CHECKPOINT

ADL Bionatur BUY

Fermenting a profit out of biotechnology Target Price: €3.20

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5.30pm, 11th February

- ADL Bionatur is the result of a merger between two biotechnology groups with an appetite to seize on the opportunity for growth in the industrial and healthcare biotechnology space.
- The 2018 created company brings a formidable vertically integrated fermentation capacity platform of some 2,100 m3, backed by a 50 strong R&D team of scientists and a posible 1,400 m3 expansion over the next 3 years.
- With probably the lowest fermentation costs in Europe combined with an accredited expertise in development and scale-up processes, we expect continued growth following a 65% sales increase in 2018.
- Over the next 5 years, we look a sales CAGR of 37%. The long-term nature of ADL Bionatur contractual agreements with clients together with a predictable and improving cost base, provides good visibility of future earnings.
- The business is led by the CMO division, followed by a Proprietary Products division composed of an API unit (mainly on sterile beta-lactam API's), an Animal Vaccines and Therapeutics unit and a platform technology for the production of inteins and DNA based vaccines. Last but not least, an R&D Services division is there as well with a strong client base of global Pharma companies.
- We value ADL Bionatur at €3.20 per share on the back of a sum of the parts valuation (using a 13% equity discount rate), providing an 12-month share price upside of 51% relative to the current share price.
- Given the current growth momentum, our forecasts point towards a 2020 P/E multiples of 6.5x which we consider attractive.

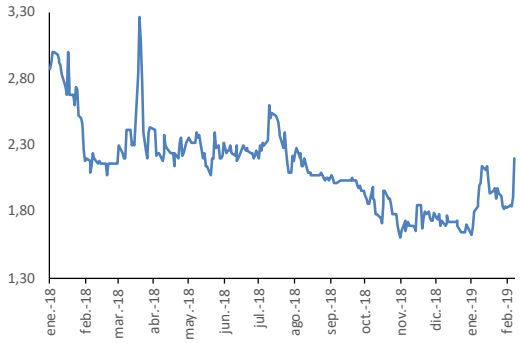
Equities

Spain
Biotechnology

Price (4pm 11/02/19): €2.12
RIC: ADL.MC
Target Price (12 months): €3.20

52 week range (€):	1.61 - 3.26
Mkt Cap (€ millions):	86.7
No. Shares (millions):	39.4
Avg Daily vol (€ LTM):	25,449

Share Price Chart (LTM)



(€ millions)	2017	2018e	2019f	2020f
Sales	14,6	25,1	63,4	83,6
Ebitda	-8,1	-9,3	8,5	19,5
Net Income	-12,8	-15,9	2,2	12,9
EPS (cents)	-0,33	-0,40	0,06	0,33
Net Debt	28,9	34,3	39,1	42,6
P/E (x)	n.m.	n.m.	37,3	6,5
EV/EBITDA (x)	n.m.	n.m.	14,5	6,5
EV/Sales (x)	7,7	4,7	1,9	1,5

Disclaimer:

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1. Executive Summary

- ADL Bionatur Solutions (ADL.MC) is the product of the reverse takeover of MAB listed Bionaturis (BNT.MC) by private company ADL BioPharma in May 2018. The equity portion of the transaction was valued at €90 million at the time of its closing or €2.65 per share.

- The newly created group has several biotechnology divisions, the largest being the CMO division to cater for the increasing market demand for third party fermentation capacity. Next, a division of Proprietary Products involving an Animal Vaccines and Therapeutics unit based on recombinant proteins and probiotics, a Pharma API division, currently focused on beta-lactam API's for the sterile injectable market, and a separate technology platform area that produces reagents for protein purification purposes. Thirdly, a high value added R&D services division involved in laboratory testing using the Zebrafish animal model through toxicity and efficacy assays, for drug development companies. Of strategic importance because allows ADL Bionatur to establish new relationships with global pharmaceutical companies.

- On the CMO side, ADL Bionatur has revamped the former fermentation capacity to turn it in to a state-of-the-art facility of €2,100 m3 across a range of different large and small bioreactors. This investment of under €60 million compares very favorably to an estimated €200 million for an equivalent greenfield project. The acquisition of the former Antibióticos (under administration then) assets, for a heavily discounted price of just €9 million, allowed the existing capacity to be revamped at a reduced cost.

- The lower capital cost of the fermentation facility has and will allow management to sell capacity utilization quickly without having to sacrifice on a good return on investment. This is demonstrated by the growth sales trend (€6 million in 2016, €12 million in 2017 and an expected €20 million in 2018) observed so far and confirmed by the quality client base of companies such as Jennewein, Amyris, DSM, etc.

- The Pharma API unit, a legacy business coming from the former Antibióticos, has both 60 tons of capacity for sterile injectables API and a further 1,000 ton capacity to produce oral versions. The focus is mainly on the sterile form where ADL Bionatur can compete effectively on quality, relative to the lower cost Asian

competitors. Sales are expected to accelerate once they bring up to date in 2019/20 their whole range of regulatory dossiers.

- The Animal Vaccines and Therapeutics unit is focused mainly on the development of vaccines and therapeutics using recombinant proteins produced from their own proprietary technology platforms. The lead candidate is BNT005 for Leishmaniasis on dogs and the second most promising product is Dentalac, a probiotic for veterinary use in pet dogs and it's currently in the process of being licensed. In parallel, the Reagents business unit has brought to market, through its own proprietary technology platform SPLITTERA, a reagent (an intein) for the purification of proteins in a single step process.

- The high value added R&D Services division conducts toxicity and efficacy assays on the Zebrafish animal model. This business unit has developed a unique expertise sought after by large drug development companies and research centres around the world.

- We have done a sum of the part valuation approach pointing to a combined Enterprise Value of €160 million, relative to the current EV of €121 million.

    - The larger CMO division carries an estimated EV of €111 million representing some 69% of the combined group value. We expect demand for its fermentation facilities to grow beyond the existing capacity installed, given the cost advantages and the know-how in development and scale up processes.

    - Adjacent to the CMO division, with an estimated value of €15 million, there is an income stream of rental income from Wacker (for the use of an industrial building to house their fermentors and there associated utility services provided) and combined with the potential of their 3.2 million m3 Waste Water Treatment facility that will soon be turned into a source of revenues.

    - The Proprietary Products and high added value R&D Services divisions together are valued at €35 million, based on to our discounted cash flow estimates.

We initiate coverage of ADL Bionatur with a 12-month Target Price of €3.20 per share. We believe the company has a fundamental competitive advantage in the European industrial biotechnology space that will translate into a sustained rate of sales and profit growth over the next five years.

2. ADL Bionatur: a brief history of a merger

ADL Bionatur is a play into a range of industrial biotechnology sectors, covering the so called green, red, white, yellow and blue biotechnology areas both with its own IP backed product portfolio as well as manufacturing capacity for third parties as a CMO (Contract Manufacturing Organization).

ADL Bionatur (ADL.MC) is the product reverse takeover of MAB listed Bionaturis, (BNT.MC) by private company ADL BioPharma in May 2018. The newly formed group was 85% ADL BioPharma and 15% Bionaturis, according to the exchange of shares resulting form the reverse take over, before the capital raise later in July 2018.

The transaction was spearheaded by Black Toro Capital (BTC) that owning 100% of ADL BioPharma decided to create a new force in the industrial biotechnology sector in Europe, under the leadership of CEO Pilar de la Huerta. The resulting company, ADL Bionatur (ADL.MC), remains domiciled in Spain with operating locations in León, Jerez, San Sebastian, Barcelona and an overseas office in the US.

ADL BioPharma facilities in León

Source: ADL Bionatur

The reverse take-over was agreed at €2.65 per share of Bionaturis, valuing ADL BioPharma equity at €76.4 million (2017 EV/Sales of 8.7x and P/BV of 5,2x) and Bionaturis equity at €13.5 million (2017 EV/Sales of 8.4x and P/BV of 1.7x). The agreed valuation versus the historical cost of their respective equity invested was 2.5x and 1.4x.

The ADL BioPharma side of the story began 4 years earlier, in late 2014, with the BTC acquisition of the fermentation assets and IP portfolio of APIs (Active Pharmaceutical Ingredients) from the former company called Antibióticos (at the time under Administration) for €9 million.

The former Antibióticos had had a long history since its foundation in 1954 as one of the leading producers of antibiotics in Europe. As antibiotic production steadily moved to lower cost Asian jurisdictions, the Antibióticos plant activity declined until it was apparent that a different fermentation product portfolio was required.

ADL Bionatur locations

Source: ADL Bionatur

BTC saw an opportunity to refocus the existing capacity towards the production of higher value added alternatives in the industrial biotechnology sector, without giving up on the higher priced/ higher margin injectable beta-lactam APIs. The new venture, under the auspices of BTC, had less to do with traditional betalactamic API production and more to do with the opportunities associated to the broader emergence of a bio-based economy in the XXI century. There are also a number of initiatives on the product development front like the cannabinoids or the microbiota projects recently announced.

