EDISON

Transgene

Corporate update

TG4010 and Pexa-Vec readouts to define 2019

Pharma & biotech

Late-stage clinical trial readouts in 2019 will be critical to Transgene's immunoncology (IO) aspirations and, if positive, could further its position in the sector; notably efficacy data expected from the Phase II TG4010 (+nivolumab +chemotherapy) trial in first line non-small cell lung cancer (NSCLC) and the Phase III Pexa-Vec (+sorafenib) trial in first line hepatocellular carcinoma (HCC) (trial conducted by partner SillaJen). Next-generation platforms Invir.IO and myvac continue to progress, with assets from both expected to enter the clinic in 2019. Additional financing is needed to ensure a cash reach beyond September 2019. We value Transgene at €4.68 per share (€290m).

Year end	Revenue (€m)	PBT* (€m)	EPS* (€)	DPS (€)	P/E (€)	Yield (%)
12/16	10.3	(23.1)	(0.43)	0.0	N/A	N/A
12/17	8.1	(35.0)	(0.52)	0.0	N/A	N/A
12/18e	7.2	(36.8)	0.16	0.0	18.8	N/A
12/19e	7.9	(33.8)	(0.55)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments

TG4010: First-line NSCLC efficacy data in H219

Transgene's strategy involves developing its immunotherapies for the treatment of cancer and viral indications in combination with other products, predominantly immune checkpoint inhibitors (ICIs). Following the completion/termination of five trials and the addition of the Phase I TG6002 trial in gastrointestinal adenocarcinoma, Transgene now has six ongoing studies across five products. Efficacy data from the Phase II TG4010 (+nivolumab +chemotherapy) trial in first-line NSCLC be central to determining Transgene's long-term IO strategy.

Invir.IO and myvac to enter clinic in 2019

At the SITC 2018 conference, Transgene presented data on its next-generation IO platforms. Myvac is a viral vector system designed to deliver a patient's specific neoantigens into the body in the hope of stimulating an immune response against the patient's tumour. Clinical trials in HPV-negative head and neck cancers and ovarian cancers are expected in 2019. In collaboration with its partner BioInvent, Transgene presented data on a novel (Inviro.IO) oncolytic virus encoding for either an anti-CTLA-4 or PD-1 antibody. Clinical trials are expected to initiate in 2019.

Financials: Funded to September 2019

Transgene reported cash, cash equivalents and financial assets of €26.6m at 30 September 2018 (compared to €33.0m as of 30 June 2018). Its cash burn was €14.8m in 9M18 and it anticipates FY18 cash burn to be €25m, with Q418 forecast cash burn higher than earlier quarters due to tax credits previously received.

Valuation: €290m (€4.68 per share)

We value Transgene at €290m (€4.68/share) vs €289m (€4.65/share) previously based on a risk-adjusted NPV model of TG4010, TG4001, TG1050, Pexa-Vec and TG6002. We have rolled forward our model and updated for cash and fx.

30 November 2018

Price	**€3.00**
Market cap	**€187m**
Gross cash and short-term investments (€m) at 30 September 2018	26.6
Shares in issue	62.3m
Free float	43%
Code	TNG
Primary exchange	Euronext Paris
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	0.0	(3.4)	9.1
Rel (local)	0.0	6.6	17.3
52-week high/low		€3.3	€2.6

Business description

Transgene is a French drug discovery and development company focused on the treatment of cancer and infectious diseases with immunotherapies. Its products are Pexa-Vec, TG4010, TG4001, TG1050 and TG6002.

Next events

Safety data for Pexa-Vec+ nivolumab data in first-line HCC	Q418
TG4001 + avelumab Phase I data in HPV HNSCC	Q418
TG4010 + nivolumab + chemo in 1st -line NSCLC	H219

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Edison profile page

Transgene is a research client of Edison Investment Research Limited

Key data readouts now expected in 2019

Transgene's strategy involves the development of its immunotherapies for the treatment of cancer and viral indications, notably in combination with other approved therapies like PD-(L)1 ICIs. Key to determining the success of Transgene's combination strategy will be efficacy readouts in 2019 from the Phase II TG4010 (+nivolumab +chemotherapy) trial in first line NSCLC and the Phase III Pexa-Vec (+sorafenib) trial (PHOCUS) in first line hepatocellular carcinoma (trial conducted by partner SillaJen). If the PHOCUS trial is successful, it could enable the first commercial launch of a Transgene developed product.

