UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): May 14, 2024

Acumen Pharmaceuticals, Inc.

(Exact name of Registrant as Specified in Its Charter)

Delaware	001-40551	36-4108129
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(IRS Employer Identification No.)

427 Park St., Charlottesville, Virginia	22902
(Address of Principal Executive Offices)	(Zip Code)

(434) 297-1000
(Registrant's Telephone Number, Including Area Code)

Not Applicable
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instructions A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value	**ABOS**	**The Nasdaq Global Select Market**

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 2.02 Results of Operations and Financial Condition.

On May 14, 2024, Acumen Pharmaceuticals, Inc. (the "**Company**") reported financial results and business highlights for the quarter ended March 31, 2024. A copy of this press release (the "**Earnings Press Release**") is furnished as Exhibit 99.1 to this Current Report on Form 8-K (this "**Report**") and is incorporated by reference.

The information in this Item 2.02 of this Report (including Exhibit 99.1) is being furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), or otherwise subject to the liabilities of that Section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended (the "**Securities Act**"), or the Exchange Act, except as expressly set forth by specific reference in such a filing.

Item 7.01 Regulation FD Disclosure.

On May 14, 2024, the Company posted an updated corporate presentation to its website at https://investors.acumenpharm.com/news-events/presentations, which the Company may use from time to time in communications or conferences. This corporate presentation was updated to, among others, indicate that the Company had initiated its Phase 2 trial of sabirnetug and update the Company's current cash position as of March 31, 2024. A copy of the corporate presentation is attached as Exhibit 99.2 to this Report.

The information in this Item 7.01 of this Report (including Exhibit 99.2), is being furnished and shall not be deemed "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities of that Section, nor shall it be deemed incorporated by reference in any filing under the Securities Act or the Exchange Act, except as expressly set forth by specific reference in such filing. The Company's submission of this Report shall not be deemed an admission as to the materiality of any information required to be disclosed solely to satisfy the requirements of Regulation FD.

Item 9.01 Financial Statements and Exhibits.

(d). Exhibits

Exhibit No.	Description
99.1	Earnings Press Release, dated May 14, 2024
99.2	Corporate Presentation, dated May 14, 2024
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the Company has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Acumen Pharmaceuticals, Inc.

Dated: May 14, 2024

By: /s/ Matthew Zuga
Matthew Zuga
Chief Financial Officer and Chief Business Officer

Exhibit 99.1

Acumen Pharmaceuticals Reports First Quarter 2024 Financial Results and Business Highlights

- Announced initiation of ALTITUDE-AD, a Phase 2 study to investigate sabirnetug (ACU193) for the treatment of early Alzheimer's disease, in May 2024
- Initiation of a Phase 1 study to support a subcutaneous dosing option of sabirnetug expected in mid-2024
- Cash, cash equivalents and marketable securities of $296.6 million as of Mar. 31, 2024, expected to support current clinical and operational activities into the first half of 2027
- Company to host conference call and webcast today at 8:00 a.m. ET

CHARLOTTESVILLE, Va., May 14, 2024 – Acumen Pharmaceuticals, Inc. (NASDAQ: ABOS) ("Acumen" or the "Company"), a clinical-stage biopharmaceutical company developing a novel therapeutic that targets toxic soluble amyloid beta oligomers (AβOs) for the treatment of Alzheimer's disease (AD), today reported financial results for the first quarter of 2024 and provided a business update.

"In the first quarter, our team remained laser-focused on the initiation of ALTITUDE-AD, our Phase 2 study investigating the efficacy and safety of sabirnetug for the treatment of early AD. We announced the first patient dosed in this study just last week. We are encouraged by the level of investigator interest in the potential of sabirnetug to offer a best-in-class therapeutic profile for patients, which is a testament to our strong Phase 1 data package and the relationships our team has built with clinical sites," Daniel O'Connell, Chief Executive Officer of Acumen. "We continue to expect to initiate a Phase 1 study with a subcutaneous form of sabirnetug in mid-2024 in an effort to extend the product profile and offer administration optionality for patients. We remain committed to delivering on our strategic priority to advance the clinical development of sabirnetug efficiently and thoughtfully."

Recent Highlights and Anticipated Milestones

Sabirnetug (ACU193) Clinical Development

- **In May 2024, the Company announced the first patient dosed in ALTITUDE-AD, a Phase 2 study to investigate the clinical efficacy and safety of sabirnetug for the treatment of early AD.**
- **In April 2024, the Company presented biomarker, safety and target engagement analyses from the Phase 1 INTERCEPT-AD study in AD at the American Academy of Neurology Annual Meeting.**
    - The results build upon Acumen's prior presentations at the AD/PD™ 2024 Annual Meeting and positive topline data first announced in July 2023, highlighting sabirnetug as the first humanized monoclonal antibody to clinically demonstrate selective target engagement of synaptotoxic AβOs. Additional information can be found here.