Since acquisition until 2017, a series of Equity and Debt injections totaling €48 million spread across different tranches ensued. The first two years was mainly about the

refurbishment and updating of plant capacity at its León location and by 2017 ADL Biopharma generated some €12 million in sales.

In parallel, nine years earlier, in 2005, Bionaturis was founded by biotech entrepreneur Victor Infante and for the first four years the company was essentially an R+D driven operation. In 2012, Bionaturis made its debut in the Spanish Alternative Investment Market MAB (Mercado Alternativo Bursátil). Since then, the company went on to acquire Biobide and ZIP solutions that are also R+D based operations operations.

The newly formed ADL Bionatur then, in July 2018, raised €12 million (5.4 million shares equivalent to 13.4% of ADL Bionatur) from institutional investors at €2.20 per share at a pre-money valuation of €75 million. No retail tranche was contemplated at the time.

Board of Directors and Shareholders

ADL Bionatur is currently controlled by majority shareholder Black Toro Capital, a well known small and mid cap investment specialist in Spain.

Black Toro investment style is to focus on the rescue, stabilization and growth of mid-sized companies in Spain. It invests throughout the capital structure with new capital injections and discounted securities purchases to deleverage and stabilize target companies' balance sheets. Once invested, Black Toro provides support with strategy, management and board composition.

The investment in ADL Bionatur fits exactly into the value creation strategy of Black Toro by first having identified a distressed asset, Antibióticos, to then inject the necessary financial and human capital to refocus the business to new profitable areas of biotechnology. The founding partners of Black Toro, Ramon Betolaza and Jose Manuel de la Infiesta have over 50 combined years' experience in distressed for control and activist special situations investing globally

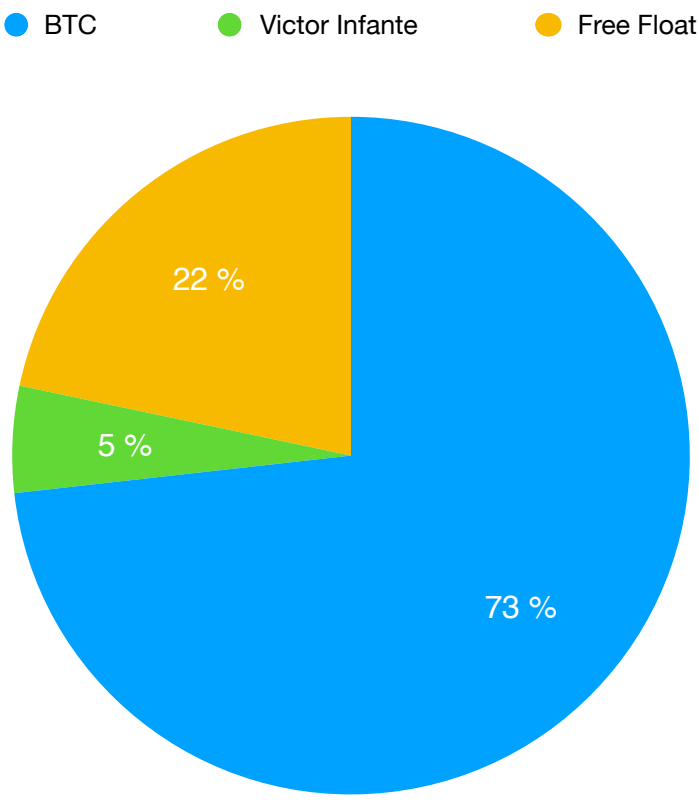
The Board of Directors is formed of 10 members:

- **Executives:** Pilar de la Huerta (CEO) and Victor Infante.
- **Black Toro Capital:** Ramón Betolaza (Chairman), Jose Manuel de la Infiesta, Juan Fernando Naranjo, Juan Molins and Carles Tusquets.

- **Independents:** Emilio Moraleda, Juan Azcona de Arriba and Benito Damián Rubido.

Capitalization and Shareholders

There are now 39.4 million issued and fully paid shares of ADL Bionatur, of which Black Toro Capital Funds I and II own 73% worth now some €63 million. The former Bionaturis shareholders (Victor Infante and the rest of the former free float) currently own 13% of shares with a market value of €11 million and institutional investors that came in during the 2018 share capital increase, owning the remaining 14%. The resulting free-float is 22% (1/4 approximately is retail).



Source: ADL Bionatur

Management

Pilar de la Huerta, CEO

Pilar holds a Master's Degree in Business and Administration from UCM and completed the IESE's Advanced Management Program (AMP) together with the Program for Management Development (PMD) courses at Universidad de Navarra.

Pilar brings 20 years of experience as CEO and CFO in the Pharma and Biotech space. Her last responsibility as CEO came with biotech company Genetrix having been appointed CEO in 2010, before moving in 2012 to head Frankfurt listed Expedeon AG (EXN:Xetra) as a result of the reverse takeover by XPol (a Genetrix subsidiary). During her time, Sygnis AG successfully completed four capital increases and two acquisitions. Served as Board member of several Spanish companies during the last 10 years, as well. As a CFO and CEO of one of the subsidiaries, Pilar served for many years at PharmaMar, then called Zeltia, a biotechnology pioneer in Spain better known for the successful Yondelis oncology drug.

Victor Infante, Business Development Director

A PhD in Sciences and Chemistry from Universidad de Cádiz, Victor founded and launched Bionaturis in 2005. Named by Forbes Magazine as one of the Spanish new businessmen to track, he brings over 15 years of experience in the biotech sector, leading up to four financial rounds, one IPO at MAB and three M&A transactions.

He has been a member of the board of the Corporación Tecnológica de Andalucía for four years, is a member of the board of directors of Bioandalucía (Andalusian employers association of biotechnology companies) and vice-president of the Asociación Andaluza de Empresas de Base Tecnológica (aaEBT).

Juan José Infante, Chief Scientific Officer (CSO):

Juan José Infante is a PhD in Molecular Biology and Microbiology from the University of Cádiz. An experienced Chief Scientific Officer with a demonstrated history of working in the biotechnology industry. A strong research professional skilled in Recombinant DNA, Vaccines, Molecular Biology, Biotechnology, and Cell Culture.

Juan Andrés Corrochano, Chief Financial Officcer (CFO)

Juan Andrés Corrochano has a degree in Business and Law from the Universidad Pontificia de Comillas.

Juan Andrés brings to ADL Bionatur more than 15 years of experience in corporate, financial and integral business management areas. He has actively worked on corporate projects for operational and financial restructuring of different business groups with experience in M&A, privatization of public companies, renegotiation of financial debt, relationships with banks and shareholders.

Before joining ADL Bionatur, Juan Andrés developed his career in national and multinational companies from different sectors.

Blanca San Román, Director of Investor Relations and Communications

Blanca San Román has a degree in Economics from the Luis Vives-San Pablo CEU University and in Business Administration (Finance) from the London South Bank University.

With more than 20 years of experience, she has pursued her professional career in the field of international capital markets and financial communications. Blanca has held different responsibilities in business areas such as Investor Relations (IRO), Strategic Communication (CCO, MD), Business Development and Project Management (D), both from investment banking, consulting and industry.

Before joining ADL Bionatur, Blanca worked as CCO in Black Toro Capital, main shareholder of ADL Bionatur, and in Trea Asset Management. Previously, she worked in different national and international Communications and IR positions.

3. Review of activities: an exposure to the nutrition and healthcare markets through biotechnology

ADL Bionatur has seized on the industrial biotechnology opportunity by establishing an exposure to the global nutrition (+ cosmetics) and healthcare sectors with a fermentation capacity of 2,100 m3 and over 300 employees.

The existing capacity is channelled through 3 business areas:

1. **Contract manufacturing organisation (CMO)**
2. **Proprietary Products:** Animal Vaccines and Therapeutics, Pharmaceutical API's and a technology platform for the production of inteins and DNA based vaccines.
3. **R&D Services:** Toxicity and Efficacy Assays in Zebra fish.

By playing into biotechnology through the global nutrition and healthcare sectors, ADL Bionatur benefits from 3 major drivers:

- **Demographic:** better nutrition and healthcare are behind growing life expectancies around the world. During the last 25 years, average life expectancies have risen by some 5 years in Europe and the US, whilst in other regions, such as in Africa the increase has been of 9 years. The lengthening of life expectancies is also in itself a source of additional demand for nutritional and healthcare solutions.

- **Economic:** the discovery of new strains and genetic engineering is making posible that fermentation based products become effective substitutes for a chemical synthesis or refining solution. Examples like Omega3 and Pachouli where fermentation based production bypasses fishing, in the first instance, and agriculture, in the second, at a lower costs and with superior qualities.

- **Environmental:** A strong driver behind industrial biotechnology consists on the replacement of harmful chemicals or CO2 emitting hydrocarbons by replacing them with renewable sources. Government regulations are increasingly supportive of industrial biotechnology derived products..

