Deinove

Annual update

Implementing the new strategy

Alternative energy

Deinove has selected key markets of interest, identified strains from its library of bacteria, which indicate suitability for commercial deployment, and formed partnerships to expedite that process. While uncertainties remain, commercial revenues are expected in 2018 and development of revenues in line with our projections would indicate a potential valuation of €4.4/share.

Year end	Revenue (€m)	PBT* (€m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
12/15	0.5	(7.3)	(66.8)	0.0	N/A	N/A
12/16	0.8	(6.9)	(64.6)	0.0	N/A	N/A
12/17e	0.5	(8.0)	(62.9)	0.0	N/A	N/A
12/18e	2.6	(5.9)	(31.2)	0.0	N/A	N/A

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

Focus on health, nutrition and cosmetics

Post its strategic change of direction (announced in October 2016), Deinove is now focused on the three major markets of health, cosmetics and nutrition. Each of these markets presents a significant and growing opportunity and Deinove has identified bacteria from its strain library, which exhibit characteristics that suggest they may be suitable for commercial deployment in these areas. Deinove has established partnerships with players in each of these markets to investigate potential application and facilitate the process of commercial deployment.

Commercial revenues expected from 2018

While global markets appear attractive and Deinove expects commercial revenues from 2018, it is difficult to predict the timing and trajectory of subsequent revenues with a high degree of certainty. In particular, the price competitiveness of Deinove's technology and the timetable for deployment remain significant sensitivities in both Deinove's funding model and our valuation.

Valuation: Upside but significant valuation sensitivity

We continue to use a DCF approach to provide valuations for Deinove, but have updated our model to reflect the absence of revenues from the biofuels business (suspended in October 2016). Using a discount rate of 12.5% and assuming no terminal growth, we calculate that Deinove could be worth c €4.4/share. However, projecting revenues is a highly uncertain exercise and we also set out probability-adjusted valuations. At a price of €2.0/share (around current levels), the market appears to be applying a 50% probability of Deinove achieving our projections. Conversely, simply reducing the discount rate to 10% would indicate a valuation of c €6.6/share.

1 September 2017

Price	**€1.92**
Market cap	**€20m**

Net cash* (€m) at 31 December 2016 *Company definition	9.3
Shares in issue	10.6m
Free float	72%
Code	ALDEI
Primary exchange	Alternext
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(8.1)	(10.7)	(51.5)
Rel (local)	(8.1)	(7.5)	(58.0)
52-week high/low		€4.05	€1.82

Business description

Deinove is a biotechnology company that discovers, develops and produces high value-added compounds from rare bacteria, including Deinococcus bacteria.

Next events

H117 results	28 September 2017

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Edison profile page

Deinove is a research client of Edison Investment Research Limited

Investment summary

Company description: Biology and technology

Deinove is a biotech company that discovers, develops and produces high-value compounds from rare bacteria, notably from the *Deinococcus* genus. Deinove possess a collection of more than 6,000 strains of the Deinococcus bacterium and other UV-resistant strains, which it has screened to identify characteristics that could offer the potential for successful commercial application in its target markets.

Valuation: DCF remains favoured approach

While Deinove remains some way from profitability we believe a DCF approach is the best way of valuing the company. Given our central case assumptions and using a discount rate of 12.5% and a terminal growth rate of 0%, we calculate that Deinove could be worth c €4.4/share. However, projecting revenues is a highly uncertain exercise and we also set out probability-adjusted valuations. At a price of €2.0/share (around current levels), the market appears to be applying a 50% probability of Deinove achieving our projections.

Financials: Commercial revenue from 2018

In FY17 we assume no commercial revenue from product sales, royalty receipts or upfront payments and forecast only c €0.5m of revenue from the provisions of research services to partners and third parties. Our forecast for revenue in FY18 is €2.6m, in large part based on our assumption of a $2m upfront payment in the cosmetics business. We do not expect any significant change to the cost base and we forecast that administrative expenses rise by c 2% pa. Our forecasts are constructed on the basis that Deinove is able to finance the business from its own resources via a combination of existing cash balances in the short term, and advances from funding bodies, revenue from the provision of research services, product sales, upfront payments and royalty payments from partners in the longer term.