- **In April 2024, the Company announced a collaboration agreement with Lonza, a global partner to the pharmaceutical, biotech and nutraceutical markets.**
    - The agreement covers the manufacture of sabirnetug for clinical development and commercialization, if approved. Acumen will leverage Lonza's regulatory expertise, extensive experience in antibody manufacturing, and global manufacturing network from 2,000L to 20,000L.
- **The Company expects to initiate a Phase 1 study to support a subcutaneous dosing option of sabirnetug in mid-2024.**

First Quarter 2024 Financial Results

- **Cash Balance.** As of March 31, 2024, cash, cash equivalents and marketable securities totaled $296.6 million, compared to cash, cash equivalents and marketable securities of $306.1 million as of December 31, 2023. The decrease in cash is related to funding ongoing operations. Cash is expected to support current clinical and operational activities into the first half of 2027.
- **Research and Development (R&D) Expenses.** R&D expenses were $12.4 million for the three month period ended March 31, 2024, compared to $8.7 million for the three month period ended March 31, 2023. The increase in R&D expenses was primarily due to increased costs related to personnel, manufacturing and materials costs, consulting, and other costs.
- **General and Administrative (G&A) Expenses.** G&A were $5.3 million for the three month period ended March 31, 2024, compared to $4.4 million for the three month period ended March 31, 2023. The increase in G&A expenses was primarily due to increased costs related to personnel.
- **Loss from Operations.** Losses from operations were $17.8 million for the three month period ended March 31, 2024, compared to $13.1 million for the three month period ended March 31, 2023. This increase was due to the increased R&D and G&A expenses over the prior year period.
- **Net Loss.** Net loss was $14.9 million for the three-month period ended March 31, 2024, compared to $11.3 million for the three month period ended March 31, 2023.

Conference Call Details

Acumen will host a conference call and live audio webcast today, May 14, 2024, at 8:00 a.m. ET.

To participate in the live conference call, please register using this link. After registration, you will be informed of the dial-in numbers including PIN. Please register at least one day in advance.

The webcast audio will be available via this link.

An archived version of the webcast will be available for at least 30 days in the Investors section of the Company's website at www.acumenpharm.com.

About Sabirnetug (ACU193)

Sabirnetug (ACU193) is a humanized monoclonal antibody (mAb) discovered and developed based on its selectivity for soluble amyloid beta oligomers (AβOs), which are a highly toxic and pathogenic form of Aβ, relative to Aβ monomers and amyloid plaques. Soluble AβOs have been observed to be potent neurotoxins that bind to neurons, inhibit synaptic function and induce neurodegeneration. By selectively targeting toxic

soluble AβOs, sabirnetug aims to address the hypothesis that soluble AβOs are an early and persistent underlying cause of the neurodegenerative process in Alzheimer's disease (AD). Sabirnetug has been granted Fast Track designation for the treatment of early AD by the U.S. Food and Drug Administration and was previously evaluated in a Phase 1 study in patients with early AD.

About ALTITUDE-AD (Phase 2)

Initiated in 2024, ALTITUDE-AD is a Phase 2, multi-center, randomized, double-blind, placebo-controlled clinical trial designed to evaluate the efficacy and safety of sabirnetug (ACU193) infusions administered once every four weeks in slowing cognitive and functional decline as compared to placebo in participants with early Alzheimer's disease. The study will enroll approximately 540 individuals with early Alzheimer's disease (mild cognitive impairment or mild dementia due to AD). The global study is currently enrolling at multiple investigative sites located in the United States and Canada with plans for additional sites in Europe and the UK. More information can be found on www.clinicaltrials.gov, NCT identifier NCT06335173.

About INTERCEPT-AD (Phase 1)

Completed in 2023, INTERCEPT-AD was a Phase 1, U.S.-based, multi-center, randomized, double-blind, placebo-controlled clinical trial evaluating the safety and tolerability, and establishing clinical proof of mechanism, of sabirnetug in patients with early Alzheimer's disease (AD). Sixty-five individuals with early AD (mild cognitive impairment or mild dementia due to AD) enrolled in this first-in-human study of sabirnetug. The INTERCEPT-AD study consisted of single-ascending-dose (SAD) and multiple-ascending-dose (MAD) cohorts and was designed to evaluate the safety, tolerability, pharmacokinetics (PK), and target engagement of intravenous doses of sabirnetug. More information can be found on www.clinicaltrials.gov, NCT identifier NCT04931459.

