OSE IMMUNOTHERAPEUTICS

BUY

TARGET PRICE : 8,7€ +112%

COMPANY UPDATE

BiCKI TO EXPAND IMMUNO-ONCOLOGY PIPELINE

OSE reported 2018 full-year results and provided corporate update. In 2019, OSE-172 and OSE-127 programs are expected to generate €25M in milestone payment from Servier and BOEHRINGER INGELHEIM, respectively. In early 2019, the company also disclosed a novel BiCKI platform, which is based on anti-PD-1 backbone and has a potential to expand company's pipeline in immuno-oncology space. Additionally, OSE presented early signs of clinical activity of company's lead asset, Tedopi, in 3L NSCLC at AACR19. Following 2018 financial results, we updated our financial model. We reiterate our BUY rating and TP of €8.7.

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Financial visibility until the end of 2020

OSE IMMUNOTHERAPEUTICS reported 2018 full-year financial results on March, 28. The company reported €24.5M in revenues, compared to our estimate of €21M, and net profit of €5.5M, compared to our estimate of €4.4M. The difference mainly resulted from higher-than-expected revenue recognition. The operating expenses totaled €19.5M, in-line with our estimates. We have updated our model to reflect the 2018 financial results. For 2019, we project revenues of €25M, resulting from the milestone payments from Servier and BOEHRINGER INGELHEIM, and a net profit of €6.7M. The company ended 2018 with €12.5M in cash and cash equivalents and, with an addition of €25M, we believe OSE has sufficient funds to maintain its operations until the end of 2020. We reiterate our BUY rating and the TP of €8.7.

Novel BiCKI platform could expand immuno-oncology pipeline

On March 7, OSE disclosed its novel bispecific checkpoint inhibitor platform (BiCKI) at the World Immunotherapy Congress. Bispecifics are antibodies that simultaneously engage two targets. Due to this ability, they could simultaneously bind both tumor and immune cells, bringing the two together and letting immune cell to destroy cancer cell, or bind several receptors on immune cells to enhance the immuno-stimulatory properties. According to the company, BiCKI platform will be based on the key backbone component, an anti-PD-1 antibody (OSE-279), and will engage other innovative targets.

Programmed death 1 (PD-1) receptor is an effective target in cancer treatment, with blockbuster drugs such as Keytruda from MERCK and Opdivo from BRISTOL-MYERS SQUIBB. PD-1 is expressed on activated T-cell lymphocytes and binds to its ligands, PD-L1 or PD-L2, to limit the activation of immune response against own healthy cells. Tumor cells learned to hijack this mechanism to prevent tumor recognition by immune system. Through overexpressing PD-L1, cancer cells can inhibit T cell activation and immune attack against tumor. To block this immune response evasion, OSE-279 was designed to fully antagonize PD-1 binding to PD-L1/2. Preclinical study showed that OSE-279 inhibits PD-1 signaling and activates T cell response, potentially providing an effective backbone for BiCKI platform.

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in € / share	2018	2019e	2020e
Adjusted EPS	n.s.	n.s.	n.s.
chg.	*n.s.*	*n.s.*	*n.s.*
estimates chg.	*n.s.*	*n.s.*	*n.s.*

au 31/12	2018	2019e	2020e
PE	n.s.	n.s.	n.s.
EV/Sales	n.s.	n.s.	n.s.
EV/EBITDA	n.s.	n.s.	n.s.
EV/EBITA	n.s.	n.s.	n.s.
FCF yield*	n.s.	n.s.	n.s.
Div. yield (%)	n.s.	n.s.	n.s.

* After tax op. FCF before WCR

key points	
Share price (€)	4,1
Number of Shares (m)	14,8
Market cap. (€m)	61
Free float (€m)	32
ISIN	FR0012127173
Ticker	OSE-FR
DJ Sector	Health Technology