Sensitivities: Commercial competitiveness

Given the early-stage nature of the business, significant risks exist that Deinove's technology proves insufficiently robust or price competitive for commercial deployment. The timing of commercialisation also remains a key sensitivity. Delays in bringing products to market would not only affect our DCF projections, but could also require Deinove to seek alternative funding sources to support the business. At the end of 2016 Deinove had a net financial position of €9.3m and expects to receive aid and grants in 2017 of c €1.25m. The company believes that it has sufficient resources to last until Q118 without recourse to tranches 3 and 4 of the equity line funding put in place with Kepler Cheuvreux in 2014. Our financial projections include upfront payments from partners. Should those upfront payments not materialise, or be delayed, Deinove would have to consider further equity issuance to finance the business.

Exhibit 1: Changes to key forecasts

	Revenue (€m)			EBITDA (€m)			Net cash (€m)*		
	Old	New	% chg.	Old	New	% chg.	Old	New	% chg.
2017e	0.5	0.5	N/A	(7.3)	(7.2)	-1%	6.6	5.4	-18%
2018e	1.2	2.6	117%	(6.4)	(5.1)	-20%	2.7	3.5	30%

Source: Edison Investment Research. Note: *Cash balances shown are the company's definition.

Company description: Biotechnology developer

Deinove's business is based on its extensive library of bacterial strains from which, via a screening process, it has identified those that naturally produce compounds appropriate for commercialisation. Deinove has identified three target markets where it sees attractive commercial opportunities and the potential for the application of its technology. Deinove is engaged currently in the process of bringing the molecules to market and is aiming to generate its first commercial revenues in 2018.

Focus on antibiotics, cosmetics and nutrition

Thanks to its investment into genetic and metabolic engineering platform, Deinove has the ability not only to examine its strain bank and identify interesting bacteria, but also to optimise the naturally occurring characteristics of the bacteria to increase production for commercial purposes. Utilising its strain bank and metabolic engineering platform, Deinove runs a number of research and development programmes, either alone or with industrial partners, designed to target its core markets of antibiotics, cosmetics and nutrition. Following its announcement of a strategic refocus (October 2016) Deinove's efforts to develop its biofuels business, through its Deinol programme, have been suspended. So far Deinove has made 160 patent applications.

B2B provider of ingredients or tailor-made solutions

Deinove operates as a B2B company, providing ingredients or tailor-made solutions to its business partners in its core markets. Within its areas of core focus, revenue is targeted from four specific areas: public financing (grants or repayable advances for research from bodies such as Bpifrance); contributions and/or coverage of R&D costs by partners; upfront payments and royalties from product sales under licensing agreements; and turnover generated from direct sales to businesses. Deinove is aiming to generate its first commercial revenues in 2018, either from the direct sale of carotenoids, signing licensing agreements with industrial partners and/or partnership agreements with pharma companies.

New personnel reflect new business focus

Emmanuel Petiot remains CEO of Deinove (since 2013) but, following the refocusing of corporate strategy in October 2016, there have been significant changes to the Board of Directors and Executive Committee. In January 2017 Charles Woler, who has over 35 years' international experience in the pharma, medtech and biotech industries, was appointed chairman. Mr Woler replaced Philippe Pouletty, who remains a non-executive director and a representative of Truffle Capital on the board. In addition, Deinove has appointed four other directors to the Board of Directors: Bernard Fanget, Hervé Brailly, Professor Vincent Jarlier and Dr Yannick Plétan. These appointments bring significant experience from the pharma and medical sectors and specific expertise on drug development to the Board of Directors. Deinove has also strengthened its operational management. In March 2017 it announced the appointment of Dr Bernard Scorneaux to prepare and lead the potential studies of antibiotic drug candidates. More recently (May 2017), Deinove appointed a new director of R&D, Georges Gaudriault. Mr Gaudriault joins the Executive Committee.

