

New Microtumor Technology Reveals Nivolumab-Induced Reactivation of Anti-Tumor Immunity in Glioblastoma.

Real Tumors

Real Immunity

Real Responses



Objectives

- To evaluate the efficacy of Nivolumab monotherapy in glioblastoma-derived microtumors containing autologous TILs using a cytotoxicity assay.
- To investigate how PD-1 blockade restores T-cell function and reactivates anti-tumor immunity within the patient-specific tumor microenvironment.



Methods

Patients:

glioblastoma, IDH-wildtype, WHO grade IV.

BioAnalysis:

CellTox™ Green Cytotoxicity Assay.

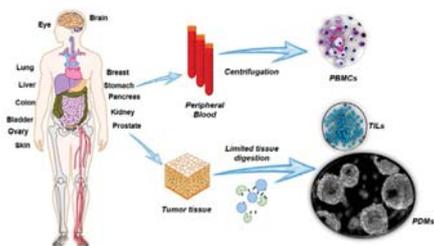


Platform:

Patient-derived microtumors using AutoTIL™ technology.

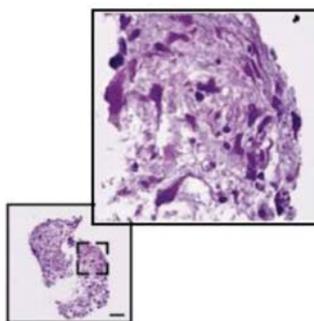
Result

AutoTIL Workflow



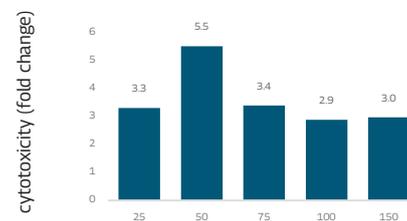
Microtumor Generation

Co-culture Tumor/autol. TILs



H&E stain; scale bar 100 μ m

Cytotoxicity profile of Nivolumab in glioblastoma-derived microtumors with autologous TILs.



Nivolumab (μ g/ml)

- Nivolumab treatment (25–150 μ g/mL) of **glioblastoma-derived microtumors** with **autologous TILs** produced a non-monotonic cytotoxicity profile, peaking at 50 μ g/mL with a 5.5-fold increase in **tumor-specific killing**.
- At higher doses (75–150 μ g/mL), cytotoxic activity declined, underscoring **dose-dependent** complexity of the tumor-immune interaction. Results represent mean values from triplicate assays.



Conclusion

- Microtumors with autologous TILs enable direct, patient-specific assessment of checkpoint inhibitor efficacy within the native tumor-immune microenvironment.
- Cytotoxicity assays demonstrate that drugs like Nivolumab restore T-cell function and enhance tumor cell killing, delivering clinically predictive insights.

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