vivia
BIOTECH

3D TME-Aligned Assays for Small Molecule Immunotherapies

Overview

The Tumor Microenvironment (TME) has a key role in Solid Tumor Therapy Screening. Vivia's ex vivo 3D TME-aligned model recapitulates original tumor microenvironment and promotes naïve behavior of tumor and immune cells, which are immunosuppressed.

Click to learn more

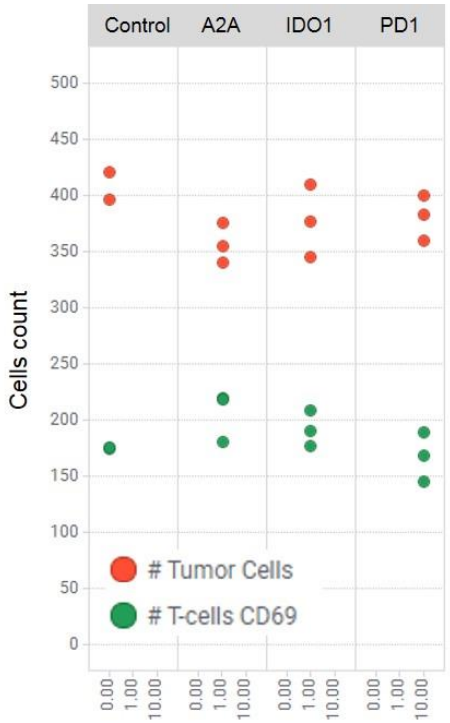
Click for custom assays in solid tumors

Click for custom assays in hematological malignancies

Santiago Grisolia 2
28760 . Madrid . Spain
(+34) 91 129 3151
admin@viviabiotech.com
www.viviabiotech.com

Standard ex vivo assays for IO drugs use activations of T cells by e.g. CD3/CD28 dynabeads, but these activated T cells do not kill tumor cells and thus lack half of the IO reaction. Our assays activate autologous Tumor Infiltrated Lymphocytes (TILs) through incubation with bispecific antibodies that generate the IO reaction: activated TILs killing tumor cells. We evaluate the activity of different IO drugs such as IDO1 or A2A in these assays on both T cell activation and tumor killing. We can also retrieve cells from the 3D assay at the end of treatment, enabling mode of action characterization by Flow Cytometry and description of genomic basis of resistance.

IO Drugs A2A, IDO1, PD1, Have no Activity Alone on Patient Samples



Need to generate IO reaction

(activated T cells killing cancer cells)

to study IO Drugs activity

Figure 1. Ovarian cancer sample with its own TILs E:T=1:2 (120 h incubation)

vivia BIOTECH

Overview

The Tumor Microenvironment (TME) has a key role in Solid Tumor Therapy Screening. Vivia's ex vivo 3D TME-aligned model recapitulates original tumor microenvironment and promotes naïve behavior of tumor and immune cells, which are immunosuppressed.

Click to learn more

Click for custom assays in solid tumors

Click for custom assays in hematological malignancies

Santiago Grisolia 2
28760 . Madrid . Spain
(+34) 91 129 3151
admin@viviabiotech.com
www.viviabiotech.com

IO Assay with BsAb as Reagent for T cell Activation Correctly Captures Substantial IO Activity of A2A, IDO1, and PD1

A2A, IDO1, PD1 alone did not activate T cells, nor did induce tumor cell kill

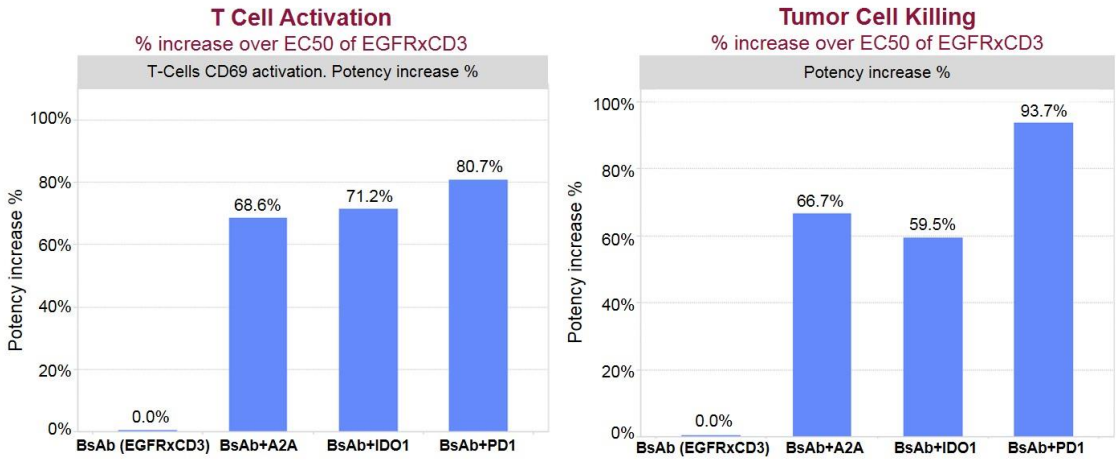


Figure 2. Activity of IO Drugs: A2A, IDO1, PD1 on Ovarian Cancer Autologous TILs (E:T=1:2)

