where science meets humanity™

Q4 and Full Year 2021

Financial Results and Business Update

February 3, 2022

Biogen

Non-GAAP financial information

This presentation and the discussions during this conference call include certain financial measures that were not prepared in accordance with accounting principles generally accepted in the U.S. (GAAP), including adjusted net income, adjusted diluted earnings per share, revenue growth at constant currency, which excludes the impact of changes in foreign exchange rates and hedging gains or losses, and free cash flow, which is defined as net flow from operations less capital expenditures. Additional information regarding the GAAP and Non-GAAP financial measures and a reconciliation of the GAAP to Non-GAAP financial measures can be found on slides 61-64 of this presentation and in the Q4 2021 earnings release and related financial tables posted on the *Investors* section of Biogen.com. We believe that these and other Non-GAAP financial measures provide additional insight into the ongoing economics of our business and reflect how we manage our business internally, set operational goals, and form the basis of our management incentive programs. Non-GAAP financial measures are in addition to, not a substitute for, or superior to, measures of financial performance prepared in accordance with GAAP.

We do not provide guidance for GAAP reported financial measures (other than revenue) or a reconciliation of forward-looking Non-GAAP financial measures to the most directly comparable GAAP reported financial measures because we are unable to predict with reasonable certainty the financial impact of items such as the transaction, integration, and certain other costs related to acquisitions or large business development transactions; unusual gains and losses; potential future asset impairments; gains and losses from our equity security investments; and the ultimate outcome of pending significant litigation without unreasonable effort. These items are uncertain, depend on various factors, and could have a material impact on GAAP reported results for the guidance period. For the same reasons, we are unable to address the significance of the unavailable information, which could be material to future results.

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Forward-looking statements

This presentation and the discussions during this conference call contain forward-looking statements, including statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, relating to: our strategy and plans; potential of, and expectations for, our commercial business and pipeline programs; capital allocation and investment strategy; clinical development programs, clinical trials, and data readouts and presentations; risks and uncertainties associated with drug development and commercialization; regulatory discussions, submissions, filings, and approvals and the timing thereof; the potential benefits, safety, and efficacy of our and our collaboration partners' products and investigational therapies; the anticipated benefits and potential of investments, collaborations, and business development activities; our future financial and operating results; 2022 financial guidance; plans relating to share repurchases. These forward-looking statements may be accompanied by such words as "aim," "anticipate," "believe," "could," "estimate," "expect," "forecast," "goal," "intend," "may," "plan," "potential," "possible," "prospect," "will," "would," 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 products; the impact of the final NCD; uncertainty of long-term success in developing, licensing, or acquiring other product candidates or additional indications for existing products; risks that the proposed transaction with Samsung Biologics will not be completed in a timely manner or at all; the possibility that certain closing conditions to the proposed transaction will not be satisfied; uncertainty as to whether the anticipated benefits of the proposed transaction can be achieved; failure to compete effectively due to significant product competition in the markets for our products; failure to successfully execute or realize the anticipated benefits of our strategic and growth initiatives; difficulties in obtaining and maintaining adequate coverage, pricing, and reimbursement for our products; our dependence on collaborators, joint venture partners, and other third parties for the development, regulatory approval, and commercialization of products and other aspects of our business, which are outside of our full control; risks associated with current and potential future healthcare reforms; risks related to commercialization of biosimilars; failure to obtain, protect, and enforce our data, intellectual property, and other proprietary rights and the risks and uncertainties relating to intellectual property claims and challenges; 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; the occurrence of adverse safety events, restrictions on use with our products, or product liability claims; risks relating to the distribution and sale by third parties of counterfeit or unfit versions of our products; risks relating to the use of social media for our business; risks relating to technology failures or breaches; risks relating to management and key personnel changes, including attracting and retaining key personnel; failure to comply with legal and regulatory requirements; the risks of doing business internationally, including currency exchange rate fluctuations; risks relating to investment in our manufacturing capacity; problems with our manufacturing processes; fluctuations in our effective tax rate; the direct and indirect impacts of the ongoing COVID-19 pandemic on our business, results of operations, and financial condition; fluctuations in our operating results; risks related to investment in properties; the market, interest, and credit risks associated with our investment portfolio; risks relating to share repurchase programs; risks relating to access to capital and credit markets; risks related to indebtedness; change in control provisions in certain of our collaboration agreements; environmental risks; and any other risks and uncertainties that are described in other reports we have filed with the U.S. 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.

ADUHELM (aducanumab–avwa) indication and safety statement

ADUHELM is indicated for the treatment of Alzheimer's disease. Treatment with ADUHELM should be initiated in patients with mild cognitive impairment or mild dementia stage of disease, the population in which treatment was initiated in clinical trials. There are no safety or effectiveness data on initiating treatment at earlier or later stages of the disease than were studied. This indication is approved under accelerated approval based on reduction in amyloid beta plaques observed in patients treated with ADUHELM. Continued approval for this indication may be contingent upon verification of clinical benefit in a confirmatory trial or trials.

ADUHELM can cause serious side effects including amyloid related imaging abnormalities or ARIA. ARIA is a common side effect that does not usually cause any symptoms but can be serious. ADUHELM can cause serious allergic reactions. The most common side effects include ARIA, headache and fall.

Please see full prescribing information and patient medication guide including warnings and precautions at ADUHELM.com.

Q4 2021 earnings call agenda

Introduction	**Michael Hencke** Head of Investor Relations
Overview	**Michel Vounatsos** Chief Executive Officer
R&D Update	**Priya Singhal, M.D., M.P.H.** Interim Head of Research & Development
Financial Update	**Michael McDonnell** Chief Financial Officer
Closing Remarks	**Michel Vounatsos** Chief Executive Officer
Also available for Q&A	**Alisha Alaimo** President, U.S. Organization

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Overview

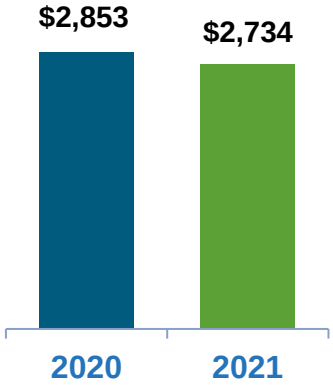
Michel Vounatsos

Chief Executive Officer

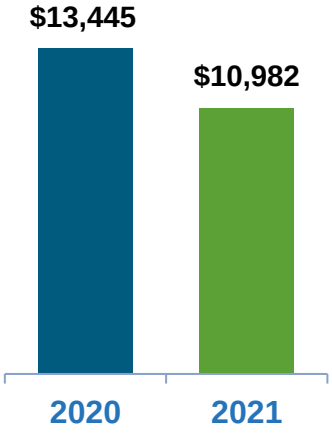
Q4 and full year 2021 financial results

Total Revenues ($M)

Q4

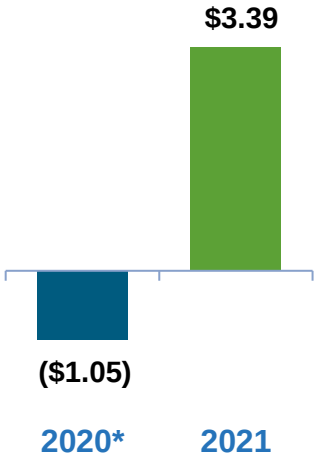


Full Year

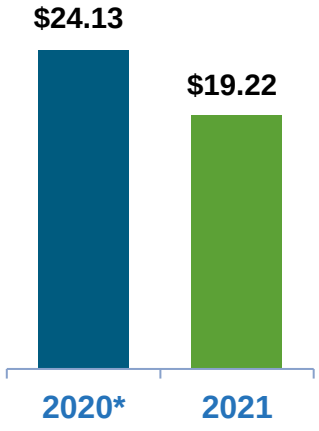


Non-GAAP Diluted EPS ($)

Q4



Full Year



Our GAAP financial measures and a reconciliation of GAAP to Non-GAAP financial results are at the end of this presentation.
*Beginning in the second quarter of 2021 material upfront payments and premiums paid on the acquisition of common stock associated with significant collaboration and licensing arrangements along with the related transaction costs incurred are no longer excluded from Non-GAAP research and development expense and selling, general and administrative expense. Non-GAAP financial results for 2020 have been updated to include the $1,084.0 million payment related to our collaboration with Sage Therapeutics, Inc. recorded in the fourth quarter of 2020, the $601.3 million payment related to our collaboration with Denali Therapeutics, Inc. recorded in the third quarter of 2020 and the $208.0 million payment related to our collaboration with Sangamo Therapeutics, Inc. recorded in the second quarter of 2020 along with the associated transaction costs and income tax effect.

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Proposed National Coverage Determination

CMS Areas of Focus

Data on the clinical benefit for this class of antibodies

Potential risk profile (ARIA)

Diversity and underrepresentation of minorities in all trials within this class

Biogen Initiatives Underway

Three programs in place to generate post-approval efficacy and safety data on ADUHELM

- ❑ **ENVISION** Phase 4 post-marketing confirmatory study
  - First patient expected to be screened in May 2022
  - Aims to enroll 1,500 patients
- ❑ **ICARE-AD** observational real-world Phase 4 study
  - Aims to enroll 6,000 patients
- ❑ **EMBARK** Phase 3b re-dosing study
  - Enrolled ~1,700 patients

Committing to increase participation from traditionally underrepresented communities

- ❑ ENVISION and ICARE-AD aims to enroll **16% - 18% of U.S. participants from black/African American and Hispanic/Latino populations**

Additional data could be generated over time and with higher levels of real-world drug utilization

CMS = Centers for Medicare & Medicaid Services; ARIA = amyloid related imaging abnormalities

Four pillars to drive growth and long-term shareholder value

Neurology

- ✓ Expanding on Biogen's **leadership in neuroscience**
- ✓ **Strong foundation** with **26 programs** in clinical development across a diversified pipeline

Specialized Immunology

- ✓ **Two Phase 3 programs in lupus** representing potential first-in-class and best-in-class therapies
- ✓ Therapeutic area with a **different risk profile**
- ✓ Continuing to evaluate additional opportunities

Biosimilars

- ✓ **Maintaining commercialization of current portfolio** after expected sale of equity stake in joint venture
- ✓ **Aim to bring more biosimilar products** to more patients in more geographies

Digital Health

- ✓ Accelerating efforts to support our commercial and pipeline programs
- ✓ Dedicated **digital health portfolio** aiming to **predict, measure and prevent disease**
- ✓ **Recent collaboration with TheraPanacea** aiming to further develop digital health solutions

Biogen Digital Health Portfolio

Digital Health

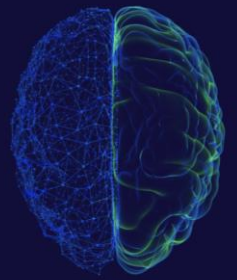
PORTFOLIO FOCUS

- Digital Biomarkers
- Personalized Medicine
- Patient Pathway Improvement
- Digital Therapeutics

- **13** disclosed programs focused across clinical development and real-world settings
- **3** products in market with **6** programs in-development across disease areas

VALUE CREATION OBJECTIVES

- Potentially improve efficiency of clinical development
- Evidence and companion technologies that may enhance risk/benefit profile of Biogen therapies
- Aim to expand market opportunities (screening, diagnosis, adherence, compliance)
- Potential adjacent source of revenue (prescription digital therapeutics, software as a service – imaging, digital biomarkers etc.)



Therapeutic Area	Program	Stage	Clinical Development & Real-World Evidence	Patient Care: Primary prevention & screening	Patient Care: Diagnosis	Patient Care: Treatment & Decision support	Patient Care: Monitoring & Self Management
Multiple Sclerosis	Cleo / Aby – Digital Companion	Launched					●
	MS Lesion Classifier – Imaging AI	Concept & Feasibility	●			●	
	Konectom MS – Digital Biomarkers	Market-Scientific Validation	●			●	●
	MS Paths – Research Network	Launched	●		●	●	
	MS Performance Test – Digital Biomarkers	Launched	●			●	
Alzheimer's Disease and Dementia	Intuition – Digital Biomarkers	Market-Scientific Validation	●	●			
	AI ARIA Identification – Imaging AI	Design & Development	●			●	
	Vulcan – Digital Companion	Concept & Feasibility					●
Neuromuscular Disorders	Konectom NMD – Digital Biomarkers	Market-Scientific Validation	●			●	●
	Physio.me – Digital Companion	Design & Development				●	●
	Capsule – VR Solution	Design & Development				●	
Movement Disorders	PD Progression Score – Digital Biomarker	Concept & Feasibility	●				●
Neuropsychiatry	Zephiro – Digital Companion	Concept & Feasibility				●	●

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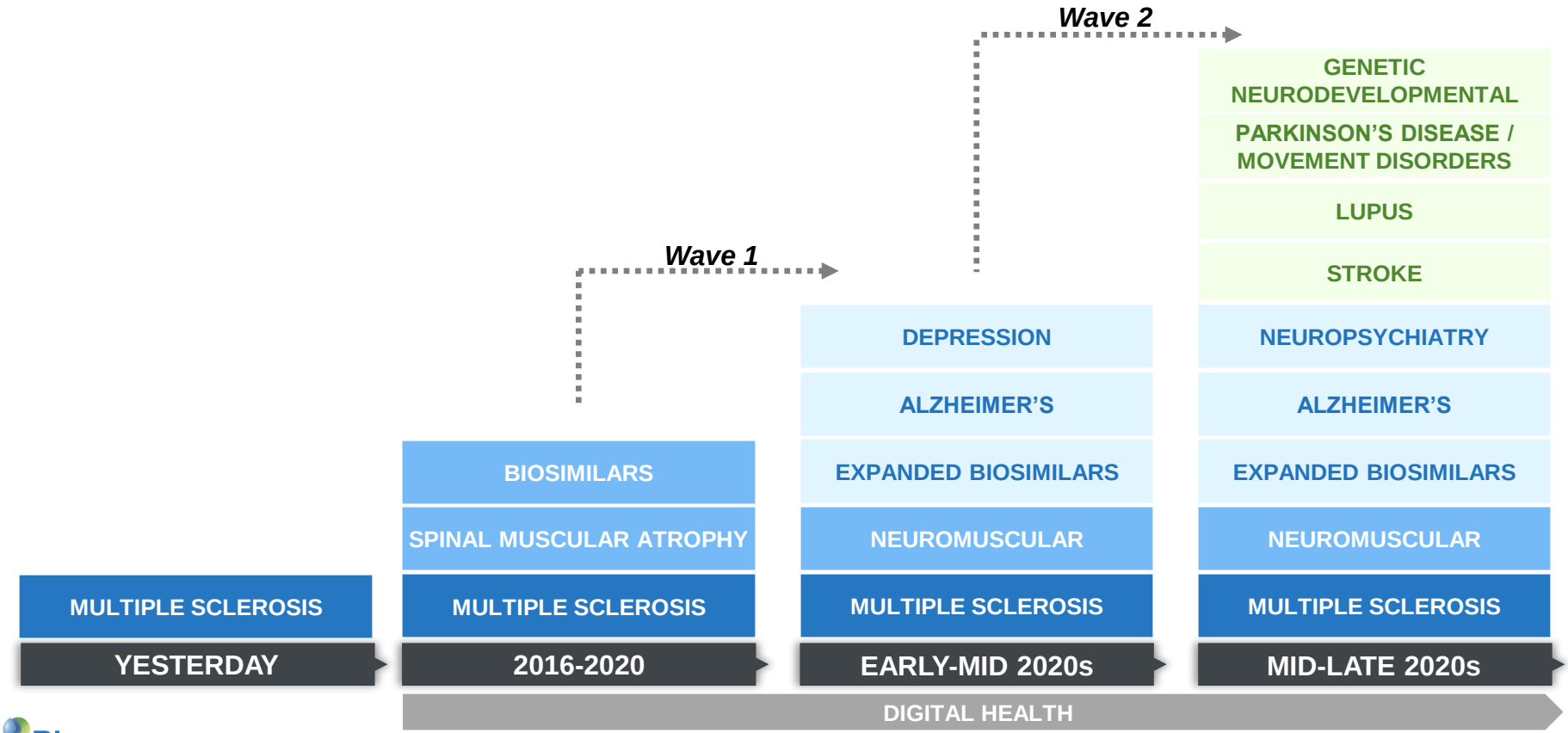
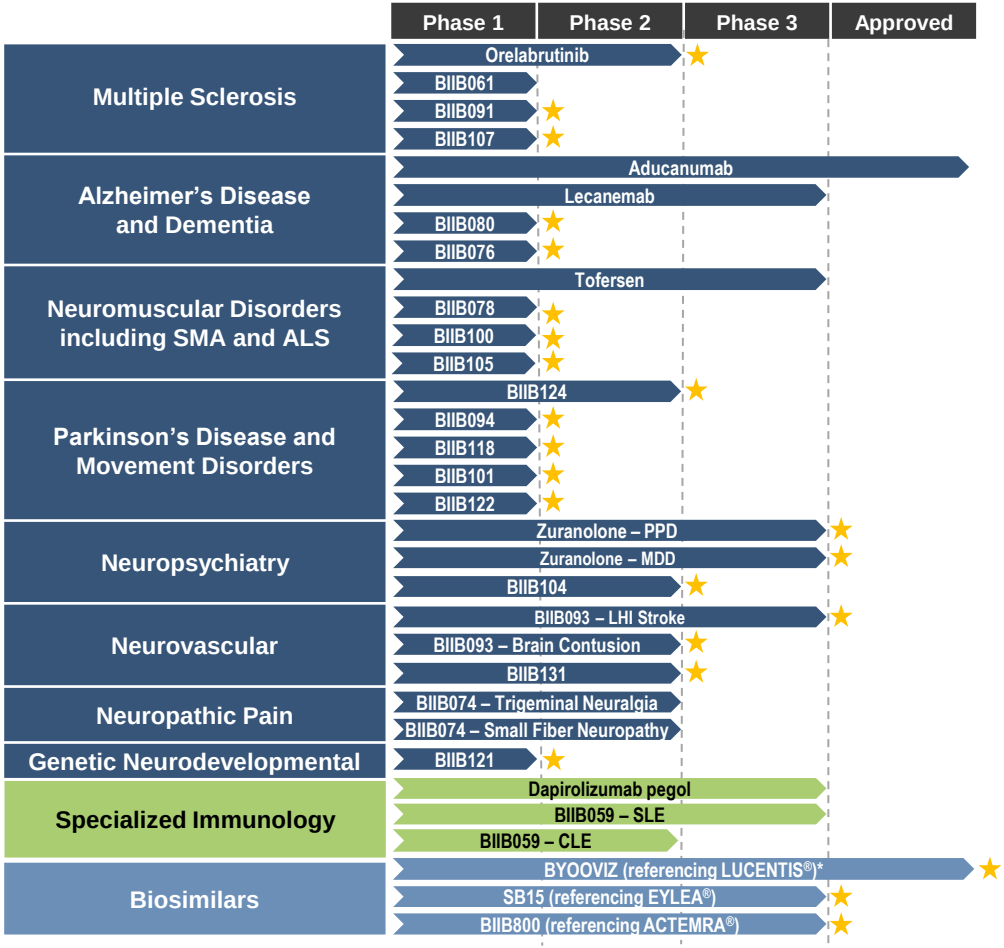
Two potential waves of growth to build a multi-franchise portfolio



Advancing a robust and diversified portfolio

Neurology
Specialized Immunology
Biosimilars



32
Clinical programs today

10
Programs in Phase 3 or filed today

23
★ New clinical programs since 2017

> 30
Business development deals since 2017

*Not yet commercially available; SMA = spinal muscular atrophy; ALS = amyotrophic lateral sclerosis; PPD = postpartum depression; MDD = major depressive disorder; LHI = large hemispheric infarction; SLE = systemic lupus erythematosus; CLE = cutaneous lupus erythematosus

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Exercised option on mosunetuzumab

Building upon a long-standing collaboration with Genentech

mosunetuzumab	• An investigational T-cell engaging bispecific antibody targeting CD20 and CD3 in development for B-cell non-Hodgkin's lymphoma and other therapeutic areas • If approved, mosunetuzumab has the potential to be a first-in-class CD20xCD3 T-cell engaging bispecific antibody in non-Hodgkin's lymphoma
U.S. Regulatory Filing Status	• Granted Breakthrough Therapy Designation by the FDA in June 2020 • Genentech plans to complete a BLA submission to the FDA in the near future
Terms and Economics	• Biogen will share in the operating profits and losses in the U.S. in the low to mid 30% range • Genentech will continue to lead the strategy and implementation of the program • Biogen will have joint decision-making rights related to development and commercialization • In Q4 2021, Biogen recorded an expense of ~ $50 million related to the exercise of this option • Biogen is eligible to receive low single-digit royalties on sales outside the U.S.

