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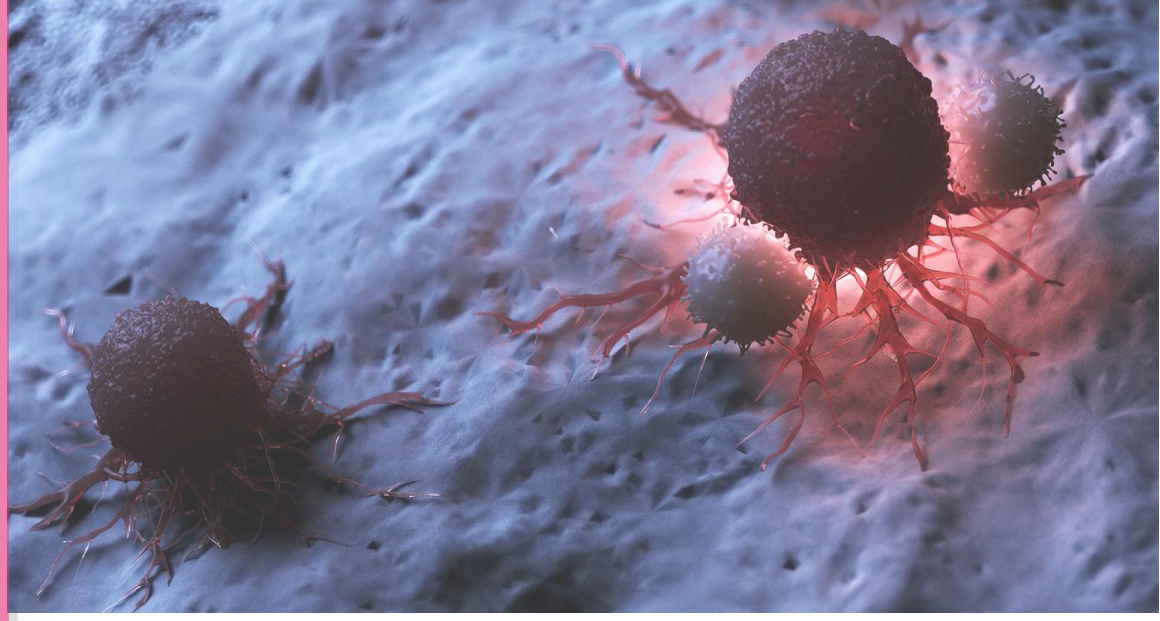
BIOTECH



Overview

The in vitro TME-aligned 3D model offers a well-controlled environment which can recreate the complexity of the TME and generate a reliable platform for studies on the effects of anti-tumor drugs. We developed a powerful *in vitro* model that recapitulates native T-Cells behaviour in Tumor Cell Killing.

TME-Aligned Model: Immuno-Oncology 3D Tumor Cell Killing by TILs (T-Cells) Assay

The Tumor Microenvironment (TME) has a key role in Solid Tumor Therapy Screening. The 3D TME-aligned model maintains native TME, respecting original patient cell populations and promotes naïve behaviour of tumor and immune cells.

Tumor cell lysis enhanced by Immune Therapeutic Agents can be evaluated in patient tumor samples and in well stablished tumor cell lines. Autologous Tumor Infiltrated Lymphocytes (TILs) are expanded from same patient sample and used as effector cells. Alternatively, we can use allogenic tumor cells, or allogenic healthy donor T-Cells.

The cell retrieval at the end of desired timepoints allows full mode of action characterization of tumor lysis by T-Cells driven by Immune Therapeutic Compounds.

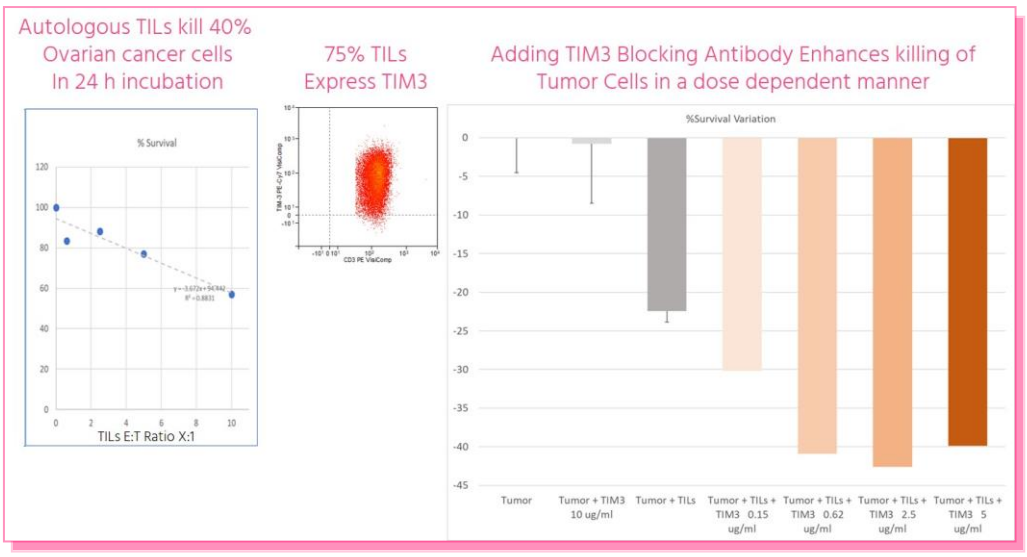


Figure 1 - Novel ex vivo solid tumor 3D assay using autologous TILs for Immune Check Points or other Immune Oncology drugs.

