MULTISPECTRAL IMAGING TO DETECT IMMUNE PHENOTYPES ASSOCIATED WITH THE TUMOR MICROENVIRONMENT IN A MULTI-TISSUE STUDY: A FULL AUTOMATED 7-COLOR MIF IMMUNO-ONCOLOGY WORKFLOW

1Navi Mehra*, 1Bhavika Patel, 1Stephanie Allen, 1Noah Ramirez, 2Najiba Mammadova, 2Agnes Haggerty. 1Lanterne Dx, Boulder, CO, USA; 2Akoya Biosciences, Menlo Park, CA, USA

Background Immunotherapy and precision medicine are rapidly developing approaches to cancer therapy. Biomarkers that detect the tumor and tumor microenvironment allow for the development of strategies that accelerate the advancement of treatments to enhance a patient's immune system. Akoya’s MOTiF™ PD-1/PD-L1 Panel is a validated, multiplex immunoassay enabling detection of the 6 most clinically relevant immuno-oncology and spatial biomarkers: PD-1, PD-L1, FoxP3, CD8, CD68, and PanCK.

Methods The MOTiF™ PD-1/PD-L1 Panel was used to analyze the tumor microenvironment and specifically assess immune phenotypes of different types of cancers: non-small cell lung cancer (NSCLC), colon adenocarcinoma, head and neck squamous cell carcinoma (HNSCC), and breast cancer.

Results We demonstrate the utility of Akoya’s MOTiF™ PD-1/PD-L1 panel kit in studying the cellular diversity of various cancers while retaining spatial context. Stained slides were analyzed using the InForm® and PhenoptrReports image analysis platforms to identify and better understand spatial relationships between a variety of simple and complex cell phenotypes. The MOTiF™ PD-1/PD-L1 panel kit provides reproducibility across different tissue types.

Conclusions These data provide insight into the innate and adaptive immune environment for targeted design of new immunotherapies and have implications for improving the treatment paradigm across many tumor types.