

# Formycon AG

Germany / Biopharmaceuticals  
 Xetra  
 Bloomberg: FYB GR  
 ISIN: DE000A1EWWY8

New antibody fusion  
 protein drug candidate  
 against COVID-19

**RATING**  
**BUY**

**PRICE TARGET**  
**€ 78.00**

Return Potential 27.9%  
 Risk Rating High

## NOT ALL SARS-COV-2/COVID-19 DRUGS ARE CREATED EQUAL...

According to the biotechnology trade association BIO, in mid-December there were over 590 drugs for the treatment of COVID-19 in preclinical and clinical development. These drugs are customarily divided into two categories - antivirals and treatments. Antivirals attempt to stop SARS-CoV-2 entering cells and/or disrupt its ability to replicate whereas treatments tackle the various symptoms of COVID-19 such as inflammation and cardiovascular and respiratory problems. The most common target for antiviral drugs is the spike protein on the surface of the SARS-CoV-2 virus. However, this mode of action is vulnerable to spike protein mutation. The ACE2 component of Formycon's recently announced ACE2 IgG-Fc fusion protein binds the spike before it can reach the patient's native ACE2 receptors which are the entry point for the virus. The problem of spike protein mutation is circumvented because any mutation of the virus which reduces its affinity to ACE2 will also reduce its pathogenicity. The body's native ACE2 also helps modulate the protein angiotensin II which increases blood pressure and inflammation. During the course of SARS-CoV-2 infection, binding of ACE2 allows angiotensin II to act unhindered. Preclinical in vitro trials indicated that FYB207 allows native ACE2 to continue to modulate angiotensin II. FYB207 thus combines the mode of action of an antiviral and a treatment. Novel drug development is riskier than biosimilar development which was Formycon's sole activity until the start of the pandemic. However, Apeiron's successful 2009 phase I trial of ACE2 and Formycon's proven expertise in antibody engineering suggest to us that the incremental risk is small. The elderly, the obese and allergy sufferers are disproportionately represented among the 2-10% of the population which are immuno-compromised. We expect SARS-CoV-2 to remain endemic in this group even when the pandemic is over. FYB207's strong performance profile suggests that robust pricing (average of €20,000) and a market share of 10% are achievable. We have raised our price target to €78.00 (previously: €43.00) and maintain our Buy recommendation.

### FINANCIAL HISTORY & PROJECTIONS

|                    | 2016   | 2017   | 2018   | 2019   | 2020E  | 2021E  |
|--------------------|--------|--------|--------|--------|--------|--------|
| Revenue (€m)       | 19.53  | 29.00  | 42.99  | 33.16  | 40.00  | 45.00  |
| Y-o-y growth       | 15.4%  | 48.5%  | 48.2%  | -22.9% | 20.6%  | 12.5%  |
| EBIT (€m)          | -4.07  | -1.54  | 7.13   | -2.27  | -4.00  | -7.72  |
| EBIT margin        | -20.8% | -5.3%  | 16.6%  | -6.9%  | -10.0% | -17.2% |
| Net income (€m)    | -4.07  | -1.58  | 7.10   | -2.29  | -4.00  | -7.72  |
| EPS (diluted) (€)  | -0.45  | -0.17  | 0.76   | -0.23  | -0.39  | -0.82  |
| DPS (€)            | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| FCF (€m)           | -6.40  | -4.66  | -3.73  | -7.19  | -4.77  | -10.42 |
| Net gearing        | -66.9% | -60.6% | -37.0% | -46.4% | -62.0% | -68.3% |
| Liquid assets (€m) | 13.97  | 15.48  | 12.31  | 22.35  | 42.05  | 60.60  |

### RISKS

Product failures, lack of funding, change in regulatory environment, new product innovations making biosimilars obsolete

### COMPANY PROFILE

Formycon AG is a Munich, Germany based pharmaceuticals company specialising in the development of biosimilars, e.g. generic versions of biotechnology products.

### MARKET DATA

As of 06 Jan 2021

|                         |                 |
|-------------------------|-----------------|
| Closing Price           | € 61.00         |
| Shares outstanding      | 11.00m          |
| Market Capitalisation   | € 671.00m       |
| 52-week Range           | € 16.65 / 72.60 |
| Avg. Volume (12 Months) | 18,548          |

| Multiples  | 2019 | 2020E | 2021E |
|------------|------|-------|-------|
| P/E        | n.a. | n.a.  | n.a.  |
| EV/Sales   | 19.0 | 15.7  | 14.0  |
| EV/EBIT    | n.a. | n.a.  | n.a.  |
| Div. Yield | 0.0% | 0.0%  | 0.0%  |

### STOCK OVERVIEW



### COMPANY DATA

As of 30 Jun 2020

|                      |          |
|----------------------|----------|
| Liquid Assets        | € 20.23m |
| Current Assets       | € 26.45m |
| Intangible Assets    | € 0.53m  |
| Total Assets         | € 52.18m |
| Current Liabilities  | € 3.60m  |
| Shareholders' Equity | € 46.83m |

### SHAREHOLDERS

|                         |       |
|-------------------------|-------|
| Institutional Investors | 50.0% |
| Founders and Management | 20.0% |
| Free Float              | 30.0% |

