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New Research Published in the New England Journal of Medicine Reveals High Response Rates to Anti-PD1 Therapeutics in Merkel Cell Carcinoma

Research Leveraged PerkinElmer's Phenoptics™ Solution to Better Understand Response to Anti-PD1 Drug

American Association for Cancer Research (AACR) Annual Meeting, New Orleans – April 20, 2016 – [PerkinElmer, Inc.](#) a global leader focused on improving the health and safety of people and the environment, today announced that its Phenoptics™ quantitative pathology research system was an important component in skin cancer research published online in the April 19 edition of the *New England Journal of Medicine (NEJM)*.

A research team led by Paul Nghiem, M.D., Ph.D., at the Fred Hutchinson Cancer Research Center conducted this first-of-its-kind study of Merkel cell carcinoma responses to an anti-PD1 drug. The study included 26 subjects treated with an anti-PD1 inhibitor drug, which helps T-cells combat cancer cells.

As part of the study, Johns Hopkins researchers led by Janis Taube, M.D., used PerkinElmer's Phenoptics system to explore the presence of PD1-based immune suppression in a case that responded well. The findings suggest the potential for PerkinElmer's research solutions (imaging, staining and analysis) to reveal a predictive biomarker for anti-PD1 therapies for Merkel cell carcinoma. In the study, other biomarkers that were expected to be informative, such as PD-L1 IHC positivity and cytotoxic T cell infiltration did not correlate with response.

Phenoptics multicolor immunohistochemistry (IHC) revealed immuno-biology components consistent with anti-PD1 method-of-action:

- a. before treatment, lymphocytes expressing the PD1 protein associated with the therapy were directly in contact with tumor cells and other immune cells expressing PD-L1, confirming that the immune evasion mechanism targeted by the therapy was present; and
- b. after treatment, tumor cells were absent and immune cells were present, suggesting that the treatment had activated an immune response that eliminated the tumor.

PerkinElmer's Phenoptics quantitative pathology research imaging system provides a high-throughput process for characterizing and quantifying multiplexed biomarker expression in tissue. Combining the multispectral imaging system with the multiplexed IHC approach enables researchers to explore the underlying biology driving response to the anti-PD1 drugs.

"A study of this nature demonstrates how cancer researchers can use our innovative technologies to gain valuable insights about cancer biology that can enable breakthroughs in clinical applications," said Brian Kim, President, Life Sciences & Technology, PerkinElmer. "Researchers in this field continually strive for better biomarkers to identify the subgroups of patients that may respond to therapies, which is the goal of precision medicine. In cancer immunology, our quantitative pathology solutions play a critical role in understanding a tumor's immune profile: defining the relationships and distribution of cells within tumors and within the tumors' microenvironment and providing the data needed to advance the exciting and paradigm-shifting area of immuno-oncology."

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About PerkinElmer

PerkinElmer, Inc. is a global leader focused on improving the health and safety of people and the environment. The Company reported revenue of approximately \$2.3 billion in 2015, has about 8,000 employees serving customers in more than 150 countries, and is a component of the S&P 500 Index. Additional information is available through 1-877-PKI-NYSE, or at www.perkinelmer.com.

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