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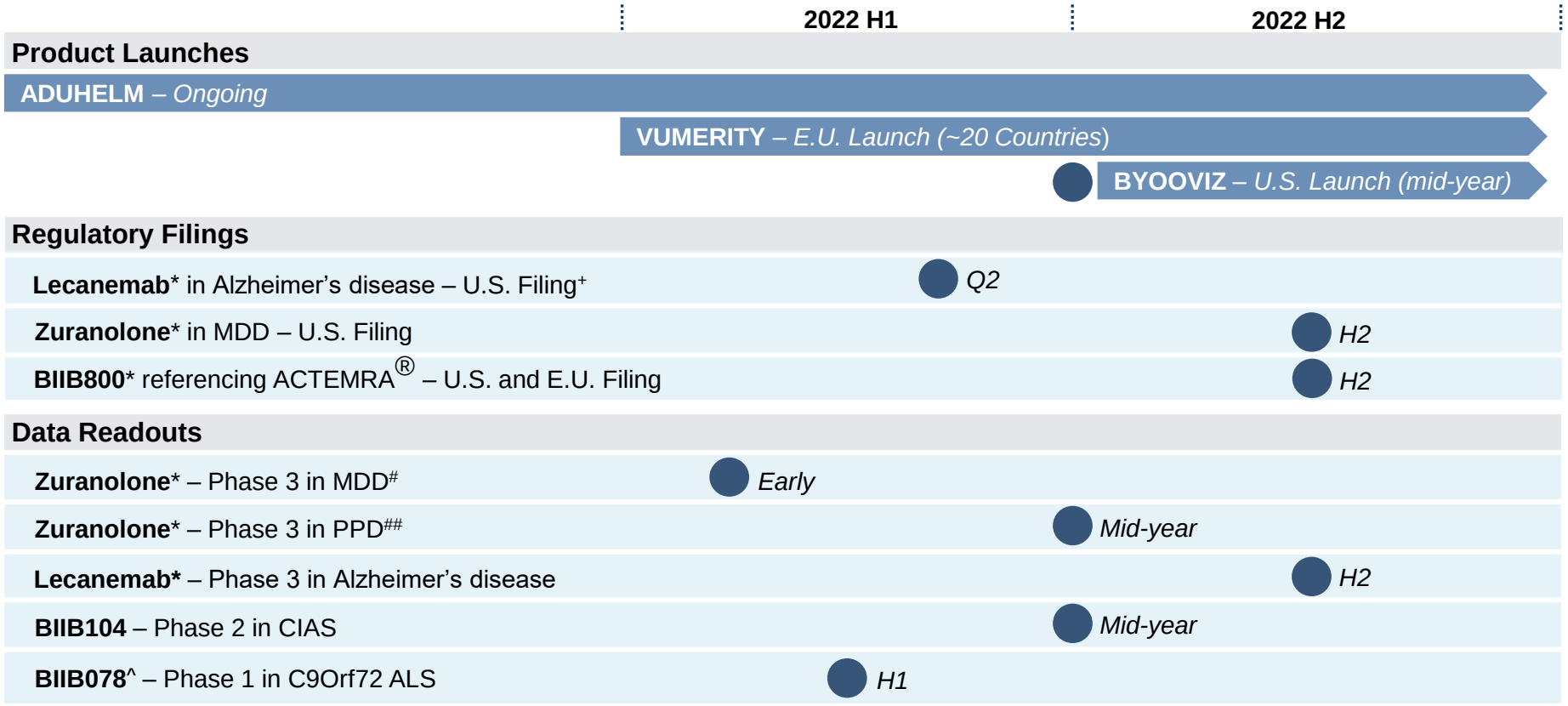
BLA = Biologics License Application

Strong focus on execution with key expected milestones in 2022



Note: ADUHELM and lecanemab are being developed in collaboration with Eisai Co., Ltd.
* Collaboration program; + Eisai responsible for lecanemab regulatory filing; # Data from the CORAL Study; ## Data from the SKYLARK Study; ^ Option agreement
MDD = major depressive disorder; PPD = postpartum depression; CIAS = cognitive impairment associated with schizophrenia; ALS = amyotrophic lateral sclerosis

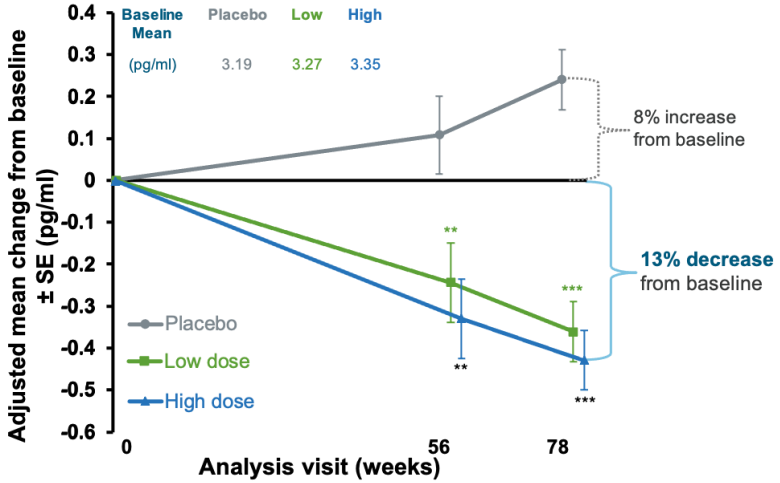
R&D Update

Priya Singhal, M.D., M.P.H.
Interim Head of Research & Development

Aducanumab significantly lowers plasma p-tau^{181}

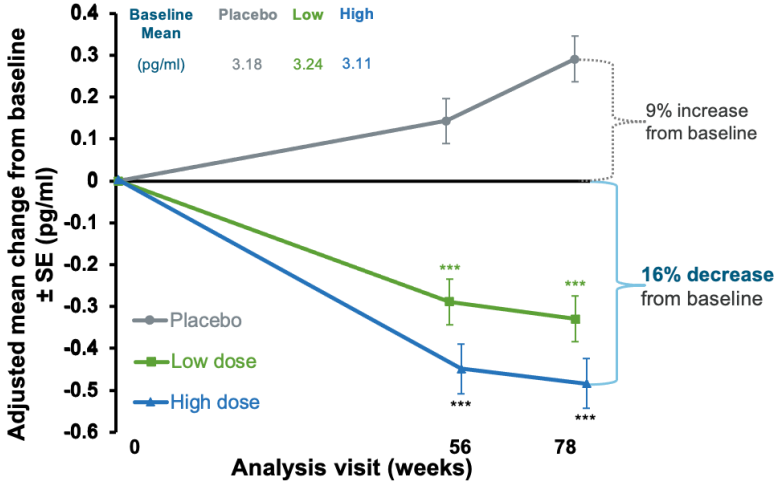
- Plasma phospho tau levels are increased in Alzheimer's disease[1]
- ADUHELM significantly lowered plasma p-tau181, a biomarker of the hallmark tau tangles in Alzheimer's disease, in both Phase 3 trials in a dose- and time-dependent manner vs. placebo

EMERGE



Placebo	287	177	273
Low dose	293	172	269
High dose	290	168	271

ENGAGE



Placebo	333	301	325
Low dose	331	299	322
High dose	281	242	274

Hansson et al., CTAD 2021

[1] Palmqvist S, et al. *JAMA*. 2020;324:772–781.1

* p<0.05, ** p<0.01, *** p<0.001 compared with placebo (nominal). MMRM with change from baseline as the dependent variable and with fixed effects of treatment group, categorical visit, treatment-by-visit interaction, baseline value, baseline value by visit interaction, baseline age, and ApoE status.

p-tau = phosphorylated tau; pg/ml = picograms per milliliter; SE = standard error; MMRM = mixed model for repeated measures; ApoE = apolipoprotein E

Greater reduction in plasma p-tau181 is associated with less clinical decline in EMERGE and ENGAGE

Association between change in p-tau and efficacy at Week 78		Expected correlation	Correlation (p-value)	
			EMERGE (n=514–521)	ENGAGE (n=577–581)
p-tau^{181}	CDR-SB	Positive	**0.11** (0.0166)	**0.14** (0.0005)
	MMSE	Negative	**-0.21** (<0.0001)	**-0.15** (0.0002)
	ADAS-Cog13	Positive	**0.17** (0.0001)	**0.15** (0.0002)
	ADCS-ADL-MCI	Negative	**-0.12** (0.0086)	**-0.14** (0.0010)

Source: Hansson et al., CTAD 2021

Correlations are partial Spearman correlations assessed in pooled low and high dose aducanumab-treated groups, adjusting for baseline p-tau, baseline clinical endpoint, and age.

p-tau = phosphorylated tau; CDR-SB = Clinical Dementia Rating–Sum of Boxes; MMSE = Mini-Mental State Examination; ADAS-Cog 13 = Alzheimer's Disease Assessment Scale–Cognitive Subscale; ADCS-ADL-MCI = Alzheimer's Disease Cooperative Study–Activities of Daily Living Inventory (mild cognitive impairment version)

Biogen is advancing an industry leading Alzheimer's portfolio

Program	Target	Modality	Preclinical	Phase 1	Phase 2	Phase 3	Marketed
Aducanumab (ADUHELM)*	Amyloid-β	mAb					
Lecanemab/BAN2401*	Amyloid-β	mAb				*Phase 3 readout anticipated in H2 2022*	
BIIB080#	Tau	ASO			*Phase 2 start anticipated in mid-2022*		
BIIB076##	Tau	mAb					
BIIB113	OGA	Small molecule		*Phase 1 start anticipated in Q1 2022*			
Undisclosed asset	Amyloid-β	-					
Undisclosed assets	Amyloid-β	mAb					
ATV-Amyloid-β**	Amyloid-β	mAb					
Undisclosed assets	Genetically Validated Targets	mAb					
Undisclosed asset		Small molecule					

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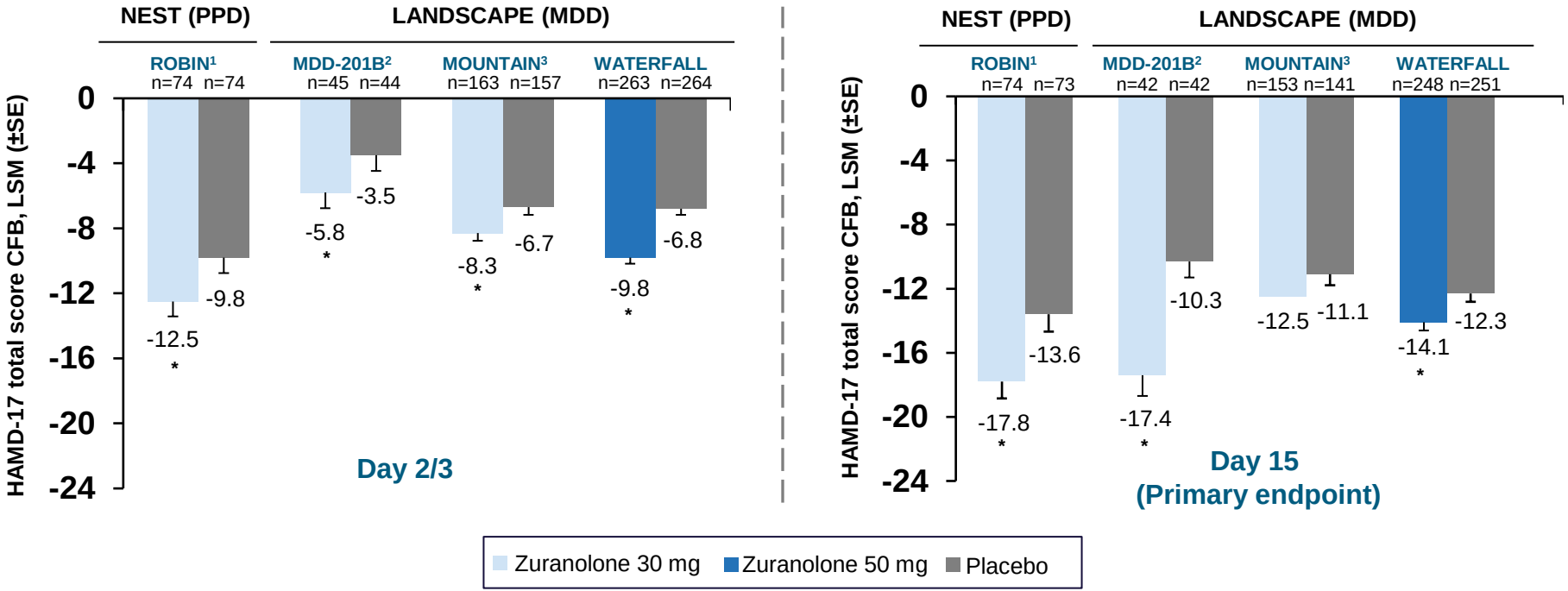
* collaboration with Eisai; # collaboration with Ionis; ## collaboration with Neurimmune; ** collaboration with Denali
mAb = monoclonal antibody; ASO = antisense oligonucleotide; OGA = O-GlcNAcase

Zuranolone has shown improvement in depressive symptoms



The clinical trials above differ in sample size, patient population, entry criteria, study sites as well as other design elements. No direct comparison can be made across these clinical trials based on the graph above. ROBIN

Note: zuranolone is being developed in collaboration with Sage Therapeutics, Inc.
Source: Brown, ECNP 2021
*p<0.05 vs placebo. p values for Day2/3 LSM treatment difference are not adjusted for multiplicity and for WATERFALL is nominal.
PPD = postpartum depression; MDD = major depressive disorder; n = number of patients at that visit; HAMD-17 = 17-item Hamilton Rating Scale for Depression total score; CFB = change from baseline; LSM = least squares mean; SE = standard error.
1. Deligiannidis KM et al. *JAMA Psychiatry*. 2021 Sep 1;78(9):951-959. 2. Gunduz-Bruce H et al. *N Engl J Med*. 2019;381(10):903-911. 3. Mittal A, et al. Poster presented at the American Academy of Neurology Annual Meeting. Toronto, Canada. April 25-May 1, 2020.

Zuranolone clinical development program provides multiple opportunities across the depression landscape

MAJOR DEPRESSIVE DISORDER

Zuranolone as a monotherapy or adjunctive to stable ADT in MDD

- 3 positive clinical studies – improvement in depressive symptoms observed as early as Day 3 and a consistent safety profile
- SHORELINE study: ~ 80% of patients who responded to the initial 50mg course needed at most one additional treatment during their time in the one-year study
- WATERFALL study: improvements in depression symptoms observed when elevated anxiety is – *or is not* – present*
- New Drug Application in MDD to the FDA planned in H2 2022, with rolling submission expected to start in early 2022

Zuranolone when co-initiated with ADT in MDD

- CORAL Phase 3 study expected to **readout in early 2022**

POST-PARTUM DEPRESSION

Zuranolone as a monotherapy or adjunctive to stable ADT in PPD

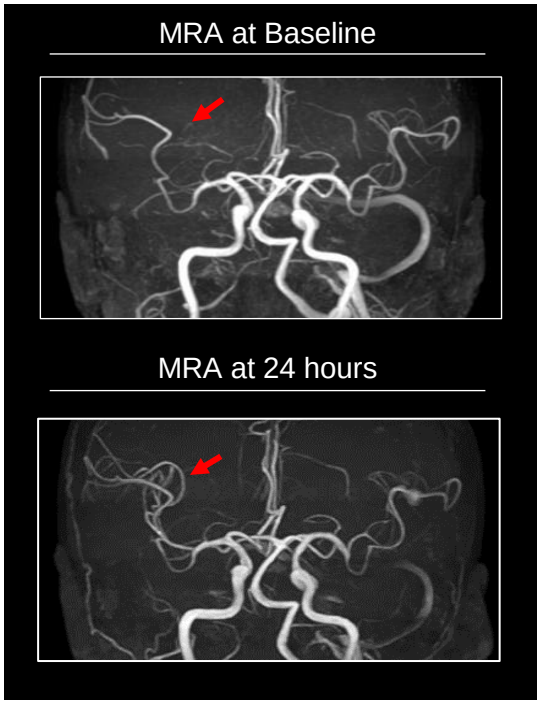
- Positive Phase 3 ROBIN study in PPD
- SKYLARK Phase 3 study expected to readout in mid-2022

Zuranolone was generally well tolerated in clinical studies to date. The most common treatment-emergent adverse events observed with zuranolone across the program were somnolence, dizziness, headache, and sedation.