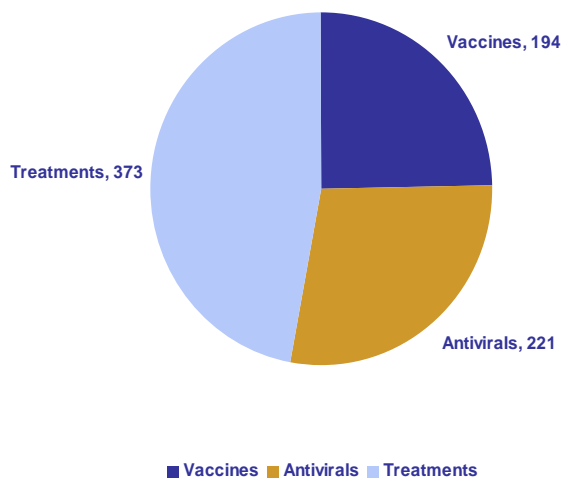
**Clinical trials to start in Q3/2021** Formycon announced in April that it had identified eight antibody-based COVID-19 therapy candidates. In December the company stated that in vitro tests had shown that one of these candidates - an antibody fusion protein called ACE2 IgG-Fc - effectively binds SARS-CoV-2 and completely prevents infection of cells. Formycon plans to start clinical trials of this drug candidate, now designated FYB207, in Q3 2021.

**594 antivirals/treatments under development** According to the biotechnology trade association BIO, in mid-December there were 788 active compounds under development targeting SARS-CoV-2/COVID-19. Of this figure 194 were vaccines, 221 were antivirals and 374 were treatments (see figure 1). Figure 2 shows different strategies used by the antiviral and treatment candidates.

Vaccines are prophylactic therapeutics for creating immunity to SARS-CoV-2. Antivirals are drugs which directly interact with the virus or disrupt its ability to replicate. Examples include inhibitors of SARS-CoV-2 spike/ACE2 interaction, SARS-CoV-2 proteolytic processing for cell entry or intercellular trafficking, RNA replication as well as antibodies that directly bind SARS-CoV-2 surface proteins. Treatments are drugs which treat the various illnesses resulting from SARS-CoV-2 infection. Examples include anti-inflammatory, cardiovascular and respiratory medicines.

**Figure 1: Active compounds in development against SARS-CoV-2/COVID-19**

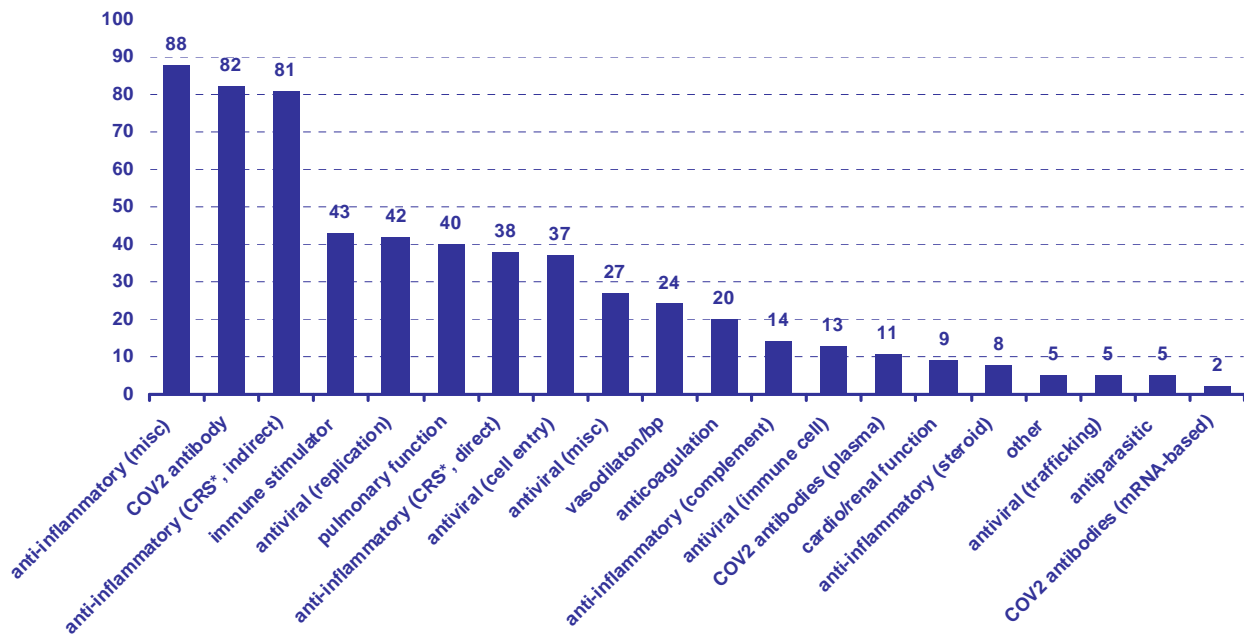
788 unique active compounds in development, 329 clinical, 459 preclinical



Source: BIO

**Virus' spike protein is the most common target for antibodies** Coronavirus infection begins when the spike protein on the surface of the virus attaches to its complementary host cell receptor. Most of the antiviral drugs against SARS-CoV-2 are antibodies and the most common target for these antibodies is the virus' spike protein.

**Figure 2: Strategies used by antiviral drugs and treatments under development against SARS-CoV-2/COVID-19**



\*cytokine release syndrome

Source: BIO

There are seven strains of human coronavirus. Four of these produce the mild symptoms of the common cold. Three human coronaviruses produce symptoms that are potentially more severe. These strains are:

1. Middle East respiratory syndrome-related coronavirus (MERS-CoV),  $\beta$ -CoV
2. Severe acute respiratory syndrome-related coronavirus (SARS-CoV),  $\beta$ -CoV
3. Severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2),  $\beta$ -CoV

**ACE2 is entry point for SARS-CoV and SARS-CoV-2** ACE2 (angiotensin-converting enzyme 2) is an enzyme attached to the cell membranes of cells located in the lungs, arteries, heart, kidney and intestines. It is also the entry point into cells for SARS-CoV and SARS-CoV-2.

