

Biogen Idec Inc.

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Anti-Tau Antibody Adds to Early Stage Pipeline

- Biogen adds another shot on goal in Alzheimer's
- Deal Terms
- Phase 1 data confirmed suppression of CSF eTau
- Valuation: \$260PT, based on NPV sum-of-the-parts

This morning, Bristol-Myers Squibb announced that it had out-licensed its phase 2 anti-tau antibody (BMS-986168; formerly IPN-007) for progressive supranuclear palsy (PSP) and Alzheimer's disease (AD) to Biogen. The addition of '168 complements Biogen's existing efforts against tau (BIIB076; entering phase 1 this year). While we are encouraged by Biogen's willingness to engage in further BD efforts across the neurodegenerative space, we note that phase 2 data from '168 in PSP is unlikely before 2019, while the drug has yet to be evaluated in AD. As such, we don't see this as a value driver in the near-term, and remain cautious on the risk/reward for BIIB shares with aducanumab data still 2+ years out. Indeed, this does not address our near-to-mid-term concerns on the MS franchise or emerging competitive threats to Spinraza in SMA.

Deal Terms

Biogen will pay Bristol a \$300M up-front with a potential additional \$410M in downstream milestones, as well as tiered double-digit royalties. Biogen is also assuming Bristol's obligations to iPierian related to the 2014 acquisition that could be up to \$550M in milestones/royalties. Recall, Bristol paid \$175M in cash for the acquisition of iPierian in 2014, when '168 had yet to enter the clinic.

Phase 1 data confirmed suppression of CSF eTau

At the 2006 International Congress of Parkinson's Disease and Movement Disorders, phase 1 data were presented as a late breaker (link to abstract). The magnitude and duration of eTau suppression was dose dependent. After a single intravenous infusion in healthy subjects, suppression of CSF eTau at 28 days ranged from 65% to 96% for doses ranging from 70mg to 4200mg. Increases in Cmax and AUC in serum appeared dose proportional, with a half-life of ~25 days. Most adverse events were mild, and no serious adverse events or discontinuations from adverse events were seen.

Valuation: \$260PT, based on NPV sum-of-the-parts

Our PT is based on our NPV analysis, which implies a 12.6x P/E based on our 2017 EPS estimate (\$20.70 vs. cons: \$20.97 and guidance of \$20.45-\$21.25).

12-month rating	Sell
12-month price target	\$260.00
Price	\$268.92

Trading data and key metrics

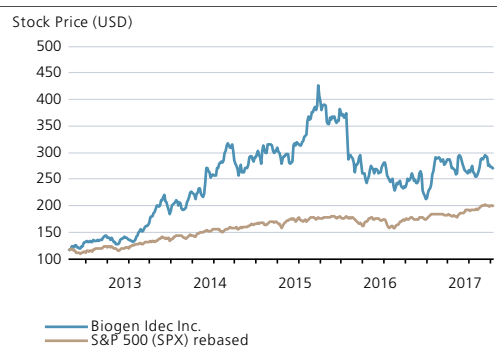
52-wk range	US\$330.11-224.60
Market cap.	US\$58.2bn
Shares o/s	217m (COM)
Free float	100%
Avg. daily volume ('000)	1,665
Avg. daily value (m)	US\$464.8
Common s/h equity (12/17E)	US\$16.3bn
P/BV (12/17E)	3.6x
Net debt / EBITDA (12/17E)	NM
RIC	BIIB.O
BBG	BIIB US

Sources: UBS, Bloomberg

EPS (UBS, diluted) (US\$)

	12/17E	
	UBS	Cons.
Q1E	4.96	5.00
Q2E	5.13	5.20
Q3E	5.28	5.32
Q4E	5.33	5.42
12/17E	20.70	20.94
12/18E	22.25	22.29
12/19E	23.65	23.91

Performance



Sources: Bloomberg, UBS

Definitions of terms and abbreviations are available in the appendix section of this report, and more extensively on internet at www.ubs.com/glossary

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Biogen Idec Inc.

Company Profile: Biogen Idec Inc.