1. Contract manufacturing organization (CMO) division

ADL Bionatur has currently 2,100 m3 capacity dedicated to the production of bio-based industrial chemicals, spread across eight 225 m3 bioreactors in their no. 3 building of their León location, the right two use two 100 m3 bioreactors currently rented to Wacker, a 50 m3 high spec bioreactor and a 10 m3 pilot plant. These fermentors are newly built having started commercial production in 2017 and they are expected to run at full capacity by the end of 2019. The cost of this investment to bring this capacity was around €40 million.

The outsourcing of production capacity remains a global trend across industries and the biochemical and pharmaceutical industries are no exception. Operational flexibility and better use of capital are common reasons for outsourcing but in the specific case of industrial biotechnology, a CMO can also provide critical know-how on the complexities of scaling up practices:

- **Operational flexibility:** whether it is small biotech company with a proprietary product or a large multi-product multinational, both can be served with a bespoke manufacturing solution without having to build installed capacity. The route to market can become faster and more agile when capacity is transferred to a third party, regardless of company size.

- **Development support:** ADL Bionatur has the scientific skill-set and the installed capacity (from laboratory sized to pilot scale to industrial scale fermenters) to assist biotechnology companies along the production process chain from strain development and master banks management, media fermentation design and optimization together with yield enhancement techniques through the improvement of existing fermentation technologies.

- **Capital efficiency:** the smaller and higher cost of capital industrial biotech companies can take advantage of going for third party installed capacity. In addition, volume production of high-end IP protected products is sometimes too small to merit an investment in new fermentation capacity.

In parallel to the main industrial sized bioreactors, ADL Bionatur has just finished the construction of a 10 m3 pilot plant, to develop industrial scale-up processes for clients, alongside smaller sized fermentors for either smaller scale orders or to be used as a demonstration unit to attract new customers or new products from existing ones. The cost of the pilot plant came in at €2.5 million and once upgraded to GMP

status, it could potentially generate up to €7 or €8 million in customer driven revenues.

ADL Bionatur is also currently finishing the construction and commissioning of its own waste treatment plant at a cost of €6 million to avoid using the expensive local authority operated plant in León that would be expected to charge over €2 million in 2019. There is potential to generate revenues from industrial third parties looking for lower cost alternatives in León.

Customer base and revenue potential

The current customer portfolio is made up of a handful industrial biotechnology companies interested in large scale production of their specialty bio-based chemicals. The largest customer has exclusivity over the use of three fermentors while the rest soon will be using the equivalent of four fermentors. The commercial development team is focused on adding a new large customer on board to bring production to full capacity by selling the remaining (one fermentor) fermentation capacity by 2019.

The CMO division works for biotechnology companies that produce highly IP protected products that require a highly skilled workforce and scientific team to support it.

The contractual relationships of the CMO division with its client base is of a long term nature. It takes at least two years just to engage and prepare a prospective client for the CMO division and once contracted (normally contract would run for several years) the client would ordinarily be investing time and equipment to prepare for the production of the desired product. It is not a commodity business where production can be shifted easily from one supplier to another.

At full capacity, we would expect the eight fermentors to be generating around €70 in sales or some €9 million per fermentor.

If and when ADL takes the decision to expand capacity, the current infrastructure built around the existing fermenters will allow for the construction of six additional fermentors at a total cost of €15 million (compared to €80 million for an equivalent greenfield project), coming with €40 million in potential additional sales.

The industrial process

Fermentation is a metabolic process that produces chemical changes in organic substrates using wild-type, mutated and recombinant microbial, fungal, plant, animal, mammalian and stem cells. A downstream processing is then required to purify and isolate the target product.

For fermentation to happen in an industrial scale, an industrially sized fermentor is used to support the growth of a high concentration of microorganisms. The fermentor is typically a cylindrical vessel of various sizes that allows for the control of the aeration, agitation, temperature, pH and anti-foaming enabling the necessary growth conditions in the medium.

There are essentially four main considerations to the economics of the fermentation process, which from a financial accounting perspective they would be identified as the costs of sales (for simplicity the company reports all personnel costs, including those directly associated to the production process, as an SG&A) from the operation:

- **Microorganisms:** the use of cells used and their respective genotypes: bacteria, yeast, algae, mosses, protozoa, avian cells, stem cells, plant cells, fungi, duckweed, insect cells, or mammalian cells. **This is the main source of proprietary IP that is key to understand the value add of the final product.**

- **Nutrients:** composition of the culture or growth medium that supplies the nutrients required by the organisms or cells. **This is normally made up mainly of sugar derivatives and thus the exposure to the volatility of its prices. ADL contracts with clients include a clause that prices sugar in relation to the prevailing average cost.**

- **Energy:** cultivation conditions (T, pH, pO2, pCO2, mixing time, and shear) maintained by the bioreactor's capacity for heat, gas, and momentum transfer. Hardware changes to industrial bioreactors are limited to changing turbines and impellers only.

- **Personnel:** a fermentation operation requires a team of highly skilled biologists running a round the clock operation. Aside from purely production concerns, the handling of potential contaminants and bio-toxic materials, requires of a set of protocols design to maintain the integrity of the production process.

Half the costs of running fermentors relate to the consumption of nutrients (mainly sugars) used to feed the microorganisms. The other half are made up of employee costs directly associated with the productions shifts at the plant, the energy costs of running the operation and the waste treatment coming from the fermentation process.

The equipment, and therefore the capital investment, required to run a fermentation based production process is primarily made up of fermentation equipment, from the humble agar plate all the way to the industrial scale plant, representing the single largest element in the capital expenditure of ADL Bionatur in addition to the downstream equipment used to deliver the final product.

- **Agar plate and shake flasks:** An agar plate is a dish that contains agar as a solid growth medium with nutrients and a shake flask (100-1000 ml) is a culture flask where the medium is kept uniform by constant agitation during incubation.

Source: Wikipedia

- **Laboratory fermenter:** A small bioreactor for containing and controlling fermenter microorganisms. **1 – 50 L**

Source: ADL Bionatur

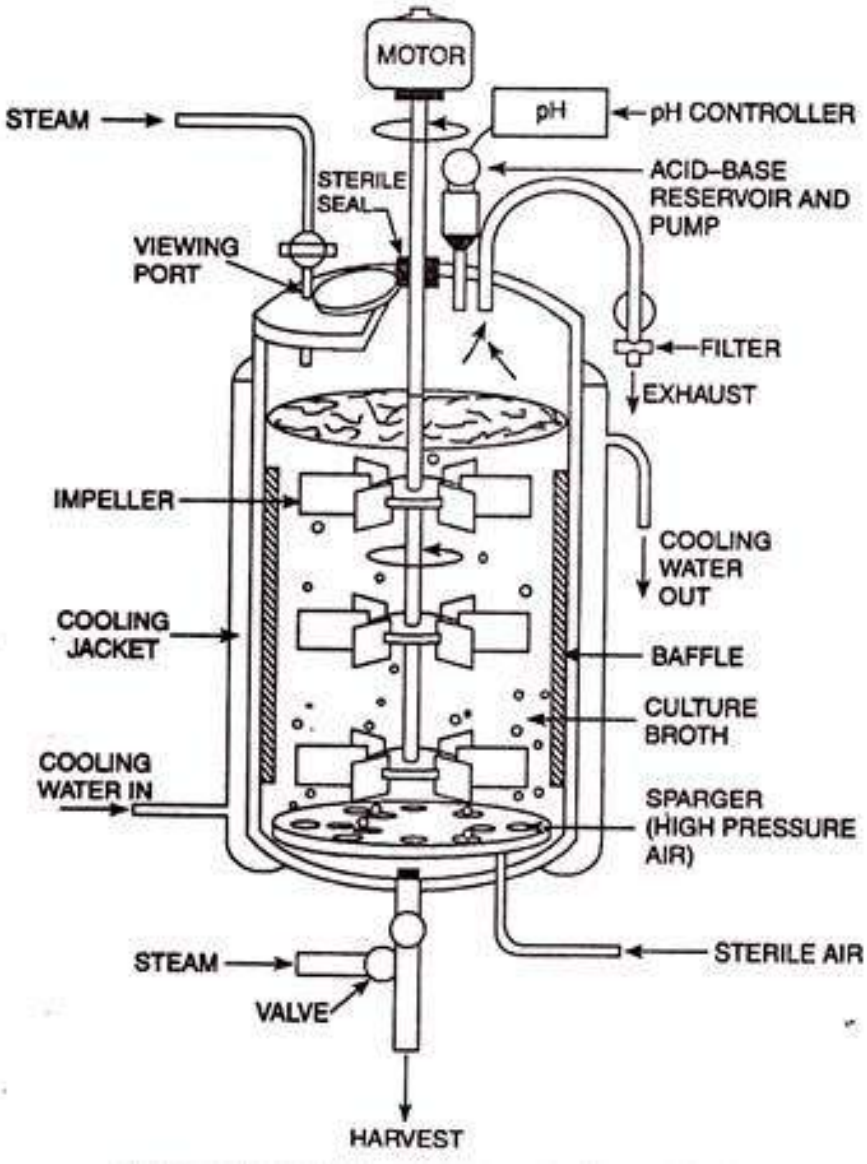
- **Pilot scale:** a pre-commercial production system designed to produce in small volumes for the purpose of learning to scale up production. **0.1 – 5m3**

Source: ADL Bionatur

- **Plant scale: 5 – 500 m3.** The design and mode of operation of a fermentor mainly depends on the organism, the operating condition required for the formation of the target product, product value and scale of production.