**ACE2 blocks viral escape** The soluble ACE2 component of FYB207 acts as bait for the virus' protein spike thereby blocking it from infecting cells. One of the potential advantages of using ACE2 rather than antibodies to bind the protein spike is avoidance of viral escape through mutation of the spike protein. During the timeframe of the current outbreak, the virus may be able to mutate sufficiently to escape antibodies, but not sufficiently to bind to a new host receptor. If it does mutate to escape ACE2 neutralisation via decreasing affinity, it will become less pathogenic.

#### **Raising ACE2 level counters lung inflammation/pneumonia symptoms of COVID-19**

The body's native ACE2 also helps modulate a protein called angiotensin II which increases blood pressure and inflammation. During the course of SARS-CoV-2 infection, binding of ACE2 allows angiotensin II to act unhindered. Preclinical in vitro trials indicated that FYB207 allows native ACE2 to continue to modulate angiotensin II thereby countering the lung inflammation/ pneumonia symptoms of COVID-19.



**ACE2/Fc fusion prolongs half life of compound** The short half-life of soluble ACE2 in isolation limits its therapeutic use. Fusion of ACE2 with the fragment crystallisable (Fc) part of the human immunoglobulin G antibody prolongs half life but at the risk of antibody-dependent enhancement (ADE) of disease through Fc effector functions such as complement dependent cytotoxicity (CDC) and antibody-dependent cytotoxicity (ADCC).

The complement system is a part of the immune system which complements the ability of antibodies and phagocytic cells to clear microbes and damaged cells from an organism, promote inflammation, and attack the pathogen's cell membrane. Antibodies binding to virus or viral proteins on host cells may activate the complement system. When excessive, antibody-dependent activation of complement may result in tissue damage and potential ADE of disease.

Antibodies that bind viruses and Fcγ receptors on cells of the immune system trigger the release of cytokines that inhibit viral spread and recruit other immune cells to eliminate infected cells. Although a part of the normal protective immune response, this can result in ADE of disease if excessive.

**Formycon's selection of IgG4 minimises risk of antibody-dependent enhancement (ADE) of disease** The complement system is efficiently activated by human IgG1, IgG3 and IgM antibodies, weakly by IgG2 antibodies and it is not activated by IgG4 antibodies. Meanwhile, it has been found that IgG2 and IgG4 do not induce NK cell-mediated ADCC, which is in line with their very weak binding to the Fcγ III receptor. The minimal Fc-related effector functions of the IgG4-Fc fragment caused Formycon to select it as the fusion partner for ACE2.

**Figure 3: SARS-CoV-2/COVID-19 drugs having received approval/emergency use authorisation**

| Drug                                | Sponsors, Partners [FUNDING] | Full approval/ EUA         | Repurposed, redirected, new | Target family                     | Target patient group                     | IV/oral |
|-------------------------------------|------------------------------|----------------------------|-----------------------------|-----------------------------------|--|---------|
| Remdesivir                          | Gilead, NIH, USAMRIID, CDC   | Full approval - US + ex-US | Redirected                  | antiviral (replication)           | hospitalised patients                    | IV      |
| REGN-COV2 (Casirivimab + Imdevimab) | Regeneron [BARDA]            | EUA - US                   | New for C19                 | COV2 antibody                     | mild/moderate symptoms, non-hospitalised | IV      |
| convalescent plasma                 | Multiple                     | EUA - US                   | New for C19                 | COV2 antibodies (plasma)          | hospitalised patients                    | IV      |
| Baricitinib/Remdesivir              | Eli Lilly, Incyte, NIH       | EUA - US                   | Repurposed                  | anti-inflammatory (CRS, indirect) | patients requiring oxygen                | Oral    |
| Bamlanivimab                        | Eli Lilly, Abcellara, NIH    | EUA - US                   | New for C19                 | COV2 antibody                     | non-hospitalised patients                | IV      |

Source: FDA, companies

As figure 3 shows, the FDA has so far approved one SARS-CoV-2 antiviral drug (remdesivir) and issued EUAs (Emergency Use Approval) for three antivirals (REGN-COV2, convalescent plasma, bamlanivab) and one treatment (baricitinib).

**Despite FDA approval, WHO has recommended against use of remdesivir** Gilead's remdesivir was originally tested as an antiviral against Ebola and Hepatitis C but delivered unsatisfactory results. The FDA granted remdesivir an EUA in May 2020 on the basis of a large trial which showed that the drug reduced the recovery time of patients hospitalised with COVID-19 from 15 to 11 days. The EUA originally covered critically ill patients in need of supplemental oxygen. In August the FDA expanded the scope of the EUA to cover all patients hospitalised with COVID-19, irrespective of disease severity. The FDA took this step after a further study found that patients with less severe COVID-19 benefitted modestly from the drug. The FDA granted the drug full approval on 22 October. However in November, the WHO recommended against the use of remdesivir on the basis of its own study of 2,750 patients hospitalised for COVID-19 and treated with the drug. This study showed no evidence that remdesivir reduces mortality, keeps patients off ventilators, or shortens their stay in hospital.



