

## Equity Research

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## Biotechnology

### Galapagos N.V.

#### Pipeline Update Supports Positive 2018 Outlook

On Friday before mkt open, Galapagos hosted their 3Q17 investor call, and provided key clinical catalysts expected for their lead programs in Cystic Fibrosis, Rheumatoid Arthritis, Ulcerative Colitis and Crohn's, as well as their earlier stage pipeline. Accordingly, we have updated our model to include the earlier stage programs for Idiopathic Pulmonary Fibrosis, Osteoarthritis, and Atopic Dermatitis, which are all moving forward into more advanced studies. Although heavily risk adjusted, and more impactful to our out-year model (2022+), the additions support raising our PT to \$118, versus \$98 previously. **We reiterate our Buy rating.**

**GLPG** **\$96.02**

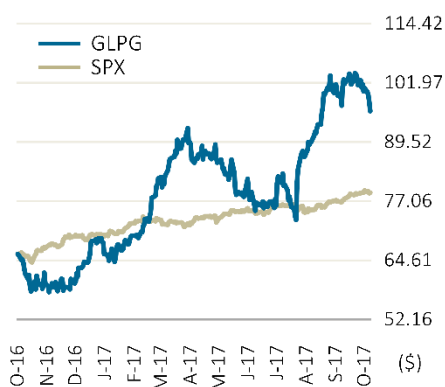
12 month target \$118.00

#### BUY

52 week range \$57.96 - \$104.02

Market Cap (m) \$4,884

#### Price Performance



Source: IDC

- ▶ **Cystic fibrosis '2451 triple combo study to begin enrolling during 4Q17:** Mgmt highlighted that the UK scientific advisory committee had provided approval to start the trial, and expect finalization of the clinical trial application by November. Management mentioned that there had not been a concern raised regarding the long-acting metabolite of '2451. The study will have both homozygous F508del and Minimal function cohorts, measuring FEV<sub>1</sub> and Sweat Chloride at week 4. Near term, we think that data from the ALBATROSS (dual-combo) study expected within the next several weeks (NACFC meeting in November) could provide more tangible validation for the GLPG CF platform.
- ▶ **Presentation of the 84-week data for DARWIN 3 at ACR (Nov. 6<sup>th</sup>) could help differentiate filgotinib's safety profile:** Mgmt noted that thromboembolic events (DV/PE) for filgotinib (Jak 1) have only occurred at a rate of 0.16 (n=3) per 100 PT years across studies, with only 1 incident to date in DARWIN 3, which is a meaningful improvement relative to the first-gen Jak inhibitors, and could also potentially have a reduced risk profile relative to upadacitinib.
- ▶ **Idiopathic pulmonary fibrosis placebo-controlled study with GLPG1690 is expected to begin enrolling during 1H18:** Tox studies for chronic dosing of GLPG1690 have been completed, and have not shown signs of CNS tox. The primary endpoint for the study will be FVC following 1 year of dosing. Mgmt plans to discuss additional studies with the EMA, and with the FDA to complete the registrational packet. The program currently remains unpartnered.
- ▶ **Valuation:** Our \$118PT values GLPG at ~4x EV/ 2022E Sales.

#### Estimates

	1Q16 A	2Q16 A	3Q16 A	4Q16 A	FY16 A	1Q17 A	2Q17 E	3Q17 E	4Q17 E	FY17 E	FY18 E
Sales	15	34	16	87	152	40	0	0	0	0	0
EBITDA (Adj.)	0	0	0	0	0	(7)	(21)	(29)	(25)	(82)	(107)
Diluted EPS (Adj.)	0.00	0.00	0.00	0.00	0.00	(0.28)	(0.71)	(0.78)	(0.56)	(2.34)	(2.34)

Source: BTIG Estimates and Company Documents (\$ in millions, except per share amount)

Galapagos, in collaboration with MorphoSys, is developing MOR106 (IL-17c antibody), a clinical candidate for moderate to severe Atopic Dermatitis.