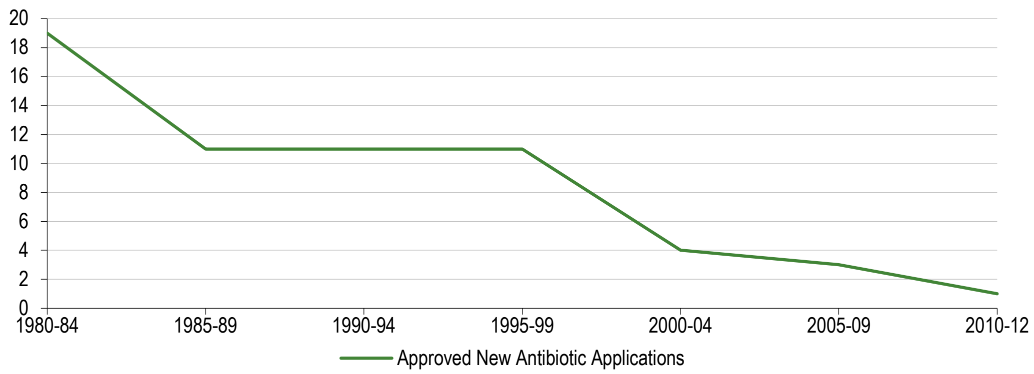
2018 targeted for first commercial revenues

Deinove has three clearly focused businesses: health, cosmetics and nutrition, each involved in markets that offer the potential for significant global growth. Post the screening of its library of bacteria and the identification of strains with the potential for commercial development, Deinove has forged partnerships with industrial companies to expedite this process. Deinove expects to generate its first commercial revenues in 2018 and, should it successfully generate revenues in line with our forecasts, which also assume commercial revenues from 2018, our DCF valuation indicates that it could be worth €4.4/share. Any delay to this timetable would have an adverse impact on our valuation and in the case of delays could require additional financing.

Market for antibiotics and antifungals

Due to increased antimicrobial resistance (AMR) of pathogens to existing drugs (AMR is the ability of a microbe to evolve resistance to the effects of medication previously used to treat them), Deinove believes the market for new antibiotics and antifungal treatments is significant. While AMR would be expected to increase naturally over time, principally due to genetic changes, the misuse (prescribing antibiotics for non-bacterial infections) and overuse of antibiotics has accelerated this process through selection pressure. Antibiotic use in livestock has compounded the problem. However, the surge in use has not been accompanied by a corresponding increase in the rate of development of new antibiotics. On the contrary, the rate of development of new antibiotics with novel mechanisms of action has slowed considerably in recent years, due to industry-wide declining R&D productivity and various pharma companies shifting their focus onto developing new drugs in other potentially more lucrative disease areas. Costs remain high, development timescales are long (we estimate c 12 years to discover and develop a new medicine at a cost of c £1.15bn) and, ultimately, potential revenue is depressed by the restricted use of the drugs.

Exhibit 2: Decline in approved new antibiotic applications



Source: Deinove

The failure to develop new antibiotic and antifungal treatments is potentially serious given the rising trend of AMR. AMR is currently responsible for an estimated 700,000 deaths, but forecasts project that this could rise to c 10 million deaths worldwide by 2050 (source: Review on Antimicrobial Resistance – Tackling drug-resistant infections globally). The potential cost to the world economy of AMR is also estimated to be significant (c $100tn, or 2.0-3.5% of GDP by 2050). In addition to the economic impact and the forecast increase in the number of fatalities, AMR also presents a number of secondary problems. Reduced safety for medical interventions, particularly in light of hospital-acquired infections like MRSA, such as joint replacement, cancer treatment, organ transplant and caesarean section, would all constitute unwelcome secondary developments from rising AMR. Given the requirement to develop new drugs, Deinove believes that the market for antibiotics is substantial (c $50bn pa) and is seeking to address the opportunity through its wholly owned Deinobiotics subsidiary while leveraging on the wider Deinove platform.

