Second Quarter 2018

Financial Results and Business Update

Biogen

July 24, 2018

Forward-Looking Statements

This presentation contains forward-looking statements, including statements relating to: our strategy and plans; potential of our commercial business and pipeline programs; capital allocation and investment strategy; clinical trials and data readouts and presentations; regulatory filings and the timing thereof; risks and uncertainties associated with drug development and commercialization; anticipated benefits and potential of investments, collaborations and business development activities; the anticipated timing to complete certain transactions; our future financial and operating results; and 2018 financial guidance. These forward-looking statements may be accompanied by such words as “aim,” “anticipate,” “believe,” “could,” “estimate,” “expect,” “forecast,” “intend,” “may,” “plan,” “potential,” “possible,” “will” and other words and terms of similar meaning. Drug development and commercialization involve a high degree of risk, and only a small number of research and development programs result in commercialization of a product. Results in early stage clinical trials may not be indicative of full results or results from later stage or larger scale clinical trials and do not ensure regulatory approval. You should not place undue reliance on these statements or the scientific data presented.

These statements involve risks and uncertainties that could cause actual results to differ materially from those reflected in such statements, including: our dependence on sales from our principal products; failure to compete effectively due to significant product competition in the markets for our products; difficulties in obtaining and maintaining adequate coverage, pricing and reimbursement for our products; the occurrence of adverse safety events, restrictions on use with our products or product liability claims; failure to protect and enforce our data, intellectual property and other proprietary rights and the risks and uncertainties relating to intellectual property claims and challenges; uncertainty of long-term success in developing, licensing or acquiring other product candidates or additional indications for existing products; the risk that positive results in a clinical trial may not be replicated in subsequent or confirmatory trials or success in early stage clinical trials may not be predictive of results in later stage or large scale clinical trials or trials in other potential indications; risks associated with clinical trials, including our ability to adequately manage clinical activities, unexpected concerns that may arise from additional data or analysis obtained during clinical trials, regulatory authorities may require additional information or further studies or may fail to approve or may delay approval of our drug candidates; risks associated with current and potential future healthcare reforms; problems with our manufacturing processes; risks relating to technology failures or breaches; our dependence on collaborators and other third parties for the development, regulatory approval and commercialization of products and other aspects of our business, which are outside of our control; failure to successfully execute on our growth initiatives; risks relating to management and key personnel changes, including attracting and retaining key personnel; risks relating to investment in and expansion of manufacturing capacity for future clinical and commercial requirements; failure to comply with legal and regulatory requirements; fluctuations in our effective tax rate; the risks of doing business internationally, including currency exchange rate fluctuations; risks related to commercialization of biosimilars; risks related to investment in properties; the market, interest and credit risks associated with our portfolio of marketable securities; risks relating to stock repurchase programs; risks relating to access to capital and credit markets; risks related to indebtedness; environmental risks; risks relating to the sale and distribution by third parties of counterfeit versions of our products; risks relating to the use of social media for our business; change in control provisions in certain of our collaboration agreements; risks relating to the spin-off of our hemophilia business, including risks of operational difficulties and exposure to claims and liabilities; and the other risks and uncertainties that are described in the Risk Factors section of our most recent annual or quarterly report and in other reports we have filed with the Securities and Exchange Commission.

These statements are based on our current beliefs and expectations and speak only as of the date of this presentation. We do not undertake any obligation to publicly update any forward-looking statements.

Q2 2018 Earnings Call Agenda

Introduction	**Matt Calistri** VP, Investor Relations
Overview	**Michel Vounatsos** Chief Executive Officer
R&D Update	**Michael Ehlers, M.D., Ph.D.** EVP, Research & Development
Financial Update	**Jeffrey Capello** EVP, Chief Financial Officer
Closing Remarks	**Michel Vounatsos** Chief Executive Officer
Available for Q&A	**Al Sandrock, M.D., Ph.D.** EVP, Chief Medical Officer

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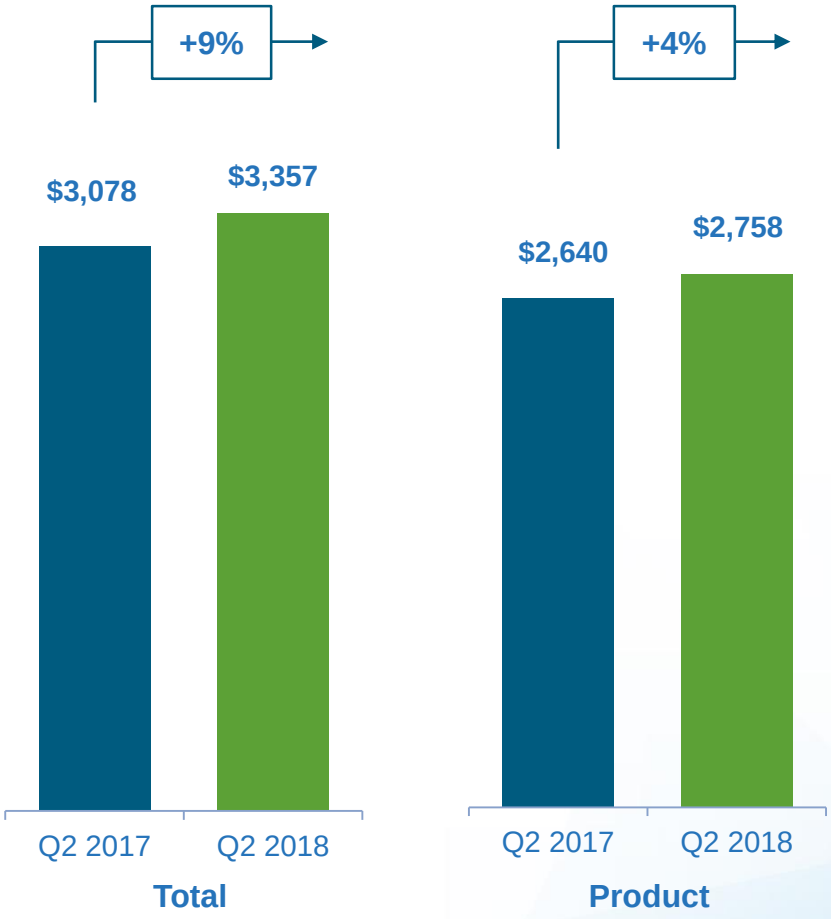
Overview

Michel Vounatsos

Chief Executive Officer

Strong Performance in Q2 2018

Revenues ($M)



Diluted EPS ($)

A reconciliation of our GAAP to Non-GAAP financial results is at the end of this presentation.

Strong Progress Implementing Strategy

Maximizing the resilience of our MS core business

- ✓ Stable global MS patients in Q2 versus prior year
- ✓ Unanticipated additional Q2 inventory drawdown in U.S.
- ✓ Highest new patient starts in U.S. for TECFIDERA in Q2 since OCREVUS launch

Accelerating progress in spinal muscular atrophy

- ✓ Q2 revenue growth driven by growth in U.S. and ex-U.S.
- ✓ ~ 5,100 patients on therapy globally as of Q2 2018
- ✓ > 20% increase in adult patients in the U.S. in Q2 2018

Creating a leaner and simpler operating model

- ✓ Creating an innovative operating model designed for the future

Developing and expanding our neuroscience portfolio

- ✓ Completed Phase 3 enrollment for aducanumab*
- ✓ Positive topline Phase 2 results for BAN2401*
- ✓ Option to acquire TMS-007 for acute ischemic stroke
- ✓ Acquired muscle enhancement program from AliveGen

Re-prioritizing our capital allocation efforts

- ✓ $2.75 billion: repurchased ~ 9.6 million shares
- ✓ ~$700 million#: exercised option for Samsung Bioepis
- ✓ $1 billion: new Ionis collaboration

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* Aducanumab and BAN2401 are being developed in collaboration with Eisai.
# The completion of this share purchase is subject to certain regulatory closing conditions and is expected to close in the second half of 2018. The exact share purchase price will depend on the timing of the closing and foreign currency exchange rates at that time.

R&D Update

Michael Ehlers, M.D., Ph.D.