Note: zuranolone is being developed in collaboration with Sage Therapeutics, Inc.
* Anxious depression was evaluated as a post hoc analysis in the WATERFALL Phase 3 study
ADT = antidepressant therapy; MDD = major depressive disorder; PPD = postpartum depression

Phase 2a study of BIIB131 in Acute Ischemic Stroke demonstrated positive impacts on blood vessel reopening and patient functional recovery

Vessel Recanalization*



- **Treatment:** 52 patients were treated with BIIB131 up to 12 hours after the onset of stroke symptoms - average time to treatment was 9.5 hours vs. 9.3 hours for placebo
- **Safety:** No incidence of symptomatic intracranial hemorrhage
- **Recanalization:** Improved recanalization rate in patients with a visible occlusion – 58.3% for BIIB131 vs. 26.7% for placebo
- **Functional Recovery:** Significant improvement in patient functional recovery as measured by modified Rankin Scale, a measure of independence in daily living

BIIB131 has the potential to be a next generation thrombolytic with an improved benefit-risk profile

*Illustrative case of 78-year-old male with occlusion of right middle cerebral branch artery, NIHSS score of 9, randomized to BIIB131, 3 mg/kg cohort. Time to treatment: 8.5 hours post-stroke; 90-day outcome: mRS of 1 (No significant disability, despite symptoms; able to perform all usual duties and activities)
MRA = magnetic resonance angiopathy; NIHSS = National Institutes of Health stroke scale; mg/kg = milligrams per kilogram; mRS = Modified Rankin Score

Biogen is advancing a late-stage pipeline in Lupus

Program	Modality	Indication	Preclinical	Phase 1	Phase 2	Phase 3
Dapirolizumab Pegol*	Anti-CD40L mAb	SLE				
BIIB059	Anti-BDCA2 mAb	SLE				
BIIB059	Anti-BDCA2 mAb	CLE				
Undisclosed	Small Molecule	SLE				

SLE: Lupus impacting multiple organs

- Increased risk of premature death (including infections and thrombotic/renal events)[1]
- Multiple, varied organs and symptoms,[2] including in skin, heart, brain, lungs, joints and kidneys
- ***Dapirolizumab and BIIB059 represent potential first-in-class molecules for SLE***

CLE: Skin-based form of lupus

- Symptoms including photosensitivity, rash, pain, and pruritis (itch)[3,4]
- Skin damage, including scarring and skin atrophy, occurs in some chronic forms[4]
- Most individuals with CLE may not develop systemic manifestations[5]
- ***No biologics approved specifically for CLE***

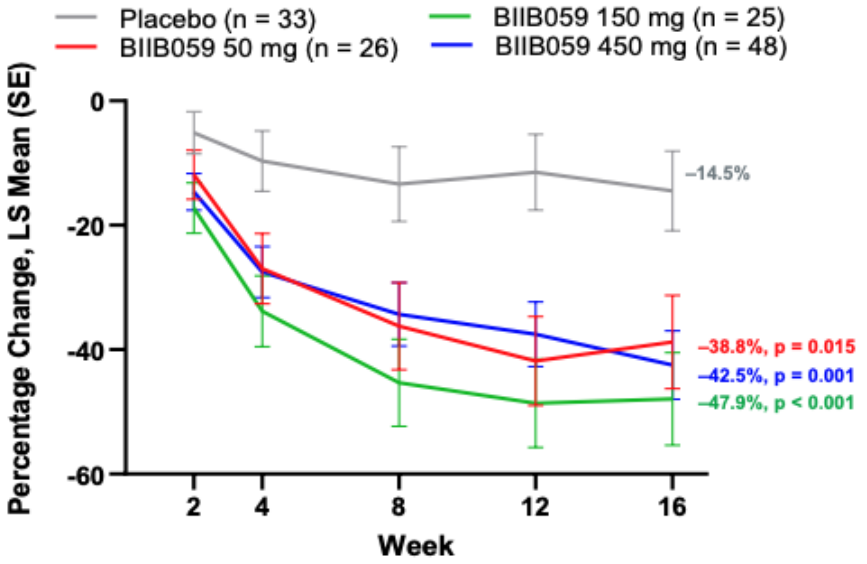
*Dapirolizumab Pegol is being developed in collaboration with UCB

1. Yurkovich M, et al. *Arthritis Care Res* (Hoboken). 2014;66(4):608-616. 2. Crampton SP, et al. *Dis Model Mech*. 2014;7(9):1033-1046. 3. Ogunsanya ME, et al. *Int J Womens Dermatol*. 2018;4(3):152-158. 4. Ribero S, et al. *Clin Rev Allergy Immunol*. 2017;53(3):291-305. 5. Tebbe B, Orfanos CE. *Lupus*. 1997;6(2):96-104.

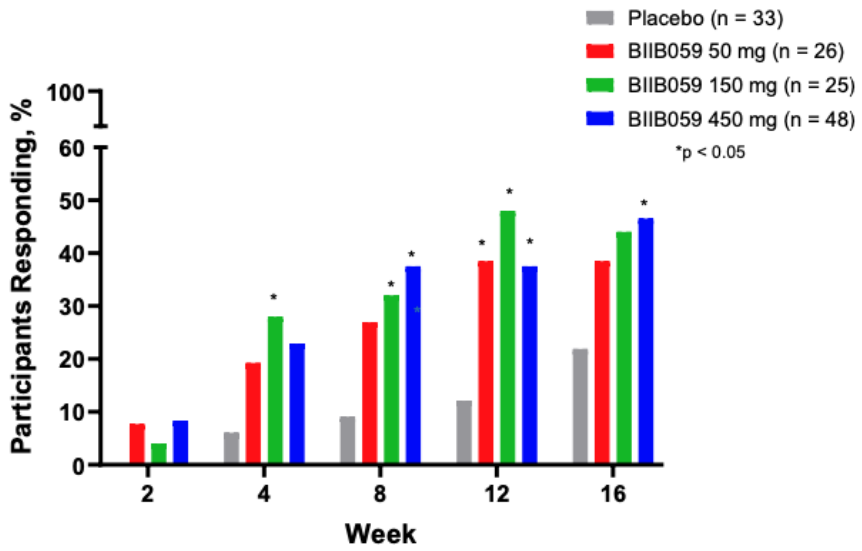
mAb = monoclonal antibody; SLE = systemic lupus erythematosus; BDCA2 = blood dendritic cell antigen 2; CLE = cutaneous lupus erythematosus

BIIB059 clinical development suggests promising efficacy in skin manifestation in Phase 2

Percent change in CLASI-A Score from baseline to week 16*



CLASI-50 Response Rate^

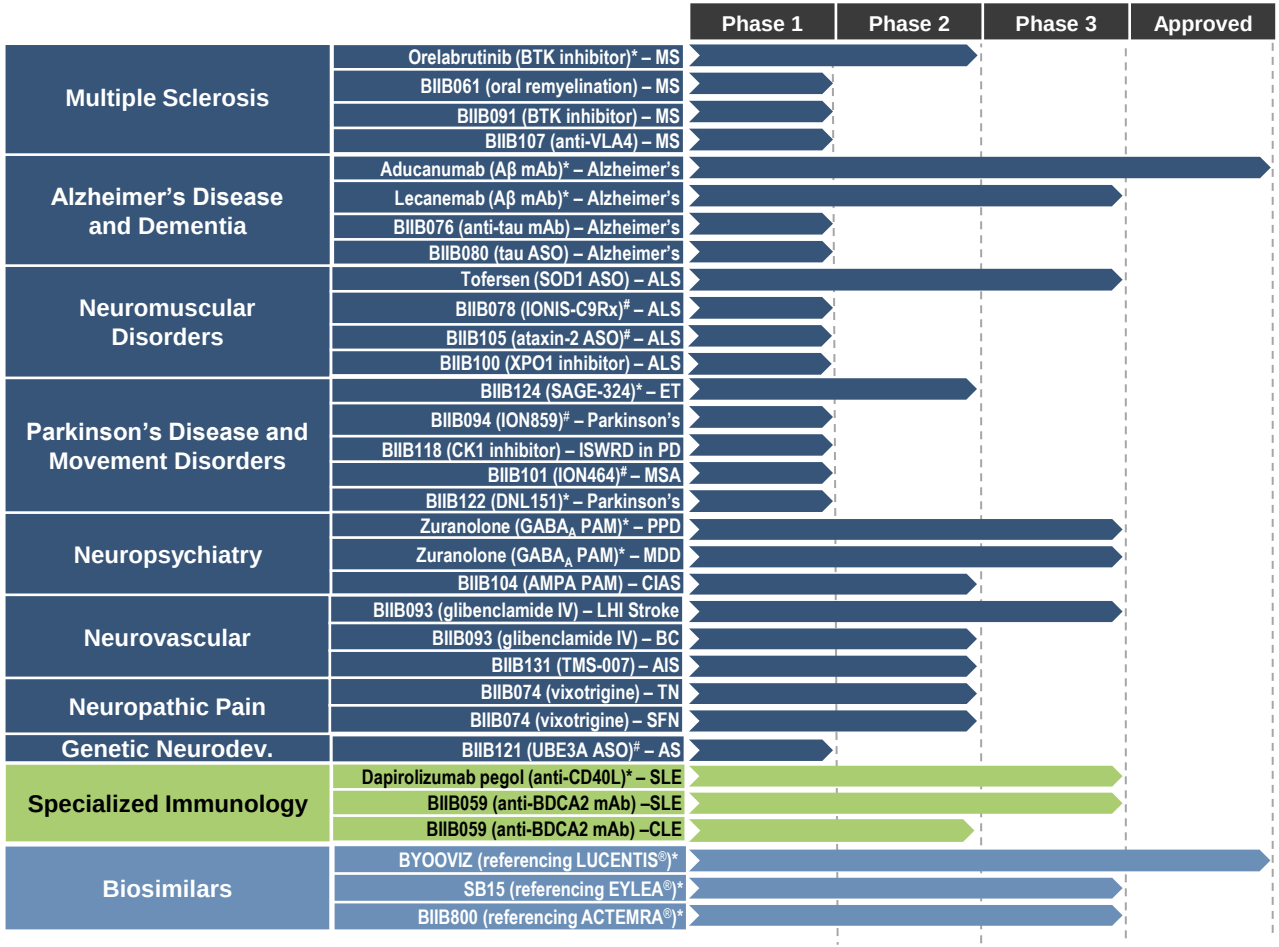


Source: Werth et al., ACR 2020

*Mixed effect model repeat measurement

^CLASI-50 = ≥ 50% improvement from baseline in Cutaneous Lupus Erythematosus Disease Area and Severity Index-Activity score; Based on generalized linear regression adjusted for treatment, discoid lupus erythematosus (Yes/No), and baseline Cutaneous Lupus Erythematosus Disease Area and Severity Index-Activity score (≤10 vs. >10), using a logit link function (logistic regression) for the odds ratios and p-values, and using an identity link function (linear probability model) for the least squares (LS) means and LS mean differences. NOTE: This endpoint was not powered for statistical significance; p-values are presented as a reference and should be interpreted in combination with the sample size.

Advancing a robust and diversified portfolio



Neurology | Specialized Immunology | Biosimilars

New Phase 1 program: BIIB121 UBE3A ASO in Angelman Syndrome

Expected 2022 Milestones:

- **3 Regulatory Filings:**
  - Lecanemab in Alzheimer's disease (Q2)
  - Zuranolone in MDD (H2)
  - BIIB800 referencing ACTEMRA® (H2)
- **5 Clinical Readouts in 2022**
  - Lecanemab Phase 3 in Alzheimer's (H2)
  - Zuranolone CORAL Phase 3 in MDD (Early)
  - Zuranolone SKYLARK Phase 3 in PPD (Mid)
  - BIIB104 Phase 2 in CIAS (Mid)
  - BIIB078 Phase 1 in C9Orf72 ALS (H1)

* Collaboration program; # Option agreement; MS = multiple sclerosis; ASO = antisense oligonucleotide; ALS = amyotrophic lateral sclerosis; ET = essential tremor; ISWRD = irregular sleep wake rhythm disorder; PD = Parkinson's disease; MSA = Multiple System Atrophy; PPD = postpartum depression; MDD = major depressive disorder; CIAS = cognitive impairment associated with schizophrenia; LHI = large hemispheric infarction; BC = brain contusion; AIS = acute ischemic stroke; TN = trigeminal neuralgia; SFN = small fiber neuropathy; Genetic Neurodev. = genetic neurodevelopmental disorders; AS = Angelman syndrome; SLE = systemic lupus erythematosus; CLE = cutaneous lupus erythematosus

Financial Update

Michael McDonnell

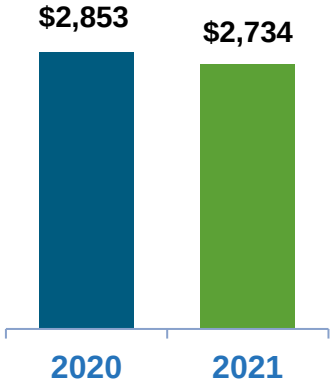
Chief Financial Officer

Biogen

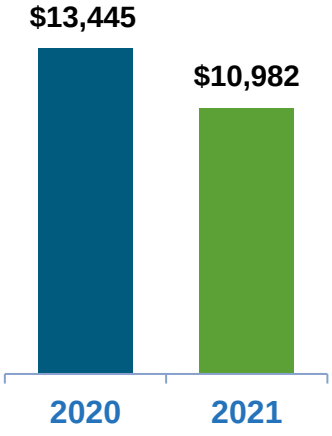
Q4 and full year 2021 financial results

Total Revenues ($M)

Q4

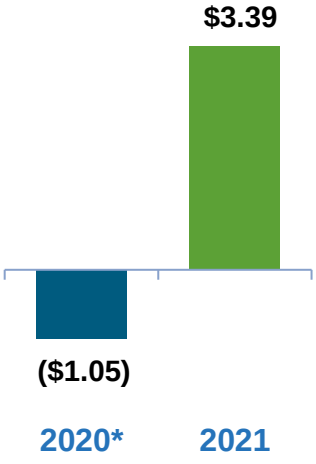


Full Year

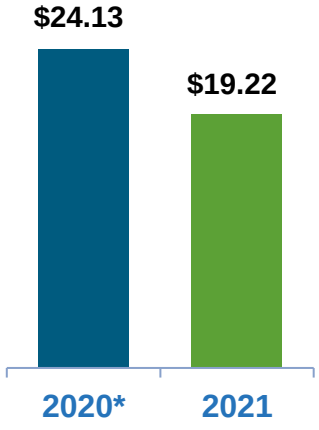


Non-GAAP Diluted EPS ($)

Q4



Full Year



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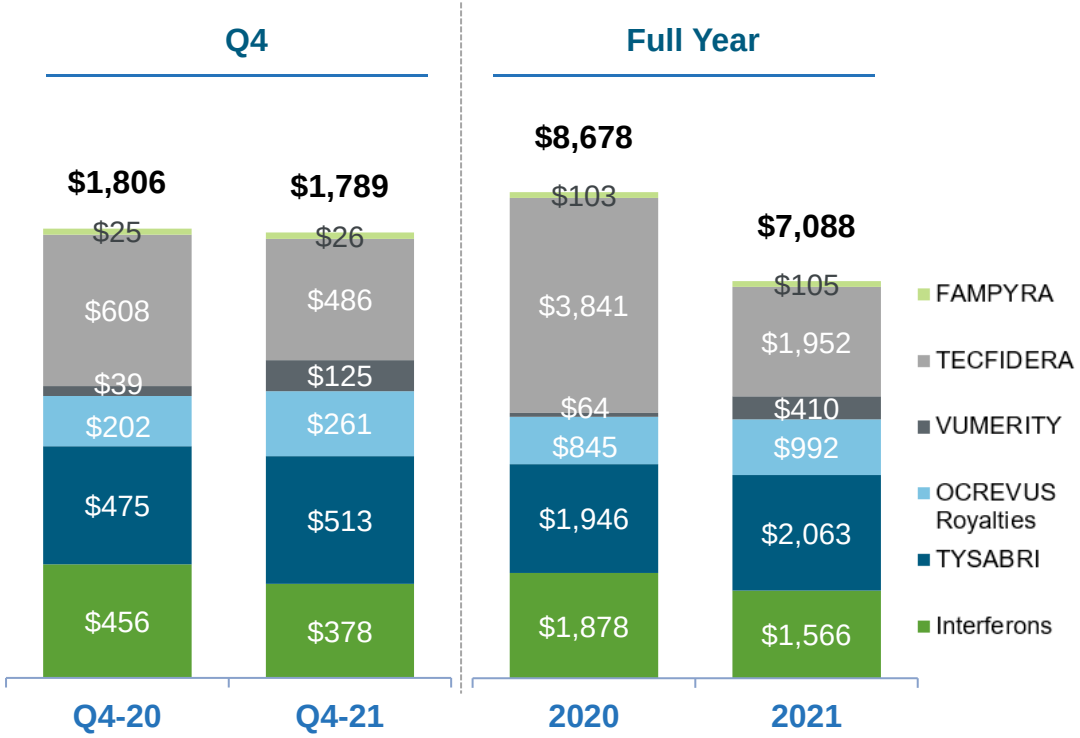
*Beginning in the second quarter of 2021 material upfront payments and premiums paid on the acquisition of common stock associated with significant collaboration and licensing arrangements along with the related transaction costs incurred are no longer excluded from Non-GAAP research and development expense and selling, general and administrative expense. Non-GAAP financial results for 2020 have been updated to include the $1,084.0 million payment related to our collaboration with Sage Therapeutics, Inc. recorded in the fourth quarter of 2020, the $601.3 million payment related to our collaboration with Denali Therapeutics, Inc. recorded in the third quarter of 2020 and the $208.0 million payment related to our collaboration with Sangamo Therapeutics, Inc. recorded in the second quarter of 2020 along with the associated transaction costs and income tax effect.