The mechanism of action of MOR106 is highly validated, as the IL-class makes up a huge percent of marketed drugs for inflammatory conditions, but IL-17C is expected to be more selective for the epithelia cells and thus associated with lesser side effects. The drug is also expected to have broad applications.

A phase 1 tox study with the subcutaneous formulation is expected to begin during 2018 to allow for a bridge into a Phase 3 subcu study, following completion of the Phase 2 intravenous study, which is also expected to begin during 2018.

**Figure 1. We forecast MOR106 revenues for Galapagos reaching ~ \$579m during 2023E**

Atopic Dermatitis	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Galapagos/Morphosys MOR106 Sales	\$00	\$00	\$00	\$109	\$347	\$579	\$840	\$1,131	\$1,454
US Sales	\$00	\$00	\$00	\$109	\$252	\$408	\$579	\$764	\$965
EU Sales	\$00	\$00	\$00	\$00	\$95	\$170	\$261	\$367	\$489
GLPG Net Revenue	\$0	\$0	\$0	\$55	\$174	\$289	\$420	\$566	\$727
Atopic Dermatitis	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
MOR106	\$0	\$0	\$0	\$109	\$252	\$408	\$579	\$764	\$965
<b>Market Share of Systemic Drugs (%)</b>									
MOR106	0%	0%	0%	3%	6%	9%	12%	15%	18%
<b># of Moderate to Severe Adult Patients with Uncontrolled AD</b>	<b>397,170</b>	<b>401,142</b>	<b>405,153</b>	<b>409,205</b>	<b>413,297</b>	<b>417,430</b>	<b>421,604</b>	<b>425,820</b>	<b>430,078</b>
Cost of Therapy Per Patient	\$29,600	\$29,896	\$30,195	\$30,497	\$30,802	\$31,110	\$31,421	\$31,735	\$32,053
Price Inflation %	0%	1%	1%	1%	1%	1%	1%	1%	1%
MOR106	\$0	\$0	\$0	\$0	\$95	\$170	\$261	\$367	\$489
<b>Market Share of Systemic Drugs (%)</b>									
MOR106	0%	0%	0%	0%	5%	8%	11%	14%	17%
<b># of Moderate to Severe Adult Patients with Uncontrolled AD</b>	<b>948,065</b>	<b>957,545</b>	<b>967,121</b>	<b>976,792</b>	<b>986,560</b>	<b>996,426</b>	<b>1,006,390</b>	<b>1,016,454</b>	<b>1,026,618</b>
Cost of Therapy Per Patient	\$18,500	\$18,685	\$18,872	\$19,061	\$19,251	\$19,444	\$19,638	\$19,835	\$20,033
Price Inflation %	0%	1%	1%	1%	1%	1%	1%	1%	1%

Source: Company Reports, ClinicalTrials.gov, FactSet, Bloomberg, BTIG Research Estimates, October 2017

Galapagos has an ongoing study with GLPG1690 (autotaxin inhibitor) for Idiopathic Pulmonary Fibrosis (IPF). Orphan designation has been granted to GLPG1690 in IPF by the European Commission, and the program currently remains unpartnered.

The hallmark of IPF is scarring, but currently approved drugs are unable to reverse the scarring which characterizes disease. Thus, Galapagos has chosen to focus on inhibiting, lysophosphatidic acid (LPA), since LPA can promote fibrosis and scarring.

Tox studies for chronic dosing of GLPG1690 have been completed, and have not shown signs of CNS tox. The primary endpoint for the pivotal study will be FVC following 1 year of dosing. Mgmt plans to discuss additional studies with the EMA, and with the FDA to complete the registrational packet.

