DiveRadGel Co., Ltd.

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DiveRadGel Initiates Collaborative Research with Division of Cancer Immunology, Graduate School of Medical and Dental Sciences, Niigata University, to Develop an Off-the-shelf Cancer Vaccine Based on Shared Neoantigens

DiveRadGel Co., Ltd. (Headquarters: Chuo-ku, Tokyo; CEO: Takashi Nakai; hereinafter "DiveRadGel") today announced the initiation of a collaborative research program with Professor Takayuki Kanaseki and colleagues at Division of Cancer Immunology, Graduate School of Medical and Dental Sciences, Niigata University, to develop an off-the-shelf cancer vaccine. The program combines shared neoantigens derived from long non-coding RNAs (lncRNAs) with DiveRadGel's conventional type 1 dendritic cell (cDC1) targeted drug delivery system (DDS).

Professor Takayuki Kanaseki's laboratory has conducted immunopeptidomics, a comprehensive analysis of HLA-bound peptides (HLA ligandome analysis), using defined tumor tissues to explore novel tumor antigen peptides originating from non-coding genomic regions. Through this approach, the team has identified lncRNA-derived shared neoantigens in colorectal cancer tissues. Because these antigens arise from non-coding regions and selectively expressed in tumor cells and not in normal tissues, they are generally not subject to central immune tolerance and may exhibit higher immunogenicity than conventional tumor-associated antigens (TAAs). Moreover, because these neoantigens are shared across patients, they can avoid the design and manufacturing complexity inherent in fully personalized approaches, potentially shortening lead times and reducing costs.

DiveRadGel's proprietary platform efficiently delivers cancer antigens to cDC1 in the draining lymph nodes following subcutaneous administration. By using this platform to deliver shared neoantigens and maximize T-cell responses, and by leveraging the platform's storage stability and compatibility with scalable manufacturing, this approach makes feasible the development of an off-the-shelf cancer vaccine that is challenging with fully personalized approaches.

Under the collaboration, the parties intend to advance preclinical evaluation and formulation optimization in selected tumor indications with a view to future clinical development. By integrating Niigata University's discovery capabilities in shared neoantigens with DiveRadGel's delivery and formulation technologies, the collaboration is designed to broaden patient access to next-generation cancer immunotherapies.