Deinobiotics

Deinove first launched a research programme to explore and validate the antibacterial potential of its strain library in 2009, with support from OSEO, the Languedoc-Roussillon Region and the European Regional Development Fund (ERDF). The programme identified a number of bacterial strains with antibiotic activity and accordingly Deinove established Deinobiotics in 2012 (with Dominque Le Beller as CEO) to conduct further research into antibiotics and antifungals. Mr Beller was the co-founder of Novexel, which was sold to AstraZeneca in 2009 for $400m. At the outset the company's share capital was opened to Holding Incubatrice Chimie Verte, but following Deinove's revised strategic focus (announced in October 2016) Deinove acquired (January 2017) all the shares of Deinobiotics not already owned (via a contribution in kind involving the issue of 1,001,437 shares resulting in the dilution of 10.15%). Deinobiotics remains fully dedicated to research and development of antibiotics and antifungals and has been further strengthened by the transfer of research staff previously deployed on the Deinol project.

At the beginning of January Deinove announced the publication of two patent applications for its first antibiotic candidate (DNB 101), which is currently under development. According to Deinove it shows "original chemical structure and a particularly interesting activity". It is currently undergoing advanced preclinical research, including in vivo effectiveness tests for several indications, as well as pharmacological tests. Deinove believes that, in due course, by utilising its metabolic engineering platform and its biodiverse portfolio of bacteria, it can multiply the number of drug candidates. In March Deinove announced that it had hired Dr Bernard Scorneaux to prepare and lead the preclinical studies of antibiotic drug candidates. Dr Scorneaux is a specialist in infectious diseases and has been responsible for the preclinical studies of several drugs, either in the advanced stages of clinical development or currently on the market.

However, developing new drugs is a lengthy and uncertain process, with preclinical trials lasting anywhere (including the discovery phase) between three and six years, clinical development a further five to seven years with a final one to two years for regulatory review. According to a research paper by Di Masi (Di Masi et al: *Trends in risks associated with new drug development: success rates for investigational drugs* Clinical Pharmacology & Therapeutics, Volume 87: February 2010), the clinical approval success rate for systemic antibiotics was c 24%, somewhat higher than seen in some other therapeutic areas.

In the event of finding a suitable drug candidate, Deinove would not expect to fund the entire development process and would be able to exit the development phase, for example by selling its technology on to a larger pharma company before commercial deployment. Deinove's goal is to identify and develop a drug candidate portfolio (through to early clinical valuation) and then add value to these candidates through partnership with pharma companies. In general terms, the earlier-stage the deal, the less attractive the economics would be to Deinove. However, upfront payments from partners would represent a viable alternative source of funding to further dilutive equity issuance. Individual transactions would clearly differ one from the other (different terms and characteristics), but deals could typically include an upfront payment, success-based milestones (usually back-end loaded and linked to developmental stages/regulatory success) and royalties on sales. In our financial model we assume that Deinove sells one drug candidate to a large pharma company in 2020 for $12m and another in 2027, also for $12m. We assume no further milestone payments, but expect Deinove to receive royalty revenues (10% of partner sales) from 2026.

Nutrition a significant global challenge

Nutrition represents a key global challenge given projections that indicate the population of the world will reach c 9.7 billion by 2050, broadly speaking 30% higher than current levels (source: United Nations (2015) Probabilistic Population Projections based on World Population Prospects, the 2015 Revision – Population Division, DESA). A rise in arable land under production will be needed to satisfy the increased demand but estimates supplied by the UN suggest that in developing countries 80% of the required increased production would need to come from improved yields. Beyond the headline growth in population, rising incomes are also likely to give rise to increased per capita consumption of meat. The Food and Agriculture Organization of the United Nations (FAO) report *World Livestock 2011* (using FAO projections from 2006) suggested that in 2050, 2.3 times as much poultry meat and between 1.4 and 1.8 times as much of other livestock products will be consumed as in 2010. Deinove believes that its library of bacterial strains offers the potential to develop a range of compounds of interest including antioxidants, colouring and nutritional supplements to help address this problem.

Deinove's two-pronged approach to the nutrition market

Deinove has adopted a two-pronged strategy to address the nutrition market. The first initiative is to continue development of carotenoid molecules under the Deinochem programme. Secondly, Deinove has established commercial partnerships with Avril and Flint Hills Resources (FHR), which it believes will offer easier access to end-markets.

Deinochem

The Deinochem project is Deinove's standalone programme established to investigate and exploit the properties of carotenoids for commercial purposes. The programme is financed by a grant of €5.9m from ADEME and the CGI.