Biogen

Global multiple sclerosis revenue

MS Revenue ($M)



Numbers may not foot due to rounding.

Q4 2021 Highlights

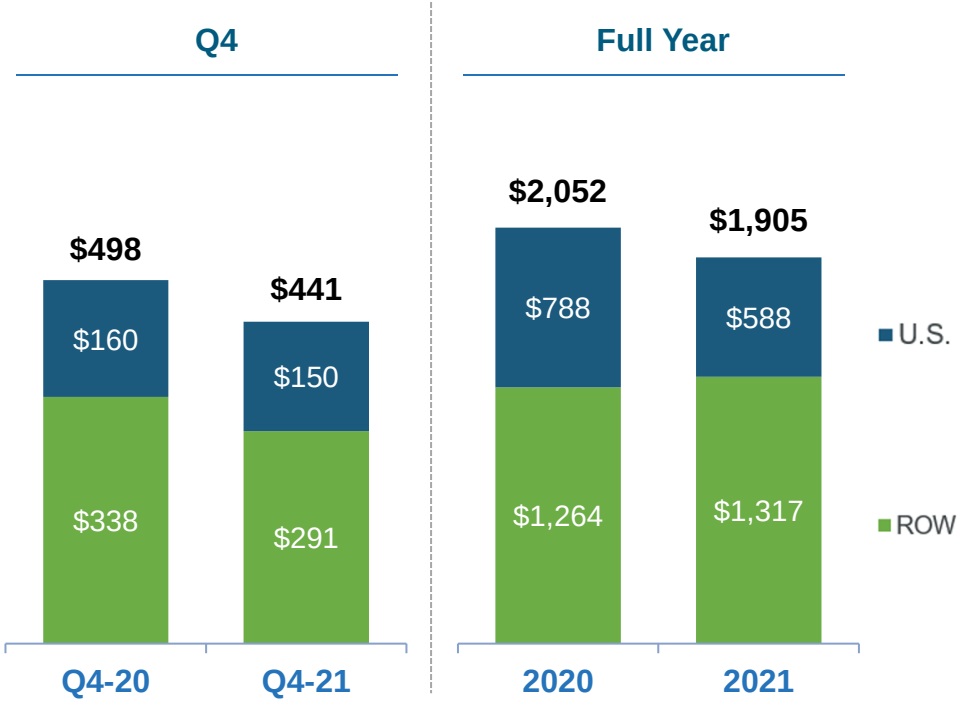
- **TECFIDERA** decreased vs. prior year, impacted by the entrance of multiple generics in the U.S.
- **VUMERITY** continued to grow
  - E.U. approval obtained in Q4 2021 with planned launches across ~20 markets in 2022
- **TYSABRI** increased 8% vs. prior year
- **Interferons** decreased 17% vs. prior year

Full Year 2021 Highlights

- **TECFIDERA** decreased vs. prior year, impacted by the entrance of multiple generics in the U.S.
- **VUMERITY** increased to $410 million
- **TYSABRI** increased 6% vs. prior year
- **Interferons** decreased 17% vs. prior year

Global SPINRAZA revenue

SPINRAZA Revenue ($M)



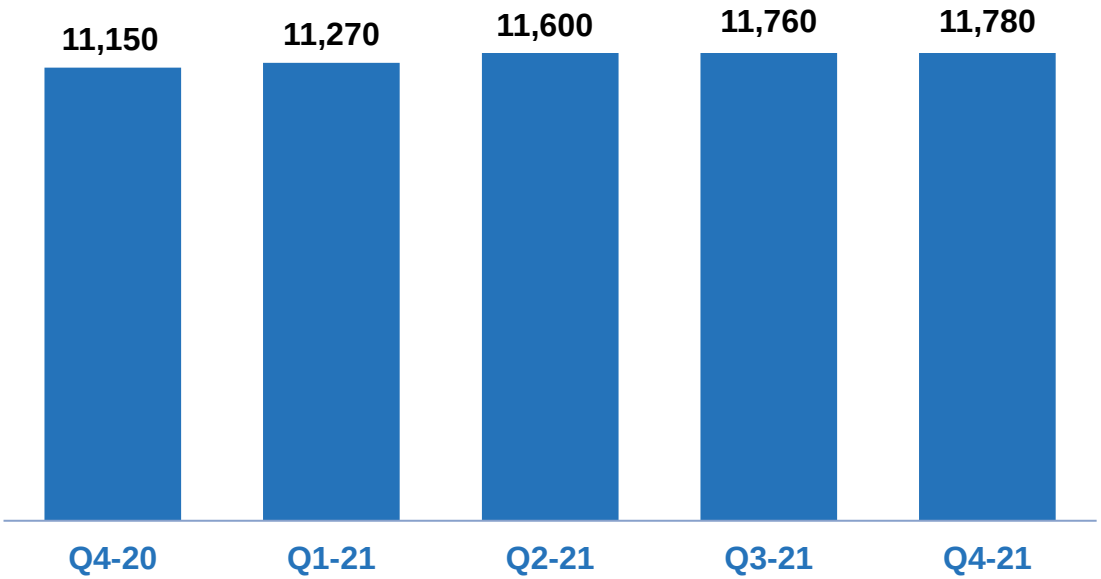
Highlights

- Q4 2021 global SPINRAZA revenue decreased 12% vs. the prior year; impacted by competition
- Q4 2021 U.S. SPINRAZA revenue increased 7% vs. Q3 2021 with favorable pricing and channel dynamics; discontinuations moderated vs. Q3 2021
- Obtained reimbursement for SPINRAZA in China
- Obtained exclusive rights to develop and commercialize BIIB115, a preclinical investigational ASO

Biogen. Numbers may not foot due to rounding.

SPINRAZA patient dynamics

SPINRAZA Patients*



* Biogen data on file. Total patients across the post-marketing setting, the Expanded Access Program, and clinical trials.

U.S. ADUHELM

Q4 2021 Financials

- $1 million revenue
- Collaboration profit sharing includes a net reimbursement of approximately $140 million from Eisai related to the commercialization of ADUHELM in the U.S.

Full Year 2021 Financials

- $3 million revenue
- Collaboration profit sharing includes a net reimbursement of approximately $275 million from Eisai related to the commercialization of ADUHELM in the U.S.

Collaboration Economics & Accounting

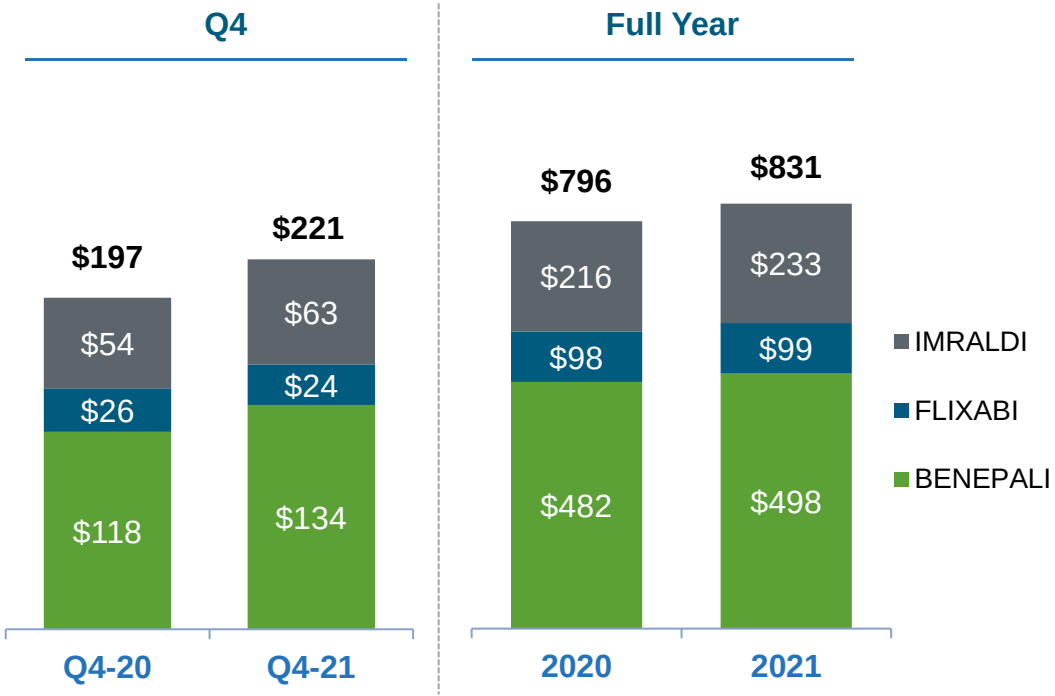
Profit Share	• Biogen 55% / Eisai 45%
Revenue / Cost of Goods Sold	• Biogen books 100% of revenue and cost of goods sold • Eisai's share of gross margin will be reflected in collaboration profit sharing
Royalties	• Biogen will pay Neurimmune royalties ranging from the high single digits to sub-teens based on annual net sales of ADUHELM • Neurimmune royalties are recorded through non-controlling interest and not cost of goods sold, with Eisai's reimbursement reflected in collaboration profit sharing
SG&A Expense	• Prior to regulatory approval: Eisai's reimbursement is recorded as an offset to SG&A expense • After regulatory approval: SG&A expense recorded on a gross basis, with Eisai's reimbursement recognized in collaboration profit sharing
R&D Expense	• All R&D expenditures are recorded net of Eisai's reimbursement within R&D expense, both before and after regulatory approval
Commercial Launch Milestones	• One-time U.S. commercial launch milestone of $100 million paid to Neurimmune in Q2 2021 • After cost sharing with Eisai and taxes, net P&L impact of ~$45 million in Q2 2021

Biogen

Aducanumab is being developed in collaboration with Eisai Co; Ltd.

Biosimilars revenue

Biosimilars Revenue ($M)



Numbers may not foot due to rounding.

Highlights

- Q4 Biosimilars revenue increased 12% vs. prior year with increased volume partially offset by pricing pressure. Q4 2021 benefited from a one-time price adjustment of ~$10 million
- Biogen contributed > €2.6 billion of healthcare savings in 2021 across Europe[1]
- ~ 249,000 patients on Biogen biosimilar products at end of Q4 2021[2]

Pursuing potential new biosimilars

- BYOOVIZ (LUCENTIS® biosimilar) approved in U.S., E.U., and U.K., with U.S. launch planned mid-2022
- SB15 (EYLEA® biosimilar) currently in Phase 3
- BIIB800 (referencing ACTEMRA®) expected regulatory filing in the U.S. and E.U. in 2H22

[1]Biogen estimate, data on file.

[2]Includes ~115,000 patients on BENEPALI, ~94,000 patients on IMRALDI, and ~40,000 patients on FLIXABI.

BYOOVIZ is being developed with Samsung Bioepis Co., Ltd.

BIIB800 is being developed with Bio-Thera Solutions, Ltd.

Biogen to sell equity stake in biosimilar joint venture

Biogen to sell equity stake in biosimilar joint venture with Samsung Bioepis to Samsung Biologics for an aggregate consideration of up to $2.3 billion

Closing of this transaction is currently anticipated in mid-2022*

Biogen will maintain the commercialization rights to current anti-TNF and ophthalmology portfolio while expanding ability to pursue additional biosimilars products independently going forward

Revenue	• Biogen will continue to record revenue and costs associated with the commercialization of BENEPALI, IMRALDI, and FLIXABI • Biogen will retain commercial rights to BYOOVIZ and SB15
Collaboration Profit Sharing	• Biogen and Samsung Bioepis commercialization economics will remain substantially unchanged

*Closing is contingent on the effectiveness of a securities registration statement filed by Samsung Biologics and satisfaction of certain regulatory and other customary closing conditions.

Q4 and full year 2021 revenue highlights

$ in Millions	Q4 2021	Q4 2020	Δ Y/Y	FY 2021	FY 2020	Δ FY/FY
Total Product Revenues*	**$2,194**	**$2,302**	**(5%)**	**$8,847**	**$10,692**	**(17%)**
RITUXAN/GAZYVA Revenues	$153	$217	(29%)	$667	$1,132	(41%)
OCREVUS Royalties	$261	$202	29%	$992	$845	17%
Revenues from Anti-CD20 Therapeutic Programs	**$414**	**$419**	**(1%)**	**$1,659**	**$1,978**	**(16%)**
Other Revenues	$126	$132	(5%)	$476	$775	(39%)
Total Revenues*	**$2,734**	**$2,853**	**(4%)**	**$10,982**	**$13,445**	**(18%)**

Biogen

Numbers may not foot due to rounding. Percent changes represented as favorable/(unfavorable).
* Net of hedge

Q4 and full year 2021 financial results highlights

($ in Millions except EPS, Shares in Millions)	Q4 2021	Q4 2020*	Δ Y/Y	FY 2021	FY 2020*	Δ FY/FY
Revenue	**$2,734**	**$2,853**	**(4%)**	**$10,982**	**$13,445**	**(18%)**
Cost of Sales	$660	$491	(35%)	$2,110	$1,805	(17%)
Gross Profit	**$2,074**	**$2,362**	**(12%)**	**$8,872**	**$11,639**	**(24%)**
% of revenue	76%	83%		81%	87%	
R&D Expense	$700	$1,726	59%	$2,501	$3,991	37%
Non-GAAP SG&A Expense	$785	$803	2%	$2,666	$2,502	(7%)
Collaboration Profit Sharing	($67)	$66	201%	$7	$233	97%
Non-GAAP Amortization	$8	$0	NMF	$15	$0	NMF
Non-GAAP Operating Income (Loss)	**$649**	**($234)**	**377%**	**$3,683**	**$4,914**	**(25%)**
Non-GAAP Other Income (Expense)	($67)	($51)	(32%)	($265)	($187)	(41%)
Non-GAAP Profit (Loss) Before Taxes and JV Equity	**$582**	**($285)**	**305%**	**$3,418**	**$4,727**	**(28%)**
Non-GAAP Taxes	$100	($98)	(202%)	$537	$821	35%
Non-GAAP Taxes %	17.2%	34.6%		15.7%	17.4%	
Non-GAAP JV Equity Income (Loss)	$25	$25	2%	$73	$45	62%
Non-GAAP Net Income (Loss)	**$507**	**($161)**	**414%**	**$2,954**	**$3,951**	**(25%)**
Non-GAAP Net Income (Loss) Attributable to NonControlling Interests	$7	($0)	NMF	$79	$60	33%
Non-GAAP Net Income (Loss) Attributable to Biogen Inc.	**$500**	**($161)**	**411%**	**$2,875**	**$3,891**	**(26%)**
Weighted average diluted shares used in calculating diluted EPS	147	154	4%	150	161	7%
Non-GAAP Diluted EPS	**$3.39**	**($1.05)**	**425%**	**$19.22**	**$24.13**	**(20%)**

Numbers may not foot due to rounding. Percent changes represented as favorable/(unfavorable).
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Biogen

Balance sheet and cash flow

Balance Sheet
(as of December 31, 2021)

$4.7B	Cash and marketable securities
$7.3B	Debt
$2.6B	Net debt

Cash Flow
(FY 2021)

$3.6B	Cash flow from operations
$0.3B	Capital expenditures
$3.4B	Free cash flow*
$1.8B	Share repurchases

*Free cash flow is defined as net cash flow from operations less capital expenditures.

Biogen

Biogen 2022 full year financial guidance

	2022 Guidance
Revenues	**$9.7 billion to $10.0 billion**
Non-GAAP Diluted EPS	**$14.25 to $16.00**

Please see Biogen's Q4 2021 earnings release, available at the Investors section of Biogen's website at investors.biogen.com, for additional 2022 financial guidance assumptions.

Biogen may incur charges, realize gains or losses, or experience other events or circumstances in 2022 that could cause any of these assumptions to change and/or actual results to vary from this financial guidance.

Please see slide 2 of this presentation for additional information on our use of Non-GAAP measures, including forward-looking Non-GAAP financial measures.

Closing Remarks

Michel Vounatsos

Chief Executive Officer

Biogen

Significant opportunity for value creation

Leadership in Alzheimer's disease

- ✓ ADUHELM is the first FDA-approved treatment targeting a defining pathology of Alzheimer's disease
- ✓ Continuing to invest in a leading Alzheimer's portfolio, building on scientific learnings from ADUHELM

Enhanced diversification

- ✓ Expansion beyond neurology – increasing focus on specialized immunology, biosimilars, and digital health technologies
- ✓ Potential for pipeline to generate impactful therapies for patients suffering from serious diseases

Strong financial position

- ✓ Strong balance sheet
- ✓ Significant cash flow with flexibility to allocate capital

Biogen

Note: ADUHELM and lecanemab are being developed in collaboration with Eisai Co., Ltd.