Biogen is a global pharmaceutical company driven historically by its multiple sclerosis (MS), and more recently complemented with emerging assets addressing other neurological conditions and rare genetic disorders. The MS franchise accounted for ~80% of its revenue as of 3Q16. More recently, the company's Spinraza was approved by the FDA for SMA (spinal muscular atrophy), a rare muscular disorder. The company also has a later-stage asset, aducanumab, in multiple phase 3 trials for Alzheimer's disease.

Statement of Risk

Our valuation is based on an NPV sum-of-the-parts analysis. Risks to our Sell thesis include (1) resurgent Tecfidera growth, (2) delays in the approval of Ocrevus and/or ozanimod for MS, (3) better than expected Spinraza launch, (4) delays in gene therapies for SMA moving into pivotal studies, (5) incremental datapoints further de-risking aducanumab

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Highlights (US\$m)	12/14	12/15	12/16	12/17E	12/18E	12/19E	12/20E	12/21E
Revenues	9,703	10,764	11,449	11,236	12,242	12,988	13,635	15,128
EBIT (UBS)	4,437	5,380	6,095	6,116	6,541	6,877	7,192	8,101
Net earnings (UBS)	3,281	3,932	4,423	4,466	4,756	5,008	5,244	5,926
EPS (UBS, diluted) (US\$)	13.84	17.01	20.22	20.70	22.25	23.65	25.00	28.52
DPS (US\$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net (debt) / cash	1,263	(3,093)	(1,622)	2,639	5,382	9,662	14,732	20,439
Profitability/valuation	12/14	12/15	12/16	12/17E	12/18E	12/19E	12/20E	12/21E
EBIT margin %	45.7	50.0	53.2	54.4	53.4	53.0	52.7	53.5
ROIC (EBIT) %	57.4	60.5	59.1	56.8	59.6	60.5	63.9	73.4
EV/EBITDA (core) x	14.2	13.1	9.0	8.2	7.2	6.4	5.5	4.3
P/E (UBS, diluted) x	23.0	20.7	13.9	13.0	12.1	11.4	10.8	9.4
Equity FCF (UBS) yield %	3.6	3.7	6.4	8.1	8.6	9.2	9.5	10.6
Net dividend yield %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Company accounts, Thomson Reuters, UBS estimates. Metrics marked as (UBS) have had analyst adjustments applied.

Valuations: based on an average share price that year, (E): based on a share price of US\$268.92 on 13 Apr 2017 08:12 EDT

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Biogen Idec Inc.

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UBS 12-Month Rating	Rating Category	Coverage ¹	IB Services ²
Buy	Buy	45%	29%
Neutral	Hold/Neutral	39%	27%
Sell	Sell	15%	16%

1:Percentage of companies under coverage globally within the 12-month rating category.

2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS. Rating allocations are as of 31 December 2016.

UBS 12-Month Rating	Definition
Buy	FSR is > 6% above the MRA.
Neutral	FSR is between -6% and 6% of the MRA.
Sell	FSR is > 6% below the MRA.

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Global Equity 12-Month Rating Definitions

Buy: FSR is > 6% above the MRA. **Neutral:** FSR is between -6% and 6% of the MRA. **Sell:** FSR is > 6% below the MRA.

Key Definitions

Forecast Stock Return (FSR) is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months.

Market Return Assumption (MRA) is defined as the one-year local market interest rate plus 5% (a proxy for, and not a forecast of, the equity risk premium).

Under Review (UR) Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation.

Exceptions and Special Cases

Core Banding Exceptions (CBE): Exceptions to the standard +/-6% bands may be granted by the Investment Review Committee (IRC). Factors considered by the IRC include the stock's volatility and the credit spread of the respective company's debt. As a result, stocks deemed to be very high or low risk may be subject to higher or lower bands as they relate to the rating. When such exceptions apply, they will be identified the Companies Mentioned or Company Disclosure table in the relevant research piece.

Company Disclosures

Company Name	Reuters	12-mo rating	Price	Price date
Biogen Inc	BIIB US	Sell	US\$268.92	12 Apr 2017

Source: UBS. All prices as of local market close.

Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

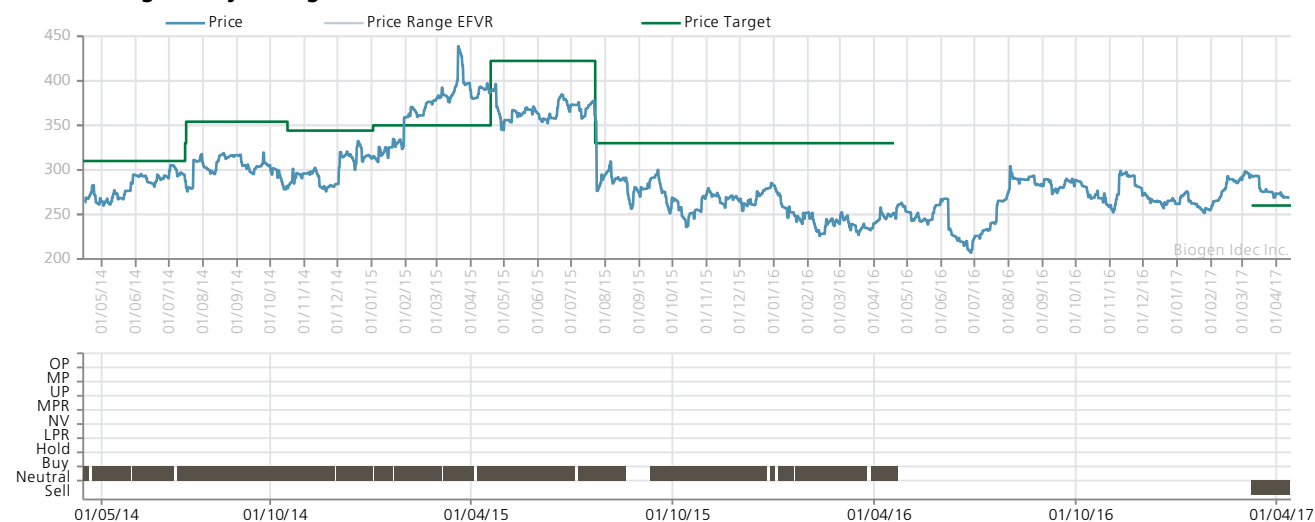
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Biogen Idec Inc. 1, 2;

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2. A U.S.-based global equity strategist, a member of his team, or one of their household members has a long common stock position in Biogen Idec Inc.

Biogen Idec Inc.

Global rating history -- Biogen Idec Inc., BIIB US



Source: UBS CIO as of 13 April 2017

Terms and Abbreviations

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
1H, 2H, etc. or 1H11, 2H11, etc.	First half, second half, etc. or first half 2011, second half 2011, etc.	1Q, 2Q, etc. or 1Q11, 2Q11, etc.	First quarter, second quarter, etc. or first quarter 2011, second quarter 2011, etc.
2011E, 2012E, etc.	2011 estimate, 2012 estimate, etc.	A	actual i.e. 2010A
ADR	American depositary receipt	ARPU	Average Revenue Per User
AUM	Assets under management = total value of own and third-party assets managed	Avg.	average
bn	Billion	bp or bps	Basis point or basis points (100 bps = 1 percentage point)
BVPS	Book value per share = shareholders' equity divided by the number of shares	CAGR	Compound annual growth rate
Cant Inc/Capita	Cantonal income per capita (Switzerland only)	Capex	Capital expenditures
CF	Cash flow	CFO	1) Cash flow from operations, 2) Chief financial officer
COGS	Cost of goods sold	COM	Common shares
Cons.	Consensus	Core Tier 1 Ratio	Tier 1 capital minus tier 1 hybrid securities
Cost/Inc Ratio (%)	Costs as a percentage of income	CPI	Consumer price index
CR	Combined ratio = ratio of claims and expenses as a percentage of premiums (for insurance companies)	CY	Calendar year
DCF	Discounted cash flow	DDM	Dividend discount model
Dividend Yield (%)	Dividend per share divided by price per share	DPS	Dividend per share
E	expected i.e. 2011E	EBIT	Earnings before interest and taxes
EBIT Margin (%)	EBIT divided by revenues	EBITDA	Earnings before interest, taxes, depreciation and amortization
EBITDA Margin (%)	EBITDA divided by revenues	EBITDA/Net Interest	EBITDA divided by net interest expense
EBITDAR	Earnings before interest, taxes, depreciation, amortization and rental expense	EFVR	Estimated fair value range
EmV	Embedded value = net asset value + present value of forecasted future profits (for life insurers)	EPS	Earnings per share
Equity Ratio (%)	Shareholders' equity divided by total assets	EV	Enterprise value = market value of equity, preferred equity, outstanding net debt and minorities
FCF	Free cash flow = cash a company generates above outlays required to maintain/expand its asset base	FCF Yield (%)	Free cash flow divided by market capitalization
FFO	Funds from operations	FY	Fiscal year / financial year
GDP	Gross domestic product	Gross Margin (%)	Gross profit divided by revenues
H	half year	h/h	Half-year over half-year; half on half
hist av.	Historical average	Interbank Ratio	Interbank deposits due from banks divided by interbank deposits due to banks
Interest Coverage	Ratio that expresses the number of times interest expenses are covered by earnings	Interest exp	Interest expense
ISIN	International securities identification number	K	One thousand
LLP/Net Int Inc (%)	Loan loss provisions divided by net interest income	LLR/Gross Loans (%)	Loan loss reserves divided by gross loans