EVP, Research & Development

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Positive Phase 2 Topline Results of Final Analysis at 18 Months for BAN2401*

Although study did not achieve primary outcome measure at 12 months based on Bayesian statistical analysis, using conventional frequentist statistics the highest treatment dose showed statistically significant effect on ADCOMS

- ✓ **856-patient study demonstrated potential disease-modifying effects on both clinical function and β-amyloid lowering in the brain**
- ✓ **Provides compelling evidence to further support blocking or clearing β-amyloid as a therapeutic approach for Alzheimer's disease**
- ✓ **Results will be presented by Eisai at the Alzheimer's Association International Conference (AAIC) 2018 tomorrow, July 25, at 3:30 p.m. CT in Chicago. A live webcast is expected to be available concurrent with the AAIC presentation at https://edge.media-server.com/m6/p/ajpiv8im.**

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* BAN2401 is being developed in collaboration with Eisai.

Progress in Alzheimer's Disease and Dementia

Aducanumab* (anti-Aβ mAb)

- ✓ Demonstrated significant plaque removal as well as slowing of cognitive decline in the Phase 1b PRIME study
- ✓ Both Phase 3 studies (ENGAGE and EMERGE) now fully enrolled

Elenbecestat* (BACE inhibitor)

- ✓ Demonstrated an acceptable safety and tolerability profile in Phase 2 study
- ✓ Results demonstrated a statistically significant difference in β-amyloid accumulation in the brain
- ✓ Currently being evaluated in two Phase 3 studies

BIIB092 (anti-tau mAb)

- ✓ Tau is hypothesized to play a distinct and complementary role in Alzheimer's disease pathogenesis
- ✓ First patient dosed in Phase 2 study of BIIB092 in Alzheimer's disease

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* Aducanumab and elenbecestat are being developed in collaboration with Eisai

Progress Across Core Growth Areas

MS and Neuroimmunology

- ✓ Finalized prospective study plans to evaluate efficacy of extended interval dosing of TYSABRI
- ✓ Expect BIIB098 (diroximel fumarate) to be filed with the FDA by end of 2018

Movement Disorders

- ✓ Actively recruiting a Phase 2 study of BIIB092 in progressive supranuclear palsy

Neuromuscular Disorders

- ✓ New clinical evidence suggests stabilization or clinically meaningful improvement of Type 3 SMA patients on SPINRAZA
- ✓ Presented new data evaluating the use of pNF-H in plasma as a potential biomarker of SMA disease activity

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Recent Business Development Activity

Neuromuscular Disorders

- Acquired from AliveGen two programs, **BIIB110 (f/k/a ALG-801) and ALG-802,** targeting the myostatin pathway for potential muscle enhancement across a range of neuromuscular diseases including SMA and ALS
- BIIB110 and ALG-802 act as ligand traps to inhibit muscle-suppressing ActRIIA/B ligands while sparing BMP9
  - **Potential for both greater efficacy and improved safety** compared to other compounds in the class
- BIIB110 is currently in a Phase 1a study in healthy volunteers
- **Potential for complementary benefit** when used in combination with SPINRAZA

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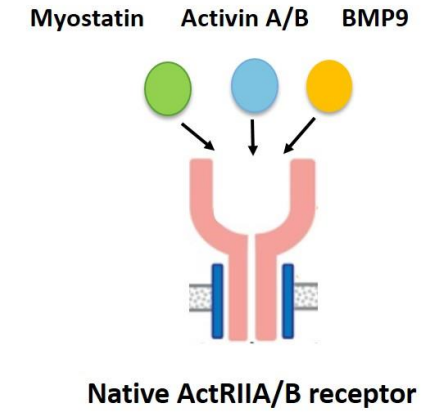
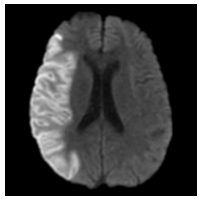
BIIB110 Mechanism of Action



BIIB093 Phase 3 Study in Large Hemispheric Infarction (LHI)



Subjects with LHI measured by diffusion-weighted MRI imaging or CT scan (n= 680)

Subjects may also receive standard of care treatment

Randomization 1:1

Part 1

Part 2

Total BIIB093 IV 3-stage infusion over 72 hours

Placebo

Administration ≤10 hrs from symptom onset

12 Month Follow-up

Primary endpoint:

- Modified Rankin score at Day 90

Additional secondary efficacy endpoints:

- Overall survival at Day 90
- Functional outcome at Day 90
- Midline shift

FDA

- Special Protocol Assessment agreement obtained
- U.S. Orphan Drug designation and Fast Track status granted

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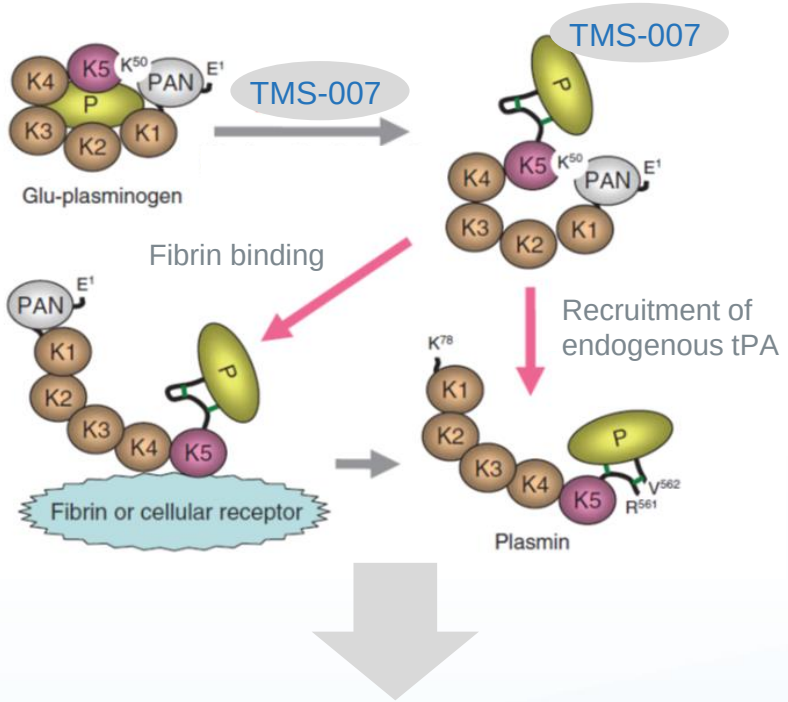
TMS-007: Option to Acquire a Potential Best-In-Class Therapeutic for Acute Ischemic Stroke

Hypothesized Mechanism of Action

- TMS-007 changes conformation of plasminogen to increase fibrin binding and facilitate activation from endogenous tPA
- Does not directly convert plasminogen to plasmin, thereby limiting systemic effects
- Inhibits soluble epoxide hydrolase, reducing production of pro-inflammatory mediators of vasoconstriction and breakdown of the blood brain barrier
- **Potential best-in-class thrombolytic agent with an extended therapeutic window and a favorable safety profile**