Biogen: Where Science Meets Humanity

- 9th year as biotech leader on **Dow Jones Sustainability World Index**
- 2021 winner of U.S. Chamber of Commerce Foundation's **Best Sustainability Program**
- #11 on Newsweek's **America's Most Responsible Companies** list
- Corporate Knights **Global 100** Index of World's Most Sustainable Corporations
- #36 on JUST Capital's **JUST100**

Environment

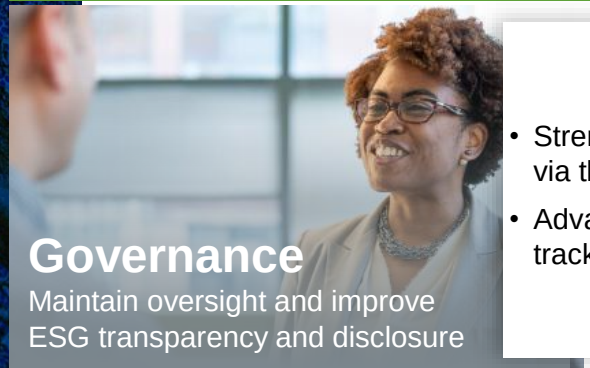
1st *Fortune* 500 to commit to go fossil fuel free with Healthy Climate, Healthy Lives™

- Formed **Healthy Climate, Healthy Lives™ Scientific Advisory Council** to advance research on air pollution and brain health
- Expanded **electric vehicle fleet to 13 countries** and sustained **100% renewable electricity** to power operations

Social

Advance a healthier, more sustainable and equitable world

- Collaborated with Harvard and Americares to complete **climate and health investigation** with healthcare workers across 47 U.S. states
- Celebrated **10th year of Care Deeply employee volunteer** program exceeding 14,900 hours benefitting more than 230 community groups



Governance

Maintain oversight and improve ESG transparency and disclosure

- Strengthened commitment to **DE&I data transparency** by reporting via the **Bloomberg Gender Equality Index** for 1st time
- Advanced **Responsible Supplier Program** with a new tool and tracking mechanism for ESG engagement and compliance

Questions & Answers

Lecanemab (Aβ mAb)

Neurology

PORTFOLIO

AD PIPELINE

- Aducanumab (ADUHELM) – Aβ mAb
- **Lecanemab (Ph3) – Aβ mAb**
- BIIB080 (Ph1) – tau ASO
- BIIB076 (Ph1) – tau mAb

PROPOSED MECHANISM OF ACTION

- Lecanemab is humanized immunoglobulin G1 (IgG1) monoclonal antibody that targets Aβ
- Lecanemab selectively binds to soluble Aβ aggregate species with preferential activity for Aβ protofibrils over fibrils (>10x)

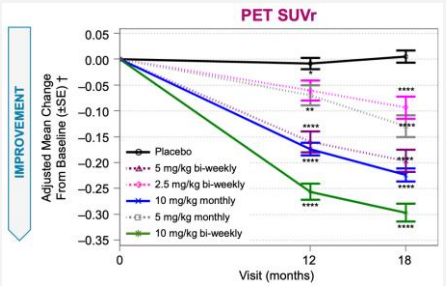
CLINICAL STUDY OVERVIEW

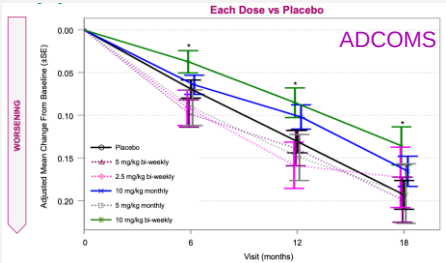
- Study 201 Phase 2b: is a global, placebo-controlled, double-blind, parallel-group, randomized trial with open-label extension
  - Core randomization phase (n=856) with primary endpoint ADCOMS at 12 Months and key secondary endpoints (amyloid PET, ADCOMS, CDR-SB, ADAS-cog, and fluid biomarkers) at 18 months
  - GAP period of 9-59 months (average 24 months) off treatment from end of core phase and initiation of OLE
  - OLE for up to 60 months (ongoing) with 10 mg/kg IV biweekly treatment
- Clarity AD Phase 3: A Phase 3 Placebo-Controlled, Double-Blind, Parallel-Group, 18-Month Study Evaluating Lecanemab (BAN2401) in Early Alzheimer's Disease (n=1766)
  - Primary endpoint CDR-SB at 18 months; Enrollment complete, follow-up ongoing
  - **Phase 3 readout anticipated in H2 2022** with potential to be the first anti-amyloid antibody with full approval in Alzheimer's disease

Current Status:

- AHEAD 3-45 Phase III study in preclinical AD ongoing (n=1400)
- Breakthrough designation in the U.S. with a rolling **submission for accelerated approval expected to complete in Q2 2022**

PHASE 2 CLINICAL DATA[1]





- Dose dependent reduction in amyloid PET values (Florbetapir tracer)
- At 18 months, 10-mg/kg biweekly lecanemab reduced brain amyloid (-0.306 SUVr units)
- Lecanemab significantly reduced amyloid PET values across all doses and converted subjects from amyloid positive to negative across most doses based on visual read
- >80% amyloid negative by visual read for 10 mg/kg IV biweekly at 18 months (Swanson, 2018)
- Dose and time dependent reduction in decline on ADCOMS; starting at 6 months of lecanemab treatment showing a drug-placebo difference in favor of active treatment by 30% at 18 months in the 10 mg/kg biweekly cohort
- The rate of amyloid-related imaging abnormalities-edema/effusion (ARIA-E), an adverse event associated with amyloid targeted therapies, for the 10 mg/kg biweekly dosing was 9.9%.

1 Swanson et al., AAIC 2018

Note: Aducanumab and lecanemab are being developed in collaboration with Eisai Co., Ltd

Tofersen (SOD1 ALS ASO)

Neurology

PORTFOLIO

ALS PIPELINE

- Genetic ALS:
  - **Tofersen (Ph3) – SOD1 ASO**
  - BIIB078 (Ph1) – C9ORF ASO
- Broad ALS:
  - BIIB105 (Ph1) – Ataxin2 ASO
  - BIIB100 (Ph1) – XPO1 small molecule inhibitor

PROPOSED MECHANISM OF ACTION

- Mutations in the SOD1 gene lead to accumulation of toxic SOD1 protein
- Tofersen mediates RNase H-dependent degradation of SOD1 mRNA to reduce synthesis of SOD1 protein

CLINICAL STUDY OVERVIEW

- Phase 1/2 multiple-ascending-dose study data, demonstrating target engagement and suggesting clinical effect, published in NEJM in Jul 2020
- Phase 3 VALOR study in symptomatic SOD1-ALS read out in October 2021 [NCT02623699]
- Open-label extension (OLE) study designed to evaluate the long-term benefit/risk of tofersen is ongoing
- ATLAS study initiated in June 2021; designed to evaluate if initiation of tofersen in pre-symptomatic SOD1 mutation carriers with biomarker evidence of disease activity can delay onset of clinical symptoms or signs of ALS [NCT04856982]

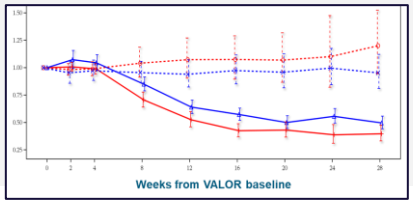
Current Status:

- Further analysis and dissemination of VALOR and OLE data underway
- Engaged with regulators to determine next steps for the program

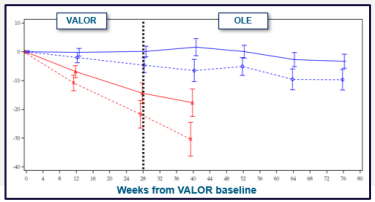
PHASE 3 VALOR DATA

- While statistical significance was not achieved on the primary endpoint of ALSFRS-R at 6 months in VALOR, consistent trends favoring tofersen were seen across secondary measures including CSF SOD1 (a marker of target engagement), plasma NfL (a potential marker of neuronal degeneration), SVC (respiratory function), HHD (muscle strength), as well as exploratory quality of life measures
- These trends became more apparent with longer-term follow-up in the OLE, where earlier initiation of tofersen led to slowing of decline in faster-progressing participants and stabilization of clinical function in slower-progressing participants
- The most common adverse events (AEs) in participants receiving tofersen were procedural pain, headache, pain in extremity, fall and back pain. In tofersen group, 5.6% discontinued treatment due to AEs vs 0% in placebo. Serious neurologic events were reported in 4.8% of patients, including 2 cases of myelitis (2.0%).

LS geometric mean ratio to baseline of plasma NfL



Adjusted mean (±SE) change in % predicted SVC



Miller and Cudkowicz, ANA 2021

ALSFRS-R = revised ALS Functional Rating Scale; SAE = serious adverse event; SOD1 = superoxide dismutase 1

Zuranolone ($GABA_A$ PAM) – Major Depressive Disorder

Neurology

PORTFOLIO

NEUROPSYCHIATRY PIPELINE

- **Zuranolone (Ph3) – MDD**
- Zuranolone (Ph3) – PPD
- BIIB104 (Ph2) – CIAS

PROPOSED MECHANISM OF ACTION

- Zuranolone is a synthetic neuroactive steroid $GABA_A$ receptor positive allosteric modulator with novel MOA
- Zuranolone modulates both synaptic and extrasynaptic $GABA_A$ receptors and is hypothesized to impact dysregulated neural networks with the aim of providing clinical benefit in depression

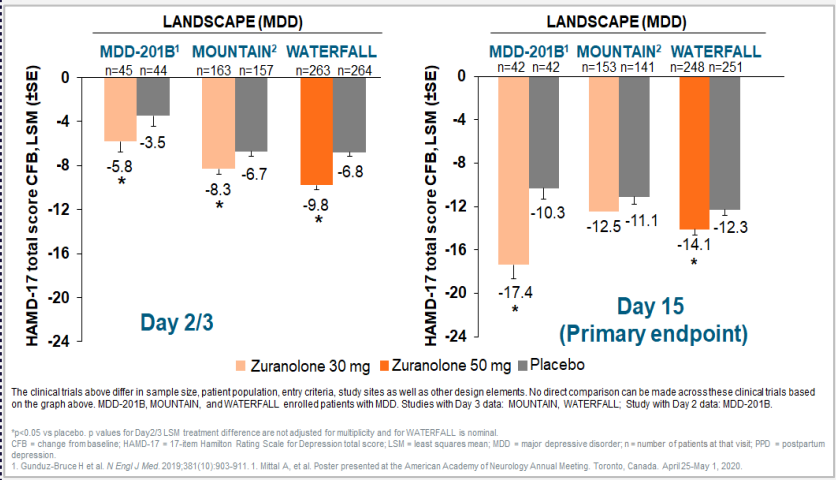
CLINICAL STUDY OVERVIEW

- The LANDSCAPE Program includes 1 Phase 2 study and 4 Phase 3 studies of zuranolone in patients with MDD
- MDD-201B:(102 patients) A Phase 2, double-blind, placebo-controlled study evaluating the safety, tolerability, PK and efficacy of zuranolone 30 mg in the treatment of adults with moderate to severe MDD. Study met is primary endpoint [NCT03000530]
- MDD-301A (MOUNTAIN): (581 patients) A Phase 3, double-blind, placebo-controlled study evaluating the efficacy of zuranolone 30 mg and 20mg in the treatment of adults with MDD. Study missed the primary endpoint at Day 15, but demonstrated sig. improvements at every earlier timepoint (Days 3, 8 and 12) and provides supportive information [NCT03672175]
- MDD-301B (WATERFALL): (542 patients) a Phase 3, double-blind, placebo-controlled study evaluating the efficacy of zuranolone 50mg in treatment of adults with MDD. Study met its primary endpoint [NCT04442490]

Current Status:

- **Ongoing:** MDD-303 (SHORELINE): (target 1550 patients) a Phase 3 open-label study evaluating repeat treatments of zuranolone (up to 50 mg) over the course of one year in adults with MDD. In Q4-2021, an interim readout of a cohort of 199 patients receiving 50 mg showed no new safety findings. [NCT03864614]
- **Ongoing:** MDD-305 (CORAL) (target 424 patients) a Phase 3 double-blind, placebo-controlled study comparing the efficacy and safety of zuranolone 50 mg co-initiated with an antidepressant versus placebo co-initiated with an antidepressant in adults with MDD. [NCT04476030] ***Readout expected in early 2022***
- ***NDA filing for zuranolone in MDD expected to complete in H2 2022***

CLINICAL DATA



The clinical trials above differ in sample size, patient population, entry criteria, study sites as well as other design elements. No direct comparison can be made across these clinical trials based on the graph above. MDD-201B, MOUNTAIN, and WATERFALL enrolled patients with MDD. Studies with Day 3 data: MOUNTAIN, WATERFALL; Study with Day 2 data: MDD-201B.

*p<0.05 vs placebo. p values for Day2/3 LSM treatment difference are not adjusted for multiplicity and for WATERFALL is nominal.
CFB = change from baseline; HAMD-17 = 17-item Hamilton Rating Scale for Depression total score; LSM = least squares mean; MDD = major depressive disorder; n = number of patients at that visit; PPD = postpartum depression.
1. Gunduz-Bruce H et al. *N Engl J Med*. 2019;381(10):903-911. 1. Mittal A, et al. Poster presented at the American Academy of Neurology Annual Meeting. Toronto, Canada. April25-May 1, 2020.

Zuranolone was generally well tolerated in clinical studies to date. The most common treatment-emergent adverse events observed with zuranolone across the program were somnolence, dizziness, headache, and sedation. Among patients with MDD and PPD treated with zuranolone <5% discontinued treatment due to AEs

Note: zuranolone is being developed in collaboration with Sage Therapeutics, Inc.
CIAS = cognitive impairment associated with schizophrenia; $GABA_A$ = γ-Aminobutyric acid type A receptor ; MDD = major depressive disorder; PAM = positive allosteric modulator; PPD = postpartum depression; AE = adverse event

Zuranolone ($GABA_A$ PAM) – Postpartum Depression

Neurology

PORTFOLIO

NEUROPSYCHIATRY PIPELINE

- Zuranolone (Ph3) – MDD
- **Zuranolone (Ph3) – PPD**
- BIIB104 (Ph2) – CIAS

PROPOSED MECHANISM OF ACTION

- Zuranolone is a synthetic neuroactive steroid $GABA_A$ receptor positive allosteric modulator with novel MOA profile
- Zuranolone modulates both synaptic and extrasynaptic $GABA_A$ and is hypothesized to impact dysregulated neural networks with the aim of providing clinical benefit in depression

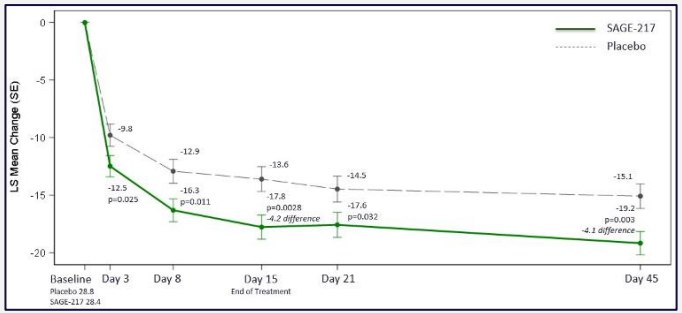
CLINICAL STUDY OVERVIEW

- The NEST Program includes two Phase 3 studies of zuranolone in patients with PPD.
- PPD-201B (ROBIN): (153 patients randomized) a Phase 3 double blind, placebo-controlled study of the efficacy, safety and pharmacokinetics of zuranolone 30mg in adult females diagnosed with severe PPD. Study completed in 2018 and met its primary endpoint, demonstrating improvement in core symptoms and supporting further development [NCT02978326]

Current Status:

- **Ongoing:** PDD-301 (SKYLARK) - (target 192 patients) a Phase 3 double-blind, placebo-controlled study evaluating the efficacy and safety of zuranolone 50 mg in adult females diagnosed with severe PPD. [NCT04442503] ***Readout expected in mid-2022***
- ***NDA filing anticipated in the H1 2023***

PHASE 3 ROBIN Data[1]



LS mean change from baseline in HAMD-17 total score. Placebo n=74, Zuranolone 30 mg n=76. p values provided for secondary endpoints were not adjusted for multiplicity. HAMD-17 = 17-item Hamilton Depression Rating Scale; LS = least squares; SE = standard error.

Adult patients with PPD who received treatment with zuranolone 30 mg had statistically significant improvement in depressive symptoms compared with placebo as assessed by CFB in HAMD-17 total score at Day 15.

- Improvements in depressive symptoms were observed as early as Day 3.
- Improvements in depressive symptoms were observed to be maintained at Day 45.

The most common adverse events (≥5%) with zuranolone were somnolence (15.4% vs 11.0%, zuranolone vs placebo), headache (9.0% vs 12.3%), dizziness (7.7% vs 5.5%), upper respiratory tract infection (7.7% vs 1.4%), diarrhea (6.4% vs 2.7%), and sedation (5.1% vs 0%). One participant in the zuranolone group had an AE of intermittent sedation leading to drug discontinuation; no other participant discontinued study drug.