IO Drugs Shift the Tumor Killing vs Doublets T Cells-Tumor Cells

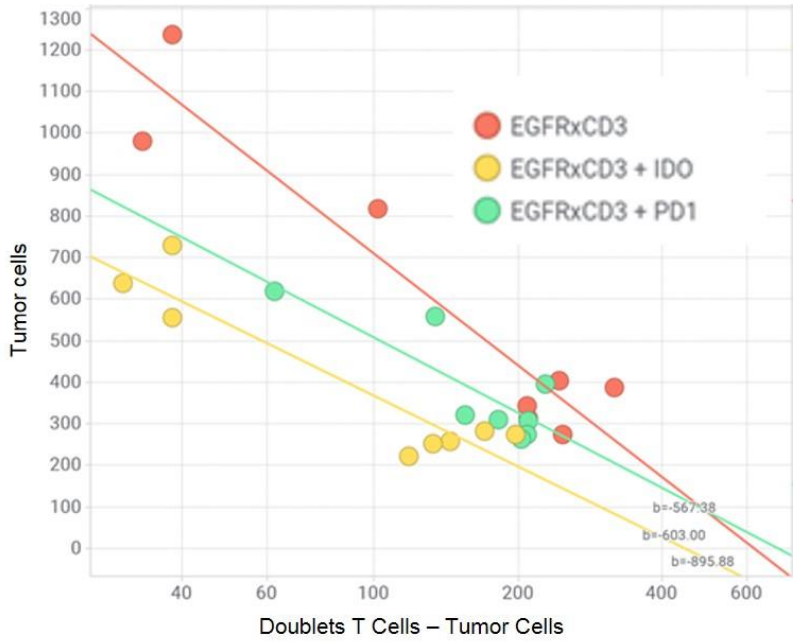


Figure 3. Tumor killing vs tumor-interacting T Cells show exponential curves, fitted to straight lines on log10 scale

vivia BIOTECH

Overview

The Tumor Microenvironment (TME) has a key role in Solid Tumor Therapy Screening. Vivia's ex vivo 3D TME-aligned model recapitulates original tumor microenvironment and promotes naïve behavior of tumor and immune cells, which are immunosuppressed.

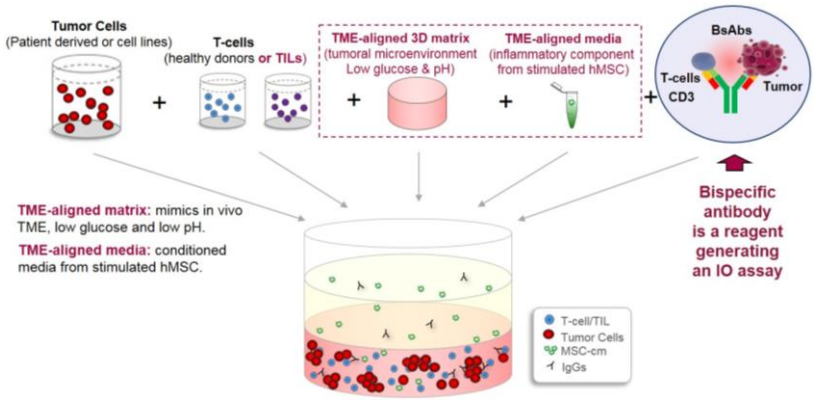
Click to learn more

Click for custom assays in solid tumors

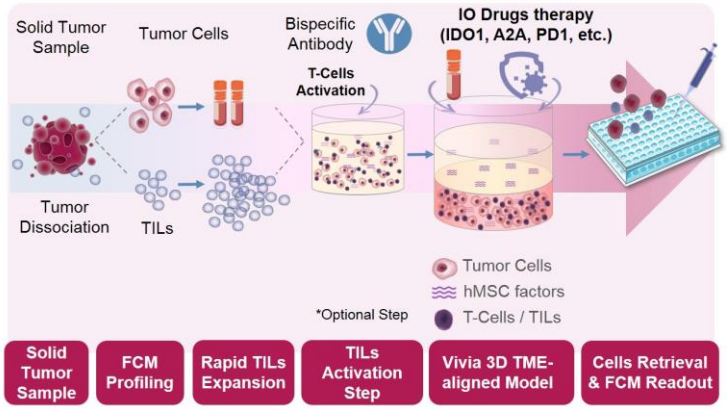
Click for custom assays in hematological malignancies

Santiago Grisolia 2
28760 . Madrid . Spain
(+34) 91 129 3151
admin@viviabiotech.com
www.viviabiotech.com

To study IO effects we generate an IO assay were T cells becomes activated and kill tumor cells selectively



TME-Aligned 3D Model for Immune Oncology Effects



We chose a **bispecific antibody** T cell engager **as a reagent** to generate the IO reaction with different IO Drugs

Highlights

- We can study the activity of IO drugs such as IDO1, A2A or PD1 using a BsAb as a T activator reagent
- IO drugs PD1 & IDO1 enhance T Cell tumor killing at low # doublets, while effect dissipates at high # doublets
- Doublets tumor-T cell identify the subset of activated T cells interacting with tumor cells
- Dose responses tumor cell counts vs #doublets can quantitate the activity of IO drugs
- Best models for IO drugs:
  - Immunosuppressor TME lowers T cell activation
  - Key differentiating factor among 3D models
- Disaggregating cells for flow cytometry enables powerful assays
  - Sorting resistant or other relevant cell subsets
  - Molecular profiling
- Access to cell lines & patient samples
  - Including autologous TILs for IO assays
  - Assays suitable for carcinomas