About Acumen Pharmaceuticals, Inc.

Acumen, headquartered in Charlottesville, VA, with additional offices in Indianapolis, IN and Newton, MA, is a clinical-stage biopharmaceutical company developing a novel therapeutic that targets toxic soluble amyloid beta oligomers (AβOs) for the treatment of Alzheimer's disease (AD). Acumen's scientific founders pioneered research on AβOs, which a growing body of evidence indicates are early and persistent triggers of Alzheimer's disease pathology. Acumen is currently focused on advancing its investigational product candidate, sabirnetug (ACU193), a humanized monoclonal antibody that selectively targets toxic soluble AβOs, following positive results in INTERCEPT-AD, a Phase 1 clinical trial involving early Alzheimer's disease patients. For more information, visit www.acumenpharm.com.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Any statement describing Acumen's goals, expectations, financial or other projections, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Words such as "believes," "expects," "anticipates," "could," "should," "would," "seeks," "aims," "plans," "potential," "will," "milestone" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements include statements concerning Acumen's business, and Acumen's ability to achieve its strategic and financial goals, including its projected use of cash, cash equivalents and marketable securities and the expected sufficiency of its cash resources into the first half of 2027, the therapeutic potential of Acumen's product candidate, sabirnetug (ACU193), including against other antibodies, the anticipated timeline for initiating a Phase 1 trial to support a subcutaneous dosing option of sabirnetug, and the expected use of proceeds from a credit facility. These statements are based upon the current beliefs and expectations of Acumen management, and are subject to certain factors, risks and uncertainties, particularly those inherent in the process of discovering, developing and commercializing safe and effective human therapeutics. Such risks may be amplified by the

impacts of geopolitical events and macroeconomic conditions, such as rising inflation and interest rates, supply disruptions and uncertainty of credit and financial markets. These and other risks concerning Acumen's programs are described in additional detail in Acumen's filings with the Securities and Exchange Commission ("SEC"), including in Acumen's most recent Annual Report on Form 10-K, and in subsequent filings with the SEC. Copies of these and other documents are available from Acumen. Additional information will be made available in other filings that Acumen makes from time to time with the SEC. These forward-looking statements speak only as of the date hereof, and Acumen expressly disclaims any obligation to update or revise any forward-looking statement, except as otherwise required by law, whether, as a result of new information, future events or otherwise.

CONTACTS:

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abraun@acumenpharm.com

Media: AcumenPR@westwicke.com

Acumen Pharmaceuticals, Inc.
Condensed Balance Sheets
(in thousands, except share and per share data)

	March 31, 2024	December 31, 2023
	(unaudited)	
ASSETS		
Current assets		
Cash and cash equivalents	$ 46,930	$ 66,886
Marketable securities, short-term	205,582	176,636
Prepaid expenses and other current assets	3,319	3,093
Total current assets	255,831	246,615
Marketable securities, long-term	44,108	62,553
Right-of-use asset	353	381
Restricted cash	234	233
Property and equipment, net	117	122
Other assets	324	221
Total assets	$ 300,967	$ 310,125
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 3,079	$ 1,379
Accrued clinical trial expenses	2,367	4,387
Accrued expenses and other current liabilities	2,905	6,339
Finance lease liability, short-term	—	756
Operating lease liability, short-term	121	110
Total current liabilities	8,472	12,971
Operating lease liability, long-term	252	284
Debt, long-term	30,209	29,897
Total liabilities	38,933	43,152
Commitments and contingencies		
Stockholders' equity		
Preferred stock, $0.0001 par value; 10,000,000 shares authorized and no shares issued and outstanding as of March 31, 2024 and December 31, 2023	—	—
Common stock, $0.0001 par value; 300,000,000 shares authorized as of March 31, 2024 and December 31, 2023; 60,079,778 and 57,910,461 shares issued and outstanding as of March 31, 2024 and December 31, 2023	6	6
Additional paid-in capital	499,843	489,453
Accumulated deficit	(237,671)	(222,798)
Accumulated other comprehensive income (loss)	(144)	312
Total stockholders' equity	262,034	266,973
Total liabilities and stockholders' equity	$ 300,967	$ 310,125

Acumen Pharmaceuticals, Inc.
Condensed Statements of Operations and Comprehensive Loss
(in thousands, except share and per share data)
(unaudited)