**NIH found insufficient data to recommend convalescent plasma** Convalescent plasma therapy (CPT) of COVID-19 uses antibody-rich plasma filtered from the blood of recovered patients. The FDA issued an EUA for CPT of COVID-19 patients on 23 August despite scepticism from government scientists who argued that the evidence in favour of the therapy was still too weak. Following the EUA, the National Institutes of Health's COVID-19 Treatment Guidelines Panel stated "there are insufficient data to recommend either for or against the use of convalescent plasma for the treatment of COVID-19."

**REGN-CoV2 only indicated for non-hospitalised patients** Regeneron's REGN-CoV2 is a cocktail of two antibodies, REGN10933 (Casirivimab) and REGN10987 (Imdevimab). The FDA's EUA for REGN-CoV2 was issued on 21 November for non-hospitalised patients with mild/moderate symptoms on the basis of results from an ongoing phase II/III trial. These showed a 57% reduction in COVID-19 related medical visits through day 29 following treatment (2.8% combined dose groups; 6.5% placebo;  $p=0.024$ ). We expect FYB207's main indication, if approved, to be hospitalised patients and so do not expect direct competition from REGN-CoV2.

**Baricitinib EUA in combination with remdesivir** On 19 November the FDA issued an EUA for Eli Lilly's baricitinib in combination with remdesivir for hospitalised patients needing oxygen. The EUA was based on the results of a phase III trial which showed:

- Patients treated with baricitinib in combination with remdesivir had a significant reduction in median time to recovery from 8 to 7 days (12.5% improvement) compared to remdesivir [hazard ratio: 1.15; 95% CI 1.00, 1.31;  $p=0.047$ ].
- The proportion of patients who progressed to ventilation (non-invasive or invasive) or died by Day 29 was lower in baricitinib in combination with remdesivir (23%) compared to remdesivir (28%) [odds ratio: 0.74; 95% CI 0.56, 0.99;  $p=0.039$ ].
- The proportion of patients who died by Day 29 was 4.7% for baricitinib in combination with remdesivir vs. 7.1% for remdesivir, a relative reduction of 35% [Kaplan Meier estimated difference in Day 29 probability of mortality: -2.6% (95% CI -5.8%, 0.5%)].

Given that baricitinib is a treatment for COVID-19 symptoms which does not target the SARS-CoV-2 virus directly and also the WHO's findings on remdesivir, we do not see this drug combination as either a direct or long term competitor to FYB207.

**Bamlanivimab also only indicated for non-hospitalised patients** On 9 November the FDA issued an EUA for Eli Lilly's bamlanivimab for non-hospitalised patients. The EUA was based on the results of a phase II trial. These showed the proportion of subjects with events of hospitalisation or emergency room visits within 28 days after treatment were 2% for bamlanivimab ( $n=309$ ) compared with 6% for placebo ( $n=156$ ). The proportion of subjects with events of hospitalisation or emergency room visits for subjects at higher risk of hospitalisation was 3% for bamlanivimab ( $n=136$ ) compared with 10% for placebo ( $n=69$ ). We expect FYB207's main indication, if approved, to be hospitalised patients and so do not expect direct competition from bamlanivimab.

Figure 4 shows competing SARS-CoV-2/COVID-19 drugs candidates in phase II/III. As figure 2 shows, there are over 80 SARS-CoV-2 antibodies under development. But we have only been able to find three competing antibody fusion proteins (see figure 5).


**Figure 4: Competing SARS-CoV-2/COVID-19 drugs candidates in phase II/III**

| Drug  | Sponsors, Partners [FUNDING]  | Phase  | Repurposed, redirected, new | Target family          | Target patient group   | IV/oral |
|---|---|--------|-----------------------------|------------------------|--|---------|
| Camostat  | Univ. of Aarhus, Heinrich Heine Univ.   | III    | Repurposed                  | protease               | non-hospitalised and hospitalised early treatment of outpatients | Oral    |
| VIR-7381  | VIR Biotechnology, GSK  | III    | New for C19                 | COV2 epitope           | non-hospitalised and hospitalised                                | IV      |
| Plasma anti-SARS-CoV-2 Hyperimmune Globulin Therapy | Grifols [BARDA]   | III    | New for C19                 | multiple COV2 epitopes | non-hospitalised and hospitalised                                | IV      |
| Octagam 10% (Immune Globulin)                       | Octapharma  | III    | New for C19                 | multiple COV2 epitopes | hospitalised/severe disease progression                          | IV      |
| Nitazoxanide  | Romark Laboratories, Lupin Materno-perinatal Hospital of Mexico   | III    | Repurposed                  | Oxidoreductase         | non-hospitalised and hospitalised                                | Oral    |
| Etesevimab (JS016/LY-CoV016)                        | Eli Lilly, Junshi Biosciences   | III    | New for C19                 | COV2 epitope           | mild/moderate symptoms, non-hospitalised                         | IV      |
| Emtricitabine + tenofovir disoproxil                | Plan Nacional sobre el Sida   | III    | Repurposed                  | reverse transcriptase  | prophylaxis, non-hospitalised patients                           | Oral    |
| CT-P59  | Celltrion, Korea CDC  | III    | New for C19                 | COV2 epitope           | mild symptoms/ non-hospitalised patients                         |         |
| CoVlg-19  | Takeda, Bio Products Lab, Biotest AG, CSL, Octapharma, ADMA Biologics, Biopharma Plasma GC Pharma, Sanquin, NIAID | III    | New for C19                 | multiple COV2 epitopes | severely affected patients                                       | IV      |
| COVID-HIG (plasma program)                          | Emergent Biosolutions [BARDA] [DOD (JPEO,-CBRND)]   | III    | New for C19                 | multiple COV2 epitopes | hospitalised patients  | IV      |
| PTC299  | PTC Therapeutics  | II/III | Redirected                  | DHODH                  | hospitalised patients  | Oral    |
| meplazumab (anti-CD147)                             | Jiangsu Pacific Menuoke, Tang-Du Hospital   | II/III | Redirected                  | CD147                  | hospitalised patients  | IV      |

