

**POSTER PRESENTATION**

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# Characterizing the immunoprofile and endogenous immune response to squamous cell carcinomas of the head and neck to guide development of effective immunotherapy strategies

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Squamous cell carcinoma of the head and neck (HNSCC) is the 6<sup>th</sup> leading cause of cancer by incidence worldwide with approximately 600,000 new cases per year. Unfortunately, only 40-50% of these patients will survive for 5 years. In order to study the immune response in patients with this disease we have developed a HNSCC tumor bank to compliment our Oral, Head and Neck Cancer Program. This tumor bank is cryopreserving enzymatically isolated viable cells from resected tumors (n = 128). We are also attempting to develop primary cell lines (10 lines established) and are isolating and assessing tumor-specific function of tumor-infiltrating lymphocytes (TIL) (n = 49). Since HNSCC can express immune inhibitory molecules and secrete suppressive factors, we are developing single stains and multi-spectral imaging protocols to assess the immune contexture of the tumor microenvironment by immunohistochemistry and immunofluorescence and are overlaying these studies with T cell functional activity and ultimately, with clinical outcome. Preliminary analyses suggest that tumor-specific T cells can be detected in 68% (N = 16) of patients evaluated. A goal of these studies is to identify strategies that will allow tailoring of therapy for patients with HNSCC. One component is to identify which inhibitors are present in a given tumor. Since not every tumor appears to contain TIL capable of recognizing autologous tumor, strategies to prime tumor-specific T cells represents another area of interest. DPV-001 is a microvesicle vaccine, DRibbles, that contains an average of

at least 66 proteins that are overexpressed by HNSCC (TCGA provisional RNASeq n = 303 pts). The vaccine also contains multiple DAMPs and agonist activity for TLR 2, 3, 4, 7 and 9 packed into stable double membrane microvesicles that are targeted to CLEC9A+ APC. To increase potential activity against HPV positive cancers we have developed a mosaic construct encoding E6 and E7 peptides for a number of HPV strains and are evaluating both protein and gene-based HPV vaccine strategies. We are using the HNSCC TIL lines to evaluate DRibble vaccines and potential for adoptive immunotherapy trials.

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## Consent

Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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