Most existing carotenoids are made from petrochemical sources and are known for their colouring, antioxidant and photochemical properties. As such, carotenoids are used in food supplementation and cosmetics as colouring agents. Although carotenoids can be extracted from plants, the process is costly and the yields remain low. Deinove is aiming to produce carotenoids using its biotechnology and believes it can offer advantages in terms of quality and stability of supply, conservation of resources and costs.

Deinove passed the first milestone of the Deinochem project in 2015 receiving €1m from ADEME and made significant further progress in 2016. In February 2016 Deinove announced that it had increased the number of carotenoid-producing molecules in the Deinochem project to five, with yields being improved by 6-8 times. In June 2016 Deinove passed the second milestone triggering an additional milestone payment of €1.5m from ADEME. A further €0.8m was received in December 2016 in the form of a renewable advance for reaching target thresholds for production and yield.

According to Deinove, the market for carotenoids is c $1.8bn with a selling price of between €300-3,000/kg depending on the molecule. The production costs are estimated to be in the range of €200-600/kg. Deinove is aiming to sell its first batches of carotenoids in 2018.

Commercial partnerships

In September 2014 Deinove signed a three-year partnership agreement with Avril for the development of a process for producing natural supplements for animal feed. The project, named COLOR2B, is divided into three stages, and the first screening stage identified 20 strains of interest and was completed in 2015. The second stage, including fermentation, optimisation extraction characterisation and preliminary animal testing, has been successfully completed with the potential (effectiveness and bioavailability) of Deinove's strains validated by AVRIL. The third stage, including process optimisation, scale-up and regulatory approval, is targeted for conclusion in 2018.

In late 2015 Deinove also announced an R&D partnership with FHR, a company active in refining, petrochemicals and biofuels (a subsidiary of Koch Industries). The partnership targets the production of ingredients for animal feed using the Deinococcus bacteria and raw material provided by FHR. The research costs of the project are covered by FHR. After successfully identifying suitable strains as part of the first phase, the project recently entered the second stage, which is scheduled for completion by the end of the current year. Phase 2 will aim to produce additives in quantities for testing their effects on animals and look to optimise fermentation and define conditions for the development of the production process. If successful in identifying one or two strains suitable for commercialisation, Deinove and FHR will study the terms of a licensing agreement

Cosmetics

While not benefiting from the urgent imperatives of finding solutions to AMR and the growing requirement to feed an expanding global population, Deinove still believes there will be significant growth in the market for cosmetics due to a growing and ageing population and increasing global affluence. Deinove sees a target market of $130bn growing at a CAGR of c 10%.

In March 2017 Deinove announced its entry into the cosmetics market via a collaborative partnership with Greentech. The partnership will utilise the screening carried out by Deinove to identify activities relevant to the cosmetics industry. Deinove has already identified strains with properties including antioxidant anti-ageing UV protection, healing damaged skin, moisturising and postoperative skincare, among others.

The partnership aims to develop and market cosmetic ingredients and is currently testing and working on the production, purification and formulation of several compounds. The goal is to bring the first ingredient to market by the end of 2018. Founded 25 years ago and with subsidiaries in Germany, the US and Brazil, Greentech develops and produces active ingredients originating from the plant, marine and microbial world. Greentech sells these active ingredients to cosmetics manufacturers globally.

Biofuels

Following Deinove's decision to suspend its biofuel (Deinol) programme, the partnerships formed as part of this programme (eg with Abengoa and Suez and others) have been dissolved. Staff and equipment deployed in this area have been moved to other research programmes.

While the Deinol programme has been suspended, rather than abandoned, with oil prices at current levels (c $47/bbl), we see little prospect of Deinove reviving its involvement in biofuels. Deinove has previously stated that an oil price of well over $100/bbl would be required to resume the programme. However, as the programme remains suspended (rather than cancelled), the conditional advances associated with Deinol remain on balance sheet. We assume no revenues from this project and assign it no value in our DCF valuation.

Board and management changes

Emmanuel Petiot remains CEO of Deinove but, following the shift in corporate strategy, there have been significant changes to the Board of Directors.