- **Clot-dissolving effect**
- **Anti-inflammatory properties at infarct site**

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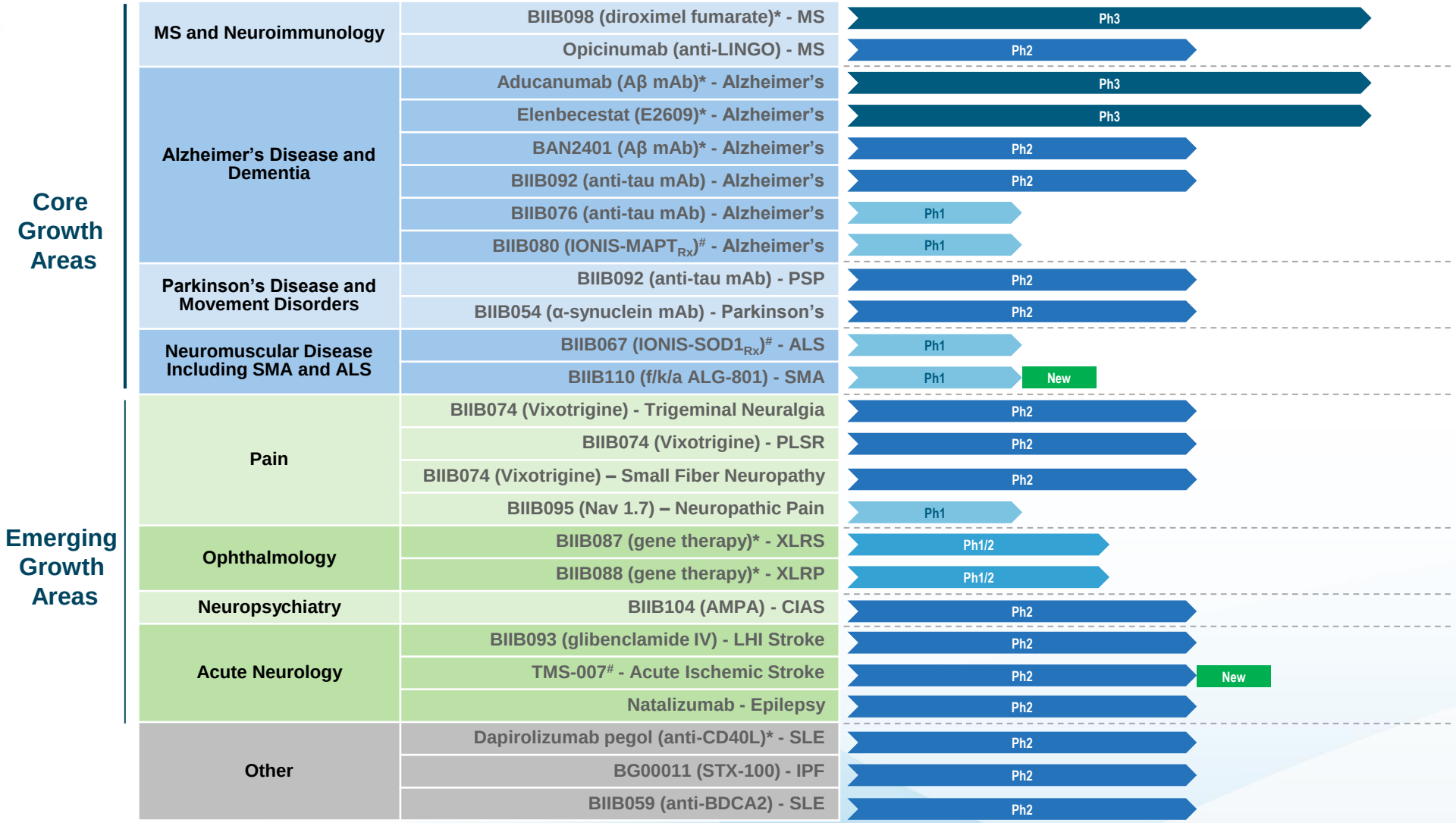
Matsumoto et al. Journal of Biological Chemistry, 2014.

Added Two New Clinical Programs



* Collaboration programs # Option agreement

Added or Advanced 14 Clinical Programs Since Beginning of 2017

Core Growth Areas	MS and Neuroimmunology	BIIB098 (diroximel fumarate)* - MS	Ph3, New
		Opicinumab (anti-LINGO) - MS	Ph2
	Alzheimer's Disease and Dementia	Aducanumab (Aβ mAb)* - Alzheimer's	Ph3
		Elenbecestat (E2609)* - Alzheimer's	Ph3
		BAN2401 (Aβ mAb)* - Alzheimer's	Ph2
		BIIB092 (anti-tau mAb) - Alzheimer's	Ph2, New
		BIIB076 (anti-tau mAb) - Alzheimer's	Ph1, New
		BIIB080 (IONIS-MAPT$_{Rx}$)# - Alzheimer's	Ph1, New
	Parkinson's Disease and Movement Disorders	BIIB092 (anti-tau mAb) - PSP	Ph2, New
		BIIB054 (α-synuclein mAb) - Parkinson's	Ph2, Advanced
	Neuromuscular Disease Including SMA and ALS	BIIB067 (IONIS-SOD1$_{Rx}$)# - ALS	Ph1
		BIIB110 (f/k/a ALG-801) - SMA	Ph1, New
Emerging Growth Areas	Pain	BIIB074 (Vixotrigine) - Trigeminal Neuralgia	Ph2
		BIIB074 (Vixotrigine) - PLSR	Ph2
		BIIB074 (Vixotrigine) – Small Fiber Neuropathy	Ph2, New
		BIIB095 (Nav 1.7) – Neuropathic Pain	Ph1, New
	Ophthalmology	BIIB087 (gene therapy)* - XLRS	Ph1/2
		BIIB088 (gene therapy)* - XLRP	Ph1/2, New
	Neuropsychiatry	BIIB104 (AMPA) - CIAS	Ph2, New
	Acute Neurology	BIIB093 (glibenclamide IV) - LHI Stroke	Ph2, New
		TMS-007# - Acute Ischemic Stroke	Ph2, New
		Natalizumab - Epilepsy	Ph2, New
	Other	Dapirolizumab pegol (anti-CD40L)* - SLE	Ph2
		BG00011 (STX-100) - IPF	Ph2
		BIIB059 (anti-BDCA2) - SLE	Ph2

* Collaboration programs # Option agreement

Financial Update

Jeffrey Capello

EVP, Chief Financial Officer

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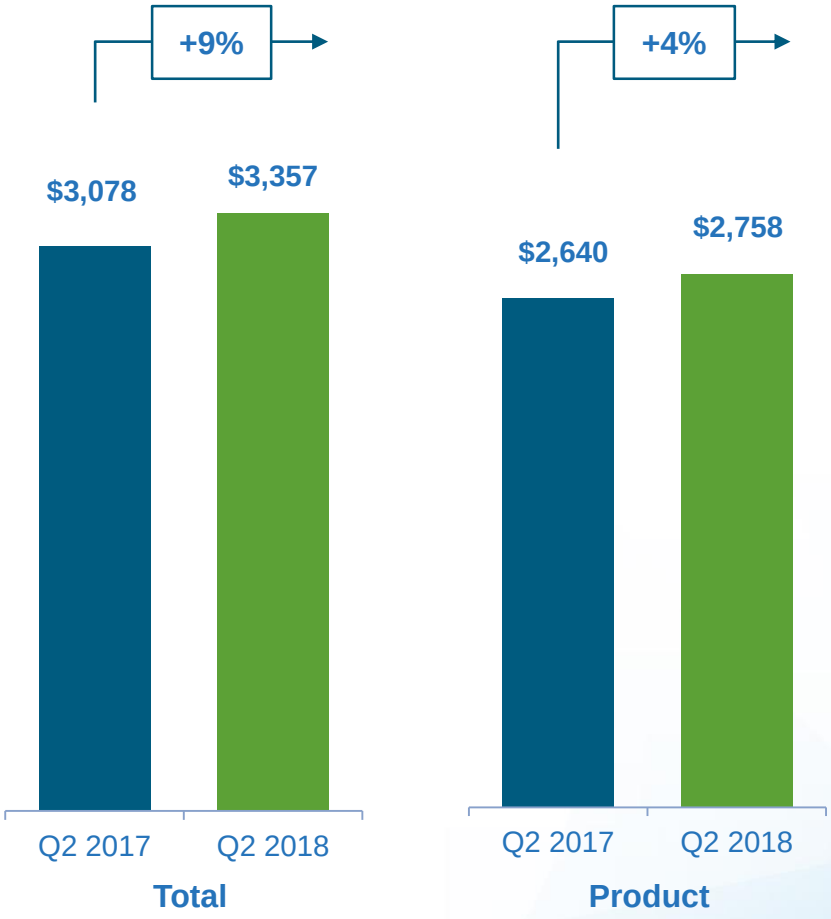
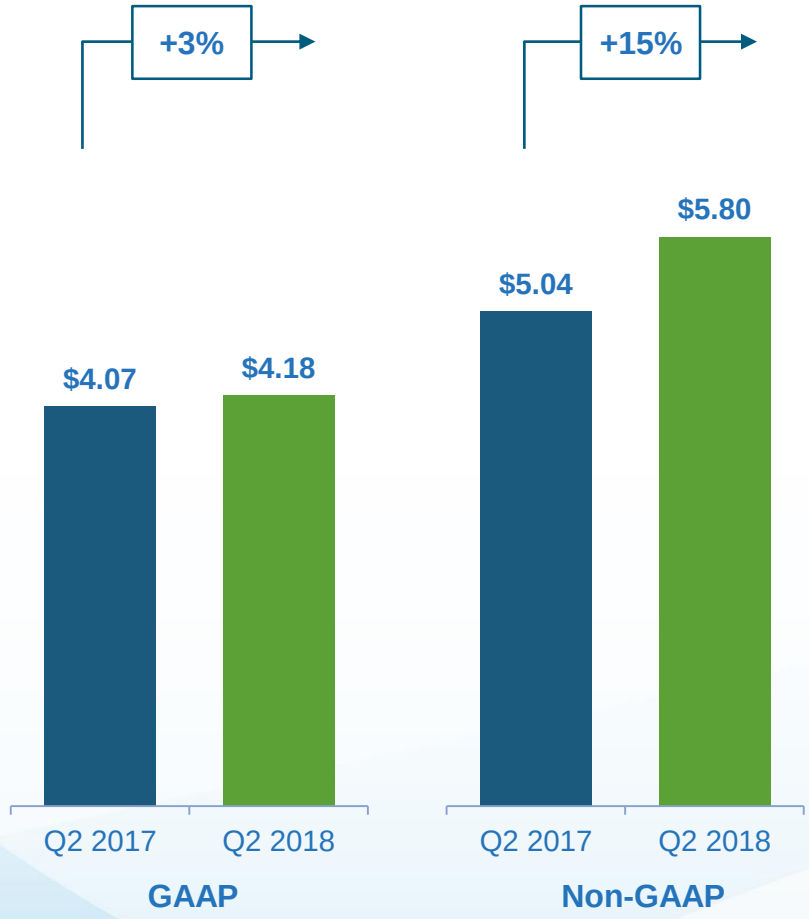
Strong Performance in Q2 2018