Source: BIO

**Figure 5: Competing SARS-CoV-2/COVID-19 antibody fusion protein drug candidates**

| Company               | Drug name | Type                    | Clinical stage |
|-----------------------|-----------|-------------------------|----------------|
| Henlius               | HLX71     | ACE-2-Fc fusion protein | Preclinical    |
| Sorrento Therapeutics | STI-4398  | ACE-2-Fc fusion protein | Preclinical    |
| Systemmune            | SI-F019   | ACE-2-Fc fusion protein | Preclinical    |

Source: COVID-19 tracker, companies

## VALUATION

**We expect royalty rate of 18% for FYB207 (FYB201, FYB202, FYB203: 9%)** According to the COVID Tracking Project, over 29,000 individuals per week were hospitalised in the US with COVID-19 during the first half of December. Based on information provided by the European CDC, we estimate that for the EU plus UK this figure was over 77,000. On an annualised basis, hospitalisations in the US and EU plus UK combined were running at a rate of 5.5m. We expect that over time mass vaccination will greatly reduce the number of hospitalisations. However, it is unlikely that the disease will be eradicated. The combination of the absence of compulsory vaccination and the 2-10% of the population who are immuno-compromised suggest that new infections will continue at a significant level indefinitely. From 2023 we assume annual hospitalisations at 5% of the level experienced in the first half of December i.e. ca. 275,000. FYB207's strong performance profile suggests that robust pricing (average of €20,000 per patient) and a market share of 10% are achievable. We expect a phase I/II trial of FYB207 to begin in Q3 this year. Providing that the outcome of this trial is favourable, we expect Formycon to request an EUA for FYB207. A successful phase I/II trial of FYB207 and an EUA could see the drug reach the market in 2023. We expect that Formycon will seek partners for manufacturing and marketing of FYB207 but that it will orchestrate the clinical trial(s) of FYB207 independently. On this basis, we expect the royalty rate for FYB207 to be 18% rather than the 9% we model for FYB201, FYB202 and FYB203.

Formycon's liquid assets position at the end of September was €19.2m. In October 2020 the company raised gross proceeds of €25.8m through the issue of 1m shares to Active Ownership Group.



We estimate the group's liquid assets position at the end of 2020 at €42.1m. We expect the phase I/II trial of FYB207 and the coordination of initial production of the drug to consume €25m. Formycon also continues to develop the partnered biosimilar candidates FYB201, FYB202 and FYB203 and the unpartnered FYB206. We think it likely that the company will receive further government grants/funding in addition to the €290,000 agreed with the Bavarian Research Foundation. However, we also assume the issue of 500,000 shares raising net proceeds of €29m.

### Price target raised to €78.00 (previously: €43.00). Buy recommendation maintained

The addition of FYB207 to Formycon's pipeline is the main factor behind an increase in our price target to €78.00 (previously: €43.00). However, we have also lowered the discount factor we apply to FYB202 and FYB203 from 16% to 13% to reflect the insight from our last note of 14 October that successful completion of the analytical package rather than the phase III trial is pivotal for biosimilars. On this basis FYB201, FYB202 and FYB203 all have equivalent risk. We maintain our Buy recommendation.

Figure 6: Pipeline valuation model

| Compound                    | Project <sup>1)</sup> | Present Value | Patient Pop | Treatment Cost | Market Size | Market Share | Peak Sales | PACME Margin <sup>2)</sup> | Discount Factor | Patent Life <sup>3)</sup> | Time to Market |
|-----------------------------|-----------------------|---------------|-------------|----------------|-------------|--------------|------------|----------------------------|-----------------|---------------------------|----------------|
| FYB201                      | nAMD,DR (ex-US)       | €96M          | 374K        | €5,250         | €1,963M     | 17%          | €306M      | 9%                         | 13%             | n.a.                      | 2 years        |
| FYB201                      | nAMD,DR (US)          | €90M          | 195K        | €9,068         | €1,767M     | 17%          | €308M      | 9%                         | 13%             | n.a.                      | 2 years        |
| FYB202                      | Pso,CrD (ex-US)       | €110M         | 88K         | €27,500        | €2,418M     | 17%          | €446M      | 9%                         | 13%             | n.a.                      | 3 years        |
| FYB202                      | Pso,CrD (US)          | €260M         | 121K        | €44,750        | €5,395M     | 17%          | €996M      | 9%                         | 13%             | n.a.                      | 3 years        |
| FYB203                      | nAMD,DR (ex-US)       | €114M         | 614K        | €4,859         | €2,983M     | 17%          | €515M      | 9%                         | 13%             | n.a.                      | 4 years        |
| FYB203                      | nAMD,DR (US)          | €200M         | 521K        | €8,591         | €4,479M     | 17%          | €765M      | 9%                         | 13%             | n.a.                      | 3 years        |
| FYB205,6,x                  | n.a.                  | €261M         |             |                |             |              |            |                            |                 |                           |                |
| FYB207                      | COVID-19 (ex-US)      | €241M         | 201K        | €20,000        | €4,020M     | 10%          | €40M       | 18%                        | 16%             | 20                        | 2 years        |
| FYB207                      | COVID-20 (US)         | €91M          | 75K         | €20,000        | €1,508M     | 10%          | €152M      | 18%                        | 16%             | 20                        | 2 years        |
| PACME PV                    |                       | €1,464M       |             |                |             |              |            |                            |                 |                           |                |
| Costs PV <sup>4)</sup>      |                       | €674M         |             |                |             |              |            |                            |                 |                           |                |
| NPV                         |                       | €790M         |             |                |             |              |            |                            |                 |                           |                |
| Downpayments and Milestones |                       | €38M          |             |                |             |              |            |                            |                 |                           |                |
| Proforma net Cash           |                       | €69M          |             |                |             |              |            |                            |                 |                           |                |
| Fair Value                  |                       | €897M         |             |                |             |              |            |                            |                 |                           |                |
| Share Count                 |                       | 11,500K       |             |                |             |              |            |                            |                 |                           |                |
| Fair Value Per Share        |                       | €78.00        |             |                |             |              |            |                            |                 |                           |                |