	Three Months Ended March 31,	
	2024	**2023**
Operating expenses		
Research and development	$ 12,449	$ 8,713
General and administrative	5,325	4,422
Total operating expenses	17,774	13,135
Loss from operations	(17,774)	(13,135)
Other income (expense)		
Interest income	4,005	1,832
Interest expense	(1,000)	—
Change in fair value of embedded derivatives	(50)	—
Other expense, net	(54)	(4)
Total other income	2,901	1,828
Net loss	(14,873)	(11,307)
Other comprehensive gain (loss)		
Unrealized gain (loss) on marketable securities	(456)	227
Comprehensive loss	$ (15,329)	$ (11,080)
Net loss per common share, basic and diluted	$ (0.25)	$ (0.28)
Weighted-average shares outstanding, basic and diluted	59,812,000	41,025,062

Acumen Pharmaceuticals, Inc.
Condensed Statements of Cash Flows
(in thousands)
(unaudited)

	Three Months Ended March 31,	
	2024	**2023**
Cash flows from operating activities		
Net loss	$ (14,873)	$ (11,307)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	16	14
Stock-based compensation expense	2,484	1,390
Amortization of premiums and accretion of discounts on marketable securities, net	(1,763)	(334)
Change in fair value of embedded derivatives	50	—
Amortization of right-of-use asset	28	38
Realized gain on marketable securities	(2)	—
Non-cash interest expense	268	—
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(226)	(899)
Other assets	35	(44)
Accounts payable	1,700	(878)
Accrued clinical trial expenses	(2,020)	2,486
Accrued expenses and other current liabilities	(3,512)	(603)
Finance lease liability	(23)	—
Operating lease liability	(21)	(38)
Net cash used in operating activities	(17,859)	(10,175)
Cash flows from investing activities		
Purchases of marketable securities	(45,292)	(52,131)
Proceeds from maturities and sales of marketable securities	36,100	10,204
Purchases of property and equipment	(11)	—
Net cash used in investing activities	(9,203)	(41,927)
Cash flows from financing activities		
Proceeds from issuance of common stock, net of issuance costs	7,938	—
Payment for financing lease	(739)	—
Payments for deferred offering costs	(60)	—
Repurchase of common shares to pay employee withholding taxes	(32)	—
Net cash provided by financing activities	7,107	—
Net change in cash and cash equivalents and restricted cash	(19,955)	(52,102)
Cash and cash equivalents and restricted cash at the beginning of the period	67,119	130,101
Cash and cash equivalents and restricted cash at the end of the period	$ 47,164	$ 77,999

Exhibit 99.2

Corporate Presentation

May 2024

Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Any statement describing Acumen's goals, expectations, financial or other projections, intentions or beliefs is a forward-looking statement and should be considered an at-risk statement. Words such as "believes," "expects," "anticipates," "could," "would," "seeks," "aims," "plans," "potential," "will" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements include statements concerning Acumen's business, and Acumen's ability to achieve its strategic and financial goals, including its projected use of cash, cash equivalents and marketable securities and the expected sufficiency of its cash resources into the first half of 2027, the therapeutic potential of Acumen's product candidate, sabirnetug (ACU193), including against other antibodies, and the anticipated timeline for initiating a Phase 1 trial to support a subcutaneous dosing option of ACU193. These statements are based upon the current beliefs and expectations of Acumen management, and are subject to certain factors, risks and uncertainties, particularly those inherent in the process of discovering, developing and commercializing safe and effective human therapeutics. Such risks may be amplified by the impacts of the COVID-19 pandemic. These and other risks concerning Acumen's programs are described in additional detail in Acumen's filings with the Securities and Exchange Commission ("SEC"), including in Acumen's most recent Annual Report Form 10-K and future filings and reports by Acumen. Copies of these and other documents are available from Acumen. Additional information will be made available in other filings that Acumen makes from time to time with the SEC. These forward-looking statements speak only as of the date hereof, and Acumen expressly disclaims any obligation to update or revise any forward-looking statement, except as otherwise required by law, whether, as a result of new information, future events or otherwise. In this presentation, references to cash also include cash equivalents.


