TCR sequencing can identify and track glioma-infiltrating T cells after DC vaccination

Prins R, et al. (2016) Cancer Immunology Research, OnlineFirst
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WHY IMMUNOSEQ?

The immunoSEQ assay enables accurate and quantitative assessment of tumor infiltrating lymphocytes (TILs)

TIL density and degree of repertoire overlap at different tissue sites determined by the immunoSEQ assay can predict response to DC vaccination therapy
BACKGROUND

- Glioblastoma (GBM) is a lethal solid CNS malignancy with a median overall survival of 12-18 months with conventional therapy
- Dendritic cell (DC) based vaccines can have a great therapeutic benefit in a subset of GBM patients

AIM

To determine if TIL content and repertoire profile could serve as predictive biomarkers of responses to DC vaccination therapy

METHODS

Peripheral blood samples and tumor biopsies were collected from 15 GBM patients enrolled in Phase I and II clinical trial. Post treatment tumor tissue was also available from 5 patients who experienced tumor recurrence.

Baseline: blood and tumor → gDNA extraction → immunoSEQ® (TCRB)

Interadermal autologous DC vaccination

Blood and tumor → gDNA extraction → immunoSEQ (TCRB)

RESULTS

**Figure 1.** Elevated TIL content in pretreatment tumor predicts outcome

**Figure 2.** TCR overlap in blood and tumor is associated with survival

**CASE STUDY:** TCR sequencing can identify and track glioma-infiltrating T cells after DC vaccination—Prins R, et al. (2016) Cancer Immunology Research, Online First

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**CONCLUSIONS**

- A higher TIL density in pre-treatment samples was correlated with improved clinical outcome
- Higher repertoire overlap in blood and tumor at pre- and post- therapy correlated with survival