Revenues ($M)



Diluted EPS ($)



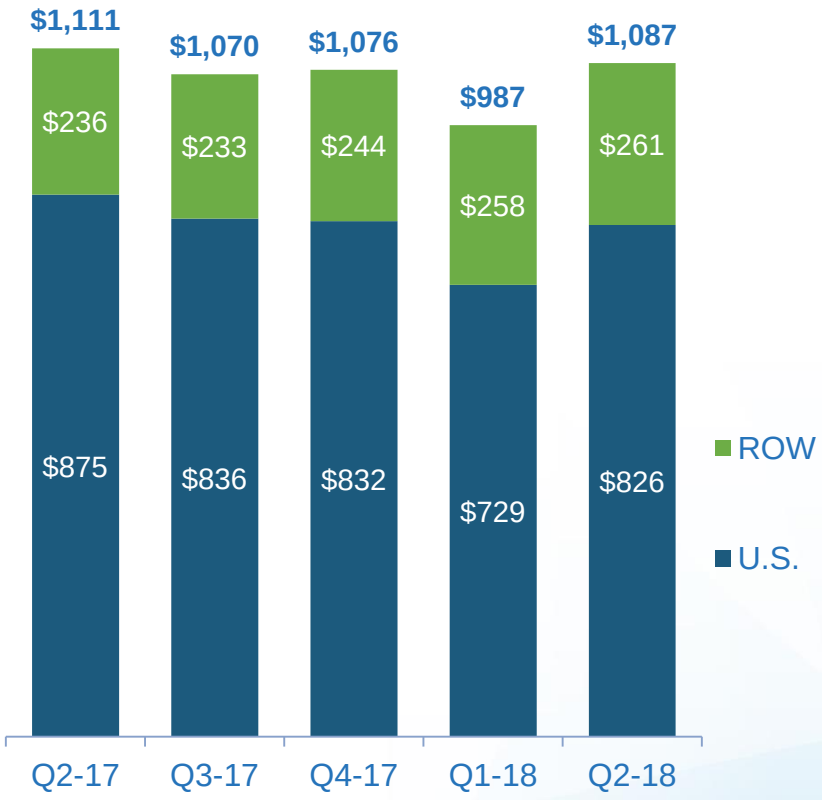
A reconciliation of our GAAP to Non-GAAP financial results is at the end of this presentation.

Global TECFIDERA Performance

Tecfidera (dimethyl fumarate) delayed-release capsules

Most Prescribed Oral MS Therapy Globally

TECFIDERA Revenues ($M)



Q2 2018 Highlights

- Revenues vs. Q2 2017 and Q1 2018

	ΔY/Y		ΔQ/Q
WW	- 2%	and	+ 10%
U.S.	- 6%	and	+ 13%
ROW	+ 11%	and	+ 1%

- Channel inventory drawdown in the U.S. of ~ $35 million in Q2 2018, compared to a drawdown of ~ $80 million in Q1 2018 and relatively stable channel inventory levels in Q2 2017 versus Q1 2017
- In the U.S., new patient starts in Q2 2018 at their highest level since the launch of OCREVUS
- Strong patient growth versus Q2 2017 in each large European market
- Over 25% market share in Japan
- Q2 2018 TECFIDERA revenues benefitted by approximately $17 million versus Q2 2017 and by approximately $5 million versus Q1 2018 due to changes in foreign exchange rates, net of hedging

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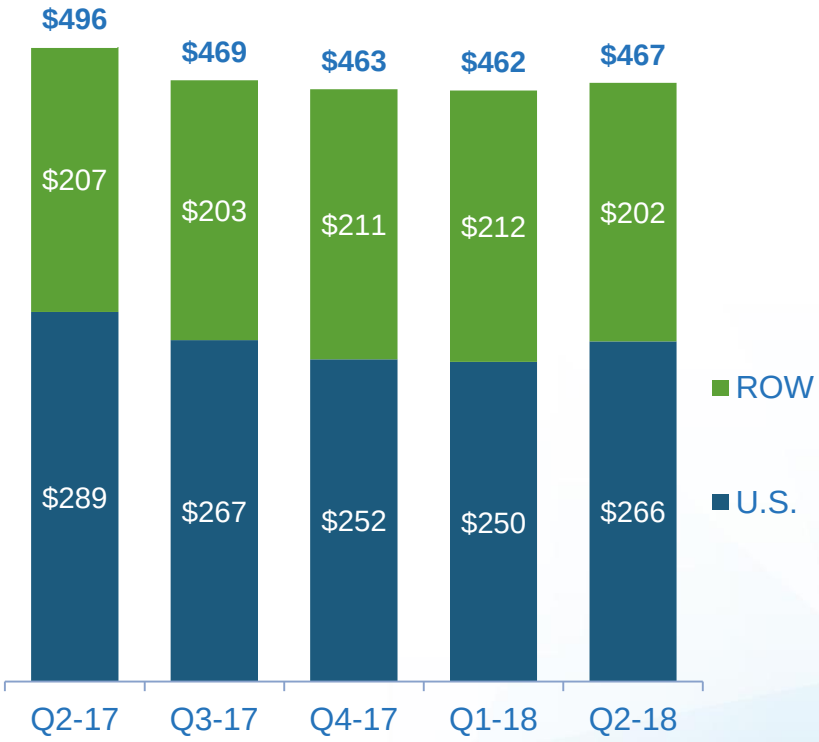
Numbers may not foot due to rounding.

Global TYSABRI Performance

TYSABRI (natalizumab)

Market Leading High Efficacy Therapy for MS Globally

TYSABRI Revenues ($M)



Q2 2018 Highlights

- Revenues vs. Q2 2017 and Q1 2018

	ΔY/Y		ΔQ/Q
WW	- 6%	and	+ 1%
U.S.	- 8%	and	+ 6%
ROW	- 2%	and	- 5%

- Second straight quarter of stable U.S. volumes
- Positive patient growth versus Q2 2017 in all major European markets
- Strong double digit patient growth in emerging markets
- Q2 2018 TYSABRI revenues benefitted by approximately $12 million versus Q2 2017 and by approximately $3 million versus Q1 2018 due to changes in foreign exchange rates, net of hedging

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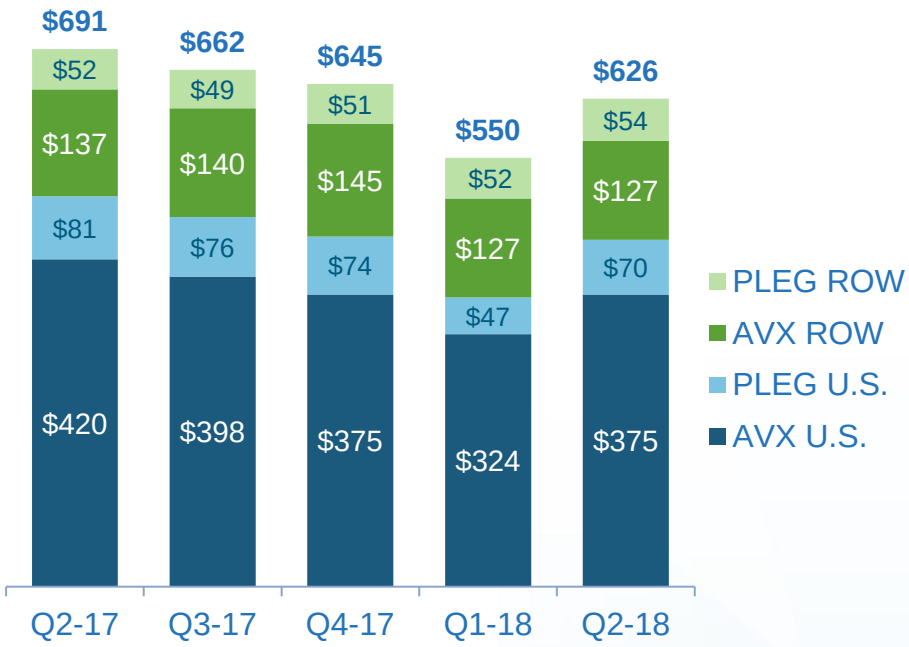
Numbers may not foot due to rounding.