Note: Zuranolone is being developed in collaboration with Sage Therapeutics, Inc.;

1 Deligiannidis et al. JAMA Psych 2021; 78(9):951-959

CIAS = cognitive impairment associated with schizophrenia; $GABA_A$ = γ-Aminobutyric acid type A receptor; MDD = major depressive disorder; PAM = positive allosteric modulator; PPD = postpartum depression; CFB = change from baseline; AE = adverse event

Sage Therapeutics® Biogen

BIIB093 (IV glibenclamide)

Neurology

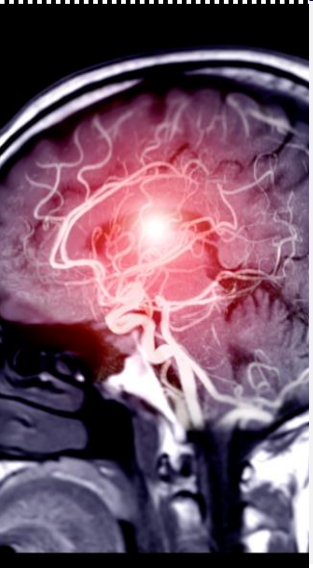
PORTFOLIO

NEUROVASCULAR PIPELINE

- **BIIB093 (Ph3) – Large Hemispheric Infarction (LHI)**
- BIIB093 (Ph2) – Brain Contusion (BCN)
- BIIB131 (Ph2) – Acute Ischemic Stroke (AIS)

PROPOSED MECHANISM OF ACTION

- BIIB093 inhibits the SUR1-TRPM4 non-selective cation channel which is upregulated in the CNS during ischemia and reduces cerebral edema
- Data from Phase 2 in patients suffering from LHI demonstrated improvements in mortality at 30 days and reduction of midline shift within 96 hours



CLINICAL STUDY OVERVIEW

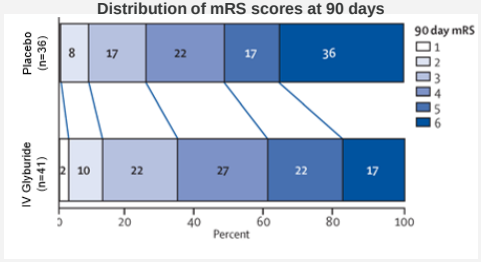
- A first of its kind, randomized, double-blind, placebo-controlled, parallel-group, global, Phase 3 study to evaluate BIIB093's safety and efficacy in LHI patients
- Study population: Acute ischemic stroke patients aged 18 to ≤ 85 years (N=768 of which n=80 are aged 70-85) at risk of severe cerebral edema due to LHI
- BIIB093 or placebo administered as intravenous (IV) infusion over 72 hours with dosing started within 10 hours of last known normal
- Primary endpoint is 90 Day mRS

Current Status:

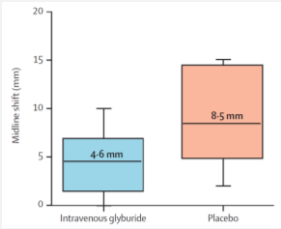
- Phase 3 CHARM study ongoing [NCT02864953]

PHASE 2 CLINICAL DATA

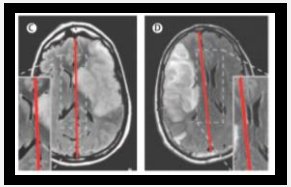
Distribution of mRS scores at 90 days



Reduction in Midline Shift- at 72-96 hours (Tertiary Endpoint)



- Primary endpoint: mRS score of 0–4 at 90 days without decompressive craniectomy; OR = 1.91 did not meet statistical significance.
- 31 subjects (70.5%) in the BIIB093 group and 28 subjects (71.8%) in the placebo group experienced SAEs. 4 SAEs of hypoglycemia (all asymptomatic) occurred in the BIIB093 group vs. 0 in the placebo group - all resolved on the same day with glucose supplementation and/or reduction in study drug dose.
- Mortality at 90 days was 17% and 36% for BIIB093 and placebo groups, respectively



SUR1-TRPM4 = sulfonylurea receptor 1-transient receptor potential melastatin 4

BIIB131 (formerly TMS-007)

Neurology

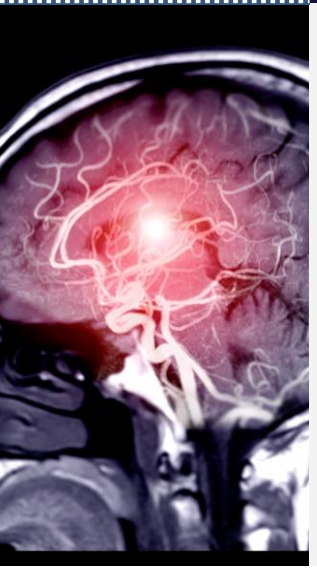
PORTFOLIO

NEUROVASCULAR PIPELINE

- ❖ BIIB093 (Ph3) – Large Hemispheric Infarction (LHI)
- ❖ BIIB093 (Ph2) – Brain Contusion (BCN)
- ❖ **BIIB131 (Ph2) – Acute Ischemic Stroke (AIS)**

PROPOSED MECHANISM OF ACTION

- BIIB131 is a novel thrombolytic small molecule with putative dual clot-dissolving and anti-inflammatory properties, by enhancing plasminogen-fibrin binding and soluble epoxide hydrolase inhibition
- Data from Phase 2a in patients with AIS demonstrated radiographic evidence of vessel recanalization, improvement in patient functional outcomes as measured by modified Rankin Scale, and no symptomatic intracranial hemorrhage



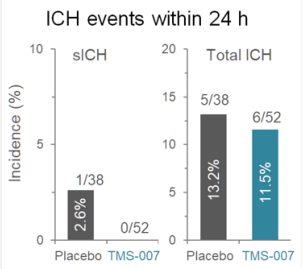
CLINICAL STUDY OVERVIEW

- Phase 2a, randomized, double-blind, placebo-controlled, dose escalation study to evaluate the safety, efficacy, PK, PD, and mechanisms of action of BIIB131 [JapicCTI-183842]
- Study population: Acute Ischemic Stroke adult patients (N=90) within 12 hours of symptom onset and <88 years old
- BIIB131 or placebo was administered as a single IV infusion over 30 minutes; dose cohorts of 1, 3 and 6mg/kg with maximum dose of 360mg
- The primary endpoint was the incidence of symptomatic intracranial hemorrhage with NIHSS deterioration of ≥4-point at 24 hours

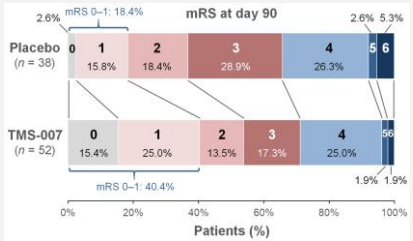
Current Status:

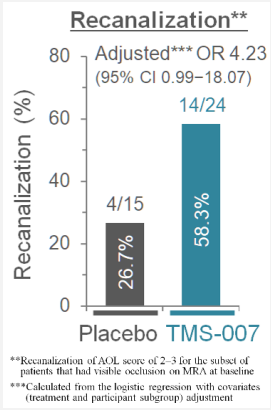
- Ph 2a study completed; further clinical studies to confirm safety and efficacy up to 24 hours of symptom onset are under development

PHASE 2a* CLINICAL DATA



sICH with worsening of NIHSS ≥4 points: zero (0%) in BIIB131 groups and one (2.6%) in the placebo group





* Study conducted by TMS Co., LTD

mRS = modified Rankin Scale; sICH = symptomatic intracranial hemorrhage; NIHSS = National Institutes of Health Stroke Scale; OR = odds ratio

Dapirolizumab Pegol (anti-CD40L)

Specialized Immunology

PORTFOLIO

LUPUS PIPELINE

- **Dapirolizumab Pegol (Ph3) – Systemic Lupus Erythematosus**
- BIIB059 (Ph3) – Systemic Lupus Erythematosus
- BIIB059 (Ph2) – Cutaneous Lupus Erythematosus

PROPOSED MECHANISM OF ACTION

- Dapirolizumab pegol (DZP) is a polyethylene glycol (PEG)-conjugated anti-CD40L Fab' fragment, lacking a functional Fc domain
- The inhibition of CD40-CD40L interactions suppresses inflammation by reducing B cell, T-cell and APC activation, the production of pathogenic autoantibodies, and inflammatory events that can lead to organ damage accrual

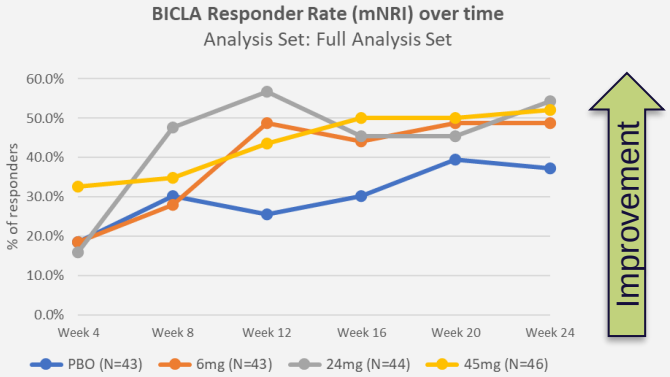
CLINICAL STUDY OVERVIEW

- Ph3 double-blind, multi-center, randomized, placebo-controlled, parallel group, global study, to evaluate the efficacy and safety of DZP in patients (N=450) with moderately to severely active SLE despite standard of care treatment. (NCT04294667)
- Primary endpoint is achievement of BICLA response at week 48.
- In the Ph2 SLE study[1], although the primary endpoint was not met, DZP exhibited improvements across multiple clinical and immunological measures of disease activity after 24-weeks compared with placebo
  - TEAEs and serious TEAEs were generally balanced across treatment groups during the 24-week double-blind period; more upper respiratory tract infections were observed with DZP compared with placebo (e.g., nasopharyngitis 10.2% vs 4.4% and pharyngitis 8.0% vs 2.2% of patients for DZP and placebo, respectively).
- UCB/Biogen are reinforcing their commitment to the inclusion of under-represented groups in our clinical trials. Enrollment targets have been set to reflect the prevalence of SLE in black / African American and Hispanic communities.

Current Status:

- Ph3 ongoing; First patient dosed August 2020

BICLA RESULT FROM PHASE 2 STUDY[1]



[1] Furie et al. Presented at EULAR in June 2019 (Madrid, Spain)

Note: Dapirolizumab is being developed in collaboration with UCB; SLE = systemic lupus erythematosus; BICLA = British Isles Lupus Assessment Group-based Composite Lupus Assessment; TEAE = treatment-emergent adverse events

BIIB059 (Anti-BDCA2 mAb) – Systemic Lupus Erythematosus

Specialized Immunology

PORTFOLIO

LUPUS PIPELINE

- Dapirolizumab Pegol (Ph3) – Systemic Lupus Erythematosus
- **BIIB059 (Ph3) – Systemic Lupus Erythematosus**
- BIIB059 (Ph2) – Cutaneous Lupus Erythematosus

PROPOSED MECHANISM OF ACTION

- BIIB059 is a humanized IgG1 monoclonal antibody (mAb) targeting blood dendritic cell antigen 2 (BDCA2)
- BDCA2 is an inhibitory receptor exclusively expressed on subset of human immune cells plasmacytoid dendritic cells (pDC)
- BIIB059 has been shown to reduce inflammatory cytokine production from pDCs, including type-I IFN. Inflammatory mediators are thought to play a major role in the pathogenesis of lupus

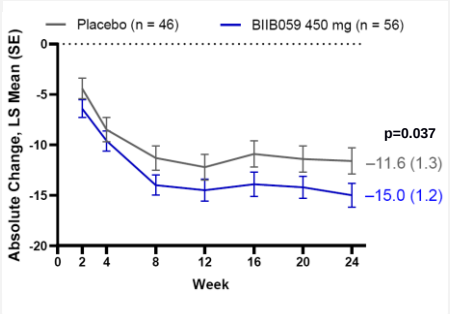
CLINICAL STUDY OVERVIEW

- Ph2 LILAC study met its primary endpoints, demonstrating a statistically significant reduction of disease activity in patients with SLE and CLE.
- Global Phase 3 TOPAZ-1 and TOPAZ-2 studies will evaluate the efficacy and safety of BIIB059, as compared to placebo, in active systemic lupus erythematosus (SLE).
- BIIB059 enrollment targets are set to reflect the prevalence of SLE in black / African American and Hispanic communities with the aim to achieve appropriate representation in the TOPAZ-1 and -2 studies.

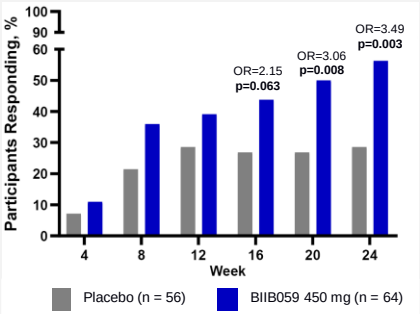
Current Status:

- TOPAZ-1 achieved FPI in June 2021; TOPAZ-2 achieved FPI in August 2021 [NCT04895241 NCT04961567]

PHASE 2: CHANGE IN TOTAL ACTIVE JOINT COUNT AT WEEK 24 (Primary Endpoint)



PHASE 2: SLE RESPONDER INDEX-4 RESPONSE RATE AT WEEK 24



Furie et al., ACR 2020

- Rates of adverse events in LILAC part A were similar in placebo (67.9%) and BIIB059 (59.2%) treatment groups
- AEs in the Infections and Infestations System Organ Class occurred in 39.3% and 35.5% of participants receiving placebo and BIIB059, respectively

SLE = systemic lupus erythematosus; CLE = Cutaneous Lupus Erythematosus; IgG1 = Immunoglobulin G1; pDC = plasmacytoid dendritic cell; BDCA2 = blood dendritic cell antigen 2; FPI = first patient in; IFN = Interferon

BIIB059 (Anti-BDCA2 mAb) – Cutaneous Lupus Erythematosus

Specialized Immunology

PORTFOLIO

LUPUS PIPELINE

- Dapirolizumab Pegol (Ph3) – Systemic Lupus Erythematosus
- BIIB059 (Ph3) – Systemic Lupus Erythematosus
- **BIIB059 (Ph2) – Cutaneous Lupus Erythematosus**

PROPOSED MECHANISM OF ACTION

- BIIB059 is a humanized IgG1 monoclonal antibody (mAb) targeting blood dendritic cell antigen 2 (BDCA2)
- BDCA2 is an inhibitory receptor exclusively expressed on subset of human immune cells plasmacytoid dendritic cells (pDC)
- BIIB059 has been shown to reduce inflammatory cytokine production from pDCs, including type-I IFN. Inflammatory mediators are thought to play a major role in the pathogenesis of lupus

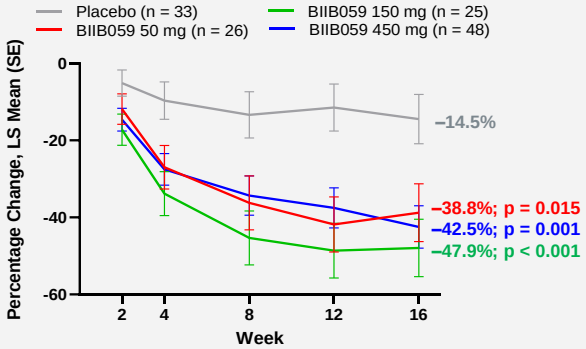
CLINICAL STUDY OVERVIEW

- Ph2 LILAC study met its primary endpoints, demonstrating a statistically significant reduction of disease activity in patients with SLE and CLE.
  - BIIB059 demonstrated a dose response on the percent change from baseline in the Cutaneous Lupus Erythematosus Disease Area and Severity Index Activity (CLASI-A) score at week 16 in people with CLE.
- Safety and tolerability data further support the continued development of BIIB059
  - Rates of adverse events in LILAC part B were similar in the placebo (66.7%) and pooled BIIB059 (71.7%) treatment groups
  - AEs in the Infections and Infestations System Organ Class occurred in 30.3% and 34.3% of participants receiving placebo and BIIB059, respectively

Current Status:

- Currently planned pivotal study start in CLE in 2022.

PHASE 2: CHANGES IN CLASI-A SCORES FROM BASELINE TO WEEK 16

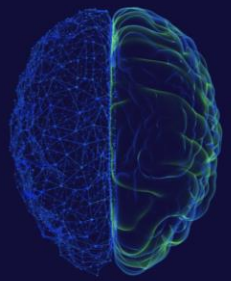


Werth et al., ACR 2020

SLE = systemic lupus erythematosus; CLE = Cutaneous Lupus Erythematosus; IgG1 = Immunoglobulin G1; pDC = plasmacytoid dendritic cell; BDCA2 = blood dendritic cell antigen 2; FPI = first patient in; CLASI-A = Cutaneous Lupus Erythematosus Disease Area and Severity Index – Activity; IFN = Interferon

Biogen Digital Health

Digital Health



PORTFOLIO FOCUS

- ❖ Digital Biomarkers
- ❖ Personalized Medicine
- ❖ Patient Pathway improvement
- ❖ Digital Therapeutics

Disease Area: Multiple Sclerosis

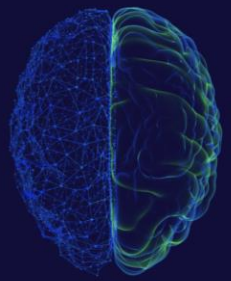
Programs in Development	Stage	Focus	Description
Cleo/Aby – *Digital Companion*	Launched	Monitoring & Self Management	Cleo (Aby in North America) is a digital care companion app to help people live with Multiple Sclerosis. It provides information, tips, symptoms tracking, reminders, tailored to individuals.
MS PATHS – *Research Network*	Launched	Clinical Development & RWE; Treatment & Decision Support; Diagnosis	Uses advanced technologies to generate & collect standardized patient data during routine office visits potentially resulting in a large, high definition and diverse real-world MS cohort.
MS Performance Test – *Digital Biomarkers*	Launched	Clinical Development & RWE; Treatment & Decision Support	In-clinic assessment tool that aims to objectively quantify the major motor, visual, and cognitive systems, as well as quality of life and disease history for patients with MS. HCPs can access patient results at the point of care.
Konectom MS – *Digital Biomarkers*	Market-Scientific Validation	Clinical Development & RWE; Treatment & Decision Support; Monitoring	Smartphone-based digital measurement platform that aims to assess key neurological functions such as cognition, fine and gross motor control, walk, quality of life and mobility in clinical studies, in-clinic or remotely. [DigiTOMS KONECT-MS]
MS Lesion Classifier – *Imaging AI**	Concept & Feasibility	Clinical Development & RWE; Treatment & Decision Support	Clinical software using machine learning model that potentially may categorize multiple sclerosis MRI lesions by lesion type using single time point data.

*Collaboration with TheraPanacea

HCP = healthcare provider; MS = multiple sclerosis; RWE = real-world evidence; T&D = treatment and decision; MRI = magnetic resonance imaging; AI = artificial intelligence

Biogen Digital Health

Digital Health



PORTFOLIO FOCUS

- ❖ Digital Biomarkers
- ❖ Personalized Medicine
- ❖ Patient Pathway improvement
- ❖ Digital Therapeutics

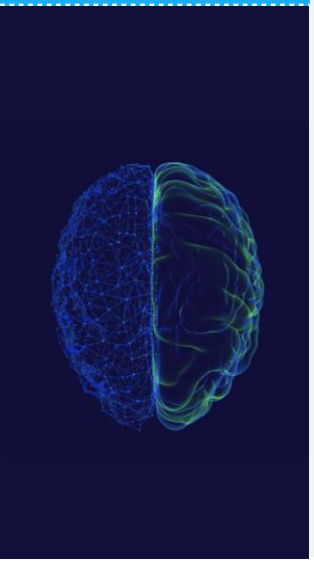
Disease Area: Alzheimer's Disease and Dementia

Programs in development	Stage	Focus	Description
Intuition – *Digital Biomarkers*	Market-Scientific Validation	Clinical Development & RWE; Primary Prevention & Screening	[INTUITION Study]: Virtual, observational study leveraging the Apple Watch, iPhone, and CANTAB battery to potentially discover digital biomarkers for MCI screening and may track cognitive changes in adults.
AI ARIA Identification – *Imaging AI*	Design & Development	Clinical Development & RWE; Treatment & Decision Support	AI-squared may be integrated in radiologist workflow/PACS and aims to provide validated, automated MRI assessment report of quantification, severity status and location of ARIA-H and ARIA-E events.
Vulcan – *Digital Companion*	Concept & Feasibility	Monitoring & Self Management	Potentially provide scalable solution to aid patients with MCI / AD and caregivers in navigating complex care journey and providing emotional support.