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Advancing a Potential Best-In-Class Antibody Targeting Toxic Amyloid Beta Oligomers (AβOs) for Early Alzheimer's Disease (AD)
Large market in need of additional treatment options
Sabirnetug (ACU193): monoclonal antibody (mAb) highly selective for toxic AβOs
Positive Phase 1 clinical trial results presented in 2H 2023
Experienced leadership team with extensive AD drug development experience
Strong balance sheet supporting clinical development plans for sabirnetug
Phase 2 (IV) initiated; expect to initiate Phase 1 (subcutaneous) study in mid-2024
3
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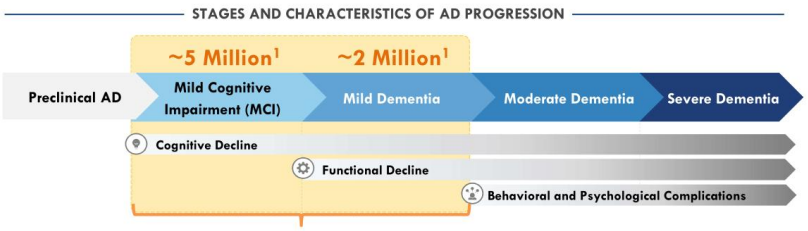
Early AD Patient Population Represents Significant Market Opportunity



Early Alzheimer's Disease in the U.S.

Acumen's commercial priority

Uptake of first-generation, disease modifying, anti-amyloid beta treatment options is expected to increase, while significant unmet need and room for improvement will persist

1. 2021 Alzheimer's Association

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AD, Amyloid & Abeta Oligomers

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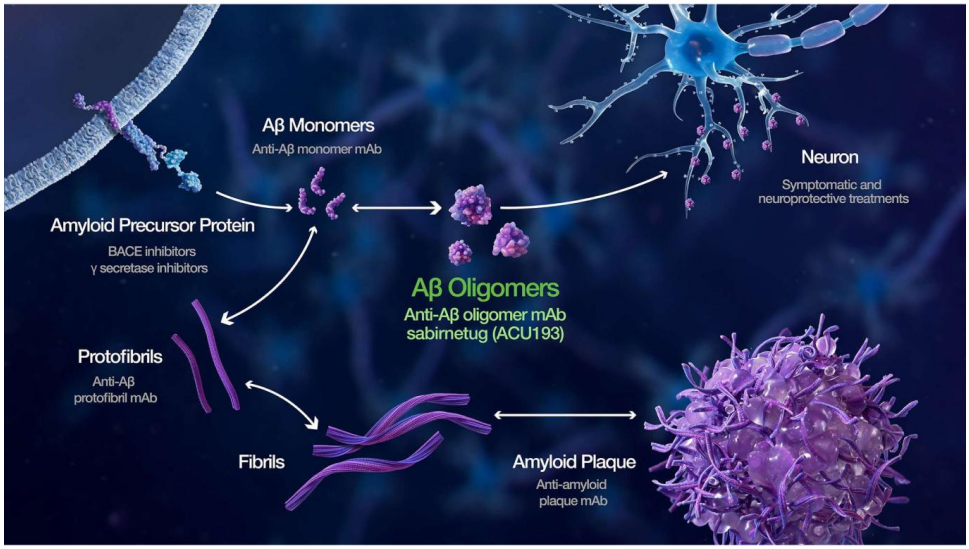
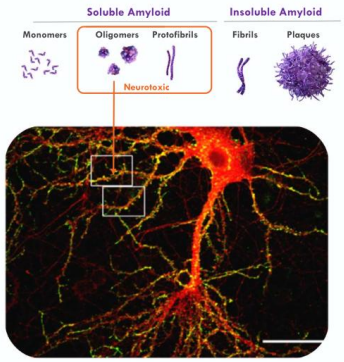

Aβ Monomers
Anti-Aβ monomer mAb
Neuron
Symptomatic and
neuroprotective treatments
Amyloid Precursor Protein
BACE inhibitors
γ secretase inhibitors
Aβ Oligomers
Anti-Aβ oligomer mAb
sabirnetug (ACU193)
Protofibrils
Anti-Aβ
protofibril mAb
Fibrils
Amyloid Plaque
Anti-amyloid
plaque mAb

Amyloid Beta Oligomers (AβOs) are Widely Recognized as Highly Toxic Agents in AD Pathophysiology

- Impair synaptic function[1]
- Contribute to impairment of memory and cognition[2]
- Induce tau hyperphosphorylation[3]



Mature hippocampal neuron and toxic AβOs bound to dendritic spines

Image Lacor et al., 2004.