To learn more visit https://www.viviabiotech.com/immuno-oncology-tumor/

For custom assays visit https://www.viviabiotech.com/custom-assay-tumor/

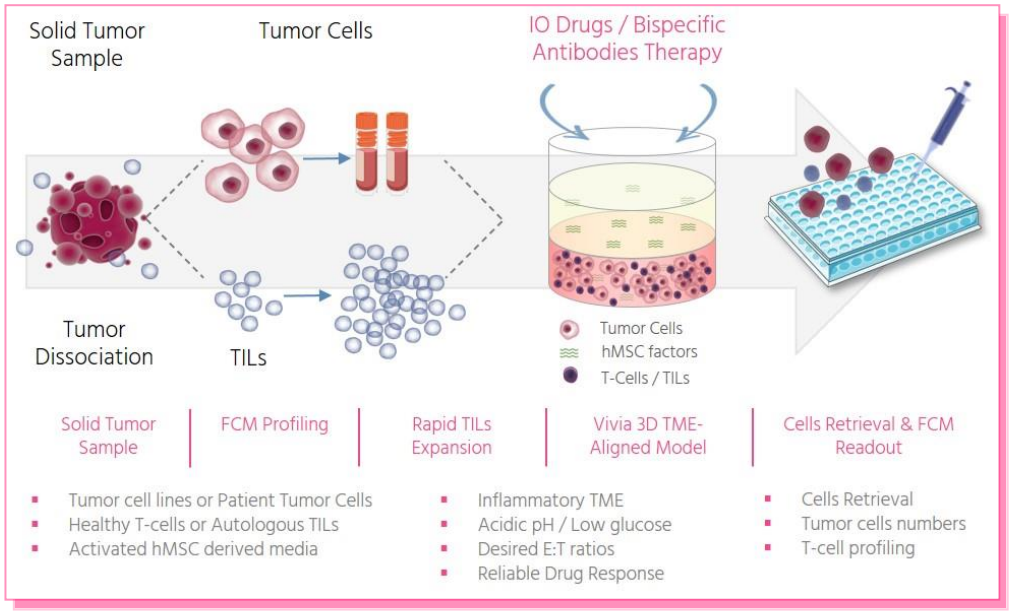


Figure 2 - Schematic view of 3D IO TME-Aligned Assay.

TME-Aligned Assay is totally flexible and can be adjusted to the need of desired drug screening.

Table - Custom assay variations.

Custom 3D IO TME-Aligned Model	
Tumor Cells	Solid Tumor Cell lines or Patient-derived Tumor Cells
T-Cells Source	Heathy PBMCs, healthy T-lymphocytes or Patient-derived TILs
Effector: Target Ratios	As requested by customer
IO Treatments	Immune Checkpoint Inhibitors, TILs, CAR-Ts, NKs, Antibodies, ADCs, multispecific antibodies, small molecules and others.
Timepoints	Flexible, up to 120h
Readout	Flow Cytometry: up to 8 different cell surface markers
Additional post-assay analysis	As requested by costumer: Cytokines array, molecular based analysis, imaging, and others.

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T lymphocytes used in TME-Aligned can derive from healthy donors: PBMCs or isolated T-lymphocytes, or from expanded Tumor Infiltrate Lymphocytes (TILs) from patient-derived material.

TILs are the key cells in Cancer Immunotherapy. The rapid expansion of autologous TILs provides enough number and quality of cells for customized in vitro experiments.