ARIA – E/H = amyloid related imaging abnormality – edema / hemorrhage; MCI = mild cognitive impairment; HCP = healthcare provider: RWE = real-world evidence; AI = artificial intelligence

Biogen Digital Health

Digital Health



PORTFOLIO FOCUS

- ❖ Digital Biomarkers
- ❖ Personalized Medicine
- ❖ Patient Pathway improvement
- ❖ Digital Therapeutics

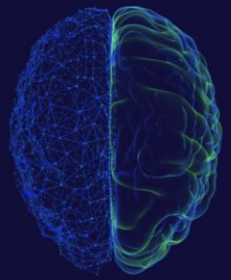
Disease Area: Neuromuscular Disorders

Programs in development	Stage	Focus	Description
Konectom NMD – *Digital Biomarkers*	Market-Scientific Validation	Clinical Development & RWE; Treatment & Decision Support; Monitoring	Smartphone app that aims to assess key neurological functions such as cognition, fine and gross motor control, walk, quality of life and mobility in clinical studies, in-clinic, or remotely.
Physio.me – *Digital Companion*	Design & Development	Treatment & Decision Support; Monitoring & Self Management	Digital physiotherapy companion that offers to perform at-home, tailored, secure exercise so NMD patients can potentially achieve their goals, measure progress and share progress with their care team.
Capsule – *VR solution*	Design & Development	Treatment & Decision Support	Evidence-based medical device that combines immersion through virtual reality technology and medical hypnosis to potentially alleviate anxiety related to intrathecal injection procedures.

NMD = neuromuscular diseases RWE = real world evidence; VR = virtual reality

Biogen Digital Health

Digital Health



PORTFOLIO FOCUS

- ❖ Digital Biomarkers
- ❖ Personalized Medicine
- ❖ Patient Pathway improvement
- ❖ Digital Therapeutics

Disease Area: Movement Disorders

Program in development	Stage	Focus	Description
PD Progression Score – *Digital Biomarkers*	Concept & Feasibility	Clinical Development & RWE; Monitoring & Self Management	PD Meaningful Progression Digital Score is a disease score enabled by a machine learning algorithm to potentially measure change in Parkinson's disease and its progression.

Disease Area: Neuropsychiatry

Program in development	Stage	Focus	Description
Zephiro – *Digital Companion*	Concept & Feasibility	Treatment & Decision Support; Monitoring & Self Management	Digital patient support companion aiming to provide personalized and evidence-based support including relapse detection to major depressive disorder care.

PD = Parkinson's disease; RWE = real-world evidence; T&D = treatment and decision

BYOOVIZ™ (referencing LUCENTIS®)

Biosimilars

Reference Molecule

BIOSIMILARS PIPELINE

- BYOOVIZ™ [SB11[i]] Approved – referencing LUCENTIS®
- Approvals secured by FDA, EMA, MHRA in 2H 2021

[i] SB11 refers to the Samsung Bioepis product candidate name

ORIGINATOR MARKET L12M Revenue (US/ROW), $M:

- Lucentis®: $1,500M US / $2,200M ROW[1]

PROPOSED MECHANISM OF ACTION

BYOOVIZ™ binds with high affinity to vascular endothelial growth factor (VEGF)-A isoforms (e.g. VEGF110, VEGF121 and VEGF165), thereby preventing binding of VEGF-A to its receptors VEGFR-1 and VEGFR-2. Binding of VEGF-A to its receptors leads to endothelial cell proliferation and neovascularisation, as well as vascular leakage, all of which are thought to contribute to the progression of the neovascular form of age-related macular degeneration, pathologic myopia and CNV 9 or to visual impairment caused by either diabetic macular oedema or macular oedema secondary to retinal vein occlusion in adults.

CLINICAL STUDY OVERVIEW

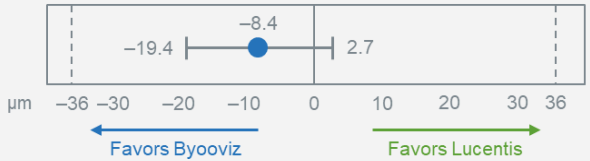
- A randomized, double-blind, parallel-group, phase III study trial conducted in 75 centers in 9 countries globally from March 2018 to December 2019
- Patients with nAMD were randomized (1:1) to receive either SB11 (n=351) or ranibizumab (Lucentis®) (n=354)
- Primary endpoints were:
  - Change from baseline BCVA to BCVA at Week 8 in the FAS (for US FDA and Korean MFDS)
  - change from baseline CST to CST at Week 4 in the PPS-CST (for EMA)
- Secondary endpoints included change from baseline in BCVA, CST, CRLT, CNV size, active CNV leakage up to week 52, in addition to safety (ocular and non-ocular adverse events), immunogenicity and pharmacokinetics.
- The safety, pharmacokinetics, and immunogenicity profiles were comparable between treatment groups. Observed treatment-emergent adverse events (TEAEs) were consistent with ranibizumab's safety profile, with "intraocular pressure increased" as the only ocular TEAE occurring in ≥5% of participants. The most common non-ocular TEAEs were nasopharyngitis and hypertension. The most frequently reported AEs of special interest were increased intraocular pressure (SB11, 1 [0.3%]; ranibizumab, 6 [1.7%]) and iridocyclitis (SB11, 3 [0.9%]).

CLINICAL DATA OVERVIEW[2]

Difference of mean change in BCVA at Week 8

Whiskers represent the 90% CI. Dashed lines represent the predefined equivalence margins of [-3 to 3 letters],

Difference of mean change in CST at week 4



Whiskers represent the 95% CI. Dashed lines represent the predefined equivalence margin of [-36 to 36 µm],

nAMD = neovascular age-related macular degeneration; BCVA = best corrected visual acuity; FAS = full analysis set; MFDS = Ministry of Food and Drug Safety; CST = central subfield thickness; PPS-CST = per-protocol set –CST; CNV = choroidal neovascularization; CRLT = central retinal lesion thickness; CI = confidence interval. Note: Biosimilar indications may vary by product or region

Source: [1]Evaluate/Company report MAT Q3 2021;
[2] *Se Joon Woo et al. JAMA Ophthalmol* 2021;139:68–76

Biogen

SB15 (referencing EYLEA®)

Biosimilars

Reference Molecule

BIOSIMILARS PIPELINE

- SB15[i] (Ph3) – referencing EYLEA®

[i] SB15 refers to the Samsung Bioepis product candidate name

ORIGINATOR MARKET L12M Revenue (US/ROW), $M:

- **Eylea® $5,583 M US / $3,518 M ROW[1]**

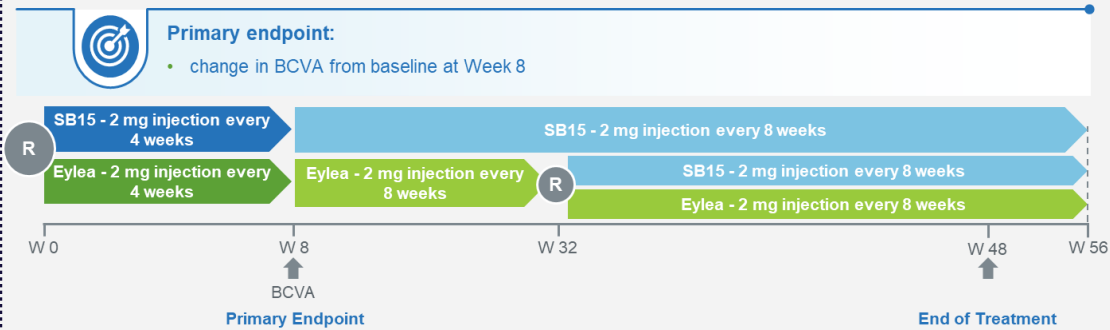
PROPOSED MECHANISM OF ACTION

Vascular endothelial growth factor-A (VEGF-A) and placental growth factor (PlGF) are members of the VEGF family of angiogenic factors that can act as potent mitogenic, chemotactic, and vascular permeability factors for endothelial cells. VEGF acts via two receptor tyrosine kinases; VEGFR-1 and VEGFR-2, present on the surface of endothelial cells. PlGF binds only to VEGFR-1, which is also present on the surface of leucocytes. Excessive activation of these receptors by VEGF-A can result in pathological neovascularisation and excessive vascular permeability. PlGF can synergize with VEGF-A in these processes, and is also known to promote leucocyte infiltration and vascular inflammation.

CLINICAL STUDY OVERVIEW

- Randomized, double-blind, parallel group, phase-III study trial conducted in 57 centers across 10 countries. Study start July 2020; expected completion H1 2022
- Patients (n=449) with nAMD randomized (1:1) to receive either SB15 or aflibercept (Eylea)
- Primary endpoints:
  - change from baseline BCVA to BCVA at Week 8
- Secondary endpoints include efficacy, safety, immunogenicity and pharmacokinetics up to week 56

CLINICAL DATA OVERVIEW



Data readout for SB15 expected not before Q4 2022

BCVA = best corrected visual acuity. Note: Biosimilar indications my vary by product or region.

Source: [1]Regeneron Company reports MAT Q3 2021

Biogen

BIIB800 (referencing ACTEMRA®)

Biosimilars

Reference Molecule

BIOSIMILARS PIPELINE

- **BIIB800 [BAT1806[i]] Ph3 completed**

[i] BAT1806 refers to the Bio-Thera Solutions product candidate name

ORIGINATOR MARKET:

- **Actemra® $1,727M US / $1,986M ROW[1]**

PROPOSED MECHANISM OF ACTION

- IL-6 receptor signaling activates intracellular JAK MAPK and JAK-STAT3 signaling pathways involved in several inflammatory diseases, including Rheumatoid Arthritis.
- Tocilizumab binds to membrane-bound and soluble IL-6 receptor (IL-6R) thereby preventing IL-6 from binding to IL-6R, inhibiting IL-6 signaling.

CLINICAL STUDY OVERVIEW

- Phase I: A randomized, double-blind, three-arm (reference products RoActemra® (EU) (n=42) or Actemra® (US) (n=42), or BIIB800 [BAT1806] n=45)), parallel-group study of a single 4 mg/kg dose administered intravenously. Healthy volunteers were followed for 57 days for PK, immunogenicity and safety
- Phase III[3]:
  - A multicenter, multinational, randomized, double-blind, parallel-group, active-control study to compare efficacy, safety, immunogenicity, and PK of BIIB800 [BAT1806] compared with RoActemra® in 621 subjects with moderate to severe Rheumatoid Arthritis (RA) inadequately controlled by MTX
  - The study comprised a ≤ 28-day screening period, a 48-week randomized treatment period, and a 4-week safety follow-up

CLINICAL DATA

- Phase I:
  - Bioequivalence study concluded that the PK, immunogenicity and safety profile of BIIB800 [BAT1806] was similar to that of the EU/US reference products[2]
- Phase III:
  - The study met its primary endpoints of American College of Rheumatology 20 percent response criteria (ACR20) at Week 12 (EMA) and at Week 24 (FDA, NMPA)
  - Biogen believes that BIIB800 [BAT1806] demonstrated equivalence in efficacy and pharmacokinetics and has a comparable safety and immunogenicity profile to the reference product[4]
  - Clinical data is in submission to EULAR 2022 congress; results under embargo until late May 2022 according to EULAR rules[5]
  - Comparable safety and immunogenicity profile to the reference product

Note: Biosimilar indications my vary by product or region.

[1] Source: Roche investors finance information tool, MAT Q3 2021

[2] Zhang H et al. Front Pharmacol. 2021;11:609522. doi: 10.3389/fphar.2020.609522

[3] www.clinicaltrialsregister.eu/ctr-search/trial/2018-002202-31/BG.

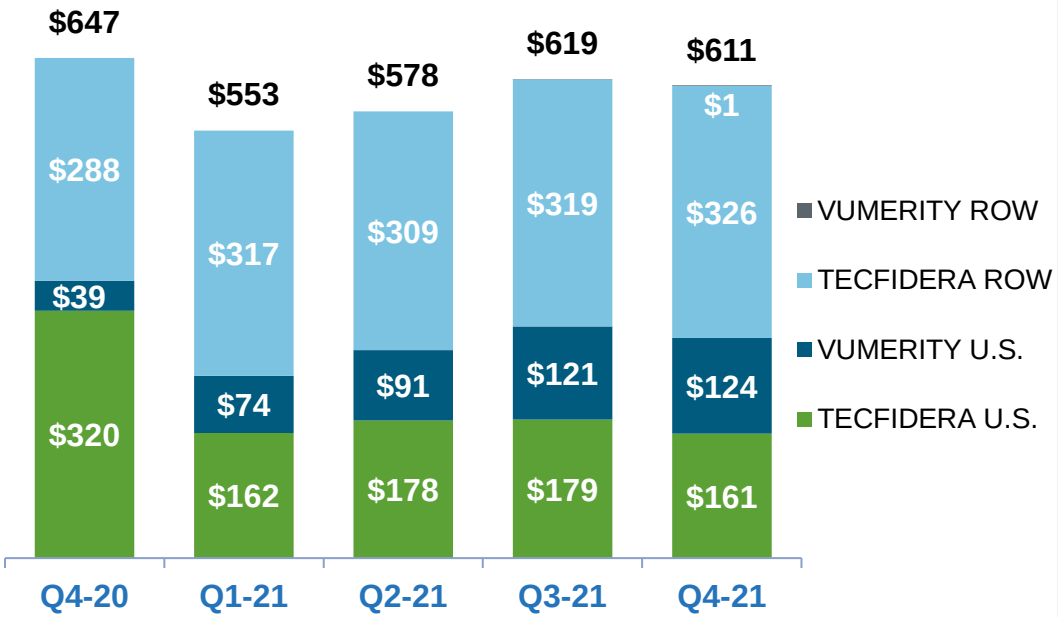
[4] https://investors.biogen.com/news-releases/news-release-details/biogen-and-bio-thera-announce-positive-results-phase-3-study

[5] https://congress.eular.org/myUploadData/files/embargo_policy_2022.pdf

Biogen

Global fumarate revenue

Fumarate Revenue ($M)



Numbers may not foot due to rounding.

Q4 2021 Highlights

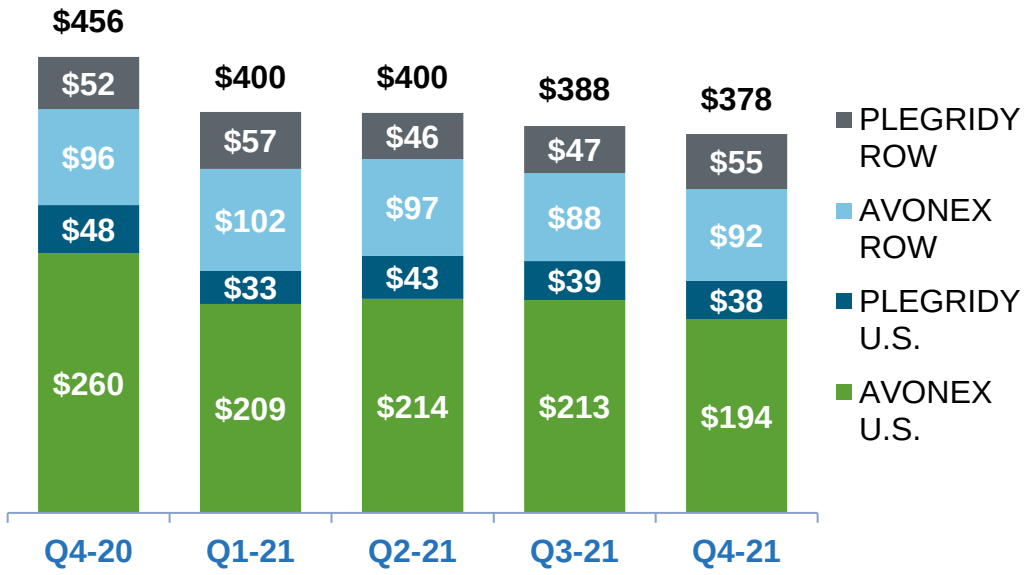
Revenue vs. Q4 2020 and Q3 2021

	ΔY/Y		ΔQ/Q
WW	- 5%	and	- 1%
ROW	+ 13%	and	+ 2%
U.S.	- 21%	and	- 5%

Global interferon revenue

AVONEX (interferon beta-1a) plegridy (peginterferon beta-1a)

Interferon Revenue ($M)



Numbers may not foot due to rounding.