Source: ADL Bionatur

The inside of a Stirred Tank Fermentor



Source: www.biologydisccussion.com

All of these bioreactors tend to be fairly similar in most applications only to be adapted in relation to the specific requirements of the cultivated cell type and end product. These requirements are elements like oxygen demand, heat transfer requirement, sensitivity to shear, process, culture variations and local variations within the bioreactor in addition to regulatory demands associated to good manufacturing practice (GMP) and biosafety requirements.

Downstream processing

Once the fermentation process has been completed, downstream processing starts to refine and isolate the final target product. Each target product will have a separate downstream processing equipment, which in the case of the CMO division it will typically be installed directly by the customer at their expense.

Generically it tends to be a four step process, although depending on the type of broth and final product these steps may vary:

- **Removal of insolubles** involves the separation of cells, cell debris and particulate matter from fermentation broth through filtration, centrifugation, sedimentation, precipitation, flocculation, electro-precipitation and gravity settling.

- **Product isolation** is the removal of components other than the target product, mostly water, in order to reduce the volume of material. This is done through solvent extraction, adsorption, ultrafiltration, and precipitation.

- **Product purification** is the separation of contaminants and represents the most significant step of the downstream processing. These include affinity, size exclusion, reversed phase chromatography, ion-exchange chromatography, crystallisation and fractional precipitation.

- **Product polishing** describes the final processing steps which end with packaging of the product in a form that is stable, easily transportable and convenient. Crystallisation, desiccation, lyophilisation and spray drying are typical unit operations.

Waste water treatment

Given the water volumes handled during the fermentation process together with all the waste chemical, biological components and contaminants, a thorough waste water treatment process will eventually, by H2 2019, be undertaken at the ADL Bionatur facility (currently hailed at the municipal waste water treatment facility).

In an area of 6 hectares (the equivalent of 12 football pitches), the plant will have the capacity to treat some 3.2 million m3 of waste water, eliminate some 14,500 tons of Disolved Organic Carbon (DOC) and 612 tons of ammonium (NH4), in addition to capturing more than ten different types of solvents.

The end result is a sustainable manufacturing operation that conforms will all exiting European waste treatment regulations.

Source: ADL Bionatur

2. Proprietary Products

ADL Bionatur has three distinct proprietary product areas:

A. Pharmaceutical API´s

B. Animal Vaccines and Therapeutics

C. Technology platform: inteins and DNA based vaccines

A. Pharmaceutical API's

Antibiotics remains an important market opportunity for ADL Bionatur in the form of production of injectable beta-lactam API's, which we categorize under pharmaceutical API´s. Generically, it refers to the production of organic products for the pharmaceutical industry ranging from simple organic molecules to complex macromolecules such as proteins.

The production of active substances derived from penicillin was the founding reason of the former Antibióticos in 1954, becoming at one point one of the leading plants specialized in the production of penicillin derivatives in Europe. The current installed capacity of ADL Bionatur will provide the potential to expand beyond antibiotics into other pharmaceutical API´s.

The antibiotics market dates back from the 1940´s and nowadays is essentially a mature market with limited innovation. This is because the traditional broad spectrum antibiotics are still quite effective against infection, and they remain the most widely prescribed today. Only the hardest to treat infections (normally hospital borne infections derived from antibiotic resistance) remain the source of innovation and regulatory approval of new antibiotics.

Although still in great demand and growing, the economics of producing antibiotics has meant that production (mainly the oral versions) has gone to lower cost jurisdictions in Asia, mainly China. Once an antibiotic goes off patent and becomes a generic, there is an incentive to produce it from a lower cost/quality jurisdiction, like it happens with most of the oral versions whose production has moved away from Europe and the US.

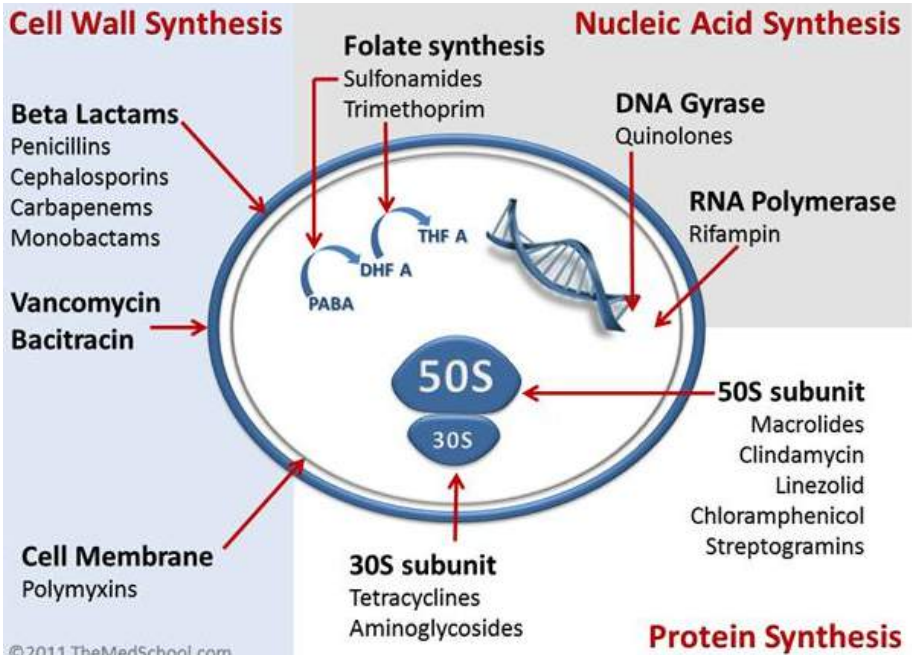
Because injectable antibiotics require a much higher threshold of quality and purity that Asian companies may not necessarily be in a position to guaranty nor branded pharmaceutical companies able to accept, production has largely remained in Europe

and the US. Oral versions tolerate a degree of impurities that both companies and regulators can accept (within limits) but impurities in an injectable antibiotic can cost the patient its life.

Therefore, the ability to produce under the strictest sterile conditions from within the European Union provides ADL with a natural competitive advantage and provides a platform from which to produce other injectable API´s.

Antibiotics

Antibiotics are chemical substances that inhibit the growth (bacteriostatic) or destroy harmful microorganisms (bactericidal). Some antibiotics destroy bacteria by weakening the cell walls causing them to burst, other by damaging cell membranes to produce a leak or by interfering with the bacteria's metabolism (protein synthesis, nucleic acid biosynthesis or general blocking effect on cell metabolism) to disrupt the life cycle of the bacteria.



Source: TheMedschool.com

Types of antibiotics classified by their mechanism of action:

- **Cell Wall Synthesis:** Penicillins, Beta-lactamase Inhibitors, Cephalosporins, Vancomycin, Carbapenems, Aztreonam, Polymycin and Bacitracin

- **Protein Synthesis:** Gentamicin, Tetracyclines Macrolides, Chloramphenicol, Clindamycin, Linezolid and Streptogramins

- **Nucleic Acid Syntheisis** (DNA, RNA, Mycolic Acid and Folic Acid) Fluoroquinolones, Metronidazole, Rifampin, Isoniazid, Sulfonamides and Trimethoprim

For bacterial infections the antibiotic can be swallowed, injected directly into the body or placed on the skin surface, eye, or ear depending on the location of the infection.

Manufacturing of Antibiotics

Derived mostly from penicillin, antibiotics are produced on an industrial scale using a fermentation process, where large quantities of the antibiotic-producing organisms are grown, isolated and purified before they chemically modified to produce the specific antibiotic.

ADL Bionatur is only involved in the chemical semi-synthesis of the production process of Beta-Lactam API's. Despite their fermentation capacity in-house, it is more cost efficient to receive the supply of the natural Penicillin from third parties to focus on just the semi-synthesis in order to deliver the final API to their pharmaceutical client base.

1. **Start**
   An antibiotic-producing organism is first taken from a sample of previously isolated organisms and transferred to an agar-containing plate. Once these microbial cells are grown, they are placed into shake flasks along with nutrients necessary for further growth. The starting material for the production of semi-synthetic antibiotics is mostly penicillin G, which is obtained by fermentation using the fungus Penicillium chrysogenum. The resulting suspension is transferred to seed tanks for further growth.