1. Lacor et al., 2004 & 2007; Townsend et al., 2006; Batista et al., 2018
2. Cleary et al., 2005; Poling et al., 2008; Cline et al., 2019
3. De Felice et al., 2008; Zempel et al., 2010

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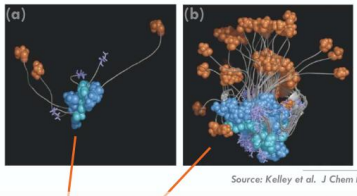
What is an Aβ Oligomer? AβOs May Consist of 2 to >200 Aβ Peptides

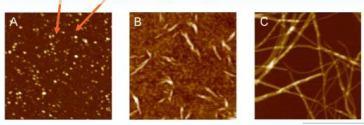
Figure 1. AβOs composed of 3 (a) and 18 (b) Aβ peptides are depicted below.



Source: Kelley et al. J Chem Physics 2008.

Quaternary structures of Aβ oligomers, protofibrils, and fibrils

Figure 2. Atomic force microscopy images of representative steps of amyloid aggregation: (A) oligomers; (B) protofibrils; (C) mature fibrils. Scan size 1.0 μm. Z range (A) 8.0 nm; (B) 15 nm; (C) 20 nm.



Source: Relini et al. Biomolecules 2014.

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Sabirnetug: Potential Best-in-Class Immunotherapy for Early AD

Sabirnetug's High Selectivity for Toxic AβOs May Provide Meaningful Cognitive Efficacy and Improved Safety

Rationally Designed for Improved Efficacy & Safety

Humanized, affinity matured mAb developed to target toxic Aβ oligomers

> 500-fold greater selectivity for AβOs over Aβ monomers

> 85-fold greater selectivity for AβOs over Aβ fibrils

IgG2 subclass mAb with reduced effector function

Large Pharma Discovery

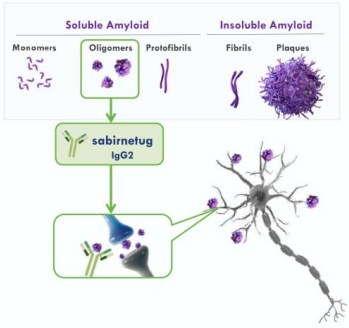
Sabirnetug discovered in collaboration with Merck & Co.

Acumen holds exclusive program rights with no future financial or other obligations due to Merck

Encouraging FDA Interactions

FDA Fast Track designation for the treatment of early Alzheimer's disease

FDA End of Phase 2 meeting in 4Q 2023



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Sabirnetug: Value Proposition

The Alzheimer's disease market is at a **key inflection point** with **recent and expected approvals** paving a new path for the treatment of AD …

… and **sabirnetug** is well-positioned to emerge as a potential **treatment of choice.**

Market will likely remain consolidated with Aβ therapies emerging as the primary treatment option over the next few years

Stakeholders are encouraged about the advancements in the AD treatment landscape and are working together to enable broader patient access

With potential clinical and safety benefits conferred by AβO selectivity, sabirnetug has the opportunity to be a treatment of choice in the broader early AD population

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Positive INTERCEPT-AD Phase 1 Results for Sabirnetug

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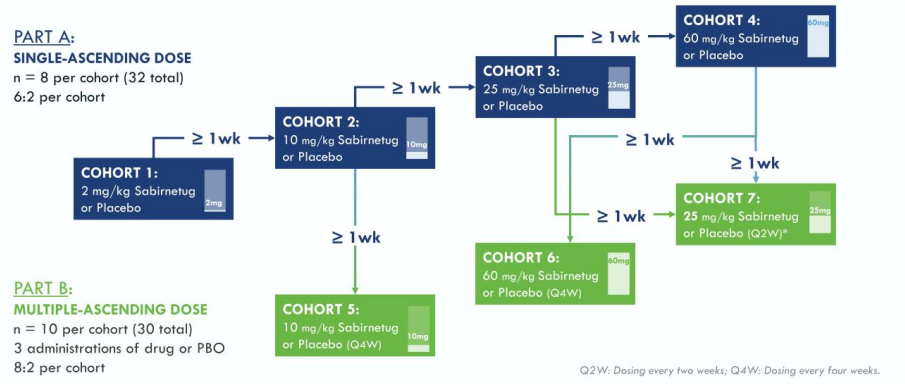
INTERCEPT-AD: A Randomized Placebo Controlled Phase 1 in Early AD Patients



Q2W: Dosing every two weeks; Q4W: Dosing every four weeks.