Global Interferon Performance

Market Leading Interferon Franchise for MS Globally

Interferon Revenues ($M)



AVONEX (interferon beta-1a)

plegridy (peginterferon beta-1a)

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Numbers may not foot due to rounding.

Q2 2018 Highlights

- Total Interferon Revenues vs. Q2 2017 and Q1 2018

	ΔY/Y		ΔQ/Q
WW	- 9%	and	+ 14%
U.S.	- 11%	and	+ 20%
ROW	- 4%	and	+ 1%

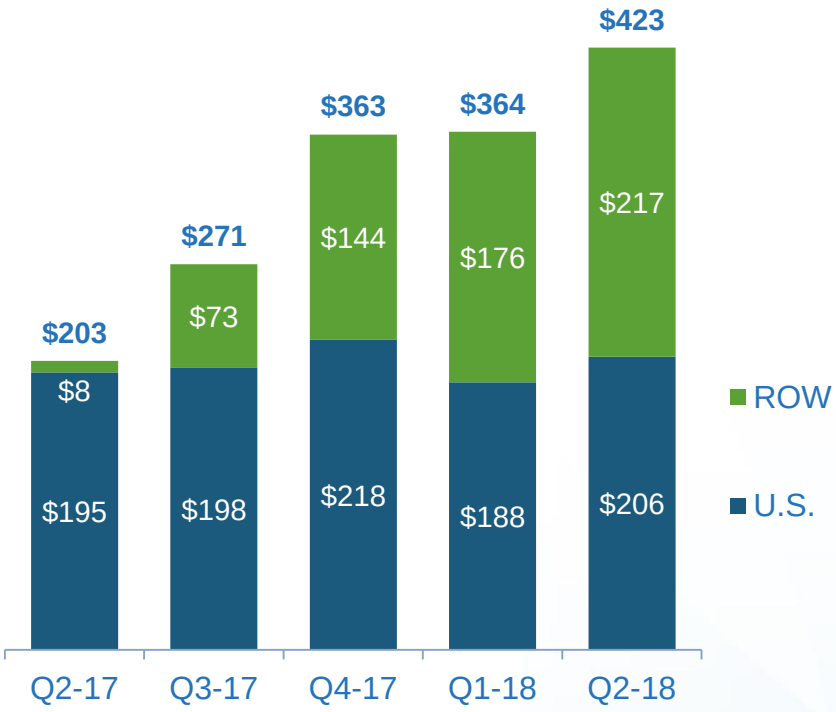
- Channel inventory drawdown in the U.S. of ~ $10 million in Q2 2018, compared to a drawdown of ~ $50 million in Q1 2018 and relatively stable channel inventory levels in Q2 2017 versus Q1 2017
- Q2 2018 interferon revenues benefitted by approximately $12 million versus Q2 2017 and by approximately $3 million versus Q1 2018 due to changes in foreign exchange rates, net of hedging

Global SPINRAZA Performance

SPINRAZA® (nusinersen) injection 12 mg/5 mL

Strong Global Launch Continues

SPINRAZA Revenues ($M)



Dosing Schedule

Highlights

- Filed for regulatory approval in an additional 7 countries, including China
- Secured formal reimbursement in an additional 7 countries
- Formal reimbursement in 24 countries as of July 20, 2018
- Recorded revenue from over 25 international markets; ~ 75% of ex-U.S. SPINRAZA revenues in Q2 2018 from Germany, Italy, Japan, Turkey, Brazil, Spain and Australia.
- Inventory levels and discounts and allowances in the U.S. relatively flat in Q2 2018 versus Q1 2018

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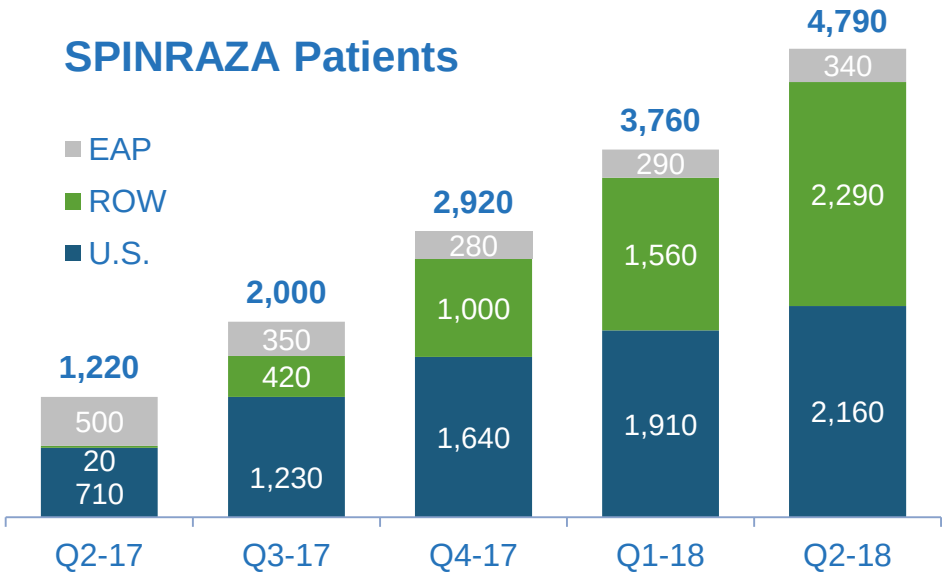
Numbers may not foot due to rounding.

SPINRAZA Patient Dynamics



Highlights

- As of June 30, 2018 ~ 5,100 patients on therapy across the post-marketing setting, the EAP and clinical trials
- > 20% increase in adults on therapy in the U.S. versus Q1 2018
- ~ 50% of infant (< 2 years old), ~ 50% of pediatric (2-17), and ~ 10% of adult (18+) SMA patients are on therapy in the U.S.

SMA Prevalence Assumptions:

- ~ 9,000 patients in the U.S.
- ~ 10,000 patients in Europe
- ~ 1,000 patients in Japan
- ~ 5% infants
- ~ 35% pediatric patients
- ~ 60% adults

U.S. Patient Dynamics	Q2-17	Q3-17	Q4-17	Q1-18	Q2-18
Total patients	710	1,230	1,640	1,910	2,160
New patient starts	500	520	420	290	270
Average doses per patient	2.6	1.9	1.6	1.1	1.1
% Loading doses	100%	90%	75%	60%	45%
% Maintenance doses	0%	10%	25%	40%	55%
% Free doses	20%	20%	20%	20%	15%

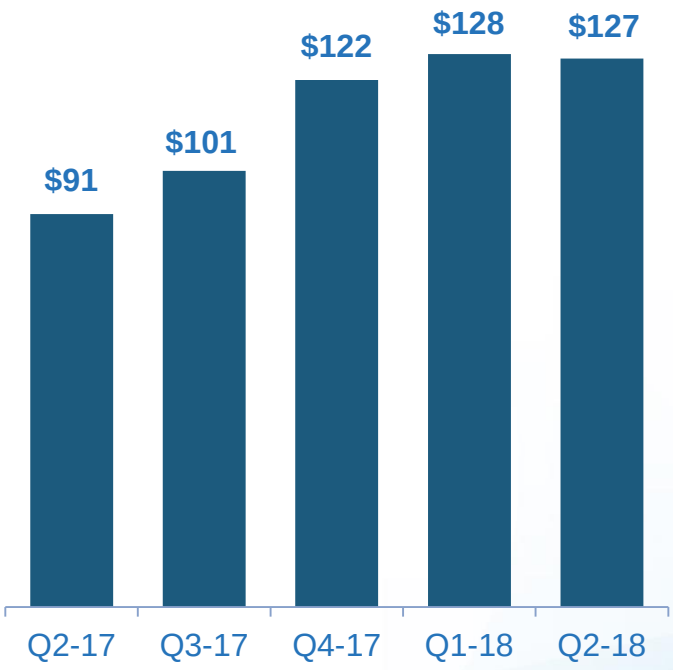
SPINRAZA® (nusinersen) injection 12 mg/5 mL

Numbers may not foot due to rounding. U.S. and Ex-U.S. SPINRAZA patients represent the total estimated number of patients on therapy in the post-marketing setting as of the end of each quarter, including free patients in the U.S. EAP patients represent patients actively enrolled in the Expanded Access Program (EAP) as of the end of each quarter. As of the end of Q2 2018, there were an additional ~ 310 patients enrolled in ongoing clinical studies.