2. **Fermentation**
   The froth in the seed tank is then transferred to the fermentation tank for the microorganisms to continue to grow and multiply in order to produce larger quantities of the target antibiotic. The nutrients and growth factors used in the fermentation broth are similar to those in the sake flasks and seed tanks. In order to maintain the most adequate contains for growth, the tanks are cooled to keep temperature stable, constantly agitated with an impeller and pumping a continuous stream of sterilized air. Things like the pH are also constantly

controlled to optimize the growth of the microorganisms by adding acids or bases as it becomes necessary.

3. **Isolation and purification**

After a few days, the maximum amount of antibiotic will have been produced and the isolation process can begin. To isolate penicillin the broth is treated with organic solvents, which can specifically dissolve the antibiotic to then be recovered using organic chemicals.

4. **Chemical semi-synthesis**

The resulting penicillin G is used for the production of 6-APA (6-aminopenicillanic acid), the β-lactam nucleus that is used to synthesize semi-synthetic penicillins and then chemically and enzymatically modified to make a variety of penicillins with slightly different properties. These semi−synthetic penicillins include penicillin V, penicillin O, ampicillin and amoxycillin.

5. **Refining and packaging:**

- **Intravenous bags or syringes:** the crystalline antibiotic can be dissolved in a solution, put in the bag and hermetically sealed.
- **Pill/gel capsule:** the powdered antibiotic is physically filled into the bottom half of a capsule then the top half is mechanically put in place.
- **Topical ointments:** the antibiotic powder is mixed into a topical ointment.

Examine: Ampicillin for injection

Source: Frasenius-kabi

B. Animal Vaccines and Therapeutics

The Animal Health division is primarily focused on the $23 billion global market for animal medicines and vaccines, currently operating under the Bionaturis commercial brand.

The current IP portfolio has grown to cover feed supplements for poultry, a portfolio of recombinant vaccine antigens for the most prevalent diseases in livestock, a first in class prophylactic vaccine against visceral canine leishmaniasis and a first in class mupirocin-based lipogel for the prevention and treatment of bacterial skin infections in dog, with the ongoing intention of expanding into the development of new probiotic strains.

Program	Description	Indication	Specie	Stage
BNT005	Vaccine. Recombinant fusion protein incorporating a trigger of cellular response.	Canine visceral leishmaniasis	**Dogs**	Market restrictions worldwide
BNT006	A peptide-based nutritional supplement designed to increase livestock productivity.	Immune enhancer and growth promoter	**Poultry**	On the market. Available for distribution license. Market restrictions in UK, Mexico and some African countries
BNT007	Recombinant multivalent VLP antigen	Viral infection	**Poultry**	Antigen available for registration and commercial license. Market restrictions in China
BNT010	Recombinant DIVA antigen	Viral infection	**Swine**	Antigen available for registration and commercial license. Market restrictions in China
BNT15	Recombinant VLP antigen	Viral infection	**Swine**	Antigen available for registration and commercial license. Market restrictions in China

Source: ADL Bionatur

The company continues to develop new vaccines, supplements and therapeutics for the animal health market with an out-licensing business model, meaning there is no in-house distribution infrastructure to sell their products directly to the end user. This division engages with animal healthcare companies with the capacity to sell vaccines, supplements and therapeutic drugs to both the Pet and Production Animal markets.

On the R&D side and product development side, the company focus is based on the discovery and production of effective antigens to prevent or treat specific viral infections. An antigen being any substance that causes the immune system to produce antibodies or T-cell receptors to fight infection. As an example, the BNT005 antigen was developed to treat Leishmaniasis by stimulating T-cell receptors to fight off the the parasite.

Because most antigens are proteins, a living recombinant organism is used to produce the desired type. A recombinant organism is an organism in which a foreign DNA is added into its existing DNA and could be an E.coli bacteria (the most common), insects (as it is the case with this Animal Health division), plants and mammals (there is an approved protein produced from recombinant rabbits).

ADL Bionatur has developed its own technology platform FLYLIFE using the larvae of recombinant butterfly to produced its own proprietary recombinant proteins. Since the company was founded the FLYLIFE technology platform has expressed and released batches of a broad portfolio of protein-based products for therapeutic, prophylactic and diagnostic applications.

The business model is purely of a product development company, where every year most of the cash spent by this division is devoted to its R&D efforts. Once a particular antigen, or latterly a probiotic, has been identified to perform a particular effect on a target infection or pathology the company takes it through the regulatory process to bring the given vaccine, the therapeutic or supplement to market.

Animal Vaccines and Therapeutics facilities

Source: ADL Bionatur

C. Technology Platform: Inteins and DNA based vaccines

In 2016, Bionaturis acquired ZIP Solutions (formerly ERA Biotech) in the animal vaccine space with two proprietary platforms: Splittera and Zera.

- **Splittera** is a proprietary technology for protein expression and purification. More specifically, its intein (the first intein was discovered in 1988) splicing technology consists of two separate polypeptide domains (IntN and IntC domains) with the capacity to interact one each other with high affinity and to perform:

  - Site-specific protein modification: Antibody Drug Conjugates (ADC)
  - Molecular Diagnosis – Site specific immobilization, site specific labeling
  - Universal Purification and Cleveage Tool (no tags)

Splittera has been already validated as a universal high-yield tool for purification of tag-less proteins. As a result, Splittera is subject of an exclusive worldwide license to a top-leader for developing and commercializing a Splittera-based resin for protein purifications at industrial level. Splittera has been also out-licensed for diagnostic applications.

- **Zera** is a proprietary platform for developing both DNA-based vaccines and protein micro-particle based vaccines, enabling the production of recombinant protein/peptides either in vivo or in vitro. Its DNA vaccines have already demonstrated effectiveness either as prophylactic or as therapeutic vaccines. As for its proprietary peptides, they improve the efficiency of upstream and downstream processes in vaccine manufacturing, conferring a particulate immune response enhancing formulation. **Zera Subunit Vaccines are subject of a R&D license to a global top-5 vet tier-1 for the expression and recovery of difficult to express recombinant antigens.**

The business model is a licensing one, in order to monetize the Research and Development work under their Intellectual Property portfolio.

3. High value added R&D Services: Toxicity and Efficacy Assays

In 2014, the then Bionaturis acquired Biobide, a company specializing in the use of the zebrafish model for disease model generation, target validation, toxicity and efficacy tests using image analysis and automation for third parties. The model aims to improve cost and effectiveness of preclinical tests for the pharmaceutical, biotechnological, petrochemical, agrochemical and cosmetic sectors and already working with renown names such as Roche, Servier, Sanofi, NIH, Shell, etc.

The zebrafish is generally used as an efficient and cost effective drug discovery tool, given that around 85% of human genes are also found in zebrafish. With similar cardiovascular, nervous and digestive systems, many of the genes and critical pathways required to grow our organs are the same. In humans and zebrafish, the diseases that causes changes humans organs can in principle be modeled in zebrafish, whilst they can also be modified using genetic and molecular approaches.

The zebrafish is widely used as well because it is more cost effective in a laboratory environment than mice, also often use to construct animal models in the pre-clinical

stage of drug development. The main advantage being that large numbers of embryos can produced due to the high fecundity of the zebrafish female producing 200-250 eggs per mating. Following fertilization. the entire body is formed in 24 hours and internal organs like heart, liver kidney and intestine are developed within four days.

Zebrafish tank

Source: ADL Bionatur

Their zebrafish laboratory facility can house more than 80.000 fish and with more than 35 different lines to perform assays for clients. To increase speed and efficiency, the company has also developed an automated platform to reproduce the manual process of screening in a 96-well plate format with zebrafish embryos.

The standard services offered are classified into:

- **Target validation:** characterization of the role of a protein or pathway of interest , providing a selection of arguments to define the compounds properties to be screened during the early stages of the pre-clinic.

- **Disease model generation:** ability to generate transgenic or mutant zebrafish models of diseases through genetic mutations, transgenic induced gene alterations or drug induced metabolic alterations.

- **General and specific toxicity:** following the OECD 236 Guideline (Fish Embryo Acute Toxicity Test), a convenient, rapid and inexpensive acute toxicity test has been set up.

- **Efficacy:** the company has developed assays for angiogenesis inhibition in cancer, for the central nervous system (behavioral alterations), melanin quantification for the cosmetic industry, organ regeneration and anti-oxidation.

The business model is strictly a service oriented model where pricing is established on a per project basis with a high recurrence among it more established clients. Although with stable revenues of little over €1 million and cash flow positive, it is the area of ADL Bionatur that serves its purpose by build a closer relationships with large Pharma and other potential clients for the rest of ADL Bionatur.

4. An overview of ADL Bionatur target markets

ADL Bionatur is in a position to provide installed fermentation capacity to companies globally and work with any kind of microorganism necessary to facilitate the production of primary and secondary metabolites.

The global market size of fermentation based products addressing the Nutritional and Healthcare markets run into the billions relative to the handful of millions in sales of ADL Bionatur, meaning there is enough space for the company to grow. Its competitive advantage to enable growth within these markets can be summed up by its European location, a highly skilled set of scientific staff and state of the art industrial capacity of fermentors.