1) A project typically refers to a specific indication or, where necessary or relevant, a combination between indication and geographic market.

2) PACME (Profit After Costs and Marketing Expenses) reflects the company's profit share on future revenues.

This share may be derived in the form of royalties (outsourced marketing/manufacturing) or operating EBITDA margin (in-house model).

3) Remaining patent life after the point of approval.

4) Includes company-level R&D, G&A, Financing Costs, CapEx and Taxes; COGS and S&M are factored into the PACME margin for each project.

Source: First Berlin Equity Research estimates

Figure 7: Changes to our pipeline valuation model

|                                | Old     | New     | Delta  |
|--------------------------------|---------|---------|--------|
| NPV                            | €390M   | €790M   | 102.5% |
| PV downpayments and milestones | €38M    | €38M    | -0.4%  |
| Proforma net Cash              | €45M    | €69M    | 53.9%  |
| Fair Value                     | €473M   | €897M   | 89.6%  |
| Share Count                    | 11,000K | 11,500K | 4.5%   |
| Fair value per share           | €43.00  | €78.00  | 81.4%  |

Source: First Berlin Equity Research estimates





## INCOME STATEMENT

| All figures in EURm                      | 2016A        | 2017A        | 2018A       | 2019A        | 2020E        | 2021E        |
|--|--------------|--------------|-------------|--------------|--------------|--------------|
| <b>Revenue</b>                           | <b>19.5</b>  | <b>29.0</b>  | <b>43.0</b> | <b>33.2</b>  | <b>40.0</b>  | <b>45.0</b>  |
| Increase/decrease in unfinished products | 0.0          | 0.4          | 0.6         | 0.8          | 0.0          | 0.0          |
| <b>Total output</b>                      | <b>19.5</b>  | <b>29.4</b>  | <b>43.6</b> | <b>32.3</b>  | <b>40.0</b>  | <b>45.0</b>  |
| Other operating income                   | 0.1          | 0.1          | 0.1         | 0.8          | 0.2          | 0.2          |
| Cost of goods sold                       | -15.4        | -21.2        | -25.8       | -21.3        | -27.8        | -34.0        |
| <b>Gross profit</b>                      | <b>4.3</b>   | <b>8.4</b>   | <b>17.9</b> | <b>11.7</b>  | <b>12.4</b>  | <b>11.2</b>  |
| Personnel costs                          | -5.1         | -6.3         | -7.0        | -9.1         | -11.0        | -12.7        |
| Depreciation and amortisation            | -0.7         | -0.8         | -0.9        | -0.9         | -0.8         | -0.7         |
| Other operating expenses                 | -2.6         | -2.8         | -3.0        | -4.0         | -4.6         | -5.6         |
| <b>Operating income (EBIT)</b>           | <b>-4.1</b>  | <b>-1.5</b>  | <b>7.1</b>  | <b>-2.3</b>  | <b>-4.0</b>  | <b>-7.7</b>  |
| Net financial result                     | 0.0          | 0.0          | 0.0         | 0.0          | 0.0          | 0.0          |
| <b>Pre-tax income (EBT)</b>              | <b>-4.1</b>  | <b>-1.6</b>  | <b>7.1</b>  | <b>-2.3</b>  | <b>-4.0</b>  | <b>-7.7</b>  |
| Income taxes                             | 0.0          | 0.0          | 0.0         | 0.0          | 0.0          | 0.0          |
| <b>Net income / loss</b>                 | <b>-4.1</b>  | <b>-1.6</b>  | <b>7.1</b>  | <b>-2.3</b>  | <b>-4.0</b>  | <b>-7.7</b>  |
| <b>Diluted EPS (in €)</b>                | <b>-0.45</b> | <b>-0.17</b> | <b>0.76</b> | <b>-0.23</b> | <b>-0.39</b> | <b>-0.82</b> |
| <b>EBITDA</b>                            | <b>-3.4</b>  | <b>-0.8</b>  | <b>8.0</b>  | <b>-1.4</b>  | <b>-3.2</b>  | <b>-7.1</b>  |
| <b>Ratios</b>                            |              |              |             |              |              |              |
| Gross margin on output                   | 21.9%        | 28.4%        | 41.0%       | 36.3%        | 31.0%        | 24.9%        |
| EBIT margin on output                    | -20.8%       | -5.2%        | 16.4%       | -7.0%        | -10.0%       | -17.2%       |
| EBITDA margin on output                  | -17.3%       | -2.6%        | 18.4%       | -4.2%        | -7.9%        | -15.7%       |
| Net margin on output                     | -20.8%       | -5.4%        | 16.3%       | -7.1%        | -10.0%       | -17.2%       |
| Tax rate                                 | 0.1%         | -0.2%        | 0.0%        | -0.3%        | 0.0%         | 0.0%         |
| <b>Expenses as % of output</b>           |              |              |             |              |              |              |
| Cost of goods sold                       | -78.8%       | -72.0%       | -59.2%      | -66.1%       | -69.4%       | -75.6%       |
| Personnel costs                          | -26.1%       | -21.5%       | -16.1%      | -28.1%       | -27.4%       | -28.2%       |
| Depreciation and amortisation            | -3.6%        | -2.7%        | -2.1%       | -2.8%        | -2.1%        | -1.5%        |
| Net other operating exp.                 | -12.6%       | -9.1%        | -6.5%       | -10.0%       | -11.1%       | -11.9%       |
| <b>Y-Y Growth</b>                        |              |              |             |              |              |              |
| Revenues                                 | 15.4%        | 48.5%        | 48.2%       | -22.9%       | 20.6%        | 12.5%        |
| Operating income                         | n.m.         | n.m.         | n.m.        | n.m.         | n.m.         | n.m.         |
| Net income/ loss                         | n.m.         | n.m.         | n.m.        | n.m.         | n.m.         | n.m.         |