Biogen Idec Inc.

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
LPR	Least Preferred: The stock is expected to both underperform the relevant benchmark and depreciate in absolute terms.	Market cap	Number of all shares of a company (at the end of the quarter) times closing price
m/m	Month-over-month; month on month	mn or m	Million
M and A	Merger and Acquisition	MP	Marketperform: The stocks expected performance is in line with the sector benchmark
MPR	Most Preferred: The stock is expected to both outperform the relevant benchmark and appreciate in absolute terms.	n.a.	Not available or not applicable
NAV	Net asset value	Net Debt	Short- and long-term interest-bearing debt minus cash and cash equivalents
Net DPS	Net dividends per share	NIM or Net Int Margin (%)	Net interest income divided by average interest-bearing assets
Net Margin (%)	Net income dividend by revenues	NV	Neutral View: The stock is expected to neither outperform nor underperform the relevant benchmark nor significantly appreciate or depreciate in absolute terms.
n.m. or NM	Not meaningful	NPL	Non-performing loans
OP	Outperform: The stocks is expected to outperform the sector benchmark	Op Margin (%)	Operating income divided by revenues
p.a.	Per annum (per year)	P/BV	Price to book value
P/E or PE	Price to earnings / Price Earnings Ratio	P/E Relative	P/E relative to the market
P/EmV	Price to embedded value	PEG Ratio	P/E ratio divided by earnings growth
PPI	Producer price index	Prim Bal/Cur Rev (%)	Primary balance divided by current revenue (total revenue minus capital revenue)
Profit Margin (%)	Net income divided by revenues	q/q or QQQ	Quarter-over-quarter; quarter on quarter
R and D	Research and development	ROA (%)	Return on assets
ROAE (%)	Return on average equity	ROCE (%)	Return on capital employed = EBIT divided by difference between total assets & current liabilities
ROE (%)	Return on equity	ROIC (%) or ROI	Return on invested capital
Shares o/s	Shares outstanding	Solvency Ratio (%)	Ratio of shareholders' equity to net premiums written (for insurance companies)
sotp or SOTP	Sum of the parts	Tax Burden Index	Swiss tax index; 100 = average tax burden of all cantons
tgt	Target	Tier 1 Ratio (%)	Tier 1 capital divided by risk-weighted assets; describes a bank's capital adequacy
tn	Trillion	UP	Underperform: The stock is expected to underperform the sector benchmark
Valor	Swiss company identifier	WACC	Weighted average cost of capital
CIO	UBS WM Chief Investment Office	x	multiple / multiplier
y/y or YOY	Year-over-year; year on year	yr	Year
YTD	Year-to-date		

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