Following the completion/termination of five trials and the addition of the Phase I TG6002 trial in gastrointestinal adenocarcinoma, Transgene now has six ongoing studies across five products (Exhibit 1). Recently clinical data were presented on TG1050 in hepatitis B at the American Association for the Study of Liver Diseases (AASLD) 2018 liver conference and we expect initial Phase I data from the Phase I/II T4001 (+avelumab) trial in second-line human papillomavirus (HPV) positive cancers by the year end.

Transgene's current cash position enables a cash reach until mid-2019. However, we expect Transgene to raise additional capital before then, most likely in the form of bank loans. We note that as a result of Transgene's strategic collaboration with Tasly Biopharmaceuticals, it possesses $48m in Tasly shares. Transgene will be able to exercise these 12 months after any potential Tasly IPO. We note the valuation of this holding could decrease or increase.

TG4010: First-line NSCLC now the focus

With the continuing shift in the first line standard of care (SOC) for NSCLC towards PD-(L)1 use (9m18 sales of two leading PD-(L)1 inhibitors Opdivo (nivolumab) and Keytruda (pembrolizumab) were $4.93bn and $5.02bn respectively), Transgene's second-line TG4010 (viral vector expresses MUC1 antigen and IL-2) NSCLC trial enrolling patients who have not previously received PD-(L)1 treatment has become more difficult and no longer clinically relevant. As a result of this changing SOC, the second-line NSCLC trial testing TG4010 in combination with Opdivo has been terminated. Although it is possible future second-line trials could be initiated to test TG4010 in patients who have already received first-line PD-(L)1 treatment, the focus now falls on the Phase II (NCT03353675) trial in first-line patients testing a triple combination of TG4010, Opdivo and chemotherapy.

Data for the first-line TG4010 trial were originally anticipated before year-end but Transgene now expects to present overall response rate (ORR) data on 35 patients in H219 after more patients have been enrolled. The trial is a single-arm EU/US study and is anticipated to enrol patients (without EGFR mutations or ALK rearrangements) who express low or undetectable levels of PD-L1. Transgene is funding the study with Bristol Myers Squib supplying Opdivo. For patients without a driver mutation (EGFR, MEK etc), the SOC has quickly become chemotherapy plus Keytruda, irrespective of PD-L1 status or Keytruda alone in high expressing PD-L1 patients. However, in general, patients that respond effectively to PD-(L)1 ICIs in the first line remain a minority of the total NSCLC patient population. For example, Keytruda's approved label (Keynote-024) demonstrated it had a 45% ORR as a monotherapy in first-line patients whose tumour proportion score for PD-L1 expression was above 50%. ORR plus chemotherapies in first-line patients irrespective of PD-L1 expression range between 48% and 58%. The number of complete responses (removal of the cancer) across these treatment regimens has not been reported higher than 4%. Responses to PD-L1 ICIs for low expressing PD-L1 patients are typically lower, as evidenced by Keynote-042 data presented at ASCO 2018. NSCLC patients with 50% or more PD-

L1 expression had a median overall survival (OS) of 20 months (95% CI: 15.4-24.9) with Keytruda vs 12.2 months (95% CI: 10.4-14.2) with chemotherapy. This compares to patients with PD-L1 expression of 1% or more who have a median OS of 16.7 months (95% CI: 13.9-19.7) with pembrolizumab vs 12.1 months (95% CI: 11.3-13.3) with chemotherapy.

The first-line setting could be a significant clinical and commercial opportunity for Transgene if TG4010 in combination with a PD-(L)1 ICI is proven to be more effective than PD-(L)1 ICI monotherapy treatment (particularly in low PD-L1 expressing patients). We note healthcare bodies are starting to show willingness to pay for earlier line patients to be prescribed PD-(L)1 therapies, as recently noted by the National Institute for Health and Care Excellence (NICE) recommending Keytruda to be made available on the Cancer Drugs Fund for first-line patients. However, we note NICE will have likely negotiated a significant discount to the gross price of Keytruda.

