



# IMMUNOTHERAPIES AGAINST CANCER



# TRANSGENE, IMMUNOTHERAPIES AGAINST CANCER

The scientific expertise and the commitment of Transgene’s 170 collaborators enable the Company to develop highly innovative immunotherapies for the treatment of cancer.

The principle: to stimulate and to educate the immune system with the goal of enabling it to recognize and destroy cancer cells.

To achieve this goal, Transgene has developed two technological approaches: therapeutic vaccines and oncolytic viruses.

We design these drug candidates by integrating a comprehensive therapeutic arsenal within the genome of optimized viruses (also known as viral vectors). These viral vectors use highly attenuated viral strains with an established safety profile; they cannot replicate within healthy cells.

Our immunotherapies can either be used as single agent or in combination with other cancer treatments.

## A DIVERSIFIED DRUG-CANDIDATE PORTFOLIO

	Product	Target/transgene	Indication	Collaboration	Preclinical	Phase I	Phase II
THERAPEUTIC VACCINE							
myvac	TG4050	30 neoantigens	Ovarian cancer	Orchestrating a brighter world NEC			
			Head and neck cancers				
	TG4001	HPV16 E6 – E7	Anogenital HPV+ cancers	MERCK Pfizer			
ONCOLYTIC VIRUS (OV)							
	TG6002	5-FU chemotherapy	Gastro-intestinal cancers (IV*)				
			Colorectal cancer (IHA*)				
invirio	BT-001	Anti-CTLA4 + GM-CSF	Tumeurs solides	BioInvent			
	OVs	Undisclosed	Solid tumors				
	5 OVs	Undisclosed (1 option exercised)	Solid tumors	AstraZeneca			
	OV	Undisclosed (CAR-T combination)	Solid tumors	博生吉 PersonGen			

\* IV: intravenous administration, IHA: intrahepatic artery administration



# THERAPEUTIC VACCINES

## INDUCE DURABLE AND ROBUST RESPONSES

Therapeutic vaccines aim at inducing a cascade of immune reactions that lead to the production of cytotoxic T cells (effective T cells) that will be able to recognize and destroy cancer cells.

By integrating cancer cell-specific gene sequences into the genome of a viral vector, we direct the immune response against the tumor cells that carry these same sequences.



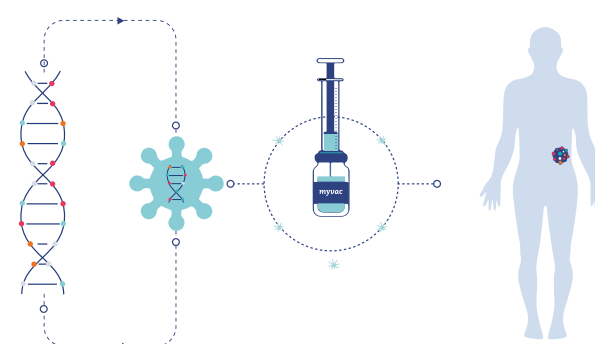
ONE PATIENT, ONE CANCER,  
ONE VACCINE



Watch our video  
on myvac®



First promising results  
with this innovative  
individualized therapy



### TG4050 is the first drug candidate based on the technology myvac®.

It is being evaluated in two clinical trials in Europe and in the United States.

The first positive preliminary Phase I immunological and clinical data highlight the potential of this highly innovative neoantigen vaccine.



Transgene developed myvac®, an immunotherapy platform, which leverages cutting-edge Artificial Intelligence (AI) capabilities to customize the treatment for each patient.

Transgene's highly innovative technology platform, myvac®, enables the generation of a virus-based immunotherapy, which encodes patient-specific cancer cell mutations (neoantigens) identified and selected by NEC's Neoantigen Prediction System, an advanced AI technology approach. The company has also set up a unique in-house Good Manufacturing Practices (GMP) unit.

### TG4001 targets cancers induced by human papillomavirus (HPV).

This therapeutic vaccine provided particularly promising results in a Phase Ib/II clinical trial in 2020. These were presented at the SITC 2020 and ESMO IO 2020 congresses by Professor Christophe Le Tourneau of the Institut Curie.

The pooled analysis of this Phase Ib/II trial demonstrated pronounced anti-tumor activity of the combination of TG4001 and avelumab.

Transgene observed that the presence of liver metastases had a significant impact on the results: in patients without liver metastases, the response rate was 34.8% and a median progression-free survival of 5.6 months was achieved.

These promising data compare favorably with standards of care. They allow Transgene and Merck KGaA to expand clinical development in a randomized, controlled Phase II trial. The first patient of this study was included in June 2021.

An interim analysis will be performed after the inclusion of approximately 50 patients; data are expected in Q4-2022.



Discover our video  
on TG4001



Interview of Prof. Le Tourneau  
and of our Chief Medical Officer  
on the recent Phase Ib/II data



## ONCOLYTIC VIRUSES

### DIRECTLY TARGET AND DESTROY CANCER CELLS

Oncolytic viruses are designed to selectively multiply in cancer cells and induce their breakdown (a process called cell lysis). This process is also involved in activating the patient's immune system. In addition, oncolytic viruses have the ability to act as Trojan horse by carrying therapeutic payloads in their genome, which are expressed during replication in the tumor. These 'armed' or multifunctional viruses then allow to attack the tumor microenvironment in several fronts.



Discover the  
mechanism of action  
of oncolytic viruses



Transgene's proprietary  
platform, Invir.IO™,  
is dedicated to the design  
and development  
of a new generation  
of oncolytic viruses.

**TG6002** is an **oncolytic virus**  
that allows the **production**  
of a **chemotherapy agent directly**  
in the tumor.

This drug candidate is being investigated in two clinical trials, evaluating intravenous and intra-arterial hepatic routes of administration, in patients with gastrointestinal cancers. Initial Phase I clinical data with TG6002 were presented at two major congresses in 2021: AACR and ESMO.

These results confirm the feasibility of intravenous administration of this oncolytic virus, based on our proprietary viral vector behind the Invir.IO™ platform.



Discover the mechanism  
of action of TG6002

**BT-001** is the **first oncolytic virus**  
from Invir.IO™.

It is armed with an anti-CTLA-4 antibody from our partner BioInvent. Promising preclinical data have been presented at AACR 2022. BT-001 is currently being evaluated in a Phase I/IIa trial; the first patient was treated in February 2021.



Watch BT-001  
mechanism of action

**AstraZeneca**

Transgene and AstraZeneca have  
entered into a **collaboration**  
agreement under which Transgene  
designs five innovative **oncolytic**  
viruses based on the **Invir.IO™**  
platform.

AstraZeneca has exercised a first license option for an oncolytic virus in December 2021.





## Environmental and social responsibility (ESG)

To develop innovative  
treatments against cancers  
for which there is no  
satisfactory treatment.

*Our mission carries the values of ESG in itself. Transgene has always paid particular attention to ESG and has always promoted the values of humanism, citizenship and respect for the environment.*

**Transgene's ESG strategy is based on six commitments to:**

- patients
- partners
- employees
- shareholders and investors
- society and territories
- the planet



Strasbourg, France  
Listed on Euronext Paris



Learn more  
about Transgene