Poster 626

HIV-associated differences in the tumor microenvironment of non-AIDS defining cancers

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Background & Objective

Effective antiretroviral therapy has translated into increased life expectancy for people living with HIV (PLWH), resulting in a growing number of patients surviving to older ages when chronic diseases such as non-AIDS defining cancers (NADCs) are more common. Our prior work has demonstrated that PLWH have higher cancer-specific mortality, even after controlling for cancer treatment A novel approach to identify molecular factors that differ by HIV status and may therefore drive poor prognosis are needed.

Objective

- Investigate whether tumor immune infiltrate differs by HIV status for patients diagnosed with NADCs.

Methods

Study Population: Tissue microarrays (TMAs) from 71 PLWH (prostate cancer [N=22]; lung cancer [N=21]; breast cancer [N=14]; other NADCs [N=14]) were obtained from the AIDS Cancer Specimen Resource and biospecimen archives at Moffitt and Huntsman. Comparison TMAs were created from 59 HIV-uninfected patients at Moffitt and Huntsman (prostate cancer [N=22]; lung cancer [N=9]; breast cancer [N=17]; and other NADCs [N=11]).

Assay: TMA sections were stained using the OPAL™ 7-color Automation immunohistochemistry (IHC) kit. Slides were then imaged using the Vectra Automated Quantitative Pathology Imaging System and exported to the HALO Imaging Analysis Platform.

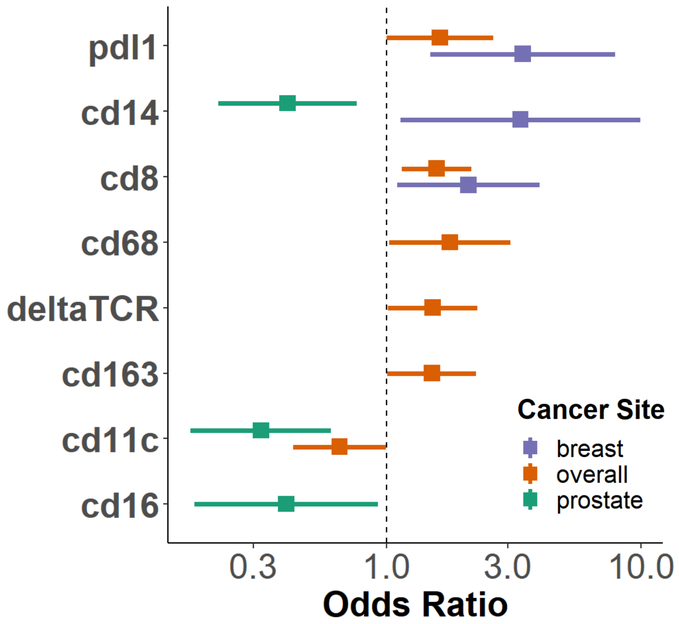
Analysis: Beta-binomial regression models were run using http://itime.moffitt.org to compare marker staining by HIV status.

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Figure 1. Association between patient HIV status and tumor immune marker staining



NADCs diagnosed in patients with HIV are immunologically distinct.

Odds Ratios (ORs) were generated from beta-binomial regression models adjusted for age, race, and cancer site (overall), or age and race for models run by tumor site (prostate, breast). Only markers where p≤0.05 are shown. Bars represent 95% confidence intervals (CIs).

Table 1. Overall effect estimates for association between HIV and immune markers

Immune Marker	Tumors with >1% Abundance		Association with HIV		
	HIV+ (%)	HIV- (%)	OR	95% CI	P-value
CD8+ T-cells	32%	36%	**1.58**	1.15-2.16	<0.01
Delta-gamma T-cells	10%	3%	**1.52**	1.01-2.28	<0.05
CD68+ Macrophages	<1%	<1%	**1.78**	1.03-3.08	<0.05
CD163+ Macrophages	64%	58%	**1.51**	1.01-2.26	≤0.05
PD-L1	16%	36%	**1.63**	1.00-2.64	≤0.05
CD11c (Dendritic Cells)	50%	58%	**0.66**	0.43-1.00	≤0.05

ORs were generated from beta-binomial regression models adjusted for age, race, and cancer site that were run considering all tumor sites combined (overall).