Pexa-Vec: Changing HCC SOC as Phase III data near

Pexa-Vec is in three ongoing clinical trials testing the virus in combination with one of either nivolumab (Opdivo), ipilimumab (Yervoy) or sorafenib (Nexavar), with data particularly from the nivolumab and sorafenib readouts key to Transgene's future strategy. Data from the global Phase III trial (PHOCUS) in first-line HCC (run by partner SillaJen) are anticipated in 2019. The PHOCUS trial is testing Pexa-Vec in combination with sorafenib in 600 patients (300 patients in experimental arm of sorafenib + Pexa-Vec and 300 in comparator arm of sorafenib alone) with a primary endpoint of overall survival. Transgene retains the rights to commercialise Pexa-Vec in Europe and we anticipate that it will look to out-license this opportunity to a commercial partner if the PHOCUS results are positive and the compound is approved by regulators.

Treatment for inoperable HCC has historically relied on Nexavar with no advancements to the SOC since its approval in 2007 until recently. In 2018, two new drugs were approved for the treatment of HCC. Lenvantinib (Lenvima), a VEGFR 1/2/3 inhibitor, was approved in August for the first-line treatment of patients with untreated unresectable HCC. In its pivotal study (Prescribing information), lenvantinib demonstrated it was non-inferior to sorafenib for overall survival (OS) but it did not demonstrate a statistically significant improvement in median OS (13.6 months [95% CI: 12.1–14.9] vs 12.3 months [95% CI: 10.4–13.9] for sorafenib). However, it did demonstrate a statistically significant improvement in median PFS (7.3 months [95% CI: 5.6–7.5] vs 3.6 months [95% CI: 3.6–3.7] for sorafenib) and ORR (41% [95% CI: 36–45%] vs 12% [95% CI: 10–16%] for sorafenib).

As lenvantinib did not demonstrate a statistically significant improvement in OS, Transgene and SillaJen's Phase III trial design remains valid. However, while the risk of rapidly changing SOC in HCC is lower than in other cancers such as NSCLC, there is a risk that the SOC will change, making ongoing trials invalid. For Pexa-Vec's Phase III trial we see this possibility as small. However, PD-(L)1 inhibitors continue to change the SOC in multiple cancers as they are beginning to make an impact in HCC.

Recently, pembrolizumab (Keytruda) was approved in second-line HCC patients who had previous treatment with sorafenib (or are intolerant to sorafenib). This accelerated approval was based on data from the Keynote 224 trial. The trial was a single-arm study in 104 patients with a primary endpoint of ORR. Pembrolizumab demonstrated a 17% ORR (95% CI: 11–26%). In the long term, we note a collaboration with Merck and Eisai to test Keytruda and Lenvima (lenvantinib) in first-line HCC patients (NCT03713593) could have a major impact on HCC SOC. The Phase III trial (MK-7902-002/LEAP-002) is expected to initiate before year end and will enrol 750 patients across two arms (lenvantinib plus pembrolizumab vs lenvantinib alone). Primary endpoints include PFS and OS, with primary completion of the study in mid-2022.