	1m	3m	Ytd
Absolute perf.	+2,5%	+19,5%	+20,6%
Relative perf.	+2,0%	+5,0%	+5,6%

Source : Factset, Invest Securities estimates

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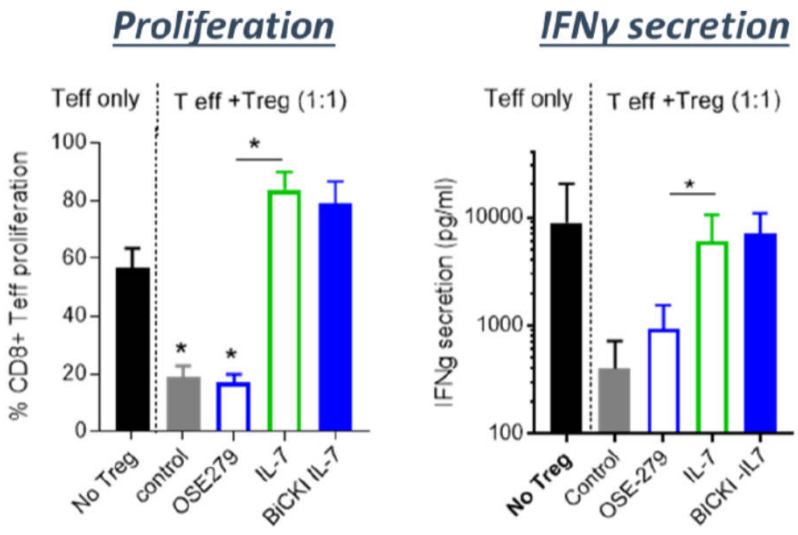
While anti-PD-1 therapies were successful in the clinic, there is still a large fraction of cancer patients that do not respond to these therapies. BiCKI platform aims to extend the spectrum of patients responding to these immunotherapies by expanding the reach of the anti-PD-1 backbone with the second target. So far OSE disclosed first potential BiCKI design, which would antagonize PD-1 and simultaneously stimulate interleukin-7 (IL-7) signaling. It was shown that cytokines, such as IL-7, are key to T-cell proliferation. IL-7 binds to the IL-7 receptor on the T cell surface, triggering proliferation and long-term survival. Early studies looked at direct injection of recombinant IL-7, albeit this approach was not successful in the clinic, likely due to the development of neutralizing antibodies to the recombinant protein. Additionally, the direct injection of cytokines is associated with severe adverse event. Thus, the challenge has been how to effectively deliver cytokine signal directly to T cells. In our view, the bispecific approach of BiCKI platform could help to overcome this issue. In preclinical studies administration of BiCKI IL-7 resulted in increased expansion of effector T cell (cytotoxic lymphocytes), but not regulatory T cells (lymphocytes that favor tumor progression). Additionally, BiCKI IL-7 increased mucosal migration of T cells, suggesting a potential to promote tumor permeability by T cells (Exhibit 1). We also note that BiCKI IL-7 was more effective compared to OSE-279 alone.

Exhibit 1: BiCKI enhances effector T cell proliferation



Source: Company's presentation, World Immunotherapy Congress 2019.

Additionally, on March 26, OSE announced a collaboration with Léon Bérard Cancer Center (CLB) to identify novel targets that are associated with the resistance to anti-PD-1/PD-L1 therapies based on the different patient cohorts and tumor biopsies. CLB would provide an Artificial Intelligence tool to identify clinically relevant therapeutic targets, which then will be integrated into OSE's bispecific platform (BiCKI).

Overall, we believe that BiCKI could significantly expand OSE's immuno-oncology pipeline. We also note that bispecific approach attracted a lot of attention lately, with MERCK KGAA and GLAXOSMITHKLINE collaboration that resulted in €300M upfront payment, and ROCHE and XNECOR deal that brought €120M in upfront payment as well. While we are encouraged by prospects of the BiCKI, we do not account for it in our financial valuation at this time due to the early stage of the program.

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Early signs of Tedopi's clinical activity in 3L NSCLC presented at AACR

On March 31, the company also presented early signs of Tedopi's clinical activity in CKI-refractory NSCLC patients at the 2019 annual meeting of American Association for Cancer Research (AACR). Recall, Tedopi is being evaluated in the Phase 3 Atalante 1 study in treatment of patients with non-small cell lung cancer (NSCLC), who are HLA-A2 positive and progressed after CKI. The presented results showed that out of 18 evaluated patients in the investigational arm, 3 had clinical benefits (1 partial response and 2 stable disease). In 3 responded patients, Tedopi as a third-line treatment achieved progression free survival (PFS) ranged of 4 to 18 months and overall survival after treatment initiation was 20+ months. Note that median overall survival of 3L NSCLC patients is about 8 months. While we are encourage by the clinical activity of Tedopi in responded patients, we also note that response rate was rather modest and patients received chemotherapy post treatment with Tedopi.

Atalante 1 is a two-step study with an interim futility analysis (n=100), which could either give a green light to proceed to the step two (n=325) or trigger the discontinuation of the study. The futility analysis will be based on 12-months survival rate (number of patients that survived past 12 months), which is required to meet a pre-specified percentage. Additionally, Atalante 1 includes the control arm that is treated with chemotherapy (CT), as CT is the only currently available option for NSCLC patients post CKI. We currently expect the results of Atalante 1 futility analysis by the end of 2019 – beginning of 2020 and the topline results in 2021.