**Figure 2. We forecast GLPG1690 revenues reaching ~ \$315m during 2023E**

<b>Idiopathic Pulmonary Fibrosis (IPF)</b>	<b>2018E</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>
<b>Galapagos GLPG1690 Sales</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$37</b>	<b>\$315</b>	<b>\$876</b>	<b>\$1,612</b>	<b>\$2,588</b>
US Sales	\$0	\$0	\$0	\$0	\$37	\$228	\$583	\$1,109	\$1,819
EU Sales	\$0	\$0	\$0	\$0	\$0	\$86	\$293	\$503	\$770
<b>Idiopathic Pulmonary Fibrosis (IPF)</b>	<b>2018E</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>
GLPG1690	\$0	\$0	\$0	\$0	\$37	\$228	\$583	\$1,109	\$1,819
					37	228	583	1109	
<b>Market Share (%)</b>									
GLPG1690	0%	0%	0%	0%	5%	15%	25%	35%	45%
<b># of Moderate to Severe IPF Patients</b>	<b>140,693</b>	<b>142,100</b>	<b>143,521</b>	<b>144,956</b>	<b>146,406</b>	<b>147,870</b>	<b>149,349</b>	<b>150,842</b>	<b>152,351</b>
Cost of Therapy Per Patient	\$98,000	\$98,980	\$99,970	\$100,969	\$101,979	\$102,999	\$104,029	\$105,069	\$106,120
Price Inflation %	0%	1%	1%	1%	1%	1%	1%	1%	1%
GLPG1690	\$0	\$0	\$0	\$0	\$0	\$86	\$293	\$503	\$770
<b>Market Share (%)</b>									
GLPG1690	0%	0%	0%	0%	5%	15%	25%	35%	45%
<b># of Moderate to Severe IPF Patients</b>	<b>151,870</b>	<b>153,388</b>	<b>154,922</b>	<b>156,471</b>	<b>158,036</b>	<b>159,616</b>	<b>161,213</b>	<b>162,825</b>	<b>164,453</b>
Cost of Therapy Per Patient	\$68,600	\$69,286	\$69,979	\$70,679	\$71,385	\$72,099	\$72,820	\$73,548	\$74,284
Price Inflation %	0%	1%	1%	1%	1%	1%	1%	1%	1%

Source: Company Reports, ClinicalTrials.gov, FactSet, Bloomberg, BTIG Research Estimates, October 2017

Galapagos is also developing GLPG1972 (ADAMTS-5), a first-in-class clinical drug candidate for Osteoarthritis, in collaboration with Servier.

GLPG1972 is a potent and selective small inhibitor of the enzyme ADAMTS-5, with the potential to address the underlying cause of the disease, as ADAMTS-5 can protect the cartilage from degradation.

Management is currently awaiting data from the phase 1b study, which is fully recruited, and is expected to read out next year. The phase 2 POC global study is expected to also begin early next year.