## BALANCE SHEET

| All figures in EURm                       | 2016A       | 2017A       | 2018A       | 2019A       | 2020E       | 2021E       |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Assets</b>                             |             |             |             |             |             |             |
| <b>Current assets, total</b>              | <b>20.7</b> | <b>26.6</b> | <b>18.7</b> | <b>28.1</b> | <b>49.0</b> | <b>70.1</b> |
| Cash and cash equivalents                 | 3.0         | 4.5         | 7.3         | 22.1        | 12.0        | 4.5         |
| Other liquid assets                       | 11.0        | 11.0        | 5.0         | 0.2         | 30.1        | 56.1        |
| Receivables                               | 5.2         | 10.5        | 5.2         | 4.9         | 6.4         | 9.0         |
| Inventories                               | 0.6         | 0.6         | 1.2         | 0.4         | 0.4         | 0.5         |
| Other current assets                      | 0.9         | 0.1         | 0.1         | 0.4         | 0.1         | 0.1         |
| <b>Non-current assets, total</b>          | <b>4.5</b>  | <b>4.2</b>  | <b>20.9</b> | <b>25.5</b> | <b>26.0</b> | <b>26.5</b> |
| Investment participations                 | 0.0         | 0.0         | 16.0        | 20.7        | 20.7        | 20.7        |
| Property, plant & equipment               | 3.4         | 3.3         | 3.5         | 3.7         | 4.0         | 4.5         |
| Goodwill & other intangibles              | 1.0         | 0.9         | 0.8         | 0.6         | 0.4         | 0.3         |
| Prepaid expenses                          | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         |
| Deferred tax assets                       | 0.0         | 0.0         | 0.5         | 0.4         | 0.8         | 0.9         |
| <b>Total assets</b>                       | <b>25.2</b> | <b>30.8</b> | <b>39.6</b> | <b>53.6</b> | <b>75.0</b> | <b>96.6</b> |
| <b>Shareholders' equity &amp; debt</b>    |             |             |             |             |             |             |
| <b>Current liabilities, total</b>         | <b>2.6</b>  | <b>3.4</b>  | <b>3.3</b>  | <b>2.8</b>  | <b>3.6</b>  | <b>3.8</b>  |
| Accounts payable                          | 2.3         | 1.8         | 2.7         | 2.2         | 3.0         | 3.2         |
| Other current liabilities                 | 0.3         | 1.7         | 0.6         | 0.6         | 0.6         | 0.6         |
| <b>Long-term liabilities, total</b>       | <b>1.7</b>  | <b>1.8</b>  | <b>3.1</b>  | <b>2.6</b>  | <b>3.6</b>  | <b>4.1</b>  |
| Provisions                                | 0.7         | 1.3         | 2.6         | 1.9         | 3.2         | 3.6         |
| Other liabilities                         | 1.0         | 0.6         | 0.5         | 0.7         | 0.4         | 0.5         |
| <b>Minority interests</b>                 | <b>0.0</b>  | <b>0.0</b>  | <b>0.0</b>  | <b>0.0</b>  | <b>0.0</b>  | <b>0.0</b>  |
| <b>Shareholders' equity</b>               | <b>20.9</b> | <b>25.5</b> | <b>33.2</b> | <b>48.2</b> | <b>67.8</b> | <b>88.7</b> |
| Deferred income                           | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         |
| <b>Total consolidated equity and debt</b> | <b>25.2</b> | <b>30.8</b> | <b>39.6</b> | <b>53.6</b> | <b>75.0</b> | <b>96.6</b> |
| <b>Key figures</b>                        |             |             |             |             |             |             |
| Current ratio (x)                         | 7.91        | 7.75        | 5.64        | 10.15       | 13.76       | 18.56       |
| Quick ratio (x)                           | 7.67        | 7.59        | 5.27        | 10.00       | 13.63       | 18.44       |
| Financial leverage (%)                    | -66.9       | -60.6       | -37.0       | -46.4       | -62.0       | -68.3       |
| Book value per share (€)                  | 2.30        | 2.78        | 3.37        | 4.82        | 316.39      | 347.71      |
| Return on equity (ROE)                    | -17.8%      | -6.8%       | 24.2%       | -5.6%       | -6.9%       | -9.9%       |