We also note that Tedopi is being evaluated in the Phase 2 TEDOPaM study in combination with Opdivo (a checkpoint inhibitor from BRISTOL-MYERS SQUIBB) as a maintenance therapy in patients with advanced pancreatic cancer. TEDOPaM will be conducted by Oncology Physician Network GERCOR and is expected to begin patient accrual in 1H19. To stay conservative in our estimates, we currently project Tedopi to reach the market in the US and the EU in 2023, generating risk-adjusted revenues of €20M and growing to €136M by 2029.

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OSE IMMUNOTHERAPEUTICS

INVESTMENT CASE

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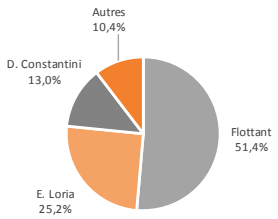
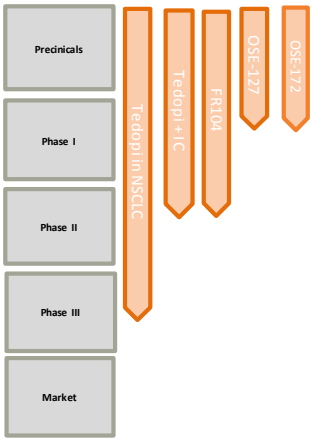
FINANCIAL DATA

Shareholders



Pipeline



Share information	2014	2015	2016	2017	2018	2019e	2020e	2021e
Published EPS (€)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Adjusted EPS (€)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Diff. I.S. vs Consensus	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
Dividend	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Valuation ratios	2014	2015	2016	2017	2018	2019e	2020e	2021e
P/E	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
EV/Sales	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
VE/EBITDA	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
VE/EBITA	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Op. FCF bef. WCR yield	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Op. FCF yield	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Div. yield (%)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

NB : valuation based on annual average price for past exercise

Entreprise Value (€m)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Share price in €	*n.s.*	*7,1*	*6,8*	*5,2*	*4,1*	*4,1*	*4,1*	*4,1*
Market cap.	n.s.	71	67	35	61	61	61	61
Net Debt	n.s.	-14	-17	-8	-8	-15	-7	-30
Minorities	n.s.	0	0	0	0	1	2	3
Provisions/ near-debt	n.s.	0	0	0	0	0	0	0
+/- Adjustments	n.s.	0	0	0	0	1	2	3
Entreprise Value (EV)	**n.s.**	**57**	**51**	**27**	**53**	**48**	**58**	**37**

Income statement (€m)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Sales	0	0	0	7	24	25	10	41
chg.	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
EBITDA	4	-5	-8	-13	5	6	-12	24
EBITA	**4**	**-5**	**-8**	**-13**	**5**	**6**	**-12**	**24**
chg.	***n.s.***	***n.s.***	***n.s.***	***n.s.***	***n.s.***	***+10,9%***	***n.s.***	***n.s.***
EBIT	4	-5	18	-13	5	6	-12	24
Financial result	0	0	0	0	0	0	0	0
Corp. tax	0	0	3	2	1	1	4	-2
Minorities+affiliates	0	0	0	0	0	0	1	2
Net attributable profit	4	-6	21	-11	5	7	-7	24
Adjusted net att. profit	**4**	**-6**	**21**	**-11**	**5**	**7**	**-7**	**24**
chg.	***n.s.***	***n.s.***	***n.s.***	***n.s.***	***n.s.***	***+21,5%***	***n.s.***	***n.s.***

Cash flow statement (€m	2014	2015	2016	2017	2018	2019e	2020e	2021e
EBITDA	4	-5	-8	-13	5	6	-12	24
Theoretical Tax / EBITA	0	0	0	0	0	1	2	3
Capex	0	0	-3	-2	-1	0	0	0
Operating FCF bef. WCR	**4**	**-5**	**-11**	**-15**	**4**	**7**	**-10**	**27**
Change in WCR	1	-1	0	3	-5	0	0	0
Operating FCF	**4**	**-6**	**-10**	**-12**	**0**	**7**	**-10**	**27**
Acquisitions/disposals	0	0	6	0	-1	0	0	0
Capital increase/decrease	3	20	0	0	0	0	0	0
Dividends paid	0	0	0	0	0	0	0	0
Other adjustments	0	-5	6	4	0	0	0	0
Published FreeCash Flow	**7**	**8**	**1**	**-7**	**-1**	**7**	**-10**	**27**