There is a $21 billion addressable market of fermentation-based production of organic acids, amino acids, enzymes and nucleotides where ADL Bionatur is already playing a part. The Food and Beverages sector remains the most important destination for these kind of fermentation based products.

The traditional antibiotics and vitamins markets are estimated to be around $50 billion and the more advanced biopharmaceutical products (using recombinant organisms) are $220 billion per year. ADL Bionatur finds its competitive advantage where high production standards are required (such as in steriles) or there is a component of IP protected products.

We omit the low value-add $46 billion market for ethanol, biodiesel and biogas, an important fermentation based market, because it is not currently attractive for ADL Bionatur. These commodities are typically produced close to agricultural areas where feedstocks are closer by and cheaper to access.

Biochemicals

- **Organic Acids:** an $8.5 billion industry for the production of acetic, citric, formic, lactic, fatty, itaconic, succinic, gluconic, ascorbic, aumaric, and propionic acids that typically serve as platform chemicals for the production of food ingredients, pharmaceuticals, cosmetics, polymers, coatings, lubricating oils and solvents. These are mainly produced by the fermentation process of various microorganisms although some are also produced synthetically as well.

- **Bio-oils:** the production of microbial oils or triglycerides is possible, although the market value of current production is probably sub $1 billion. Triglycerides are an energy-rich compounds made up of a single molecule of glycerol and three molecules of fatty acids. At present because of costs limitations there is little production of biodiesel from microbial sources but there are other types of oils such as the higher value Omega 3, that are being produced with microorganisms.

- **Amino Acids:** worth some $7 billion annually with around half the production goes into animal feed (lysine, methionine, threonine and tryptophan are majorly used as ingredients). Most of the other half goes into food and beverages for its beneficial properties such as increasing the efficiency of food utilization, reducing adiposity, regulating muscle metabolism and controlling the growth and immunity of the organism. In Pharma, amino acids are used as buffering agents. They can be produced by microbial processes as well as with the extraction from protein-hydrolysates and chemical synthesis.

- **Enzymes:** The global market for industrial enzymes is estimated at US$5.5 billion with the Food and Beverages sector being the largest market with US$1.5 billion, followed by Biofuels and Detergents with $1 billion and $0.8 billion respectively. Enzymes are known to catalyze more than 5,000 biochemical reactions and are widely used is a variety of industrial applications.

- **Nucleotides:** the market for nucleotides is estimated to be around $700 million, where they are currently used as additives in the Food and Beverages sector and as APIs in the Pharmaceutical industry. Similarly, nucleotides are uses in gene chips and microarrays used in gene-based diagnostics.

- **Antibiotics:** the global anti-antibiotics market is worth $45 billion, currently made up of mostly inexpensive ($5-$10 per kg for the oral version) broad spectrum antibiotics, effective for the majority of infections for both humans and animals. The beta lactam and beta lactamase inhibitors (penicillins, cephalosporins, carbapenems, and monobactams) segment contribute some two-thirds of global consumption. The intravenous route of administration segment accounts for about half the market, normally administered in hospitals for more severe infections.

- **Vitamins:** A $5 billion global market of which the largest market is the Vitamin C market with total production of around 150 million kgs per year with a market value of an estimated $1 billion (an average of $7 per kg). There are 13 vitamins

are classified as fat-soluble (A, D, E, K) or water-soluble (C, B group). It is estimated that China produces around 80% of the world's vitamins, given their manufacturing cost advantages. and at present, metabolic engineering is accelerating the development of microbial cell factories to compete with more pollution prone organic synthesis methods.

- **Polysaccharides:** The most well-known is xanthan gum, a food ingredient, with an estimated market of $750 million. Microbial polysaccharides are used mainly in the food and pharmaceutical industries.

- **Bioplastics:** with about 2 million tonnes have a combined share of presently about 0.6% of the global plastics market and market value of some $400 million. Bioplastics are increasingly used in a number of markets like healthcare, consumer electronics, automotive, textiles, etc and already represent a small but proven alternative to their conventional counterparts. It is estimated that over 85% percent of plastics could technically be substituted with biobased plastics (conventional plastics are a $200bn industry globally and accounts for approximately 5% of worldwide oil consumption). The biological process requires a lower energy input and can be even more environmentally friendly when it produces plastics with the ability to degrade.

Biopharmaceuticals

The Biopharmaceuticals market is valued at some $220 billion are currently seven main areas in biopharmaceuticals: antibiotics, vaccines, enzymes, proteins, hormones, growth factors, cytokines, synthetic immunomodulators and monoclonal antibodies. There are some 1,500 products approved by the FDA and EMA of which around 140 have different formulations (the remainder being biosimilars and biobetters).

Biopharmaceuticals are normally referred to as therapeutic recombinant proteins obtained by biotechnological processes from essentially five different groups of organisms: bacteria, fungi, plants, insects and mammalians.

The technology used in the production of biopharmaceuticals is not conceptually different from other industrial fermentation processes. It involves the same series of events such as the selection of a cell line, culture media, growth parameters, and process optimization for cell growth and production in order to transform substrates into the target metabolic products.

5. Financial review and estimates: the merger of unequals

The ADL Biopharma / Bionaturis merger was made effective in May of 2018 to bring together two different kinds of Profit/Loss account and Balance sheet structures. The first one is essentially a capital intensive industrial company whilst the second is a R&D/product development company, with all that it implies from a Balance Sheet and the Profit and Loss account perspective.

ADL Biopharma brought in a Fixed Assets heavy balance sheet with a high level of financial debt (gearing ratio of 190%), whist Bionaturis was a lighter one, mainly made up of intangibles in the asset side (40% of the Balance Sheet) and Financial Debt (gearing ratio of 100%) of mostly soft loans from the public sector. Despite the apparent high level of financial debt relative to the book value of its assets, the combined interest expense only amounted to €1.2 million in 2017.

ADL Biopharma closed 2017 with a Balance Sheet of €47 million of which €25 million was made up of tangible fixed assets, mostly related to the fermentation capacity installed. Current Assets of €16 million was made up of inventories and commercial debtors with some €2 million of short term financial assets. These assets were financed by €27 million (€20 million of which are Public Sector development loans) of both long and short-term financial debt, €14 million in Shareholders' Funds (shrank by €15 million of accumulated losses) and €6 million of mostly commercial creditors.

Bionaturis brought in a smaller €18 million Balance Sheet, of which €14 million were Fixed Assets and within it some €7 million of Intangible Assets related to the proprietary intellectual property developed by the company over the years and €3 million of Deferred Tax. On the Liabilities side, €8 million of Shareholders' Funds and €9 million in financial debts, €7 million of which are mostly from public sector development funds.

From the Profit and Loss perspective, ADL Biopharma in 2017 was the reflection of an industrial company gearing up for growth, having started commercial production just a year earlier. The most salient element of the accounts were their cash operating costs of around €19 million versus a gross profit of €8 million, leaving for 2017 a cash Ebitda loss of €11 million. Instead, Biounaturis delivered a more modest €2.4 million in sales and from a cash perspective a modest cash Ebitda loss of €241k, as the company continued to spend of product development.

6. Profit and Loss account estimates: strong growth anticipated

We expect ADL Bionatur to experience high double digit growth over the coming years permeating through the net profit line with positive results and expanding margins.

The main revenue driver is and will remain the CMO division with its newly revamped capacity and strong competitive advantages in terms of costs and qualified scientific team. We expect management to negotiate its way through the industrial biotechnology ecosystem with new contractual agreements to fill up its exiting capacity of 8 large 225 m3 fermentors.

Another important source of expected profit growth comes from the revenue and cost optimization of its CMO operations. During the 2016-2018 period the absolute priority was sales growth and customer acquisition, with a lesser regard for cost containment. The management has already identified a number of areas that can contribute to an gross margin and Ebitda margin expansion over the near future, which we include in our financial projections.

Beyond the existing capacity we would expect management to trigger additional capacity expansion with a further 6 225 m3 fermentors (given the new fermentors fit in the existing facilities and the costs would be marginal relative to a Greenfield project). Its growing scale will also enhance its relative competitive advantages relative to other players. The timing will depend on market demand, but we remain optimistic about an announcement over the next two years.

We expect the CMO division to close 2018 with €16 million in revenues, an increase of 60% over the prior year. In 2019, given the contracts and commitments already undertaken with new and existing clients we are estimating revenues of €50 only to increase by 12% in 2020 to €58 million. At full capacity we would expect the eight 225 m3 fermentors to be turning over some €70 million.

Within the CMO division, there is a high spec 50m3 fermentor specially designed to handle cytotoxics and inmunosurpresors which is currently looking for a client. We expect a contract in 2019 and we have added some modest estimates to our numbers relative to its €5-6 million revenue potential. Equally, as with the larger fermentors, there is the potential to double capacity at a fraction of the cost of a Greenfield equivalent.

