

3D TME-Aligned Assays for Immune Check Point Inhibitors (ICHP), Mono and Multispecific

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.

Standard ex vivo assays for IChPs use activations of T cells by e.g. CD3/CD28 beads, but these activated T cell 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 IChPs such as PD1 in these assays on both T cell activation (left panel below) and tumor killing (right panel below). In these graphs the bispecific antibody is just a reagent eliciting an IO reaction. We can also use standard CD3/CD28 for T cell activation. We 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 Assay Measures Activity of IO Drugs: PD1

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Click  for custom assays in solid tumors

Click  for custom assays in hematological malignancies

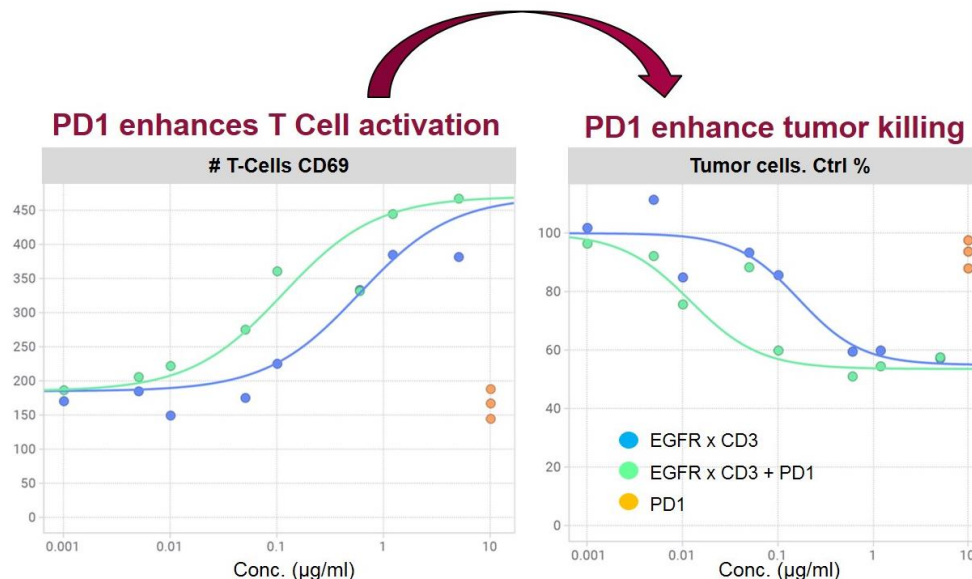


Figure 1. Ovarian Cancer with Autologous TILs (E:T=1:2)

PD1 Alone does not activate T cells, nor induce tumor cell killing
IO Assay with BsAb used as a reagent correctly captures substantial activity of PD1

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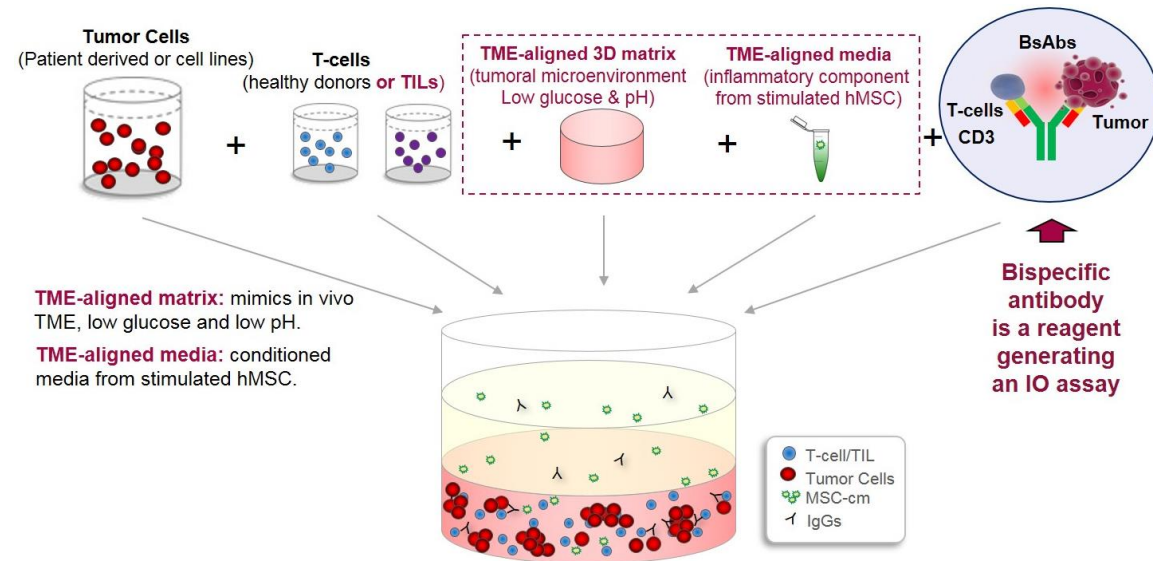
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To study IO effects we generate an IO assay where T cells becomes activated and kill tumor cells selectively



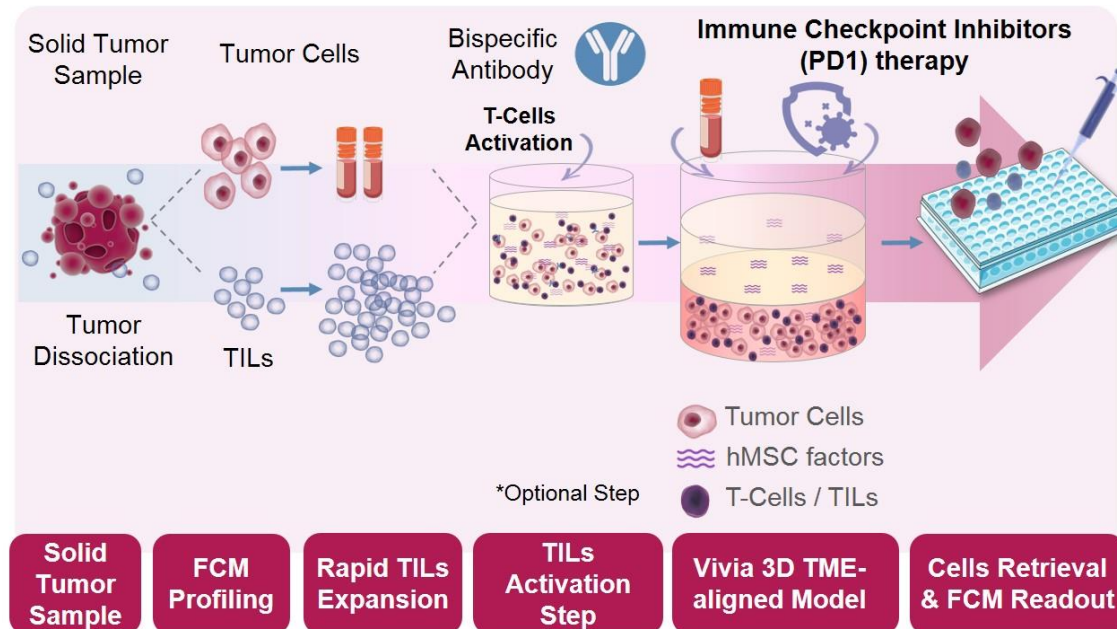
TME-Aligned 3D Model for Immune Oncology Effects

We chose a **bispecific antibody** T cell engager **as a reagent** to generate the IO reaction with PD1

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Highlights

- We can study the activity of IChPs such as PD1 using a BsAb as a reagent
- 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