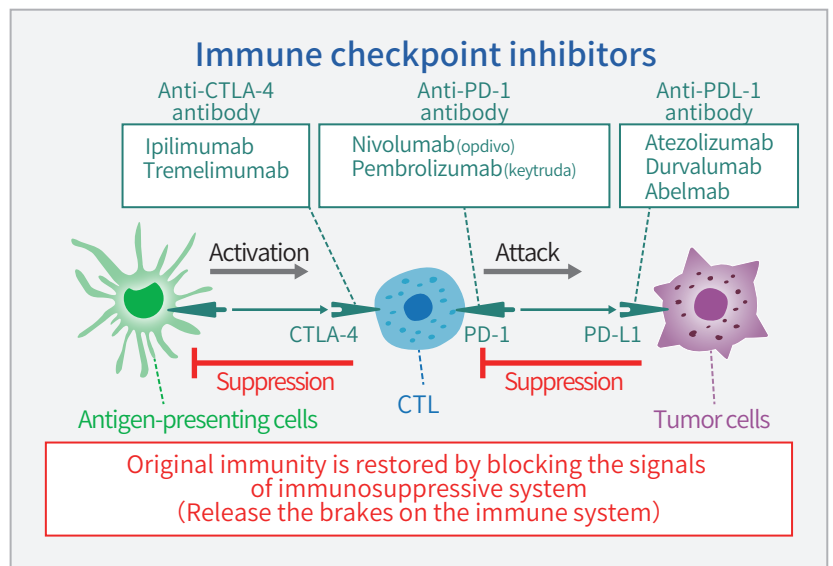
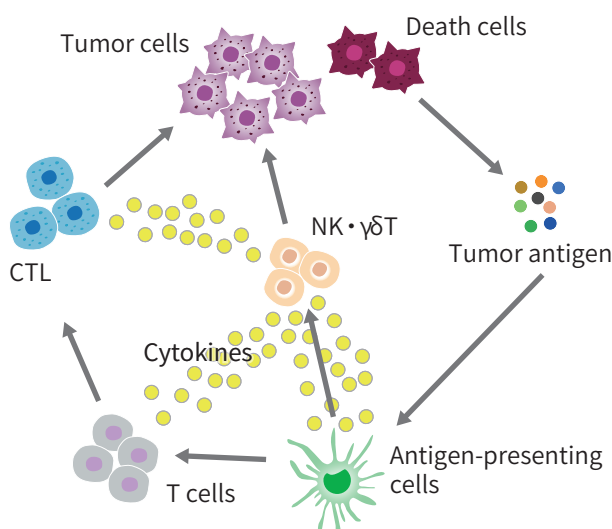
Advantage of F-PDO[®]

- ☑ Abundant data Whole-exome sequencing data, gene expression analysis data, clinical information of the source tumor, anticancer drug sensitivity data, etc.
- ☑ Fewer restrictions No success fee required, no restrictions on test content, approved for ethical review for research involving human subjects, etc.
- ☑ High cost performance Low cost, select a F-PDO from the acquired data, various assay systems have been constructed

Assay systems

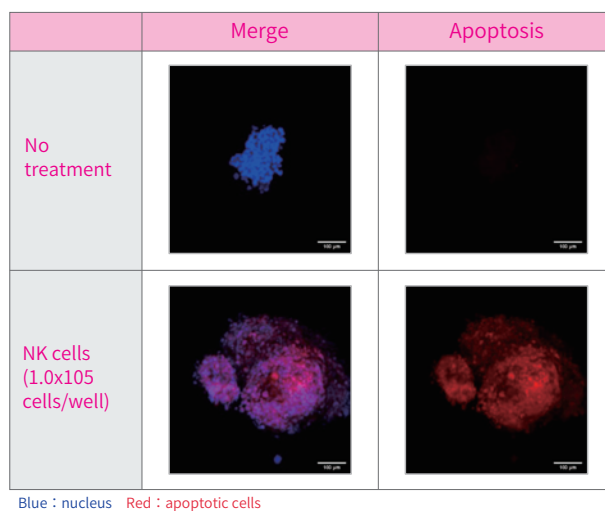
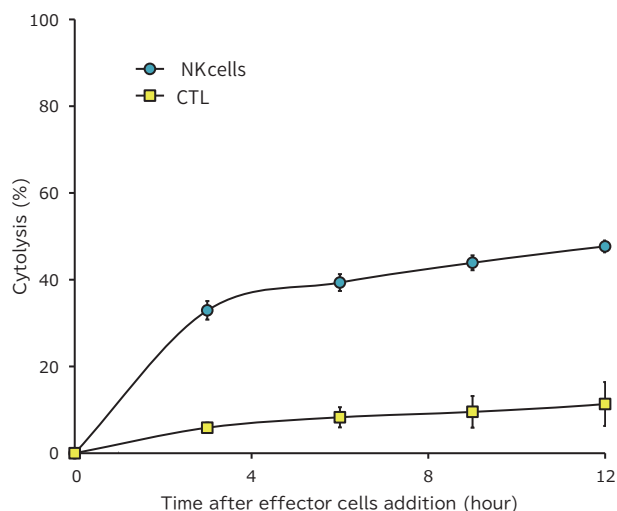
- ☑ Evaluation of NK cells and cytotoxic T lymphomas
- ☑ Evaluation of immune checkpoint inhibitors
- ☑ Evaluation of bispecific antibodies
- ☑ Evaluation of antibody-dependent cellular cytotoxic (ADCC) activity