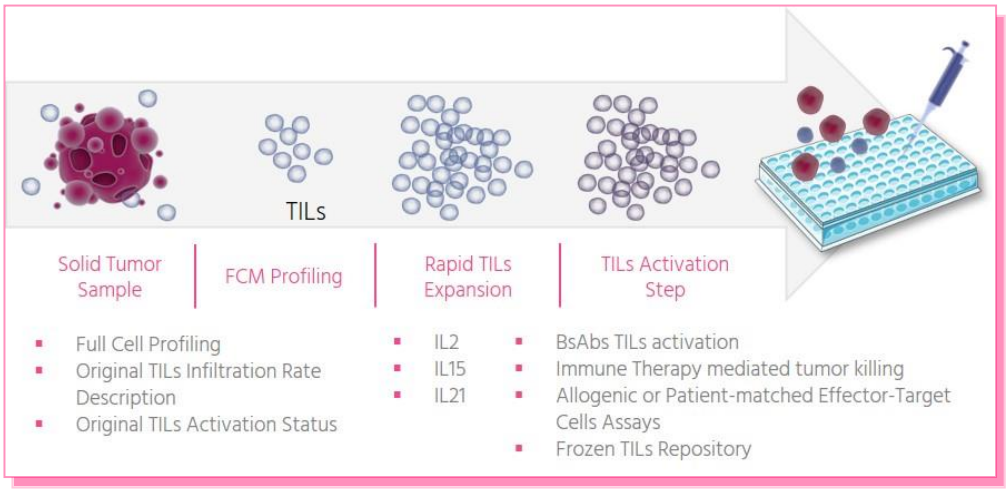

Figure 3 - Schematic view of in vitro Rapid TILs Expansion Protocol. To know more about Patients TILs in vitro expansion, visit https://www.viviabiotech.com/tils-expansion/

Representative data from TME-Aligned Assay is shown below from Allogenic or Autologous Tumor cells killing by heathy T-Cells or expanded TILs.

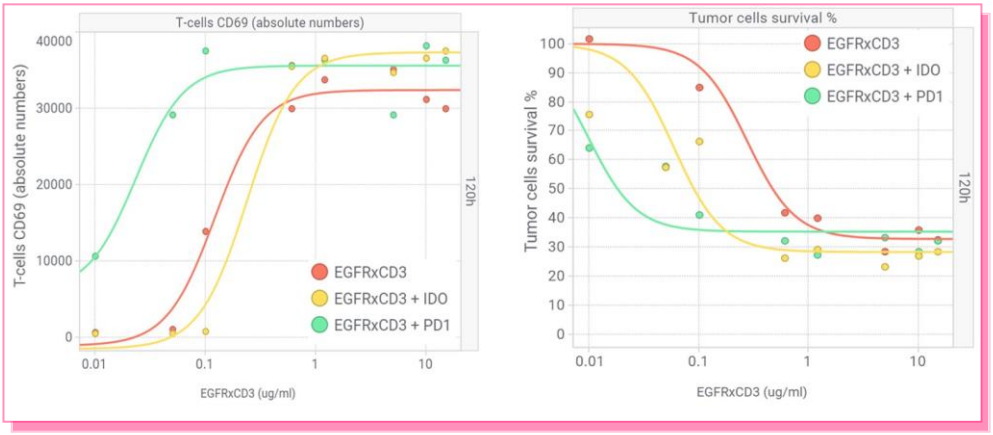

Figure 4 - Left panel: Healthy lymphocytes activation (CD69 expression) upon EGFRxCD3 bispecific antibody therapy associated with immune checkpoint inhibitors anti-PD-1 and IDO inhibitor. Right panel: Tumor cells survival upon incubation with healthy T-cells and EGFRxCD3 bispecific antibody therapy associated with immune checkpoint inhibitors anti-PD-1 and IDO inhibitor.

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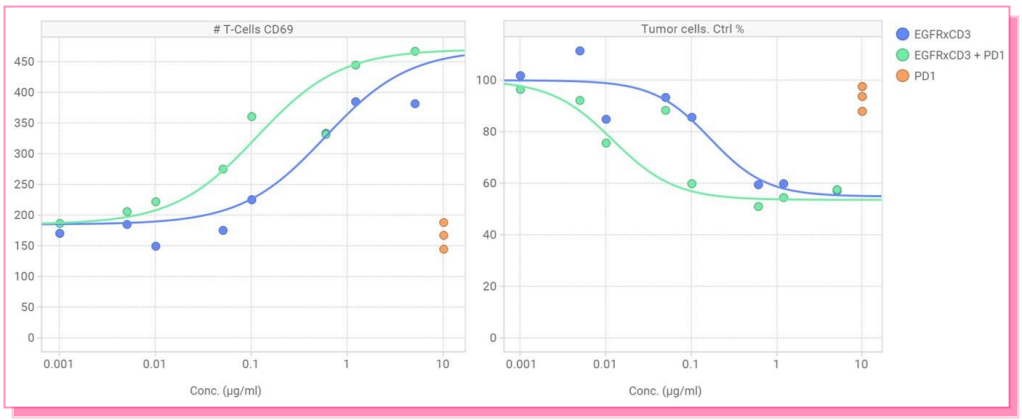

Figure 5 - Left panel: Patient-derived ovary cancer expanded TILs activation (CD69 expression) upon EGFRxCD3 bispecific antibody therapy associated with immune checkpoint inhibitor anti-PD-1. Right panel: Patient-derived ovary cancer cells survival upon incubation with autologous TILs and EGFRxCD3 bispecific antibody therapy associated with immune checkpoint inhibitor anti-PD-1.

The cells retrieval at the end of the desired timepoints provides good statistics & reproducibility and opens the door for post-analysis readouts, such as molecular analysis, compounds MoA description, cell signalling evaluation and epigenetic readouts. Additionally, FACS sorting of functionally relevant cells enables us to study in depth selected cell subpopulations such as resistant cells.

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