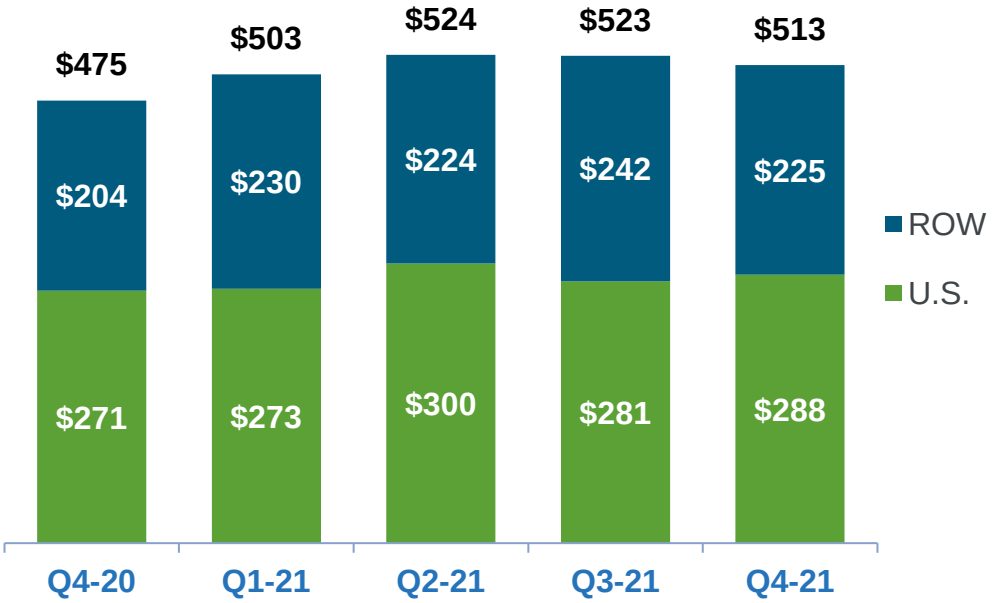
Q4 2021 Highlights

Revenue vs. Q4 2020 and Q3 2021

	ΔY/Y		ΔQ/Q
WW	- 17%	and	- 3%
ROW	- 1%	and	+ 8%
U.S.	- 25%	and	- 8%

Global TYSABRI revenue

TYSABRI Revenue ($M)



Numbers may not foot due to rounding.

Q4 2021 Highlights

Revenue vs. Q4 2020 and Q3 2021

	ΔY/Y		ΔQ/Q
WW	+ 8%	and	- 2%
ROW	+ 10%	and	- 7%
U.S.	+ 6%	and	+ 2%

- Biogen believes that Q4 2021 TYSABRI revenue was positively impacted by channel dynamics in the U.S.

Consolidated Statement of Income

(unaudited, in millions, except per share amounts)

	For the Three Months Ended December 31,		For the Twelve Months Ended December 31,	
	2021	2020	2021	2020
Revenue:				
Product, net	$ 2,193.5	$ 2,301.6	$ 8,846.9	$ 10,692.2
Revenue from anti-CD20 therapeutic programs	414.1	419.0	1,658.5	1,977.8
Other	126.2	132.0	476.3	774.6
Total revenue	2,733.8	2,852.6	10,981.7	13,444.6
Cost and expense:				
Cost of sales, excluding amortization and impairment of acquired intangible assets	660.1	490.6	2,109.7	1,805.2
Research and development	699.5	1,726.0	2,501.2	3,990.9
Selling, general and administrative	787.9	806.3	2,674.3	2,504.5
Amortization and impairment of acquired intangible assets	68.1	249.2	881.3	464.8
Collaboration profit sharing	(67.3)	66.4	7.2	232.9
(Gain) loss on divestiture of Hillerød, Denmark manufacturing operations	—	(92.5)	—	(92.5)
(Gain) loss on fair value remeasurement of contingent consideration	(1.6)	(62.8)	(50.7)	(86.3)
Acquired in-process research and development	—	—	18.0	75.0
Total cost and expense	2,146.7	3,183.2	8,141.0	8,894.5
Income from operations	587.1	(330.6)	2,840.7	4,550.1
Other income (expense), net	(182.1)	683.5	(1,095.5)	497.4
Income before income tax expense and equity in loss of investee, net of tax	405.0	352.9	1,745.2	5,047.5
Income tax (benefit) expense	443.2	13.3	52.5	992.3
Equity in (income) loss of investee, net of tax	(17.7)	(18.0)	(34.9)	(5.3)
Net income	(20.5)	357.6	1,727.6	4,060.5
Net income (loss) attributable to noncontrolling interests, net of tax	(388.7)	(0.3)	171.5	59.9
Net income attributable to Biogen Inc.	$ 368.2	$ 357.9	$ 1,556.1	$ 4,000.6
Net income per share:				
Basic earnings per share attributable to Biogen Inc.	$ 2.51	$ 2.33	$ 10.44	$ 24.86
Diluted earnings per share attributable to Biogen Inc.	$ 2.50	$ 2.32	$ 10.40	$ 24.80
Weighted-average shares used in calculating:				
Basic earnings per share attributable to Biogen Inc.	146.9	153.7	149.1	160.9
Diluted earnings per share attributable to Biogen Inc.	147.5	154.0	149.6	161.3

Biogen

GAAP to Non-GAAP Reconciliation

Operating Expense, Other Income (Expense), net and Income Tax (unaudited, in millions, except per share amounts)

(In millions, except per share amounts)	For the Three Months Ended December 31, 2021[1]	For the Three Months Ended December 31, 2020[2]	For the Twelve Months Ended December 31, 2021[1]	For the Twelve Months Ended December 31, 2020[2]
Selling, General and Administrative Expense:				
Total selling, general and administrative, GAAP	$ 787.9	$ 806.3	$ 2,674.3	$ 2,504.5
Less: other	2.7	2.8	7.9	2.8
Total selling, general and administrative, Non-GAAP	$ 785.2	$ 803.5	$ 2,666.4	$ 2,501.7
Amortization and Impairment of Acquired Intangible Assets:				
Total amortization and impairment of acquired intangible assets, GAAP	$ 68.1	$ 249.2	$ 881.3	$ 464.8
Less: impairment charges [A]	—	190.4	629.3	209.7
Less: amortization of acquired intangible assets	60.5	58.8	237.1	255.1
Total amortization and impairment of acquired intangible assets, Non-GAAP	$ 7.6	$ —	$ 14.9	$ —
(Gain) Loss on Fair Value Remeasurement of Contingent Consideration:				
Total (gain) loss on fair value remeasurement of contingent consideration, GAAP	$ (1.6)	$ (62.8)	$ (50.7)	$ (86.3)
Less: (gain) loss on fair value remeasurement of contingent consideration	(1.6)	(62.8)	(50.7)	(86.3)
Total (gain) loss on fair value remeasurement of contingent consideration, Non-GAAP	$ —	$ —	$ —	$ —
Other Income (Expense), net:				
Total other income (expense), net, GAAP	$ (182.1)	$ 683.5	$ (1,095.5)	$ 497.4
Less: gain (loss) on equity security investments	(115.4)	734.2	(821.3)	693.9
Plus: premium paid on debt exchange or early debt redemption	—	—	9.5	9.4
Total other income (expense), net, Non-GAAP	$ (66.7)	$ (50.7)	$ (264.7)	$ (187.1)
Income Tax (Benefit) Expense:				
Total income tax (benefit) expense, GAAP	$ 443.2	$ 13.3	$ 52.5	$ 992.3
Less: Neurimmune step-up tax basis [B]	395.6	—	(96.4)	—
Less: valuation allowance associated with TECFIDERA IP court decision	—	1.0	—	90.3
Less: income tax effect related to Non-GAAP reconciling items	(52.7)	110.7	(388.0)	81.1
Total income tax expense, Non-GAAP	$ 100.3	$ (98.4)	$ 536.9	$ 820.9
Effective Tax Rate:				
Total effective tax rate, GAAP	109.5 %	3.8 %	3.0 %	19.7 %
Less: Neurimmune step-up tax basis [B]	97.7	—	(5.5)	—
Less: valuation allowance associated with TECFIDERA IP court decision	—	0.3	—	1.8
Less: impact of GAAP to Non-GAAP adjustments	(5.4)	(31.1)	(7.2)	0.5
Total effective tax rate, Non-GAAP	17.2 %	34.6 %	15.7 %	17.4 %

Footnotes referenced in the tables above are included at the end of this presentation.

Use of Non-GAAP Financial Measures

We supplement our GAAP consolidated financial statements and GAAP financial measures with other financial measures, such as adjusted net income, adjusted diluted earnings per share, revenue growth at constant currency, which excludes the impact of changes in foreign exchange rates and hedging gains or losses, and free cash flow, which is defined as net flow from operations less capital expenditures. We believe that these and other Non-GAAP financial measures provide additional insight into the ongoing economics of our business and reflect how we manage our business internally, set operational goals and form the basis of our management incentive programs. Non-GAAP financial measures are in addition to, not a substitute for, or superior to, measures of financial performance prepared in accordance with GAAP.

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. Acquisitions and divestitures

We exclude transaction, integration and certain other costs related to the acquisition and divestiture of businesses, the acquisitions of assets and items associated with the initial consolidation or deconsolidation of variable interest entities. These adjustments include, but are not limited to, charges for in-process research and development and certain milestones, the amortization and impairment of intangible assets, charges or credits from the fair value remeasurement of our contingent consideration obligations and losses on assets and liabilities held for sale.

2. Restructuring, business transformation and other cost saving initiatives

We exclude costs associated with our execution of certain strategies and initiatives to streamline operations, achieve targeted cost reductions, rationalize manufacturing facilities or refocus research and development 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 ongoing or future business operations.

3. (Gain) loss on equity security investments

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 ongoing or future business operations.

4. 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 earnings per share - diluted.

GAAP to Non-GAAP Reconciliation

Equity Income/Loss of Investee, Noncontrolling Interests, Net Income & Diluted EPS
(unaudited, in millions, except per share amounts)

(In millions, except per share amounts)	For the Three Months Ended December 31, 2021[1]	For the Three Months Ended December 31, 2020[2]	For the Twelve Months Ended December 31, 2021[1]	For the Twelve Months Ended December 31, 2020[2]
Equity in (Income) Loss of Investee, Net of Tax:				
Total equity in (income) loss of investee, GAAP	$ (17.7)	$ (18.0)	$ (34.9)	$ (5.3)
Less: amortization of equity in (income) loss of investee	7.4	6.8	38.4	40.0
Total equity in (income) loss of investee, Non-GAAP	$ (25.1)	$ (24.8)	$ (73.3)	$ (45.3)
Net Income (Loss) Attributable to Noncontrolling Interests, Net of Tax:				
Total net income (loss) attributable to noncontrolling interests, GAAP	$ (388.7)	$ (0.3)	$ 171.5	$ 59.9
Less: Neurimmune step-up tax basis [B]	(395.6)	—	96.4	—
Less: net distribution to noncontrolling interests and other	0.1	—	(4.3)	0.3
Total net income (loss) attributable to noncontrolling interests, Non-GAAP	$ 6.8	$ (0.3)	$ 79.4	$ 59.6
Net Income Attributable to Biogen Inc.:				
Total net income attributable to Biogen Inc., GAAP	$ 368.2	$ 357.9	$ 1,556.1	$ 4,000.6
Plus: impairment charges [A]	—	190.4	629.3	209.7
Plus: amortization of acquired intangible assets	60.5	58.8	237.1	255.1
Plus: acquired in-process research and development	—	—	18.0	75.0
Plus: (gain) loss on fair value remeasurement of contingent consideration	(1.6)	(62.8)	(50.7)	(86.3)
Less: (gain) loss on divestiture of Hillerød, Denmark manufacturing operations	—	(92.5)	—	(92.5)
Plus: (gain) loss on equity security investments	115.4	(734.2)	821.3	(693.9)
Plus: net distribution to noncontrolling interests & amortization of equity in (income) loss of investee	7.5	6.8	34.1	40.3
Plus: premium paid on debt exchange or early debt redemption	—	—	9.5	9.4
Plus: valuation allowance associated with TECFIDERA IP court decision	—	1.0	—	90.3
Plus: income tax effect related to Non-GAAP reconciling items	(52.7)	110.7	(388.0)	81.1
Plus: other	3.1	2.8	8.3	2.8
Total net income attributable to Biogen Inc., Non-GAAP	$ 500.4	$ (161.1)	$ 2,875.0	$ 3,891.6
Diluted Earnings Per Share				
Total diluted earnings per share, GAAP	$ 2.50	$ 2.32	$ 10.40	$ 24.80
Plus: adjustments to GAAP net income attributable to Biogen Inc. (as detailed above)	0.89	(3.37)	8.82	(0.67)
Total diluted earnings per share, Non-GAAP	$ 3.39	$ (1.05)	$ 19.22	$ 24.13

[1] Beginning in the third quarter of 2021 amortization expense recorded in intangible assets that arose from collaboration and licensing arrangements is no longer excluded from our Non-GAAP results on a prospective basis. Non-GAAP financial results for 2020 have not been updated to reflect this change.

[2] Beginning in the second quarter of 2021 material upfront payments and premiums paid on the acquisition of common stock associated with significant collaboration and licensing arrangements along with the related transaction costs incurred are no longer excluded from Non-GAAP research and development expense and selling, general and administrative expense. Non-GAAP financial results for 2020 have been updated to include the $1,084.0 million payment related to our collaboration with Sage Therapeutics, Inc. recorded in the fourth quarter of 2020, the $601.3 million payment related to our collaboration with Denali Therapeutics, Inc. recorded in the third quarter of 2020 and the $208.0 million payment related to our collaboration with Sangamo Therapeutics, Inc. recorded in the second quarter of 2020 along with the associated transaction costs and income tax effect.

Biogen

Footnotes referenced in the tables above are included at the end of this presentation.

GAAP to Non-GAAP Reconciliation

Constant Currency & Free Cash Flow
(unaudited, in millions)

Revenue growth at constant currency

Percentage changes in revenue growth at constant currency are presented excluding the impact of changes in foreign currency exchange rates and hedging gains or losses. The current period's foreign currency revenue values are converted into U.S. dollars using the average exchange rates from the prior period.

	For the Three Months Ended December 31, 2021	For the Twelve Months Ended December 31, 2021
Total Revenue		
Revenue change, as reported	(4.2)%	(18.3)%
Less: impact of foreign currency translation and hedging (gains) losses	(0.2)	0.7
Revenue change at constant currency	(4.0)%	(19.0)%
Total MS Revenue (including OCREVUS royalties)		
Revenue change, as reported	(0.9)%	(18.3)%
Less: impact of foreign currency translation and hedging (gains) losses	0.4	0.3
Revenue change at constant currency	(1.3)%	(18.6)%
Total SPINRAZA Revenue		
Revenue change, as reported	(11.5)%	(7.2)%
Less: impact of foreign currency translation and hedging (gains) losses	(1.2)	1.7
Revenue change at constant currency	(10.3)%	(8.9)%
Total Biosimilars Revenue		
Revenue change, as reported	11.9 %	4.5 %
Less: impact of foreign currency translation and hedging (gains) losses	(1.6)	3.6
Revenue change at constant currency	13.5 %	0.9 %
Total Other Revenue		
Revenue change, as reported	(4.5)%	(38.5)%
Less: impact of foreign currency translation and hedging (gains) losses	—	0.1
Revenue change at constant currency	(4.5)%	(38.6)%

Free cash flow

We define free cash flow as net cash provided by (used in) operating activities in the period less capital expenditures made in the period. The following table reconciles net cash provided by (used in) operating activities, a GAAP measure, to free cash flow, a Non-GAAP measure.

	For the Three Months Ended December 31,		For the Twelve Months Ended December 31,	
	2021	2020	2021	2020
Cash Flow:				
Net cash provided by (used in) operating activities	$ 838.3	$ (367.1)	$ 3,639.9	$ 4,229.8
Net cash provided by (used in) investing activities	(112.7)	(166.4)	(563.7)	(608.6)
Net cash provided by (used in) financing activities	9.8	(401.1)	(2,086.2)	(5,272.7)
Net increase (decrease) in cash and cash equivalents	$ 735.4	$ (934.6)	$ 990.0	$ (1,651.5)
Net cash provided by (used in) operating activities	$ 838.3	$ (367.1)	$ 3,639.9	$ 4,229.8
Less: Purchases of property, plant and equipment	51.6	86.0	258.1	424.8
Free cash flow	$ 786.7	$ (453.1)	$ 3,381.8	$ 3,805.0

Biogen

Notes to GAAP to Non-GAAP Reconciliation

Operating Expense & Net Income Attributable to Biogen Inc.

[A] For the years ended December 31, 2021 and 2020, amortization and impairment of acquired intangible assets totaled $881.3 million and $464.8 million, respectively.

During the fourth quarter of 2020 we recognized an impairment charge of $115.0 million related to BIIB111 as a result of third-party manufacturing delays that impacted the timing and increased the costs associated with advancing BIIB111 through Phase 3 development.

In February 2021 we announced that we discontinued development of BIIB054 (cinpanemab) for the potential treatment of Parkinson's disease as our Phase 2 SPARK study did not meet its primary or secondary endpoints. Although we made this determination in February 2021, it was based on conditions that existed as of December 31, 2020. As a result, we recognized an impairment charge of approximately $75.4 million during the fourth quarter of 2020 to reduce the fair value of the related in-process research and development (IPR&D) intangible asset to zero.

During the year ended December 31, 2020, amortization and impairment of acquired intangible assets reflects the impact of the BIIB111 and BIIB054 impairment charges as well as a $19.3 million impairment charge related to one of our IPR&D intangible assets.

During the second quarter of 2021 we announced that our Phase 3 STAR study of BIIB111 and our Phase 2/3 XIRIUS study of BIIB112 did not meet their primary endpoints. In the third quarter of 2021 we suspended further development on these programs based on the decision by management as part of its strategic review process. For the year ended December 31, 2021, we recognized an impairment charge of $365.0 million related to BIIB111 and an impairment charge of $220.0 million related to BIIB112, reducing the remaining book values of these IPR&D intangible assets to zero.

[B] For the year ended December 31, 2021, compared to the same period in 2020, we recorded a current year deferred tax benefit associated with the accelerated approval of ADUHELM by the FDA. During the second quarter of 2021, we recorded approximately $490.0 million in a deferred tax asset related to Neurimmune SubOne AG's tax basis in ADUHELM. The net deferred tax asset is comprised of approximately $945.0 million of gross deferred tax asset, reduced by approximately $455.0 million of unrecognized tax benefit. During the fourth quarter of 2021 we recorded a valuation allowance of approximately $390.0 million related to this deferred tax asset. The realization of which is dependent on future sales of ADUHELM and approval of the Swiss cantonal tax authorities, with an equal and offsetting amount assigned to noncontrolling interest, resulting in zero net impact to net income attributable to Biogen Inc.