Exhibit 1: Transgene's clinical pipeline

Compound	Combination compound	Indication	Phase	Collaborators	Trial status	Data read-out	Notes
Company-sponsored trials							
TG4010	Opdivo (nivolumab) and chemo	First-line NSCLC	II	N/A	Ongoing	H219	Data were originally expected in H218, ORR data now expected in H219 after more patients have been enrolled. Total of 35 patients expected to be enrolled.
Pexa-Vec	Nexavar (sorafenib)	First-line HCC	III	Conducted by partner SillaJen	Ongoing	2019	Global study with expected complete enrolment of 600 patients (300 per arm). First data are expected in 2019.
Pexa-Vec	Opdivo (nivolumab)	First-line HCC	I/II	Nancy, France	Ongoing	H218	Safety review expected by year end with an interim analysis on ORR (overall response rate) expected in 15 patients by mid-2019. 30 patients are expected to be enrolled.
TG4001	Avelumab	HPV+ (Human papilloma virus) head and neck squamous cell carcinoma (HNSCC)	I/II	Institut Curie (PI Pr Christopher Le Tourneau)	Ongoing	Q418	Phase I data expected in Q418 on nine patients. Phase II enrolment is ongoing with additional sites being activated in Europe. Data expected in H219.
TG6002	N/A	Advanced gastrointestinal adenocarcinoma (colon cancer)	I/II	Principal investigator: Prof Philippe Cassier, Centre Léon Bérard, Lyon	Ongoing	H220	First patient expected to be treated shortly. 50 patients expected to be enrolled. Primary endpoint for Phase I is dose-limiting toxicity, for Phase II it is overall response rate.
TG1050	SOC antiviral	Chronic hepatitis B	I	N/A	Complete	H218	Phase I data were presented at AASLD liver meeting 2018. TG1050 was well tolerated over three dose levels in both single and multiple (three) dose cohorts. Immune responses at the higher doses (10^{10} and 10^{11} virus particles) against the three antigens vectorised by TG1050.
Investigator-sponsored trials							
TG4010	Opdivo (nivolumab)	Second-line NSCLC	II	University of California Davis Medical Center	Terminated	N/A	ICIs are now commonly SOC in first-line patients, as such recruiting ICI-naive patients in second line has been difficult. Trial terminated as no longer clinically relevant. No unexpected safety issues were observed.
Pexa-Vec	Yervoy (ipilimumab)	Solid tumours	II	Centre Léon Bérard	Ongoing	N/A	Data originally expected in H218. Patient recruitment is ongoing with additional sites now added. According to clinicaltrials.gov study completion expected in H219 (60 patients expected to be treated). The combination has been well tolerated to date.
Pexa-Vec	Cyclophospha mide	Sarcoma and breast	II	Institut Bergonié	Terminated	N/A	The primary endpoint in soft tissue sarcoma patients was not reached at the interim analysis. Trial was terminated. Combination was well tolerated.
Pexa-Vec	N/A	Solid tumours	Translational	University of Leeds	Completed	N/A	Data presented at ASCO 2018. Patients were treated with a single dose of Pexa-Vec (1x109) 14 (+ 4 days) days before surgery. Of the five evaluable CRLM patients, four had evaluable tumours of which one patient's tumour was completely necrotic while another was partially necrotic.
TG6002	N/A	Glioblastoma	I/IIa	Assist. Publ Hôpitaux, Paris (PI Pr Delattre); French NCI	Ongoing	H119	No safety issues to date. According to clinical trials.gov primary completion date expected in H119 with study completion in 2021.

Source: Edison Investment Research, Transgene

Pexa-Vec IO combination efficacy data expected in 2019

Pexa-Vec is being tested in a variety of combinations that aim to synergistically enhance its efficacy. Phase I/II trials are ongoing with Pexa-Vec in combination with Opdivo in HCC and Yervoy in solid tumours.

A Phase II trial (METROmaJX trial) testing Pexa-Vec in combination with cyclophosphamide in advanced soft tissue sarcoma or advanced breast cancer patients has been terminated. This was a result of the primary endpoint in soft tissue sarcoma patients not being reached at the interim analysis. Data so far demonstrated the combination was well tolerated. We await the full data package to be presented for further analysis.

Patient enrolment is ongoing for the Phase I/IIa trial of Pexa-Vec in combination with Opdivo in first-line HCC patients. In the Phase I part of the study, the safety of the combination will be assessed, in particular dose-limiting toxicities. In Phase IIa, the primary outcome will be efficacy with reference to the ORR. Secondary endpoints will include OS and DCR (disease control rate). A safety review is expected by year end from the Phase I component. An interim analysis on ORR is expected in 15 patients by mid-2019. In total 30 patients are expected to be enrolled.

An open-label, investigator-sponsored Phase I/II trial of Pexa-Vec in combination with Yervoy in up to 60 patients with solid tumours is ongoing at the Léon Bérard Cancer Centre. Data were originally expected in H218. Patient recruitment is ongoing with additional sites now added and data are expected in H219 (60 patients expected to be treated). The combination has been well tolerated to date.

TG4001: Initial Phase I data by year end

TG4001 is a therapeutic vaccine based on an MVA vector engineered to express HPV 16 antigens E6 and E7 with adjuvant interleukin-2 (IL-2). In collaboration with Pfizer and Merck, Transgene is running a Phase Ib/II study in second-line HPV-positive head and neck squamous cell carcinoma combining TG4001 and the anti-PD-L1 antibody avelumab. The trial is funded by Transgene, whereas Pfizer and Merck will provide avelumab. Pfizer and Merck do not have exclusive rights to the data or TG4001, both of which remain Transgene's. Patient enrolment is ongoing with 52 patients expected to be treated.

