A cGMP FACILITY DEDICATED TO THE BIOPRODUCTION OF LENTIVIRAL BASED THERAPEUTIC VACCINES AND OTHER T-CELL BASED THERAPIES

THERAVECTYS is a privately-owned, fully integrated discovery and clinical development biotech company originating from the Pasteur Institute. The company capitalizes on over 15 years of fundamental research in the field of lentiviral vectors and owns over 20 patent families, either developed in-house or exclusively licensed from worldwide renowned institutions from which the company has secured exclusive worldwide rights for the use of lentiviral vectors in vaccination and immunotherapy applications.

Based on its lentiviral vector technology platform, THERAVECTYS develops therapeutic vaccines and immunotherapies to fight cancers and infectious diseases, including a proprietary and differentiated CAR T-cell technology platform.

The company has recently completed the first-ever vaccination clinical trial conducted with lentiviral vectors confirming both the safety & immunogenicity of the lentiviral vector platform.

The new facility will be used to fulfill the company’s internal clinical development program needs, in addition to those of strategic pharmaceutical partners. In the coming months, THERAVECTYS will also receive the final acceptance report from the French National Agency for Medicines and Health Products Safety (ANSM).

THERAVECTYS is a cGMP facility dedicated to the bioproduction of lentiviral-based therapeutic vaccines and other T-cell based therapies.

A cGMP BIOPRODUCTION FACILITY

In January 2015, only 12 months after the initiation of the works of its plant, THERAVECTYS has received the status of a GMP pharmaceutical manufacturing establishment by the French National Agency for Medicines and Health Products Safety (ANSM).

The new facility will be used to fulfill the company’s internal clinical development program needs, in addition to those of strategic pharmaceutical partners. In the coming months, THERAVECTYS will produce cGMP lentiviral vectors for its first phase I/II clinical trial in oncology (adult T leukemia/lymphoma derived from the HIV-1 NL4-3 strain has been successfully used in a therapeutic clinical trial against HIV) and will be used to initiate two additional phase I/II in oncology including one CAR T-cell trial.

The site has been designed to optimize operation and product workflows. The bioproduction process will be using state-of-the-art bioreactors (from 20 to 340 m²) and encompasses 2 purification steps (DSP, 2 days), followed by a sterilizing filtration before filling. The expected batch size will be between 200 to 5,000 vials, and fully compliant with phase III clinical trial requirements.

A BIOPRODUCTION PROCESS

THERAVECTYS designed an innovative manufacturing process combining high production yields, impurity profiles compatible with direct injections into humans and high immunogenicity. The process is spread over 3 weeks, starts by an expansion and transient transfection of HEK293T/SF cells (USP step, 18 days) and encompasses 2 purification steps (DSP, 2 days), followed by a sterilizing filtration before filleting. The bioproduction process will be using state-of-the-art bioreactors (from 20 to 1,000 L) and semi-automated single-use downstream and fill-and-finish equipments. The expected batch size will be between 200 to 5,000 vials, and fully compliant with phase III clinical trial requirements.

A MAIN PLANT CHARACTERISTICS

In January 2015, only 12 months after the initiation of the works of its plant, THERAVECTYS has received the status of a GMP pharmaceutical manufacturing establishment by the French National Agency for Medicines and Health Products Safety (ANSM).

The new facility will be used to fulfill the company’s internal clinical development program needs, in addition to those of strategic pharmaceutical partners. In the coming months, THERAVECTYS will produce cGMP lentiviral vectors for its first phase I/II clinical trial in oncology (adult T leukemia/lymphoma induced by HTLV-1) and for its differentiated CART-cell based immunotherapy upcoming clinical trial.

The site has been designed to optimize operation and product workflows.

A NEXT STEPS

THERAVECTYS has developed proprietary, licensed and validated assays to control the quality of its lentiviral vector batches used in its CAR T-cell clinical trials (replication-competent lentivirals), and residual DNA characterization. Upon approval of our proposed QC plan by the European Regulatory Agency, the French and the Belgian regulatory agencies have granted THERAVECTYS the approval to launch its first clinical trial.

Additionally, the QC plan has also received a positive feedback from the FDA during a pre-IND meeting late last 2014.

While some of the QC methods remain to be adapted to the targeted indications (transgene expression, provirus sequence integrity...), most of them are applicable to any lentiviral vector-based vaccine candidates Additional QC have been recently developed and implemented (MDI integration profile...) to support THERAVECTYS’ adoptive T-cell clinical developments.

A QUALITY CONTROLS

THERAVECTYS, 1 mail du Professeur Georges Mathé, 94800 VILLEJUIF, FRANCE

A BACKGROUND

The lentiviral vectors have the unique ability to transduce enables dividing cells - such as T-cells - but also non-dividing cells - such as dendritic cells in a stable manner. This integrative, non-replicative, non-pathogenic and self-inactivating recombinant lentiviral vectors will be used to initiate two additional phase I/II in oncology including one CAR T-cell trial.