Plasma PD-L1

Conclusion: Plasma PD-L1 is predictive of immunotherapy benefit

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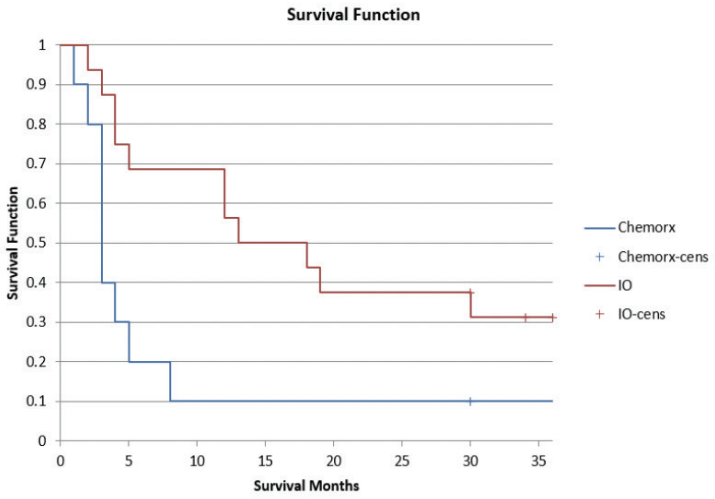
Study demonstrates plasma cfRNA PD-L1 is predictive of immunotherapy benefit in advanced NSCLC (compared to chemotherapy).



The ECU study demonstrated that Plasma PD-L1 expression was predictive of significant survival benefit of immunotherapy treatment over chemotherapy in advanced NSCLC patients.

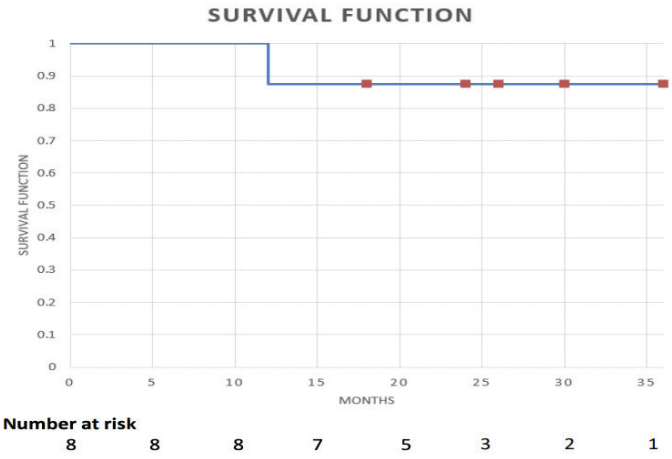
Using pembrolizumab monotherapy study (KEYNOTE-042) as a baseline comparison, plasma PD-L1 parallels tissue PD-L1 clinical trial outcomes with a 30% survival over 3 years.

The ECU study also demonstrated plasma PD-L1 is predictive of consolidation durvalumab benefit for chemo radiotherapy in inoperable stage III NSCLC patients.

Watch Dr. Walker's explanaton of the methods and findings presented at 2021 ASTRO/ASCO meeting.

https://youtu.be/42WFMKeTsVY

Cohort Plasma PD-L1 positive (As of August 2021, median follow-up 23 months)



Study Synopsis prepared by
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Plasma cell free RNA PD-L1 and Clinical Outcomes with Immunotherapy

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ECU

Introduction

PD-L1 expression is predictive of immunotherapy benefit. However, tissue PD-L1 protein immunohistochemical testing can be fraught with tissue acquisition and heterogeneity limitations.[1] PD-L1 expression by RNA sequencing can be performed in both tissue and plasma with tissue PD-L1 protein correlations.[2] [3]

Aim

What has not been well characterized is the correlation of plasma cfRNA PD-L1 and clinical outcomes with immunotherapy.

Plasma cfRNA PD-L1 expression was evaluated and correlated with immunotherapy benefit in advanced non-small cell lung cancers (NSCLC).