Immune oncology



Cytotoxic activity using CTL and NK cells

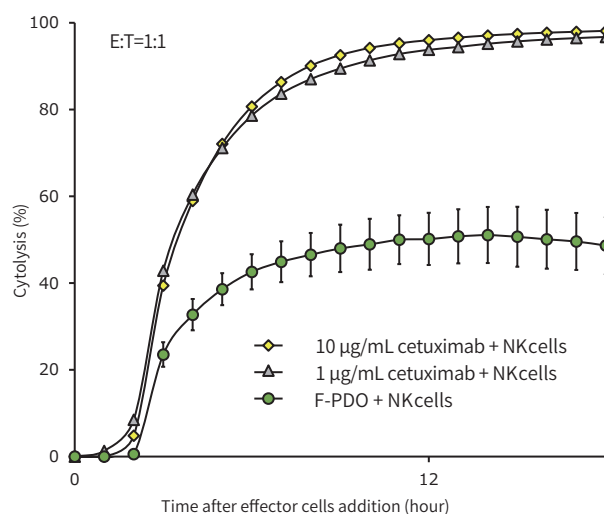
Lung RLUN021 F-PDO : effector cells = 1 : 10



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.

ADCC activity

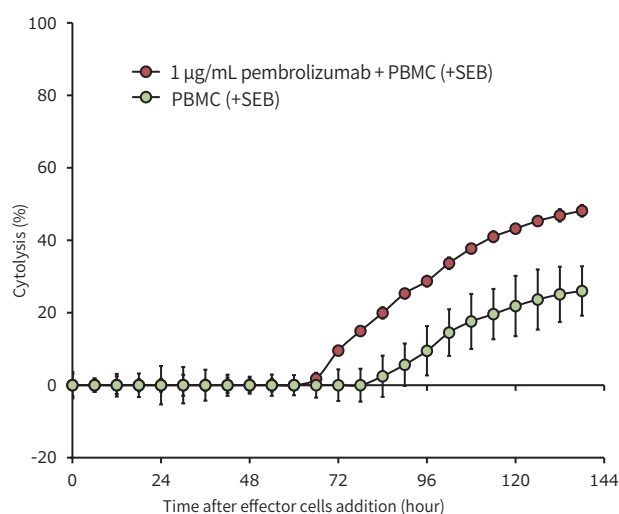
Lung RLUN007 (high expression of EGFR)



ADCC activity against F-PDO derived from lung cancer with high expression of EGFR with cetuximab, an anti-EGFR antibody, was observed. The cytotoxicity was about 50% higher than that of NK cells alone (green circle).

Immune checkpoint inhibitor

Lung RLUN016



The immune checkpoint inhibitor, pembrolizumab, increased the cytotoxicity against lung cancer-derived F-PDO by activated PBMC. The cytotoxicity was increased by about 20% compared to the PBMC-only treatment (green circle).

Reference Higa et al., J Vis Exp. 172, e62668 (2021), Takahashi et al., Oncol Lett. 21, 406 (2021).

Contact Us

Translational Research Center, Fukushima Medical University



E-mail

i-san-tr@fmu.ac.jp



Translational Research Center website

<https://www.fmu.ac.jp/home/trc/en/>