Growing Biosimilars Business

SAMSUNG BIOEPIS

Biosimilars Revenues ($M)



COMMERCIALIZATION IN EUROPE

- > 90,000 patients currently on Biogen biosimilars*
- Aim to maintain 100% uninterrupted supply; delivered nearly 5 million doses since launch without interruption*
- Reached agreement with AbbVie to launch IMRALDI in Europe in Oct. 2018

Benepali® Etanercept
Flixabi® Infliximab
Imraldi® Adalimumab

SAMSUNG BIOEPIS JOINT VENTURE

- Exercised option# to increase equity stake to ~ 49.9%
- Leveraging expertise in protein engineering and biologics manufacturing
- Advancing biosimilars of insulin glargine, trastuzumab and bevacizumab

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* Biogen data on file. # The completion of this share purchase is subject to certain regulatory closing conditions and is expected to close in the second half of 2018. The exact share purchase price will depend on the timing of the closing and foreign currency exchange rates at that time.

Q2 2018 Financial Results Summary: Revenues

$ in Millions	Q2 2018	Q2 2017	Q1 2018	Δ Y/Y	Δ Q/Q
Total MS Product Revenues[1]	$2,203	$2,336	$2,025	(6%)	9%
SPINRAZA U.S.	$206	$195	$188	6%	10%
SPINRAZA ROW	$217	$8	$176	NMF	23%
Total SPINRAZA Revenues	$423	$203	$364	108%	16%
Biosimilars Revenues	$127	$91	$128	40%	(1%)
FUMADERM Revenues	$6	$10	$7	(47%)	(21%)
Total Product Revenues[1]	$2,758	$2,640	$2,523	4%	9%
RITUXAN/GAZYVA Revenues	$377	$379	$366	(1%)	3%
OCREVUS Royalties	$113	$18	$77	NMF	47%
Revenues from Anti-CD20 Therapeutic Programs	$490	$397	$443	23%	11%
Other Revenues	$109	$42	$164	161%	(34%)
Total Revenues	**$3,357**	**$ 3,078**	**$3,131**	**9%**	**7%**

Numbers may not foot due to rounding. Percent changes represented as favorable & (unfavorable). For all periods, there were no adjustments between GAAP and Non-GAAP revenues.

[1] Net of Hedge

Q2 2018 Financial Results Summary

$ in Millions	Q2 2018	Q2 2017	Q1 2018	ΔY/Y	ΔQ/Q
GAAP Cost of Sales	$421	$366	$446	(15%)	6%
% of Total Revenues	13%	12%	14%		
Non-GAAP Cost of Sales	$421	$366	$446	(15%)	6%
% of Total Revenues	13%	12%	14%		
GAAP R&D Expenses	$981	$796	$497	(23%)	(98%)
% of Total Revenues	29%	26%	16%		
Non-GAAP R&D Expenses	$819	$796	$497	(3%)	(65%)
% of Total Revenues	24%	26%	16%		
GAAP SG&A Expenses	$516	$430	$501	(20%)	(3%)
% of Total Revenues	15%	14%	16%		
Non-GAAP SG&A Expenses	$512	$430	$497	(19%)	(3%)
% of Total Revenues	15%	14%	16%		
GAAP Amortization of Acquired Intangibles	$107	$118	$104	9%	(3%)
Collaboration Profit Sharing	$39	$26	$43	(48%)	8%

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Accounting for New Ionis Collaboration

	Deal Terms	Q2 2018 Impact
Upfront Payment	**$375 million**	**$324 million R&D expense (GAAP and Non-GAAP)** **$51 million capitalized as prepaid R&D services (balance sheet)**
Equity Investment + Premium	**~ $625 million**	**$463 million* investment asset based on fair value with resale restriction (balance sheet)** **$68 million* discount to reflect resale restriction (GAAP R&D expense)** **$530 million* equity market value upon deal closure** **$94 million equity premium (GAAP R&D expense)**

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* Numbers do not foot to $530 million due to rounding.

Q2 2018 Financial Results Summary

$ in Millions except EPS Shares in Millions	Q2 2018	Q2 2017	Q1 2018	Δ Y/Y	Δ Q/Q
GAAP Other Income (Expense)	($35)	($69)	($41)	50%	16%
Non-GAAP Other Income (Expense)	($40)	($69)	($35)	42%	(15%)
GAAP Tax Rate	22%	24%	22%		
Non-GAAP Tax Rate	21%	23%	21%		
GAAP Net Income (Loss) Attributable to Noncontrolling Interests	$48	($0)	($2)	NMF	NMF
Non-GAAP Net Income (Loss) Attributable to Noncontrolling Interests	($0)	($0)	($0)	NMF	NMF
Weighted average diluted shares used in calculating diluted EPS	207	212	212	2%	2%
GAAP Net Income Attributable to Biogen	$867	$863	$1,173	0%	(26%)
GAAP EPS	$4.18	$4.07	$5.54	3%	(25%)
Non-GAAP Net Income Attributable to Biogen	$1,202	$1,069	$1,282	12%	(6%)
Non-GAAP EPS	$5.80	$5.04	$6.05	15%	(4%)

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Note: Numbers may not foot due to rounding. Percent changes represented as favorable & (unfavorable). A reconciliation of our GAAP to Non-GAAP financial results is at the end of this presentation.

Updated 2018 Full Year Financial Guidance

	Prior FY 2018 Guidance	Updated FY 2018 Guidance
Revenues	**$12.7 billion to $13.0 billion**	**$13.0 billion to $13.2 billion**
R&D Expense (as a % of revenues)	**16% to 17%**	**19% to 20% (GAAP)** **18% to 19% (Non-GAAP)**
SG&A Expense (as a % of revenues)	**15% to 16%**	**15% to 16%**
Tax Rate	**23.5% to 24.5% (GAAP)** **22.5% to 23.5% (Non-GAAP)**	**21.5% to 22.5% (GAAP)** **20.5% to 21.5% (Non-GAAP)**
GAAP EPS	**$22.20 to $23.20**	**$21.80 to $22.40**
Non-GAAP EPS	**$24.20 to 25.20**	**$24.90 to $25.50**

Additional 2018 Assumptions:

- Does not include any impact from potential acquisitions or large business development transactions, as both are hard to predict
- Expect gross margin as a percentage of sales to be consistent with our Q2 2018 gross margin
- Expect capital expenditures to be between $700 million and $800 million

Biogen may incur charges, realize gains or experience other events or circumstances in 2018 that could cause actual results to vary from this guidance. A reconciliation of our GAAP to Non-GAAP financial results is at the end of this presentation.

Closing Remarks

Michel Vounatsos

Chief Executive Officer

Expected Pipeline Progress Over the Next 12 Months

	Expected Milestone
MS and Neuroimmunology	• **BIIB098** filing with FDA and head-to-head data
Alzheimer's Disease/Dementia	• 18-month results for **BAN2401** being presented at AAIC 2018 • Phase 1 data for anti-tau antibody **BIIB076**
Neuromuscular Disorders	• Phase 1 data for **BIIB067** in ALS
Acute Neurology	• Dosing the first patient in Phase 3 for **BIIB093** for large hemispheric infarction
Pain	• Phase 3 initiation for **BIIB074** in trigeminal neuralgia • Phase 2b data for **BIIB074** in painful lumbosacral radiculopathy
Ophthalmology	• Phase 1/2 data for **BIIB087** in x-linked retinoschisis

Questions & Answers








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Appendix

Understanding Impact of Channel Inventory Levels

In prior periods, Biogen has communicated the net impact to U.S. MS revenues due to the approximate changes in channel inventory levels on a period over period basis by describing the approximate net impact for that period. That net impact was calculated as the difference between the change in channel inventory levels on a comparative basis.