Balance Sheet (€m)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Assets	0	0	53	53	54	54	54	54
Intangible assets/GW	0	0	53	53	53	52	52	52
WCR	0	0	0	-2	2	2	2	2
Group equity capital	-1	14	65	55	62	68	61	83
Minority shareholders	0	0	0	0	0	0	0	0
Provisions	0	0	5	3	2	2	2	2
Net financial debt	**0**	**-14**	**-17**	**-8**	**-8**	**-15**	**-7**	**-30**

Financial ratios	2014	2015	2016	2017	2018	2019e	2020e	2021e
EBITDA margin	n.s.	n.s.	n.s.	n.s.	n.s.	22,1%	n.s.	59,5%
EBITA margin	n.s.	n.s.	n.s.	n.s.	n.s.	22,1%	n.s.	59,5%
Adjusted Net Profit/Sales	n.s.	n.s.	n.s.	n.s.	n.s.	26,7%	n.s.	59,2%
ROCE	n.s.	n.s.	n.s.	n.s.	n.s.	9,9%	n.s.	43,7%
ROE adjusted	n.s.	n.s.	n.s.	n.s.	n.s.	9,7%	n.s.	29,1%
Gearing	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
ND/EBITDA (in x)	n.s.	n.s.	n.s.	n.s.	n.s.	-2,7x	n.s.	-1,2x

Source : company, Invest Securities Estimates

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OSE IMMUNOTHERAPEUTICS

SWOT ANALYSIS

STRENGHTS

- Diversified portfolio in oncology and autoimmune diseases
- Several license agreements

WEAKNESSES

- Assets in early-stage of development
- Lack of visibility on the lead program

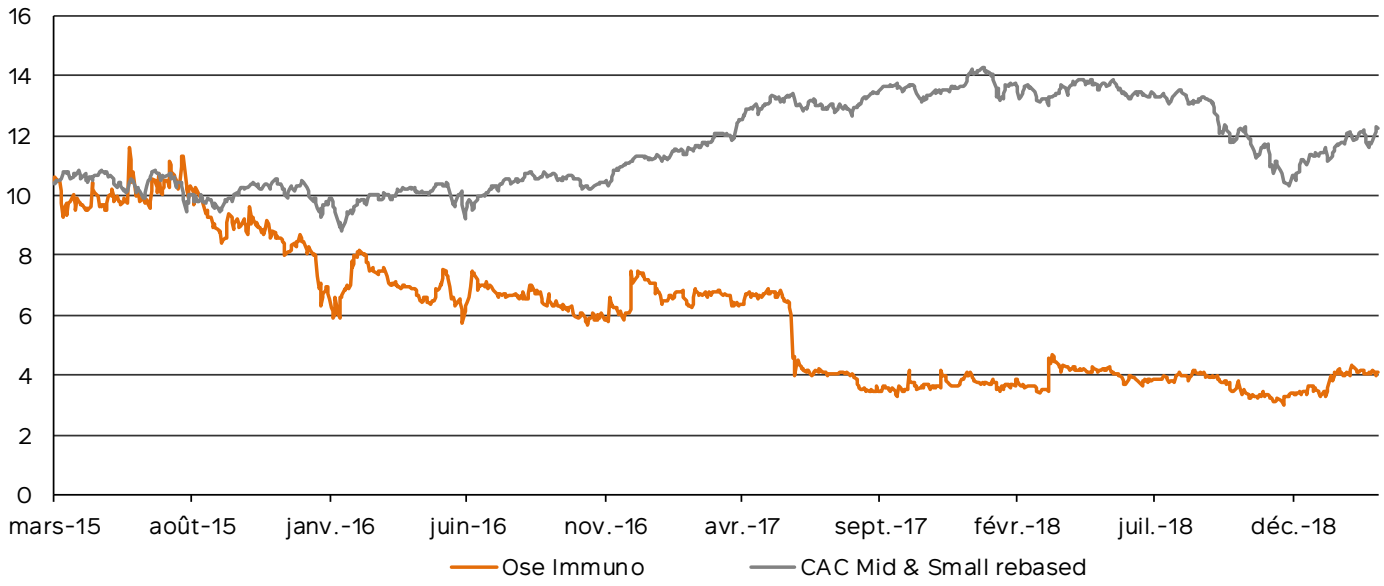
OPPORTUNITIES

- Combination trials
- Additional partnerships

THREATS

- Strong competition in oncology
- Several failures of therapeutic vaccines

SHARE PRICE CHANGE FOR 5 YEARS



DETECTION OF CONFLICTS OF INTEREST

	Corporate Finance	Treasury stocks holding	Prior communication to company	Analyst's personal interest	Liquidity contract	Listing Sponsor	Research Contract
Ose Immuno	No	No	No	No	Yes	Yes	Yes

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