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Transgene, NEC, BostonGene collaborate for ovarian and head & neck cancers trials

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Strategic collaboration for two ongoing Phase 1 clinical trials of TG4050, an individualized therapeutic vaccine for ovarian and head and neck cancers

Transgene, a biotech company that designs and develops virus-based immunotherapies for the treatment of cancer, a leader in IT and network technologies, and BostonGene Corporation (BostonGene), a biomedical software company committed to defining optimal precision medicine-based therapies for cancer patients, on 6 Oct 2020 announced a strategic collaboration for two ongoing Phase 1 clinical trials of TG4050, an individualized therapeutic vaccine for ovarian and head and neck cancers based on Transgene's proprietary myvac platform and NEC's AI-driven Neoantigen Prediction System in Europe and the United States.

Transgene's myvac platform brings together a series of highly innovative technologies, such as viral genome engineering, to achieve high-speed modular manufacturing of bespoke immunotherapies.

TG4050 is an individualized cancer vaccine based on the myvac platform; it is based on an optimized viral platform for cancer vaccination and integrates NEC's artificial intelligence capabilities. This therapeutic vaccine aims at stimulating the immune system of patients to induce a T-cell response against tumor-specific antigenic alterations, called neoantigens. These neoantigens are derived from genomic mutations and selected using NEC's Neoantigen Prediction System, an advanced AI technology that has already been applied in the field of oncology. TG4050 has been designed to target up to 30 patient-specific neoantigens. Transgene is sponsoring two Phase 1 trials that are expected to deliver the first proof of concept of this virus-based individualized approach.

As part of the collaboration, BostonGene will conduct genomic and transcriptomic analyses of primary patient tumors collected from patients enrolled in these two clinical trials to identify predictors of response to TG4050 and the cancer cell-intrinsic and -extrinsic factors that may mediate each patient's response to the vaccine. BostonGene's platform integrates the

genomic and transcriptomic analyses to simultaneously assess the activity of the tumor and the microenvironment through the identification of significant somatic alterations, evaluation of gene expression, estimation of tumor heterogeneity, and classification of the microenvironment.

BostonGene generates a Tumor Portrait Report, involving the data-driven, visually appealing, and self-explanatory tumor schematics elegantly depicting tumor activity, tumor cellular composition, and functionality of the immune-microenvironment and other tumor-associated processes. The comprehensive report will provide insights into the individual oncogenic state and immunogenicity of the patient's tumor.

"BostonGene's unique solution and deep expertise in Next Generation Sequencing (NGS) analysis provide us with the detailed profiles of a tumor and its micro-environment. These Tumor Portrait Reports will help us look at our patient data in light of the current published evidence and could help us accelerate the development of TG4050," said Eric Quemeneur, Pharm.D., Ph.D., Executive VP, Chief Scientific Officer of Transgene. "This novel way of analyzing patient data is part of an ambitious translational program that supports the development of our myvac platform. By integrating these types of approaches into our studies, we seek to build an integrated framework for the use of viral-based immunotherapeutics."