**Figure 3. We forecast GLPG1972 revenues for Galapagos reaching ~ \$188m during 2023E**

Osteoarthritis (OA)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
<b>Galapagos/Servier GLPG1972 Sales</b>	<b>\$00</b>	<b>\$00</b>	<b>\$00</b>	<b>\$00</b>	<b>\$00</b>	<b>\$188</b>	<b>\$384</b>	<b>\$588</b>	<b>\$800</b>
US Sales	\$00	\$00	\$00	\$00	\$00	\$188	\$384	\$588	\$800
<b>Osteoarthritis (OA)</b>	<b>2018E</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>
GLPG1972	\$0	\$0	\$0	\$0	\$0	\$188	\$384	\$588	\$800
<b>Market Share (%)</b>									
GLPG1972	0%	0%	0%	0%	100%	100%	100%	100%	100%
<b>Total US Sales (\$m)</b>	<b>\$00</b>	<b>\$00</b>	<b>\$00</b>	<b>\$00</b>	<b>\$00</b>	<b>\$188</b>	<b>\$384</b>	<b>\$588</b>	<b>\$800</b>
# of Symptomatic Hand OA Patients	1,478,761	1,493,549	1,508,485	1,523,569	1,538,805	1,554,193	1,569,735	1,585,432	1,601,287
% Patients Treated	0%	0%	0%	0%	0%	0%	0%	0%	0%
# of Severe Knee OA Patients	2,131,156	2,152,468	2,173,992	2,195,732	2,217,690	2,239,867	2,262,265	2,284,888	2,307,737
% Patients Treated	0%	0%	0%	0%	0%	1%	2%	3%	4%
# of Severe Hip OA Patients	1,957,184	1,976,756	1,996,524	2,016,489	2,036,654	2,057,020	2,077,591	2,098,366	2,119,350
% Patients Treated	0%	0%	0%	0%	0%	0%	0%	0%	0%
Patients Treated	-	-	-	-	-	22,399	45,245	68,547	92,309
Cost of Therapy Per Patient	\$8,000	\$8,080	\$8,161	\$8,242	\$8,325	\$8,408	\$8,492	\$8,577	\$8,663
Price Inflation %	0%	1%	1%	1%	1%	1%	1%	1%	1%

Source: Company Reports, ClinicalTrials.gov, FactSet, Bloomberg, BTIG Research Estimates, October 2017