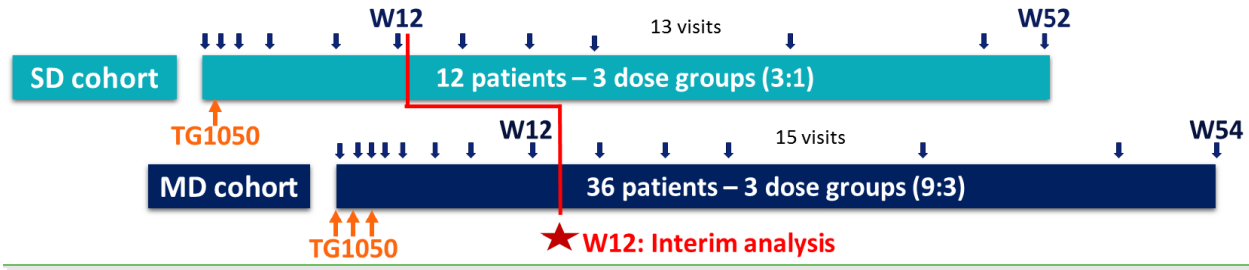
The study is split into two parts. In the Phase Ib component, under a 3+3 design consecutive cohorts of three to six patients will be tested at increasing doses of TG4001 in combination with a fixed dose of avelumab. Patients will have HPV16-positive recurrent or metastatic malignancies. In the expansion cohort (Phase II), patients with oropharyngeal squamous cell carcinoma of the head and neck will be enrolled into a single-arm cohort. The primary outcome of the Phase II part will be efficacy as measured by ORR. Initial data from the Phase I component are expected in nine patients by year end.

TG1050: First data presented at AASLD 2018

TG1050 is a therapeutic vaccine for the treatment of chronic hepatitis B that expresses three antigens of the hepatitis B virus (HBV). Transgene recently presented Phase I data (NCT02428400) for TG1050 at the AASLD 2018 liver meeting. Data were presented on the safety and immunogenicity of either single or multiple injections of TG1050 at various dose levels. The 48 patients were split into single (n=12) or multiple injections (n=36) cohorts. Patients in each cohort were then randomised across three dose levels (10^9, 10^{10} and 10^{11} virus particles) and randomised

in each dose level 3:1 to either receive treatment or placebo. Patients were doses and monitored as outlined in Exhibit 2.