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TARGET ENGAGEMENT

Target Engagement Assessed by Measuring Sabirnetug-AβO Complex in CSF

- Novel assay configuration tailored to selectively detect sabirnetug-AβO complex in CSF as direct measure of target engagement
- Translated for clinical use from a preclinical assay developed by Merck that showed sabirnetug engages target AβOs in transgenic mouse brain (tg2576) in dose dependent manner

(please see slide 41 for more information)

MSD S-Plex (Turbo) Immunoassay

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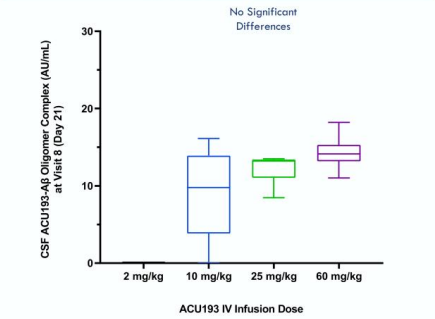
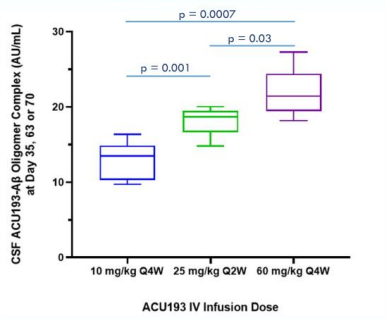
TARGET ENGAGEMENT

Target Engagement of Sabirnetug with AβOs is Dose Proportional

Single Dose Cohorts



Multiple Dose Cohorts*



*One patient from Cohort 5 (10 mg/kg Q4W) excluded because only received one administration of drug (study drug discontinued after lacunar infarct).

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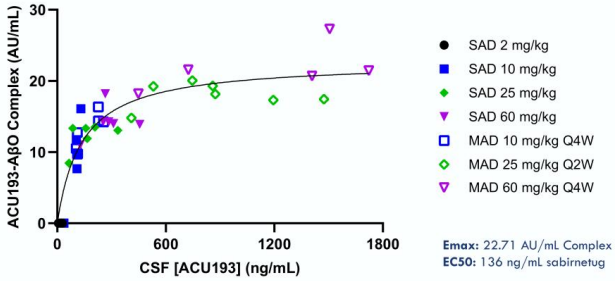
TARGET ENGAGEMENT

Doses Approaching Maximal Target Engagement Support Sabirnetug AβO Mechanism and Helped Guide Dose Selection for Next Study Phase

Single & Multiple Dose Cohorts - Exposure Response Relationship (Emax Model)

Target Engagement

Sabirnetug-AβO Complex



Emax: 22.71 AU/mL Complex
EC50: 136 ng/mL sabirnetug

*One patient from Cohort 5 (10 mg/kg Q4W) excluded because only received one administration of drug (study drug discontinued after lacunar infarct).

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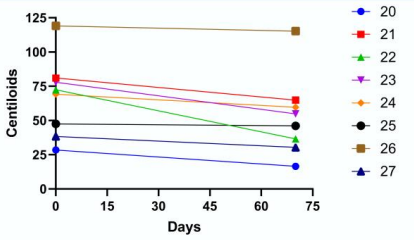
PLAQUE REDUCTION

Nearly All Sabirnetug-Treated Patients in High Dose MAD Cohorts Showed Reductions in Plaque Load After Three Doses at 63 or 70 days

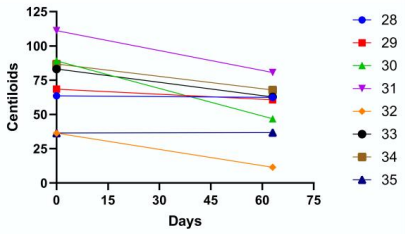
25 mg/kg Q2W MAD



Mean reduction in amyloid plaque

Δ (absolute value, centiloids)	13.7
Δ (%, centiloids)	20.6%

60 mg/kg Q4W MAD



Mean reduction in amyloid plaque

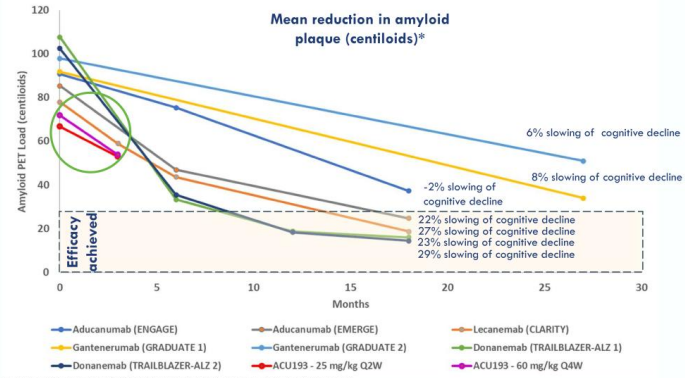
Δ (absolute value, centiloids)	18.1
Δ (%, centiloids)	25.6%