Going forward, when deemed meaningful, Biogen plans to disclose the approximate absolute change of channel inventory levels within a quarter. We believe this will allow for more consistent period over period comparisons, since the actual impact to revenues due to changes in channel inventory levels is calculated as the difference in the changes between two periods.

Below is a summary of the approximate value of the reported change in U.S. inventory levels of MS products by quarter, and the difference between those changes for each period.

	Q4'17	Q1'18	Q2'18
Channel inventory change in quarter	+~$40M	-~$130M	-~$45M
Difference in change from prior quarter	+~$40M	-~$180M*	+~$85M

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* Numbers may not foot due to rounding

Q2 2018 Financial Results Summary: MS Revenues

$ in Millions	Q2 2018	Q2 2017	Q1 2018	Δ Y/Y	Δ Q/Q
TECFIDERA U.S.	$826	$875	$729	(6%)	13%
TECFIDERA ROW[1]	$261	$236	$258	11%	1%
Total TECFIDERA Revenues[1]	$1,087	$1,111	$987	(2%)	10%
AVONEX U.S .	$375	$420	$324	(11%)	16%
AVONEX ROW[1]	$127	$137	$127	(7%)	0%
Total AVONEX Revenues[1]	$502	$557	$451	(10%)	11%
PLEGRIDY U.S.	$70	$81	$47	(14%)	48%
PLEGRIDY ROW[1]	$54	$52	$52	4%	3%
Total PLEGRIDY Revenues[1]	$124	$133	$100	(7%)	24%
Total Interferon Revenues[1]	$626	$691	$550	(9%)	14%
TYSABRI U.S.	$266	$289	$250	(8%)	6%
TYSABRI ROW[1]	$202	$207	$212	(2%)	(5%)
Total TYSABRI Revenues[1]	$467	$496	$462	(6%)	1%
FAMPYRA[1]	$23	$23	$24	2%	(6%)
ZINBRYTA ROW	$0	$16	$1	(100%)	(100%)
Total MS Product Revenues[1]	**$2,203**	**$2,336**	**$2,025**	**(6%)**	**9%**
OCREVUS Royalties	$113	$18	$77	NMF	47%
MS Product Revenues[1] + OCREVUS Royalties	**$2,316**	**$2,355**	**$2,101**	**(2%)**	**10%**

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Numbers may not foot due to rounding. Percent changes represented as favorable & (unfavorable). For all periods, there were no adjustments between GAAP and Non-GAAP revenues.

[1] Net of Hedge

Q2 2018 Impact of Foreign Exchange and Hedging

	Actuals	Hedge Gains (Losses) in the Quarter			FX Impact w/o Hedge Favorable / (Unfavorable)		Hedge Impact Favorable/ (Unfavorable)		Total Impact Favorable/ (Unfavorable)	
	Q2'18	Q2'18	Q2'17	Q1'18	Vs. Q2'17	Vs. Q1'18	Vs. Q2'17	Vs. Q1'18	Vs. Q2'17	Vs. Q1'18
Total Revenues	**$3,357**	**($2)**	**($3)**	**($33)**	**$50**	**($30)**	**$1**	**$31**	**$50**	**$1**
TECFIDERA	$1,087	($1)	($1)	($13)	$16	($8)	$0	$12	$17	$5
Interferon	$626	($1)	($1)	($9)	$12	($5)	$0	$8	$12	$3
TYSABRI	$467	($1)	($1)	($11)	$12	($6)	$0	$10	$12	$3
SPINRAZA	$423	N/A	N/A	N/A	($1)	($6)	-	-	($1)	($6)
Biosimilars	$127	N/A	N/A	N/A	$6	($4)	-	-	$6	($4)

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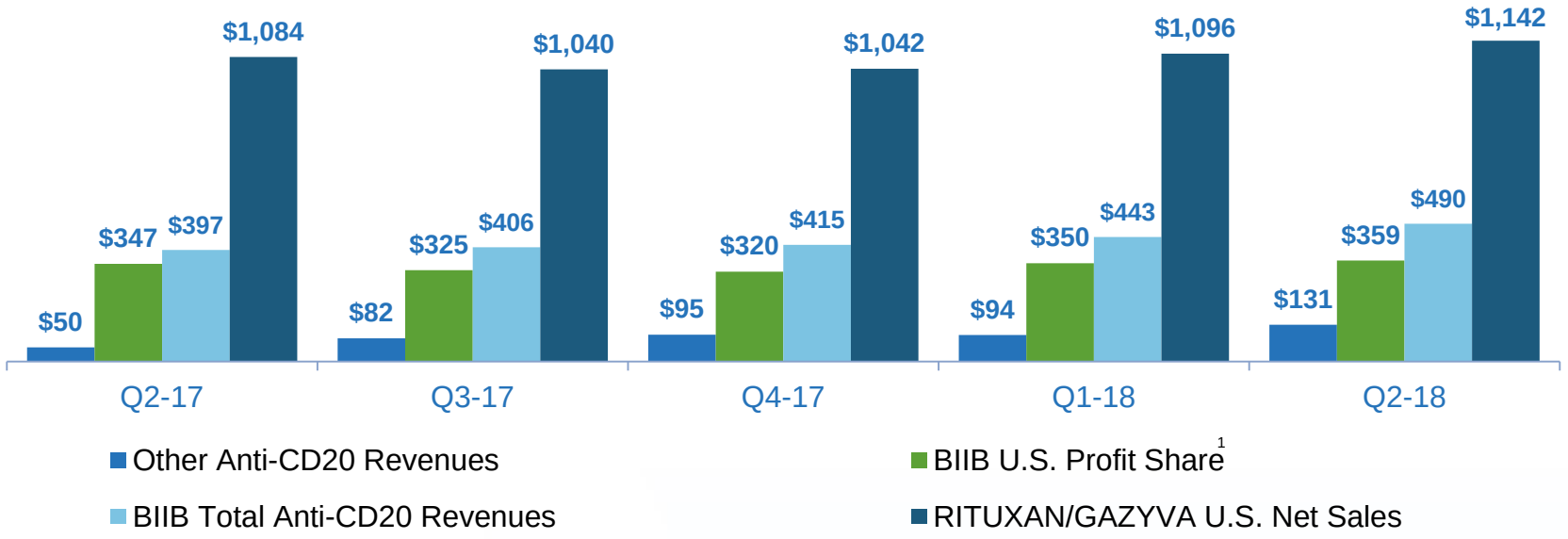
Amounts are in millions and are GAAP and Non-GAAP. Numbers may not foot due to rounding.

Anti-CD20 Performance

Revenues from Anti-CD20 Therapeutic Programs ($M)



Q2 2018 Highlights

Revenues vs. Q2 2017 and Q1 2018	ΔY/Y		ΔQ/Q
U.S. Net Sales	+ 5%	and	+ 4%
U.S. Profit Share[1]	+ 3%	and	+3%
Other Anti-CD20	NMF	and	+40%
BIIB Total Anti-CD20 Revenues	+ 23%	and	+ 11%

- In the second quarter of 2017, GAZYVA exceeded $150 million in gross sales over the prior 12 months. As a result, Biogen's share of RITUXAN annual pre-tax co-promotion profits in the U.S. in excess of $50 million decreased to 37.5% effective July 1, 2017.
- Other revenues from anti-CD20 therapeutic programs consist of royalty revenues on sales of OCREVUS and our share of pre-tax copromotion profits on RITUXAN in Canada, including a one-time adjustment to revenue recognized in Canada in Q2 2017.

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Note: In collaboration with Roche and Genentech. Numbers may not foot due to rounding.