Profit and loss account	2017	2018e	2019f	2020f
CMO	n.a.	16,2	49,8	58,0
Propietary Products	n.a.	6,2	9,6	21,2
R&D Services	n.a.	1,1	2,1	2,3
Other	n.a.	1,7	2,0	2,1
Revenues	**15,2**	**25,1**	**63,4**	**83,6**
Cost of good sold	5,2	10,5	24,8	29,8
Gross Profit	**10,0**	**14,6**	**38,6**	**53,8**
Gross Margin	*66 %*	*58 %*	*61 %*	*64 %*
Capitalized R+D	2,3	2,8	3,0	3,1
Personnel costs	11,3	13,9	16,0	16,3
Other SG&A	10,9	12,8	17,1	21,1
Depreciation	2,2	2,5	3,6	4,3
Operating profit	**-12,1**	**-11,8**	**4,9**	**15,2**
Operating Margin	*-79 %*	*-47 %*	*8 %*	*18 %*
Ebitda	**-9,9**	**-9,3**	**8,5**	**19,5**
Margin	*-65 %*	*-37 %*	*13 %*	*23 %*
Ebitda (ex-cap) *	**-12,1**	**-12,0**	**5,4**	**16,4**
Margin	*-80 %*	*-48 %*	*9 %*	*20 %*
Extraordinaries	0,0	-2,2	-0,3	0,0
Financial income	0,1	0,0	0,0	0,0
Financial Expenses	1,2	1,9	2,4	2,4
Income before tax	**-13,1**	**-15,9**	**2,2**	**12,9**
Income tax	-0,4	0,0	0,0	0,0
Net profit	**-12,8**	**-15,9**	**2,2**	**12,9**

* excludes capitalized R&D
Source: Checkpoint, ADL Bionatur

The Proprietary Products division is expected to experience a 57% growth in sales in 2019 and 120% in 2010 as new products, both on the pharmaceutical APIs and the Animal Vaccines and Therapeutics side, come on stream.

The pharmaceutical API division only gets involved in the semi-synthesis part of the (mainly) sterile API production chain and does not get involved in the production of the source penicillin (therefore lower capex required). Given the lower capital investment required, we estimate the gross margins to be somewhat less than half that of the CMO side of the business. The oral version gross margins are even lower and only produced on demand from sterile API clients.

At present, ADL Bionatur has the capacity to produce 60 tons of sterile API and up to 1,000 tons of oral version APIs (although unlikely ever to be utilized given Asian price competition). The Animal Vaccines and Therapeutics together with the Platform Technology side is expected to add up to just under €1 million in 2018.

On the R&D Services side, we expect it to grow by high double digits in 2019 and 2002 as they become more effective in winning new business for the zebrafish animal model.

Under Other, we include the long term rental revenues from Wacker and the corresponding utility services afforded by ADL Bionatur that are charged on a cost plus contractual formula. In addition, once the 3.2 m3 waste water treatment facility is completed in early 2020 there is already demand from industrial companies that operate in León looking for alternatives from the more expensive public sector run municipal waste water treatment facility.

All business divisions revenues combined are expected to increase by almost 65% in 2018, by a further 153% in 2019 to €63 million and 32% to €84 million in 2020. Despite the apparent strong increase in revenues, it is consistent with our view that ADL Bionatur will fill and optimize up most of the existing fermentation capacity within the 2016-2021 period. Based on our market size estimates, we believe ADL Bionatur is well positioned to continue growing beyond this first phase of expansion.

On the costs side, ADL Bionatur has geared its fixed operating costs for the large operation it will become and therefore we expect the company to report Ebitda losses of €9.3 million in 2018. In 2019 and 2020 we expect personnel and other SG&A to grow by single digits, enabling ADL Bionatur to turnaround the reported Ebitda to an

estimated €8.5 million in 2019 and €19.5 million in 2020. The projected Ebitda margins of 13% and 23% for 2019 and 2020 are consistent with the capital intensive nature of the business combined with the cost competitiveness of ADL Bionatur relative to other European and North American players.

The Non-Operating side of the Profit and Loss account is dominated by the financial costs of its estimated €37 million financial debt. In July 2018, the company raised an additional €12 million of Equity to finance continued Capital Expenditure, in order to maintain an adequate Balance Sheet structure. From a working capital perspective, the client base tends to pay in 60 days and combined with an estimated one month of average inventories will require some €15 million to finance this position alone in 2019.

Based on the accumulated tax losses to date, both from the former Bionaturis as well as ADL Biopharma, we do not expect them to pay corporate income tax in 2019 or 2020.

As a result, we expect ADL Bionatur to deliver an accounting Net Profit of €2.2 million in 2019 and €12.9 million in 2020, compared to an expected loss of €15.9 million in 2018. In Earnings per Share Terms, it represents 6 cents in 2019 and 33 cents in 2020.

7. Balance Sheet estimates: optimizing the use of capital

We expect the Balance Sheet to be a reflection of the operational growth/ investment activity of ADL Bionatur and expand by 11% in 2019 and 18% in 2020.

We expect the asset side to expand via further investments in Fixed Assets specially if management decides to start the fermentation capacity expansion at some point in 2020, and to a lesser extend the intangibles associated to its R&D activities. On the Current Assets side of the equation, we take into account the rising working capital requirements from the growing commercial activity, but at the same time an improvement in inventory management and debt collection periods relative to 2018.

On the liability side, short and long term financial debts dominate with some €37 million together with shareholders funds of €30 million estimated for 2018. The main difference with the already announced 1H18 Balance Sheet is the €12 million Equity Capital increase.

As of 2018, ADL Bionatur is expected to hold some €27 million in the form of long-term debt of which some €15 million comes mainly form Public Sector soft loans, some €5 million from ADE Sodical (public/private regional development fund), €2 million from EIB (European Investment Bank) and €5 million R&D related loans.

	2017	2018e	2019f	2020f
Net Debt	**n.m.**	**34,3**	**39,1**	**42,6**
Net debt/ Equity	n.m.	114 %	124 %	101 %
Cash Ebitda/Interest costs	n.m.	n.m.	2,3	6,9
Net debt / Cash Ebitda	n.m.	n.m.	7,2	2,6
Working Capital (€ millions)	**n.m.**	**6,4**	**5,6**	**8,5**
Debtors (days)	n.m.	118	60	60
Creditors (days)	n.m.	127	80	70
Stock Turnover (days)	n.m.	205	65	56

Source: Checkpoint Partners

€ millions	2017	2018e	2019f	2020f
Fixed Assets	**14,5**	**58,6**	**65,3**	**76,8**
Intanglible assets	7,8	13,6	16,0	18,3
Tangible assets	3,1	36,6	42,8	53,3
Real Estate investments	0,0	1,1	1,1	1,1
Long term financial investments	0,1	1,1	1,1	1,1
Deferred taxation	3,5	6,2	4,4	3,1
Current Assets	**3,1**	**16,9**	**17,8**	**21,3**
Inventory	0,0	5,9	4,4	4,6
Commercial and other debtors	1,6	8,1	10,4	13,7
Short term financial investments	0,9	1,4	1,4	1,4
Cash	0,5	1,5	1,6	1,7
Assets	**17,6**	**75,5**	**83,1**	**98,1**
Shareholders funds	**8,0**	**30,2**	**31,4**	**42,3**
Long term liabilities	**7,6**	**31,6**	**35,3**	**31,7**
Long term financial debt	7,2	25,7	29,3	31,2
Long term debt (w/ related parties)	0,0	5,5	5,5	0,0
Deferred taxation	0,4	0,5	0,5	0,5
Current liabilities	**2,0**	**13,6**	**16,4**	**24,2**
Short term financial debt	0,8	6,0	7,2	14,4
Commercial and creditors	1,2	7,6	9,2	9,8
Liabilities	**17,6**	**75,5**	**83,1**	**98,1**

Source: Checkpoint Partners

8. Valuation and comparables: we estimate the EV of business at €160 million using a WACC of 9%

We have conducted a sum of the parts DCF valuation exercise to arrive at our target price of €3.20 per share. The different business units have slightly different angles, profit margins and capital requirements, to merit a separate consideration.

All divisions share in common an anticipated period of strong growth over the next few years, whether it is the CMO division with ample spare capacity to fill up or the relatively promising upside of the Animal Vaccines and Therapeutics division as it begins to receive royalty revenues from recently licensed products. Longer term, we are projecting growth rates slightly above the expected inflation rates in the Eurozone area.

The most valuable division remains the CMO, which in turn we have placed them into three different categories. The main one related to the large 225 m3 fermentors, a second one we call N3 (for Nave 3) in which the 50 m3 fermentor is placed to capture business for the production of cytoxyns and inmunosurpresors and a third one to take into account the rented fermentors to Wacker.

For the large 8 fermentors, we have valued them in €104 million which is still under its estimated replacement value of €200 million for a Greenfield project. If we were to project our numbers with the current estimated gross margins, we would arrive at a valuation in excess of €200 million. We have assumed long term declining Ebitda margins in order to reign in our valuation assumptions.