In January 2017 Charles Woler, who has over 35 years' international experience in the pharma, medtech and biotech industries, including a number of senior roles at Roche and SmithKline

Beecham, was appointed chairman of the board. Mr Woler replaced Philippe Pouletty, who remains a non-executive director and a representative, along with Christian Pierret, of Truffle Capital, Deinove's largest shareholder on the board. In addition to Charles Woler, Deinove has appointed four other directors to the board: Bernard Fanget, Hervé Brailly, Professor Vincent Jarlier and Dr Yannick Plétan. These appointments bring significant experience from the pharma and medical sectors and specific expertise on drug development to the board.

Prof Jarlier has headed the Department of Bacteriology and Hygiene of the Pitié-Salpètrière Hospital in Paris since 1996 and is an expert on the fight against resistant and multi-resistant bacteria. Hervé Brailly has considerable experience of the biopharma sector and was co-founder of Innate Pharma, a leading immunology specialist. Today Hervé Brailly remains chairman of the business. Yannick Plétan is a clinical development specialist working in the pharmaceutical industry in a variety of positions since 1984. He is author or co-author of several international guidelines for the WHO and a number of publications on clinical trial methodology. Bernard Fanget has over 30 years' experience in pharmaceutical development holding senior positions at Flamel Technologies and Sanofi Pasteur. Mr Fanget also sits on a number of working groups within the World Health Organisation.

In addition to the significant changes to the Board of Directors, Deinove appointed a new director of R&D, Georges Gaudriault (replacing Jean-Paul Leonetti, who returned to the CNRS). Mr Gaudriault has a PhD in molecular pharmacology and has spent his career in pharmaceutical innovation. As we have noted, Deinove also appointed Dr Bernard Scorneaux to prepare and lead the preclinical studies of antibiotic drug candidates.

The new appointments should be seen in the context of the resignation of four directors; Dennis McGrew, Paul-Joël Derian, Nabil Sakkab and Rodney Rothstein, whose background and experience lay in the biofuels industry.

Sensitivities and risks

A high degree of uncertainty surrounds the scale of potential commercial revenues. Given the early-stage nature of the business, a significant risk exists that Deinove's technology proves insufficiently robust or price competitive for commercial deployment.

The timing of commercialisation also remains a key sensitivity. Delays in bringing products to market would not only affect our DCF projections, but could also require Deinove to seek alternative funding sources to support the business. Additional funding might also be required if Deinove were to identify and seek to develop other areas of commercial interest not currently within the scope of its business plan. Conversely, more rapid revenue generation than currently envisaged would indicate a higher DCF valuation.

At the end of 2016 Deinove had a net financial position of €9.3m and expects to receive aid and grants in 2017 of c €1.25m. (Deinove calculates its cash position with reference to cash balances only. We treat repayable advances received from funding bodies, c €9.1m at the last balance sheet date, as debt and use this figure in our calculation of net debt. Deinove classifies these repayable advances as equity.) The company believes it has sufficient resources to last until Q118 without recourse to tranches 3 and 4 of the equity line funding put in place with Kepler Cheuvreux in 2014. Our financial projections, which include upfront payments from partners, do not require further equity funding. Should those upfront payments not materialise or be delayed, Deinove could be forced to seek additional equity funding.

Deinove is a small business employing c 50 people and is reliant on retaining key staff. Defections of key personnel could pose a threat to Deinove's strategy.

Given the nature of its business model, Deinove also remains highly dependent on commercial partners. Changes in the financial positioning and/or business strategy of those commercial partners could require Deinove to make adjustments to its own corporate strategy.

Deinove faces patent risks, including the risk that some pending patents are not issued, licensed patents are subject to legal challenge and the scope of the patents is not sufficient to protect Deinove's commercial property.

Valuation

Deinove is expecting to generate commercial revenue from 2018. Nevertheless, the company remains some way from profitability and we believe that a DCF, rather than peer group multiple analysis, appears the most appropriate method for valuing the company. However, predicting long-term revenues also remains a highly uncertain exercise and introduces significant risk to the accuracy of the DCF. To reflect the inherent uncertainty of our forecasts, we set out our valuation below, together with additional sensitivity analysis. Our principal assumptions are:

Health: given the long time frame required for successful drug development, we assume no royalty revenues before 2026 (at a rate of 10% of partner revenues). However, we do assume an upfront payment from a partner of $12m in 2020 and a further payment of $12m in 2027.