[1] BIIB U.S. profit share = U.S. profit share + expense reimbursement

Biogen Inc. and Subsidiaries
GAAP to Non-GAAP Reconciliation
Net Income Attributable to Biogen Inc. and Diluted Earnings Per Share
(unaudited, in millions, except per share amounts)

An itemized reconciliation between diluted earnings per share on a GAAP and Non-GAAP basis is as follows:

	For the Three Months Ended		
	June 30, 2018	June 30, 2017	March 31, 2018
GAAP earnings per share - Diluted	$ 4.18	$ 4.07	$ 5.54
Adjustments to GAAP net income attributable to Biogen Inc. (as detailed below)	1.62	0.97	0.51
Non-GAAP earnings per share - Diluted	$ 5.80	$ 5.04	$ 6.05

	For the Six Months Ended	
	June 30, 2018	June 30, 2017
GAAP earnings per share - Diluted	$ 9.73	$ 7.52
Adjustments to GAAP net income attributable to Biogen Inc. (as detailed below)	2.12	2.72
Non-GAAP earnings per share - Diluted	$ 11.85	$ 10.24

An itemized reconciliation between net income attributable to Biogen Inc. on a GAAP and Non-GAAP basis is as follows:

	For the Three Months Ended		
	June 30, 2018	June 30, 2017	March 31, 2018
GAAP net income attributable to Biogen Inc.	$ 866.6	$ 862.8	$ 1,172.9
Adjustments:			
Amortization of acquired intangible assets[A]	107.4	117.5	103.9
Acquired in-process research and development	75.0	120.0	10.0
Loss (gain) on fair value remeasurement of contingent consideration	1.9	21.2	(5.6)
Net distribution to noncontrolling interests[B]	48.5	—	—
Restructuring, business transformation and other cost saving initiatives:			
2017 corporate strategy implementation[C]	4.0	—	3.8
Restructuring charges[C]	1.6	—	1.6
Premium paid on purchase of Ionis common stock[D]	162.1	—	—
Loss (gain) on equity security investments	(5.4)	—	6.4
Income tax effect related to reconciling items	(60.2)	(52.4)	(11.3)
Non-GAAP net income attributable to Biogen Inc.	$ 1,201.5	$ 1,069.1	$ 1,281.7

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Biogen Inc. and Subsidiaries
GAAP to Non-GAAP Reconciliation
Net Income Attributable to Biogen Inc. and Diluted Earnings Per Share
(unaudited, in millions, except per share amounts)

	For the Six Months Ended	
	June 30, 2018	June 30, 2017
GAAP net income attributable to Biogen Inc.	$ 2,039.5	$ 1,610.4
Adjustments:		
Amortization of acquired intangible assets[A]	211.3	566.0
Acquired in-process research and development	85.0	120.0
Loss (gain) on fair value remeasurement of contingent consideration	(3.7)	31.2
Net distribution to noncontrolling interests[B]	46.8	—
Hemophilia business separation costs	—	19.2
Restructuring, business transformation and other cost saving initiatives:		
2017 corporate strategy implementation[C]	7.8	—
Restructuring charges[C]	3.2	—
Premium paid on purchase of Ionis common stock[D]	162.1	—
Loss (gain) on equity security investments	1.0	—
Income tax effect related to reconciling items	(69.8)	(154.8)
Non-GAAP net income attributable to Biogen Inc.	$ 2,483.2	$ 2,192.0

2018 Full Year Guidance: GAAP to Non-GAAP Reconciliation

An itemized reconciliation between projected net income attributable to Biogen Inc. and diluted earnings per share on a GAAP and Non-GAAP basis is as follows:

	$	Shares	Diluted EPS
GAAP net income attributable to Biogen Inc.	$ 4,550	206	$ 22.09
Adjustments:			
Amortization of acquired intangible assets[A]	430		
Acquired in-process research and development	85		
Loss (gain) on fair value remeasurement of contingent consideration	5		
Net distribution to noncontrolling interests[B]	45		
Restructuring, business transformation and other cost saving initiatives:			
2017 corporate strategy implementation[C]	20		
Restructuring charges[C]	15		
Premium paid on purchase of Ionis common stock[D]	162		
Loss (gain) on equity security investments	(15)		
Income tax effect related to reconciling items	(105)		
Non-GAAP net income attributable to Biogen Inc.	$ 5,192	206	$ 25.20

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Biogen Inc. and Subsidiaries
GAAP to Non-GAAP Reconciliation
Net Income Attributable to Biogen Inc. and Diluted Earnings Per Share
(unaudited, in millions, except per share amounts)

[A] Amortization of acquired intangible assets includes impairment and amortization charges related to the intangible asset associated with our U.S. and rest of world licenses to Forward Pharma A/S' (Forward Pharma) intellectual property, including Forward Pharma's intellectual property related to TECFIDERA. In exchange for these licenses, we paid Forward Pharma $1.25 billion in cash.

We have two intellectual property disputes with Forward Pharma, one in the U.S. and one in the European Union, concerning intellectual property related to TECFIDERA. In March 2017 the U.S. intellectual property dispute was decided in our favor. We evaluated the recoverability of the U.S. asset acquired from Forward Pharma and recorded an impairment charge in the first quarter of 2017 to adjust the carrying value of the acquired U.S. asset to fair value reflecting the impact of the developments in the U.S. legal dispute. In March 2018 the European Patent Office issued its decision revoking Forward Pharma's European Patent No. 2 801 355. Based upon our assessment of these rulings, we continue to amortize the remaining net book value of the U.S. and rest of world intangible assets in our condensed consolidated statements of income utilizing an economic consumption model.

[B] Net distribution to noncontrolling interests reflects the $50.0 million payment to Neurimmune SubOne AG (Neurimmune), net of Neurimmune's tax, to further reduce the previously negotiated royalty rates payable on products developed under our amended collaboration and license agreement, including on potential commercial sales of aducanumab, by an additional 5%.

[C] 2017 corporate strategy and restructuring charges are related to our efforts to create a leaner and simpler operating model.

[D] In June 2018 we completed a new ten-year exclusive collaboration with Ionis Pharmaceuticals, Inc. (Ionis) to develop novel antisense oligonucleotide drug candidates for a broad range of neurological diseases for a total payment of $1.0 billion consisting of an upfront payment of $375.0 million and the purchase of approximately 11.5 million shares of Ionis' common stock at a cost of $625.0 million.

The 11.5 million shares of Ionis' common stock were purchased at a premium to their fair value at the transaction closing date. The premium consisted of acquiring the shares at a price above the fair value based on the trailing 10-day weighted-average close price prior to entering into the collaboration agreement and the effect of certain holding period restrictions. We recorded an asset of $462.9 million in investments and other assets in our condensed consolidated balance sheets reflecting the fair value of the common stock and a charge of $162.1 million to research and development expense in our condensed consolidated statements of income for the three and six months ended June 30, 2018, reflecting the premium paid for the common stock.

Use of Non-GAAP Financial Measures

We supplement our consolidated financial statements presented on a GAAP basis by providing additional measures which may be considered "Non-GAAP" financial measures under applicable SEC rules. We believe that the disclosure of these Non-GAAP financial measures provides additional insight into the ongoing economics of our business and reflects how we manage our business internally, set operational goals and form the basis of our management incentive programs. These Non-GAAP financial measures are not in accordance with generally accepted accounting principles in the United States and should not be viewed in isolation or as a substitute for reported, or GAAP, net income attributable to Biogen Inc. and diluted earnings per share.

Our "Non-GAAP net income attributable to Biogen Inc." and "Non-GAAP earnings per share - Diluted" financial measures exclude the following items from "GAAP net income attributable to Biogen Inc." and "GAAP earnings per share - Diluted":

1. Purchase accounting, merger-related and other adjustments

We exclude certain purchase accounting related items associated with the acquisition of businesses, assets and amounts in relation to the consolidation or deconsolidation of variable interest entities for which we are the primary beneficiary. These adjustments include, but are not limited to, charges for in-process research and development milestones, the amortization of intangible assets, and charges or credits from the fair value remeasurement of our contingent consideration obligations.

2. Hemophilia business separation costs

We have excluded costs that are directly associated with the set up and spin-off of our hemophilia business into an independent, publicly-traded company on February 1, 2017. These costs represent incremental third party costs attributable solely to hemophilia separation and set up activities.

3. Restructuring, business transformation and other cost saving initiatives

We exclude costs associated with the company's execution of certain strategies and initiatives to streamline operations, achieve targeted cost reductions, rationalize manufacturing facilities or refocus R&D activities. These costs may include employee separation costs, retention bonuses, facility closing and exit costs, asset impairment charges or additional depreciation when the expected useful life of certain assets have been shortened due to changes in anticipated usage, and other costs or credits that management believes do not have a direct correlation to our on-going or future business operations.

4. Loss (gain) on equity security investments

Effective January 2018 we exclude unrealized and realized gains and losses and discounts or premiums on our equity security investments as we do not believe that these components of income or expense have a direct correlation to our on-going or future business operations.

5. Other items

We evaluate other items of income and expense on an individual basis, and consider both the quantitative and qualitative aspects of the item, including (i) its size and nature, (ii) whether or not it relates to our ongoing business operations and (iii) whether or not we expect it to occur as part of our normal business on a regular basis. We also include an adjustment to reflect the related tax effect of all reconciling items within our reconciliation of our GAAP to Non-GAAP net income attributable to Biogen Inc. and diluted earnings per share.

Biogen