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Expression of PD-L1 in relation to Human Papillomavirus (HPV) and p16 INK4a protein in primary and metastatic Squamous Cell Carcinomas of the Head and Neck (SCCHN)

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Background: It is known that HPV plays an important role in the etiology of a subset of SCCHN. The degree of PD-L1 expression has been reported to be increased in those patients with HPV-positive disease. Recent clinical studies having shown efficacy of various therapies targeting the PD-1/PD-L1 pathway for patients diagnosed with SCCHN tumors. The determination of primary and/or metastatic tumors having HPV origins could be used in the identification of patients who may benefit from these more targeted treatment modalities.

Methods: Immunohistochemistry (IHC) and in situ hybridization (ISH) assays on the VENTANA BenchMark ULTRA instrument were used to determine the HPV and p16INK4a status as well as the PD-L1 expression level in 30 cases of SCCHN, with matching primary and metastatic resections. The VENTANA PD-L1 (SP263) assay was used to determine tumor cell expression of PD-L1. HPV status of the tissues was determined using the INFORM HPV III Family 16 Probe (B) product while the detection of the p16INK4a protein was completed using the CINtec p16 Histology assay.

Results: Evaluation of samples from the primary as well as the metastatic resections from each of the 30 cases (60 samples total) for percent expression of PD-L1 in tumor cells, HPV status and p16INK4a status was completed. The PD-L1 expression level for this sample set ranged from 0% to 75%. Of the 30 cases represented 17 cases show indication of HPV infection. The resulting data were analyzed using a t-test of the log of the PD-L1 expression level (natural log scale) and was found to be marginally and positively associated with evidence of HPV infection (Diff. of means = 1.363: 95%Cl: [-0.176;2.902]; p-value=0.077). However, a larger sample set would be needed to validate these findings.

Conclusion: While the results from this small contingent are far from conclusive, the initial results show that a diagnostic approach including these three assays may lead to a better understanding of the tumor origin and thus aid in the determination of treatment options for SCCHN patients.

Biography

Dawn Sloane has completed her studies in Molecular and Cellular Biology from the University of Arizona in Tucson, Arizona and holds certification as Technologist in Molecular Biology from the American Society of Clinical Pathology. She is currently a Scientist at Ventana Medical Systems, Inc., a member of Roche Molecular Solutions division of Roche Ltd. Basel, Switzerland. Her current assignment is in the development of diagnostic assays for cancer immunotherapeutic treatments. Previously, she led the Molecular Diagnostics division of a local healthcare system's clinical laboratory including fellowship and residency training for pathologists in cooperation with the University of Arizona College of Medicine.

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