Exhibit 2: TG1050 Phase I trial design

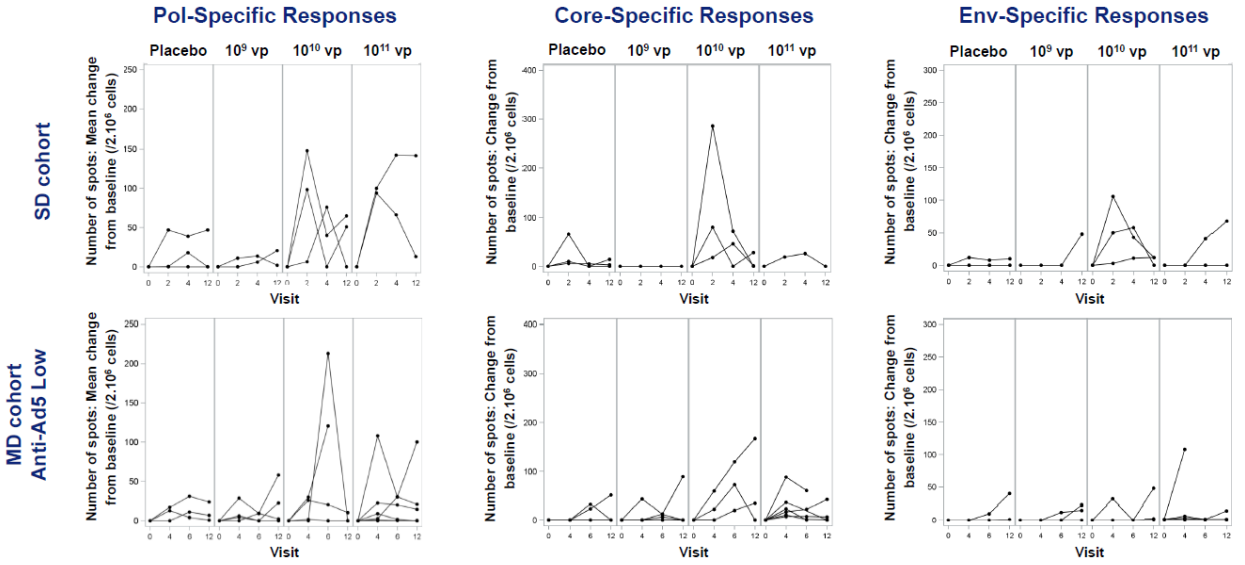


Source: Transgene

Blood samples were taken and peripheral blood mononuclear cells (PMBC) were analysed at baseline and weeks two, four and 12 in the single injection cohort and at baseline, week four, six and 12 in the multiple injection cohort. As TG1050 is based on a type-5 adenovirus (patients may have had previous exposure to a type-5 adenovirus in their life), patients were tested to determine if they had any previous antibody immunity to the virus. All patients enrolled into the single injection cohort had no detectable levels of anti-Ad5 antibodies. Some patients in the multiple injection cohorts had high anti-Ad5 immunity; they were removed from the analysis and all reported analysis focused on no or low anti-Ad5 immune patients.

There were no serious adverse events (AE) reported and all AEs were grade 1 or 2 except one grade 3 which was not related to treatment. Immune responses to the HBV antigens that TG1050 encodes for were monitored (Exhibit 3). Detectable responses occurred at the higher doses (10^{10} and 10^{11} virus particles) in both the single injection (SD) cohort and the multiple injection (MD) cohort against the three antigens vectorised by TG1050. The intermediate dose (10^{10} vp) was immunogenic in c70% of patients.

Exhibit 3: Individual evolution of ELISpot response over time in patients with low anti-AD5 pre-immunity



Source: Transgene

Additionally, at the 2018 AASLD Liver Meeting Transgene presented preclinical data on the combination of TG1050 with a range of immunomodulators (TLR9 agonist, PDE5 inhibitor) and direct acting antivirals (siRNA, capsid inhibitor, entecavir). Combinations with the TLR9 agonist, PDE5 inhibitor and the sIRNA led to improvements in antiviral effects.

TG6002: Localised chemotherapy

TG6002 is in two ongoing trials in glioblastoma and advanced gastrointestinal adenocarcinoma. It is a viral vector derived from vaccinia virus expressing the FCU1 gene. The FCU1 gene encodes a protein that catalyses the transformation of the nontoxic pro-drug flucytosine, into 5-FU and 5-fluorouridine monophosphate, a widely used chemotherapy regimen. Its expression is believed to be restricted to tumours, thereby reducing toxicity to normal tissues.

The Phase I/II trial in glioblastoma with Assistance Publique Hôpitaux de Paris (principal investigator Professor Delattre) and support from French National Cancer Institute is enrolling patients. No safety issues have been present to date; according to clinicaltrial.gov the primary completion of the trial is expected in H119 with the study completion in 2021.

A new Transgene-sponsored Phase I/II trial in advanced gastrointestinal adenocarcinoma (colon cancer) has been initiated with the first patient dosed in October 2018. The trial (NCT03724071) will enrol 50 patients who have failed or are intolerable to standard therapeutic options. Primary completion date is December 2020 with the Phase I primary endpoints of dose-limiting toxicities.

Long-term focus: Myvac and Invir.IO

Transgene continues to progress its internal technologies with two early stage platforms in development, Invir.IO and myvac. Invir.IO technology platform aims to use the cancer cell-killing capability of oncolytic viruses in combination with the ability of the viruses to insert relevant genes into cancer cells to express other anti-cancer compounds. Recent data comes from the Society for Immunotherapy of Cancer (SITC) 2018 conference where Transgene and BioInvent presented pre-clinical data on its oncolytic virus encoding for an anti-CTLA-4 or PD-1 antibody. Data demonstrated the antibodies retained functionality after vectorisation and that high tumour but low system concentrations were achievable in a mouse model. The anti-CTLA-4 expressing oncolytic virus is expected to enter the clinic in 2019.