The high spec N3 fermentor has the potential to be valued at €7 million once a customer is acquired, something we expect to happen during 2019. We also value the rental income from Wacker and the future revenues from the sale of waste water treatment services to adjacent industries at almost €15 million.

The three Proprietary Products business divisions are valued at €26million, with short term growth prospects as strong at the CMO division. There are a number of products under development that are expected to be launched to market in the near term and thus our strong growth projections and valuation assumptions.

The R&D servicies divisions is valued separately as a stand alone business unit. We have placed a valuation of €9 million, but the value to the business development efforts of the rest of ADL Bionatur is probably greater. Through a high quality R&D

Services operation, ADL is and will be able to acquire a greater number of global pharmaceutical companies as clients.

Sum of the parts valuation

Division	Unit	DCF (€)	Year	Target EV / Sales	Target EV / Ebitda	Target P/E	5 yr Sales Growth	Long term Sales Growth
CMO	N4	**103,7**	**2019**	2,1	18,2	28,6	37 %	3 %
			2020	1,9	9,3	10,7		
	N3	**7,0**	**2019**	5,6	50,4	83,3	n.m.	**2 %**
			2020	2,8	8,0	7,7		
Propietary Products		**25,9**	**2019**	2,7	n.m	n.m.	36 %	**3 %**
			2020	1,2	10,3	10,8		
R&D Services		**9,1**	**2019**	4,3	12,4	n.m.	20 %	**4 %**
			2020	3,9	10,1	7,9		
Other		**14,6**	**2019**	7,3	18,6	17,2	16 %	**4 %**
			2020	7,1	19,3	18,3		
Sum of Parts		**160,4**	**2019**	**2,5**	**30,8**	**56,4**	**37 %**	**3 %**
			2020	**1,9**	**9,9**	**9,8**		

Source: Checkpoint Partners

	Price (8/2/19) (€)	Mkt Cap. (€ m)	Net Debt 2017 (€ m)	Net Debt 2018e (€ m)	Net Debt 2019e (€ m)	EV 2017e (€ m)	EV 2018e (€ m)	EV 2019e (€ m)
ADL Bionatur	2,20	86,7	28,9	34,3	39,1	115,6	121,0	125,7
Cambrex	39,42	1.323	-183	-110	-55	1.140	1.213	1.268
Catalent	39,71	5.773	2.311	2.380	2.452	8.084	8.153	8.224
DSM	83,12	15.080	771	794	818	15.851	15.875	15.898
Evonik	23,55	10.974	2.940	3.028	3.119	13.914	14.003	14.093
Givaudian	2.412,00	22.263	1.072	1.104	1.137	23.335	23.367	23.400
Lonza	276,50	20.591	3.755	3.868	3.984	24.346	24.459	24.575
Symrise	74,56	8.692	1.374	1.415	1.458	10.066	10.108	10.150
Total		**84.782,8**	**12.069**	**12.514**	**12.952**	**96.852**	**97.297**	**97.735**

	Turnover 2017 (€ m)	Turnover 2018e (€ m)	Turnover 2019e (€ m)	Ebitda 2017 (€ m)	Ebitda 2018e (€ m)	Ebitda 2019e (€ m)	Net Profit 2017 (€ m)	Net Profit 2018e (€ m)	Net Profit 2019e (€ m)	Cash Flow 2017 (€ m)	Cash Flow 2018e (€ m)	Cash Flow 2019e (€ m)
ADL Bionatur	14,6	25,1	63,4	-8,1	-9,3	8,5	-12,8	-15,9	2,2	-13,4	2,8	14,0
Cambrex	534	556	691	175	164	180	102	100	106	134	131	144
Catalent	2.463	2.510	2.710	454	432	480	84	97	117	247	253	286
DSM	8.632	9.260	9.538	1.339	1.805	1.881	711	921	967	1.213	1.476	1.539
Evonik	14.419	14.950	15.548	2.360	2.391	2.493	1.010	1.059	1.120	1.295	1.353	1.425
Givaudian	5.051	5.354	5.729	1.089	1.196	1.316	720	759	818	944	1.020	1.097
Lonza	5.105	5.973	6.391	1.090	1.515	1.660	726	797	841	1.011	1.144	1.212
Symrise	2.996	3.140	3.370	626	613	685	270	277	320	469	491	550
	39.216	**41.768**	**44.040**	**7.124**	**8.107**	**8.704**	**3.611**	**3.995**	**4.292**	**5.300**	**5.871**	**6.267**

	Turnover growth 2017 (€ m)	Turnover growth 2018e (€ m)	Turnover growth 2019e (€ m)	Ebitda growth 2017 (€ m)	Ebitda growth 2018e (€ m)	Ebitda growth 2019e (€ m)	Net Profit growth 2017 (€ m)	Net Profit growth 2018e (€ m)	Net Profit growth 2019e (€ m)	Cash Flow Growth 2017 (€ m)	Cash Flow Growth 2018e (€ m)	Cash Flow Growth 2019e (€ m)
ADL Bionatur	100%	72%	153%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	402%
Cambrex	9%	4%	24%	13%	-6%	9%	25%	-2%	6%	26%	-3%	10%
Catalent	19%	2%	8%	22%	-5%	11%	-24%	16%	21%	7%	3%	13%
DSM	9%	7%	3%	14%	35%	4%	15%	30%	5%	9%	22%	4%
Evonik	13%	4%	4%	9%	1%	4%	9%	5%	6%	10%	5%	5%
Givaudian	8%	6%	7%	-3%	10%	10%	12%	5%	8%	6%	8%	8%
Lonza	24%	17%	7%	39%	39%	10%	141%	10%	6%	84%	13%	6%
Symrise	3%	5%	7%	4%	-2%	12%	7%	2%	16%	3%	5%	12%
	23%	**7%**	**5%**	**12%**	**14%**	**7%**	**23%**	**11%**	**7%**	**17%**	**11%**	**7%**

	EV/sales 2017 (x)	EV/sales 2018e (x)	EV/sales 2019e (x)	EV/Ebitda 2017 (x)	EV/Ebitda 2018e (x)	EV/Ebitda 2019e (x)	P/E 2017 (x)	P/E 2018e (x)	P/E 2019e (x)	FCY 2017 (x)	FCY 2018e (x)	FCY 2019e (x)
ADL Bionatur	7,9	4,8	2,0	n.m.	n.m.	14,8	n.m.	n.m	38,7	n.m.	3%	16%
Cambrex	2,1	2,2	1,8	6,5	7,4	7,1	12,9	13,2	12,5	10%	10%	11%
Catalent	3,3	3,2	3,0	17,8	18,9	17,1	69,1	59,3	49,2	4%	4%	5%
DSM	1,8	1,7	1,7	11,8	8,8	8,5	21,2	16,4	15,6	8%	10%	10%
Evonik	1,0	0,9	0,9	5,9	5,9	5,7	10,9	10,4	9,8	12%	12%	13%
Givaudian	4,6	4,4	4,1	21,4	19,5	17,8	30,9	29,3	27,2	4%	5%	5%
Lonza	4,8	4,1	3,8	22,3	16,1	14,8	28,4	25,8	24,5	5%	6%	6%
Symrise	3,4	3,2	3,0	16,1	16,5	14,8	32,2	31,4	27,1	5%	6%	6%
	2,5	**2,3**	**2,2**	**13,6**	**12,0**	**11,2**	**23,5**	**21,2**	**19,8**	**6%**	**7%**	**7%**

Checkpoint Recommendation System

The Checkpoint Recommendation System is based on absolute returns, measured by the upside potential (including dividends and capital reimbursement) over a 12-month time horizon. Checkpoint recommendations (or ratings) for each stock comprises 3 categories: Buy (B), Neutral (N) and Sell (S).

- **Buy:** the stock is expected to generate total return of over 20% during the next 12 months time horizon
-
- **Neutral:** the stock is expected to generate total return of -20% to +20% during the next 12 months time
-
- **Sell:** the stock is expected to generate total return under -20% during the next 12 months time horizon.

Our rating system applies to companies with market capitalizations of near or below €50 million that in most cases refer to stocks that are illiquid and more volatile than its larger sized peers.

History of recommendations

Date	Recommen.	Price (€)	Target P.(€)	Period	Analyst
11.2.2019	BUY	2.12	3.20	12 months	Guillermo Serrano

Checkpoint does and seeks to do business with companies covered in its research reports. As a result, investors may take the view this could affect the objectivity of the report and therefore should consider this report as only a single factor in making their investment decision.

Frequency of analyst reports

At present Checkpoint has committed to a quarterly update of ADL Bionatur financial and operational performance.

Investment horizon

Our reports focus mainly on small capitalization and illiquid stocks where standard Venture Capital investment criteria should apply. An investment into a sub or near €50 million market capitalization stock, specially if it is illiquid, should be done on a 3-5 year time horizon in order to realize the full potential of the investment opportunity.

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