Nutrition: in nutrition we assume Deinove generates its first revenues in 2019 ($2m upfront payment). We forecast that Deinove will generate licence income of c 5% of partner sales.

Cosmetics: we expect the first revenues in 2018. We forecast that Deinove will receive licence income of c 5% of partner sales.

Biofuels: we assume that the biofuels programme (Deinol) remains suspended. We also assume the conditional advances already received remain on balance sheet.

We project that the current cost base rises at c 2% pa and that there are no further equity issues over the period of the DCF. As we have already noted, the latter assumption is highly dependent on the timing and scale of the upfront payments from partners. Any deferral or reduction of these payments could require Deinove to seek alternative sources of funding. Based on the assumptions outlined above and using a discount rate of 12.5% and a terminal growth rate of 0%, the valuation would be €4.4/share. Variations to this valuation, based on changes to the discount rate and terminal growth rate, are shown in Exhibit 3. Given the high level of uncertainty surrounding future revenues, we also show probability-adjusted valuations for each of the key focus areas (Exhibit 4).

Exhibit 3: Deinove DCF valuation sensitivity to discount rates and perpetuity growth rates

		Terminal growth rate					
		0.0%	1.0%	2.0%	3.0%	4.0%	5.0%
Discount rate	10.0%	6.6	7.1	7.8	8.6	9.7	11.3
	11.0%	5.6	5.9	6.4	7.0	7.7	8.7
	12.0%	4.7	5.0	5.4	5.8	6.3	7.0
	13.0%	4.1	4.3	4.6	4.9	5.2	5.7
	14.0%	3.6	3.7	3.9	4.1	4.4	4.7
	15.0%	3.1	3.2	3.4	3.5	3.8	4.0

Source: Edison Investment Research

Exhibit 4: Probability-adjusted valuation

Antibiotics	100%	75%	75%	75%	50%	25%	50%
Cosmetics	100%	100%	75%	75%	75%	75%	50%
Nutrition	100%	100%	100%	75%	75%	75%	50%
Valuation (€/share)	4.4	3.9	3.7	3.2	2.7	2.2	2.0

Source: Edison Investment Research

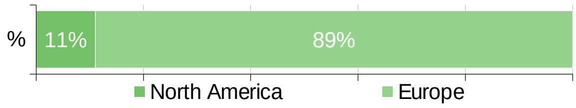
Financials

- Revenue: in FY17 we assume no commercial revenue from product sales, royalty receipts or upfront payments. We assume only c €0.5m of revenue from the provisions of research services to partners and third parties. Our forecast for revenue in FY18 is €2.6m, in large part based on our assumption of a $2m upfront payment in the cosmetics business.
- Expenses: we assume that there is no significant change to the cost base and we forecast that administrative expenses rise by c 2% pa.
- Funding: our forecasts are constructed on the basis that Deinove is able to finance the business from its own resources via a combination of advances from funding bodies and revenue from the provision of research services, product sales, upfront payments and royalty payments from partners. In the event that Deinove is unable to secure the flow of revenue/ funding that we assume, particularly with regard to one-off payments, it could be forced to consider further dilutive equity issuance to finance the business.