## CASH FLOW STATEMENT

| All figures in EURm                            | 2016A       | 2017A       | 2018A       | 2019A       | 2020E       | 2021E        |
|--|-------------|-------------|-------------|-------------|-------------|--------------|
| <b>EBIT</b>                                    | <b>-4.1</b> | <b>-1.5</b> | <b>7.1</b>  | <b>-2.3</b> | <b>-4.0</b> | <b>-7.7</b>  |
| Depreciation and amortisation                  | 0.7         | 0.8         | 0.9         | 0.9         | 0.8         | 0.7          |
| <b>EBITDA</b>                                  | <b>-3.4</b> | <b>-0.8</b> | <b>8.0</b>  | <b>-1.4</b> | <b>-3.2</b> | <b>-7.1</b>  |
| Changes in working capital                     | -1.7        | -3.4        | 5.3         | 0.6         | -0.7        | -2.4         |
| Other adjustments                              | 0.1         | 0.0         | 0.0         | -0.7        | 0.0         | 0.0          |
| <b>Operating cash flow</b>                     | <b>-5.0</b> | <b>-4.2</b> | <b>13.3</b> | <b>-1.5</b> | <b>-3.8</b> | <b>-9.4</b>  |
| CAPEX  | -1.4        | -0.5        | -17.0       | -5.7        | -0.9        | -1.0         |
| <b>Free cash flow</b>                          | <b>-6.4</b> | <b>-4.7</b> | <b>-3.7</b> | <b>-7.2</b> | <b>-4.8</b> | <b>-10.4</b> |
| <b>Debt financing, net</b>                     | <b>0.0</b>  | <b>0.0</b>  | <b>0.6</b>  | <b>0.0</b>  | <b>0.0</b>  | <b>0.0</b>   |
| <b>Equity financing, net</b>                   | <b>0.1</b>  | <b>6.2</b>  | <b>0.0</b>  | <b>17.3</b> | <b>24.5</b> | <b>29.0</b>  |
| Other changes in cash                          | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          |
| <b>Net cash flows</b>                          | <b>-6.3</b> | <b>1.5</b>  | <b>-3.2</b> | <b>10.0</b> | <b>19.7</b> | <b>18.6</b>  |
| Cash and liquid assets, start of the year      | 20.3        | 14.0        | 15.5        | 12.3        | 22.4        | 42.1         |
| <b>Cash and liquid assets, end of the year</b> | <b>14.0</b> | <b>15.5</b> | <b>12.3</b> | <b>22.4</b> | <b>42.1</b> | <b>60.6</b>  |
| <b>EBITDA/share (in €)</b>                     | <b>-0.4</b> | <b>-0.1</b> | <b>0.9</b>  | <b>-0.1</b> | <b>-0.3</b> | <b>-0.7</b>  |
| <b>Y-Y Growth</b>                              |             |             |             |             |             |              |
| Operating cash flow                            | n.m.        | n.m.        | n.m.        | n.m.        | n.m.        | n.m.         |
| Free cash flow                                 | n.m.        | n.m.        | n.m.        | n.m.        | n.m.        | n.m.         |
| EBITDA/share                                   | n.m.        | n.m.        | n.m.        | n.m.        | n.m.        | n.m.         |

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Anschrift:

First Berlin Equity Research GmbH  
Mohrenstr. 34  
10117 Berlin  
Germany

Vertreten durch den Geschäftsführer: Martin Bailey

Telefon: +49 (0) 30-80 93 9 680

Fax: +49 (0) 30-80 93 9 687

E-Mail: [info@firstberlin.com](mailto:info@firstberlin.com)

Amtsgericht Berlin Charlottenburg HR B 103329 B

UST-Id.: 251601797

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First Berlin Equity Research GmbH

**Authored by: Simon Scholes, Analyst**

**All publications of the last 12 months were authored by Simon Scholes.**

**Company responsible for preparation: First Berlin Equity Research GmbH, Mohrenstraße 34, 10117 Berlin**

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| Category                             |  | 1             | 2           |
|--------------------------------------|--|---------------|-------------|
| Current market capitalisation (in €) |  | 0 - 2 billion | > 2 billion |
| Strong Buy <sup>1</sup>              | An expected favourable price trend of: | > 50%         | > 30%       |
| Buy                                  | An expected favourable price trend of: | > 25%         | > 15%       |
| Add                                  | An expected favourable price trend of: | 0% to 25%     | 0% to 15%   |
| Reduce                               | An expected negative price trend of:   | 0% to -15%    | 0% to -10%  |
| Sell                                 | An expected negative price trend of:   | < -15%        | < -10%      |

<sup>1</sup> The expected price trend is in combination with sizable confidence in the quality and forecast security of management.

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| Report No.:    | Date of publication | Previous day closing price | Recommendation | Price target |
|----------------|---------------------|----------------------------|----------------|--------------|
| Initial Report | 17 April 2013       | €3.50                      | Buy            | €7.30        |
| 2...28         | ↓                   | ↓                          | ↓              | ↓            |
| 29             | 7 June 2019         | €32.00                     | Buy            | €51.00       |
| 30             | 11 November 2019    | €32.40                     | Buy            | €51.00       |
| 31             | 7 February 2020     | €28.10                     | Buy            | €39.00       |
| 32             | 26 March 2020       | €19.75                     | Buy            | €39.00       |
| 33             | 19 May 2020         | €24.70                     | Buy            | €39.00       |
| 34             | 23 June 2020        | €23.10                     | Buy            | €39.00       |
| 35             | 23 September 2020   | €30.40                     | Buy            | €39.00       |
| 36             | 14 October 2020     | €32.00                     | Buy            | €43.00       |
| 37             | Today               | €61.00                     | Buy            | €78.00       |

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