Myvac is viral vector-based immunotherapy that is being developed to treat solid tumours. It is based on the principle of determining a patient's neoantigen's (antigen's encoded by tumour specific mutated genes) that are present in their tumour, engineering a virus to express these neoantigen's and then administrating them back into the original patient. This approach would in theory stimulate a patient's immune response to these neoantigen's and in turn the tumour which possess these antigens. At SITC 2018, Transgene presented data that the myvac system generated clinically relevant immune response in mice with responses in CD4 and CD8 cells. Transgene have announced a partnership with NEC corporation to utilise its AI platform to aid in the section of a patient's neoantigens. The first clinical trials in ovarian cancer and head and neck cancer are anticipated to start in 2019.

Financials

Transgene reported revenue in Q318 of €37.5m (Q317: €1.6m). This was driven by the €35.6m sale of TG1050 rights to Tasly in the form of shares (total value of Tasly transaction €41.4m, c $48m). Transgene has sold the greater China rights for TG6002 and TG1050 to Tasly Biopharmaceuticals. Transgene hold approximately 2.53% of the outstanding capital of Tasly Biopharmaceuticals; the company intends to float on the Hong Kong stock exchange before year end. Transgene has a 12-month post IPO lock up on its shares in Tasly Pharmaceuticals.

Transgene's cash burn was €14.8m in 9M18 and it anticipates FY18 cash burn to be €25m, with Q418 forecast cash burn higher than earlier quarters due to tax credits previously received earlier in the year. Transgene reported cash, cash equivalents and financial assets of €26.6m at 30 September 2018 (compared to €33.0m as of 30 June 2018). Our model predicts a cash reach until mid-2019 and we model illustrative debt of €20m to ensure funding beyond 2019.

We forecast net profit of €9.9m in FY18 compared with FY17 net loss of €32.3m. This is driven by the non-cash gain of €41.4m from the allocation of Tasly Biopharmaceutical shares.

Valuation: €290m (€4.68/share)

We value Transgene at €290m (€4.68/share) vs €289m (€4.65/share) previously based on a risk-adjusted NPV model of TG4010, TG4001, TG1050, Pexa-Vec and TG6002. We have rolled forward our model and updated for cash and fx. We do not value TG6002 in gastrointestinal adenocarcinomas and will address this as the trial progresses and the exact patient population becomes clear.

Exhibit 4: Transgene valuation model and key assumptions

Product	Status	Market launch	NPV (€m)	Peak sales (€m)	Probability of success	Royalty estimate	rNPV (€m)	rNPV/ share (€)	Key assumptions
TG4010 – NSCLC (EU)	Phase I/II	2025	185.9	1,062	40%	17.5%	79.0	1.27	Approximately 313k annual EU-28 incidence of lung cancer; 85% NSCLC; 75% MUC1 +ve; 66% normal NK cells; 20% peak penetration; €30k treatment price; €30m upfront on Phase IIb completion.
TG4010 – NSCLC (US)	Phase I/II	2025	161.4	1,429	40%	17.5%	64.6	1.04	Approximately 222k annual US incidence of lung cancer; 85% NSCLC; 75% MUC1 +ve; 66% normal NK cells; 20% peak penetration; $50k treatment price.
Pexa-Vec – HCC (EU)	Phase III	2021	151.3	518	50%	25.0%	73.8	1.19	Approximately 66k annual EU incidence of liver cancer; 80% HCC; 25% peak penetration; €30k treatment price.
TG1050 – HepB (EU + US)	Phase Ib	2025	374.6	2,054	15%	20.0%	46.1	0.74	Approximately 5.4m chronic hep B prevalence in EU + US; 66% diagnosis rate; 33% require treatment; 5% peak penetration; €35k treatment price.
TG4001 – Oesophageal cancer (EU + US)	Phase Ib/II	2026	41.4	198	15%	20.0%	4.1	0.07	Approximately 42k annual incidence of oesophageal cancer in EU5 + US; 70% with HPV; 75% fail; 25% peak penetration; 20% peak royalty rate; €35k treatment price.
TG6002 – Glioblastoma (EU + US)	Phase I/IIa	2026	64.0	240	15%	25.0%	7.5	0.12	Approximately 36k annual incidence of brain/central nervous system cancer in EU5 + US; 30% are glioblastoma, 85% will be recurrent, 50% peak penetration, 25% peak royalty rate, €50k treatment price.
Net cash (30 September 2018)							15.1	0.24	
Total							290.2	4.68	

Source: Edison Investment Research. Note: Peak sales represent the largest one-year sales that occur over the projected product lifespan. Spot rate $1.23/€.

