Direct Detection and Quantification of PD-L1 Expression in Patient Tissue Samples

Experiment: Tissues from 158 biliary tract cancers were evaluated for PD-L1 expression using DAB-based detection and compared to the Quanticell detection method.

Results: 10% of cancers showed PD-L1 expression in tumor cells detected using DAB compared to 49% of the same tumor cells detected using Quanticell.

Conclusions: The higher sensitivity provided by Quanticell improves the detection of tumor cell surface markers and may aid in predicting response to checkpoint inhibitor therapies.
Identifying Trastuzumab Distribution in Xenograft Tissues

Experiment: Human breast cancer cell lines BT474 (HER2 positive) and MDA-MB231 (HER2 negative) were subcutaneously implanted in SCID/Beige mice to prepare cell line derived xenografts. Trastuzumab (10 mg/kg) was administered intraperitoneally followed by tissue collection at several time points. Sections were stained using anti-trastuzumab and detected using Quanticell to directly visualize the distribution of the drug.

RESULTS

Trastuzumab delivery to tumor: 24 areas of the tumor were examined and PID counts/cell were determined. The histogram shows an average count of 21.6 trastuzumab bound PIDs/cell.

Micro Imaging: High power imaging with Quanticell confirms increased trastuzumab accumulation in tumor cell areas compared to the stroma, infiltrating lymphocytes and viable areas.

Macro Imaging: Assessing the biodistribution of trastuzumab in both HER2 positive and negative xenografts. A) In BT474 (HER2+), trastuzumab distribution was heterogeneous despite homogeneous HER2 expression. B) In MDA-MB231 (HER2-), less trastuzumab was present in viable areas. C) Plasma PK is similar for both models at all time points. D) Intra-tumor imaging PK graph shows higher trastuzumab bound PIDs/cell for BTA474 (HER2+) compared to the MDA-MB231 (HER2-) expressing xenografts.

CONCLUSION

Quanticell provide a reliable way to visualize and quantify the therapeutic target or therapeutic itself.

Tracking the therapeutic with Quanticell showed higher drug accumulation in target positive cells in a heterogeneous tumor.

Unlike plasma PK measurements, intratumor imaging shows the effects of tumor heterogeneity on drug and target interactions.

Quanticell is a reliable solution to assess the biodistribution and pharmacokinetics of large molecule drugs in the tissue context.