## Income Statement

Galapagos, Inc. Income Statement																
EUR € mm	2016E	Mar-17 1Q17E	Jun-17 2Q17	Sep-17 3Q17	Dec-17 4Q17E	2017E	Mar-18 1Q18E	Jun-18 2Q18E	Sep-18 3Q18E	Dec-18 4Q18E	2018E	2019E	2020E	2021E	2022E	2023E
<b>Total Revenue</b>	<b>152</b>	<b>40</b>	<b>33</b>	<b>33</b>	<b>39</b>	<b>145</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>154</b>	<b>154</b>	<b>194</b>	<b>457</b>	<b>886</b>	<b>2003</b>
Product Revenues		0	0	0	0	0	0	0	0	0	0	0	40	303	732	1849
Reimbursement Revenues	130	34	27	27	33	120	33	33	33	33	130	130	130	130	130	130
Other Income	22	6	6	6	6	24	6	6	6	6	24	24	24	24	24	24
Cost of Goods Sold	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2.00	-15.16	-36.59	-92.45
<b>Gross Profit</b>	<b>151.612</b>	<b>40</b>	<b>33</b>	<b>33</b>	<b>39</b>	<b>144.854</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>154.000</b>	<b>154.000</b>	<b>192.020</b>	<b>442.071</b>	<b>849.256</b>	<b>1910.537</b>
<i>Gross Margin %</i>							100%	100%	100%	100%	100%	100%	99%	97%	96%	95%
<b>Operating Expenses</b>	<b>-163.1</b>	<b>-51</b>	<b>-55</b>	<b>-63</b>	<b>-65</b>	<b>-234</b>	<b>-65</b>	<b>-66</b>	<b>-66</b>	<b>-67</b>	<b>-264</b>	<b>-269</b>	<b>-536</b>	<b>-815</b>	<b>-723</b>	<b>-1230</b>
Research and Development	-139.57	-45	-48	-56	-57	-207	-58	-58	-58	-58	-232	-232	-410	-485	-512	-832
<i>Research and Development % of Sales</i>	138%	1.127	145%	169%	149%	144%	151%	151%	151%	151%	151%	151%	1025%	160%	70%	45%
General and administrative expenses	-22	-6	-6	-6	-7	-24	-6	-6	-6	-7	-25	-26	-26	-27	-28	-28
<i>G &amp; A % of Sales</i>	22%	0.141	19%	18%	17%	17%	15%	17%	16%	17%	16%	17%	14%	6%	3%	1%
Sales and marketing expenses	-2	-1	-1	-1	-1	-3	-2	-2	-2	-2	-7	-11	-100	-303	-183	-370
<i>Sales and marketing % of Sales</i>	2%	0.014	2%	2%	3%	2%	4%	4%	5%	5%	4%	7%	250%	100%	25%	20%
<b>Operating Profit</b>	<b>-11</b>	<b>-11</b>	<b>-22</b>	<b>-30</b>	<b>-26</b>	<b>-89</b>	<b>-27</b>	<b>-28</b>	<b>-27</b>	<b>-28</b>	<b>-110</b>	<b>-115</b>	<b>-344</b>	<b>-373</b>	<b>126</b>	<b>680</b>
<i>Operating Profit Margin %</i>	-8%	-28%	-65%	-89%	-69%	-61%	-70%	-72%	-71%	-73%	-71%	-74%	-178%	-82%	14%	34%
Fair value re-measurement of Share Sub Agreement	57	0	0	0												
Other financial income	10	1	1	1												
Other financial expenses	-2	-3	-15	-8		-26.80					0.00	0.00	0.00	0.00	0.00	0.00
<b>Pretax Income</b>	<b>54</b>	<b>-14</b>	<b>-36</b>	<b>-37</b>	<b>-26</b>	<b>-112</b>	<b>-27</b>	<b>-28</b>	<b>-27</b>	<b>-28</b>	<b>-110</b>	<b>-115</b>	<b>-344</b>	<b>-373</b>	<b>126</b>	<b>680</b>
Income Tax Provision	0	0	-0.1	-0.06												
Tax Rate	1%	0%	0%	-0.2%												
<b>Net Income</b>	<b>54</b>	<b>-14</b>	<b>-36</b>	<b>-37</b>	<b>-26</b>	<b>-112</b>	<b>-27</b>	<b>-28</b>	<b>-27</b>	<b>-28</b>	<b>-110</b>	<b>-115</b>	<b>-344</b>	<b>-373</b>	<b>126</b>	<b>680</b>
<b>Basic Shares Outstanding</b>	45.06	46.26	48.04	45.53	47.05	46.72	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05
<b>Diluted Shares Outstanding</b>	46.43	48.33	49.99	47.05	47.05	48.11	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05	47.05
<b>Basic EPS</b>		-0.29	-0.74	-0.80	-0.56	-2.40	-0.57	-0.59	-0.58	-0.60	-2.34	-2.43	-7.32	-7.93	2.69	14.46
<b>Diluted EPS</b>		-0.28	-0.71	-0.78	-0.56	-2.34	-0.57	-0.59	-0.58	-0.60	-2.34	-2.43	-7.32	-7.93	2.69	14.46
<i>Diluted EPS Growth % YoY</i>																
Non-GAAP Adjustments																
GAAP EPS																
Share Price		\$83.46	\$84.29	\$76.52	\$77.29	\$77.29	\$78.06	\$78.84	\$79.63	\$80.42	\$80.42	\$83.69	\$87.09	\$90.62	\$94.30	\$98.13

Source: Company Reports, Bloomberg, BTIG Research Estimates, October 2017

## BTIG Covered Companies Mentioned in this Report

GALAPAGOS N.V. (GLPG, Buy, \$118.00 PT; Current Price: \$96.02; Analyst: Dane.Leone)

## Appendix: Analyst Certification and Other Important Disclosures

### Analyst Certification

I, Dane Leone, CFA, hereby certify that the views about the companies and securities discussed in this report are accurately expressed and that I have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report.

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### Company Valuation and Risk Disclosures

#### Galapagos N.V. (GLPG, Buy, \$118.00 PT)

**Valuation:** Our \$118PT values GLPG at ~4.x EV/ 2022E Sales.

**Risks:** Our Buy rating and \$118 price target may prove inaccurate due to a number of risks related to Galapagos (GLPG) being an unprofitable early stage company with limited clinical data across the Cystic Fibrosis, Rheumatoid Arthritis, and Inflammatory Bowel Disease Portfolios.

### Other Disclosures

Additional Information Available Upon Request

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