For a full overview of our valuation, please see our report Near-term data to define long-term strategy.

Exhibit 5: Financial summary

€'000s	2016	2017	2018e	2019e
Year end 31 December	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS				
Revenue	10,311	8,144	7,170	7,887
Cost of Sales	0	0	0	0
Gross Profit	10,311	8,144	7,170	7,887
R&D expenses	(26,419)	(30,359)	(31,175)	(34,292)
G&A expenses	(6,236)	(5,674)	(5,844)	(6,020)
EBITDA	(20,397)	(26,352)	(28,413)	(31,093)
Operating Profit (before amort. and except).	(22,514)	(28,043)	(29,774)	(32,363)
Intangible Amortisation	(150)	0	(75)	(62)
Exceptionals (restructuring costs / discontinued operations)	(1,024)	0	0	0
Operating Profit	(23,688)	(28,043)	(29,849)	(32,425)
Other	0	0	41,400*	0
Net Interest	(602)	(2,287)	(1,619)	(1,470)
Profit Before Tax (norm)	(23,116)	(35,048)	(36,786)	(33,833)
Profit Before Tax (IFRS)	(24,290)	(30,330)	9,933	(33,894)
Tax	0	0	0	0
Minority interest	(917)	(1,944)	0	0
Profit After Tax (norm)	(24,033)	(32,274)	10,008	(33,833)
Profit After Tax (IFRS)	(25,207)	(32,274)	9,933	(33,894)
Average Number of Shares Outstanding (m)	56.0	62.1	62.1	62.1
EPS - normalised (c)	(42.9)	(52.0)	16.1	(54.5)
EPS - IFRS (€)	(0.45)	(0.52)	0.16	(0.55)
Dividend per share (c)	0.0	0.0	0.0	0.0
BALANCE SHEET				
Fixed Assets	48,895	42,137	82,586	81,763
Intangible Assets	423	250	206	176
Tangible Assets	14,580	13,604	12,697	11,904
Other	33,892	28,283	69,683	69,683
Current Assets	74,055	58,736	31,672	24,051
Stocks	221	270	270	270
Debtors	2,385	2,564	2,750	3,025
Cash	56,207	41,405	14,155	6,259
Other	15,242	14,497	14,497	14,497
Current Liabilities	(19,919)	(16,866)	(15,255)	(13,785)
Creditors	(4,504)	(2,868)	(3,117)	(3,429)
Short term borrowings	0	0	0	0
Short term leases	(10,198)	(10,283)	(8,423)	(6,641)
Other	(5,217)	(3,715)	(3,715)	(3,715)
Long Term Liabilities	(56,528)	(55,918)	(55,174)	(74,461)
Long term borrowings	0	0	0	(20,000)
Long term leases	(52,803)	(51,717)	(50,973)	(50,260)
Other long term liabilities	(3,725)	(4,201)	(4,201)	(4,201)
Net Assets	46,503	28,089	43,829	17,567
CASH FLOW				
Operating Cash Flow	(34,187)	(37,657)	(29,520)	(32,064)
Net Interest	602	2,287	(1,860)	(1,782)
Tax	0	0	0	0
Capex	(47)	(462)	(485)	(508)
Acquisitions/disposals	0	0	0	0
Financing	45,080	13,272	0	0
Dividends	0	0	0	0
Other	4,561	8,935	5,358	7,170
Net Cash Flow	16,009	(13,625)	(26,506)	(27,183)
Opening net debt/(cash)	22,147	6,794	20,595	45,241
HP finance leases initiated	(427)	(120)	1,860	1,782
Other	(229)	(56)	(0)	(0)
Closing net debt/(cash)	6,794	20,595	45,241	70,643

Source: Company accounts, Edison Investment Research. Note: *Transgene recognises value of Tasly Biopharmaceuticals shares as other revenue; in our model we have recognised this as other non-operating income.

EDISON

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