

Transgene, NEC and BostonGene Announce Strategic Collaboration for Two Ongoing Clinical Trials for Patients with Ovarian and Head & Neck Cancers

Strasbourg (France), Tokyo (Japan) and Waltham, MA (USA)– Oct. 6, 2020, 7:30 am CET - Transgene (Euronext Paris: TNG), a biotech company that designs and develops virus-based immunotherapies for the treatment of cancer, NEC Corporation (NEC; TSE: 6701), 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, today announced a strategic collaboration for two ongoing Phase 1 clinical trials of TG4050, an individualized therapeutic vaccine for ovarian and head & 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 a 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 **Éric Quéméneur, 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.”*

*“NEC looks forward to strengthening its collaboration with BostonGene through these trials of TG4050. BostonGene’s advanced analysis of NGS among cancer patients provides excellent profiling that we believe will add important insight into the understanding of each patient’s tumor environment and how it reflects on the clinical outcomes of our treatment,” said **Osamu Fujikawa, Senior Vice President at NEC Corporation.***

*“BostonGene is proud to support Transgene and NEC during these critical Phase 1 clinical trials,” said **Nathan Fowler, MD, Chief Medical Officer at BostonGene.** “This collaboration represents our ongoing commitment to improve immunotherapy options and transform personalization of treatment for cancer patients.”*

About TG4050

TG4050 is an individualized immunotherapy being developed for solid tumors that is based on Transgene’s myvac® technology and powered by NEC’s longstanding artificial intelligence (AI) expertise. This virus-based therapeutic vaccine encodes neoantigens (patient-specific mutations) identified and selected by NEC’s Neoantigen Prediction System. The prediction system is based on more than two decades of expertise in AI and has been trained on proprietary data allowing it to accurately prioritize and select the most immunogenic sequences.

TG4050 is designed to stimulate the immune system of patients in order to induce a T-cell response that is able to recognize and destroy tumor cells based on their own neoantigens. This individualized immunotherapy is developed for each patient and can be produced in a very short time frame.

This best-in-class candidate is being evaluated in two Phase 1 clinical trials for patients with ovarian cancers ([NCT03839524](#)) and HPV-negative head and neck cancers ([NCT04183166](#)).

About myvac®

myvac® is a viral vector (MVA) based, individualized immunotherapy platform that has been developed by Transgene to target solid tumors. myvac®-derived products are designed to stimulate the patient’s immune system, recognize and destroy tumors using the patient’s own cancer specific genetic mutations. Transgene has set up an innovative network that combines bioengineering, digital transformation, established vectorization know-how and unique manufacturing capabilities. Transgene has been awarded “Investment for the Future” funding from Bpifrance for the development of its platform myvac®. TG4050 is the first myvac®-derived product being evaluated in clinical trials.

About NEC’s Neoantigen Prediction System

NEC’s neoantigen prediction utilizes its proprietary artificial intelligence (AI), such as graph-based relational learning, which is combined with other sources of data to discover candidate neoantigen targets. NEC comprehensively evaluates the candidate neoantigens with a primary focus placed on its in-house major histocompatibility complex (MHC) binding affinity prediction trained on public and proprietary datasets. These allow NEC to effectively prioritize the numerous candidate neoantigens identified in a single patient.

About Transgene

Transgene (Euronext: TNG) is a publicly traded French biotechnology company focused on designing and developing targeted immunotherapies for the treatment of cancer. Transgene's programs utilize viral vector technology with the goal of indirectly or directly killing cancer cells.

The Company's clinical-stage programs consist of two therapeutic vaccines (TG4001 for the treatment of HPV-positive cancers, and TG4050, the first individualized therapeutic vaccine based on the *myvac*[®] platform) as well as two oncolytic viruses (TG6002 for the treatment of solid tumors, and BT-001, the first oncolytic virus based on the Invir.IO™ platform).

With Transgene's *myvac*[®] platform, therapeutic vaccination enters the field of precision medicine with a novel immunotherapy that is fully tailored to each individual. The *myvac*[®] approach allows the generation of a virus-based immunotherapy that encodes patient-specific mutations identified and selected by Artificial Intelligence capabilities provided by its partner NEC.

With its proprietary platform Invir.IO™, Transgene is building on its viral vector engineering expertise to design a new generation of multifunctional oncolytic viruses. Transgene has an ongoing Invir.IO™ collaboration with AstraZeneca.

Additional information about Transgene is available at: www.transgene.fr.

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About NEC Corporation

NEC Corporation has established itself as a leader in the integration of IT and network technologies while promoting the brand statement of "Orchestrating a brighter world." NEC enables businesses and communities to adapt to rapid changes taking place in both society and the market as it provides for the social values of safety, security, fairness and efficiency to promote a more sustainable world where everyone has the chance to reach their full potential. For more information, visit NEC at <https://www.nec.com>.

About BostonGene Corporation

BostonGene Corporation is pioneering the use of biomedical software for advanced patient analysis and personalized therapy decision making in the fight against cancer. BostonGene's unique solution performs sophisticated analytics to aid clinicians in their evaluation of viable treatment options for each patient's individual genetics, tumor and tumor microenvironment, clinical characteristics and disease profile. BostonGene's mission is to enable physicians to provide every patient with the highest probability of survival through optimal cancer treatments using advanced, personalized therapies. For more information, visit BostonGene at <http://www.BostonGene.com>.

Transgene disclaimer

This press release contains forward-looking statements, which are subject to numerous risks and uncertainties, which could cause actual results to differ materially from those anticipated. The occurrence of any of these risks could have a significant negative outcome for the Company's activities, perspectives, financial situation, results, regulatory authorities' agreement with development phases, and development. The Company's ability to commercialize its products depends on but is not limited to the following factors: positive pre-clinical data may not be predictive of human clinical results, the success of clinical studies, the ability to obtain financing and/or partnerships for product manufacturing, development and commercialization, and marketing approval by government regulatory authorities. For a discussion of risks and uncertainties which could cause the Company's actual results, financial condition, performance or achievements to differ from those contained in the forward-looking statements, please refer to the Risk Factors ("Facteurs de Risque") section of the Universal Registration Document, available on the AMF website (<http://www.amf-france.org>) or on Transgene's website (www.transgene.fr). Forward-looking statements speak only as of the date on which they are made and Transgene undertakes no obligation to update these forward-looking statements, even if new information becomes available in the future.

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