Method

Patients with inoperable/metastatic NSCLC at a single institution underwent standard of care plasma NGS testing performed in a CLIA/CAP accredited laboratory prior to initial treatment
Cell-free RNA PD-L1 was also extracted from plasma via a patented LISA/linear in situ amplification process and expression assessed by PCR at the same CLIA/CAP accredited laboratory
IO cohort: 16 patients with plasma cfRNA PD-L1 expression and advanced NSCLC treated with first-line immunotherapy (IO) regimens were identified and assessed for overall survival
Chemorx cohort: 10 contemporary patients with plasma cfRNA PD-L1 expression and advanced NSCLC from the same institution who received first-line chemotherapy alone were identified and used as a non-immunotherapy overall survival comparison

Results

IO Cohort
8 females/8 males
Median age 66 (54-85)
5 – sx brain mets
7 -- bone mets
8 -- ECOG PS > 2
Non-Sq 75%/Sq 25%

Chemorx cohort
10 males
Median age 67 (42-81)
2 – sx brain mets
3 -- bone mets
6 -- ECOG PS > 2
Non-Sq 70%/Sq 30%

[As of August 2021, median f/u 33 months]

IO Cohort
Median OS 15 months
30% 3-year OS

Chemorx Cohort
Median OS 3 months
10% 3-year OS

Log-rank test p-value = 0.0091
HR 0.36 (95% CI, 0.13-0.99)

Figure 1: Kaplan-Meier OS curves of the IO and chemorx treated plasma cfRNA PD-L1 expressing patients

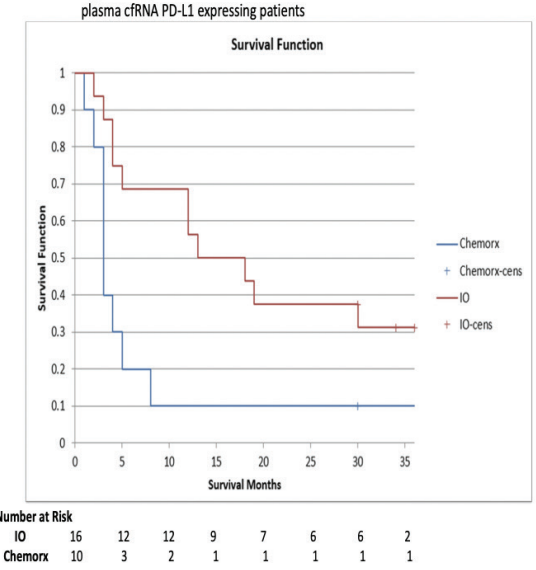


Figure 2: OS of IO treated patients ECOG PS 1 versus PS ≥ 2

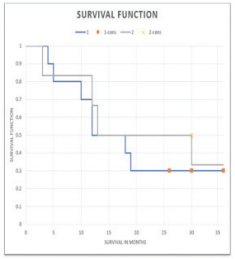
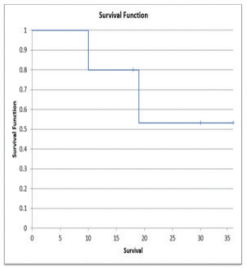


Figure 3: OS of the 5/16 (31%) IO treated patients who were tissue 22C3 PD-L1 negative



Conclusions

Plasma cfRNA PD-L1 expression was predictive of a significant survival benefit of immunotherapy treatment over chemotherapy in a real-world patient population of advanced NSCLC in eastern North Carolina
The 3-year landmark OS of 30% parallels tissue PD-L1 predictive clinical trial outcomes

References

Munari et al. Journal of Thoracic Oncology, 2018
Conroy et al. Journal for ImmunoTherapy Cancer, 2019
Ishiba et al. Biochemical and Biophysical Research Communications, 2018

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CIRCULOGENE performed the plasma cfPD-L1 RNA testing

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