Exhibit 5: Financial summary

€'000s	2015	2016	2017e	2018e
Year end 31 December	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS				
Revenue	492	793	519	2,590
Cost of sales	0	0	0	0
Gross profit	492	793	519	2,590
EBITDA	(7,309)	(6,983)	(7,247)	(5,146)
Operating profit (before amort. and except.)	(7,331)	(6,956)	(7,934)	(5,813)
Intangible Amortisation	(634)	(736)	(202)	(426)
Exceptionals	(10)	283	0	0
Other	0	0	0	0
Operating profit	(7,975)	(7,409)	(8,137)	(6,239)
Net Interest	(14)	15	(33)	(57)
Profit before tax (norm)	(7,345)	(6,941)	(7,968)	(5,870)
Profit before tax (FRS 3)	(7,989)	(7,394)	(8,170)	(6,296)
Tax	1,633	1,115	1,328	2,578
Profit after tax (norm.)	(5,712)	(5,826)	(6,640)	(3,291)
Profit after tax (FRS 3)	(6,356)	(6,279)	(6,842)	(3,718)
Average number of shares outstanding (m)	8.6	9.0	10.6	10.6
EPS - normalised (c)	(66.8)	(64.6)	(62.9)	(31.2)
EPS - (IFRS) (c)	(74.3)	(69.6)	(64.8)	(35.2)
Dividend per share (c)	0.0	0.0	0.0	0.0
Gross margin (%)	N/A	N/A	N/A	N/A
EBITDA margin (%)	N/A	N/A	N/A	N/A
Operating margin (before GW and except.) (%)	N/A	N/A	N/A	N/A
BALANCE SHEET				
Fixed assets	1,968	2,366	5,620	5,127
Intangible assets	117	201	3,642	3,216
Tangible assets	1,055	853	667	600
Investments	796	1,312	1,312	1,312
Current assets	15,359	11,537	8,148	5,934
Stocks	0	0	0	0
Debtors	2,393	1,792	2,320	2,003
Cash	11,932	9,316	5,399	3,502
Other	1,034	429	429	429
Current liabilities	(2,719)	(2,142)	(3,034)	(4,045)
Creditors	(2,719)	(2,142)	(3,034)	(4,045)
Short-term borrowings	0	(0)	0	0
Long-term liabilities	(6,512)	(9,193)	(10,425)	(10,425)
Long-term borrowings	(6,497)	(9,178)	(10,410)	(10,410)
Other long-term liabilities	(15)	(15)	(15)	(15)
Net Assets	8,096	2,568	309	(3,409)
CASH FLOW				
Operating cash flow	(7,324)	(6,079)	(7,055)	(4,829)
Net Interest	(14)	15	(33)	(57)
Tax	1,633	1,115	1,500	3,589
Capex	(289)	(620)	(501)	(600)
Acquisitions/disposals	756	(479)	(3,642)	0
Financing	14,257	752	4,582	0
Dividends	0	0	0	0
Net cash flow	9,019	(5,297)	(5,149)	(1,897)
Opening net debt/(cash)	3,584	(5,435)	(138)	5,011
HP finance leases initiated	0	0	0	0
Other	0	0	0	0
Closing net debt/(cash)	(5,435)	(138)	5,011	6,908
Closing net debt/(cash) (Company Definition)	(12,432)	(9,316)	(5,399)	(3,502)

Source: Company accounts, Edison Investment Research

Contact details	Revenue by geography
CAP SIGMA ZAC Euromédicine II 1682 rue de la Valsière 34790 GRABELS France +33 (0)4 48 19 01 00 www.deinove.com	

Management team

Chairman: Charles Woler	CEO: Emmanuel Petiot
Charles Woler was appointed chairman of Deinove in January 2017. He is the CEO for the holding company of Biomnis and is a co-founder and chairman of Inflamalps. Dr Woler has over 35 years' international experience in the pharma, medtech and biotech industries, including a number of senior roles at Roche and SmithKline Beecham.	Before joining Deinove as CEO at the beginning of 2013, Emmanuel Petiot was commercial director of Novozymes North America. He spent nine years (2004-12) at Novozymes and held a number of executive positions in marketing, sales and development of industrial partnerships in Europe, the US and Asia. Before Novozymes, Mr Petiot worked in sales and marketing roles at Air Liquide and Dow Chemical.
Director of Finance & Administration: Julien Coste	
Julien Coste has experience of working for large corporate and smaller start-up companies. He was director of finance and administration at biotechnology company Neuro3d and held the same position at Publicis Healthcare Communications Group. He holds Master's degree from ESC Grenoble and the University of Paris Dauphine.	

Principal shareholders	(%)
Truffle Capital	26.6%

Companies named in this report

Roche, Avril, Koch Industries, Greentech, Abengoa, Suez

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