Plaque load based on florbetapir PET

ACUMEN

PLAQUE REDUCTION

Highest Doses of INTERCEPT-AD Reduced Amyloid Plaque at Similar Rate and Magnitude to Lecanemab at Comparable Timepoints



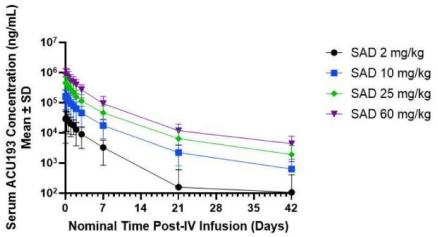
Acumen Pharmaceuticals, data on file; van Dyck (2023), NEJM (amyloid PET reduction estimated from graphs).
*There have been no head-to-head clinical trials between the product candidates listed above. Study designs and protocols for each product candidate were different, and as a result, results may not be comparable between product candidates.

ACUMEN

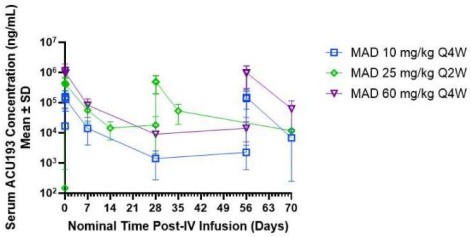
PHARMACOKINETICS

Sabirnetug Serum Exposure is Dose Proportional Without Accumulation

Single Dose Cohorts



Multiple Dose Cohorts



Estimated serum terminal $T_{1/2}$ of 5-7 days

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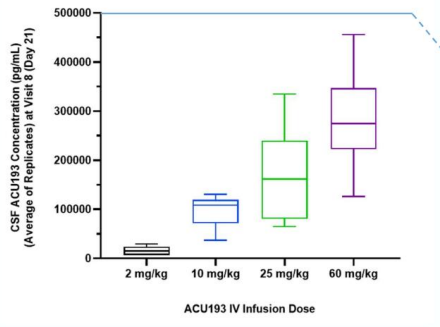
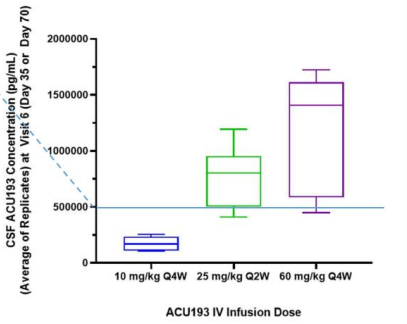
PHARMACOKINETICS

Sabirnetug CSF Exposure is Dose and Dose-Regimen Proportional

Single Dose Cohorts



Multiple Dose Cohorts*



*One patient from Cohort 5 (10 mg/kg Q4W) excluded because only received one administration of drug (study drug discontinued after lacunar infarct).

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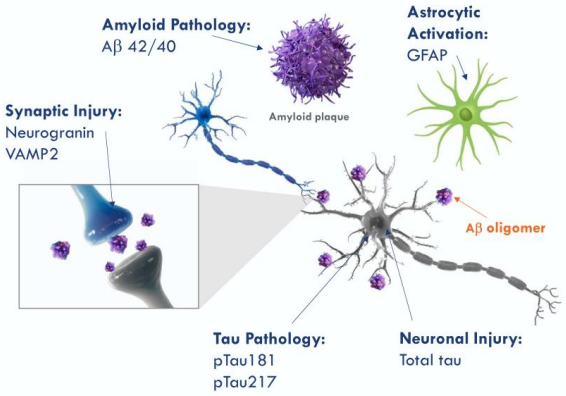
Importance of Key Fluid Biomarkers Associated with AD Pathology

- Biomarkers from cerebrospinal fluid and plasma capture neuronal, synaptic, and axonal injury and reflect the cumulative outcome of different pathological substrates in AD[1]
- Evidence suggests that biomarkers are likely to be better predictors of the underlying pathology of AD than imaging alone[2]
- **After just three administrations of sabirnetug, patients with early AD demonstrated improvements in biomarkers associated with AD pathology**



1. Tarawneh, R. Biomarkers: Our Path Towards a Cure for Alzheimer Disease. Biomarker Insights Volume 15: 1–15. 2020; 2. Blennow K, Zetterberg H. The Past and the Future of Alzheimer's Disease Fluid Biomarkers. J Alzheimers Dis. 2018;62(3):1125-1140.

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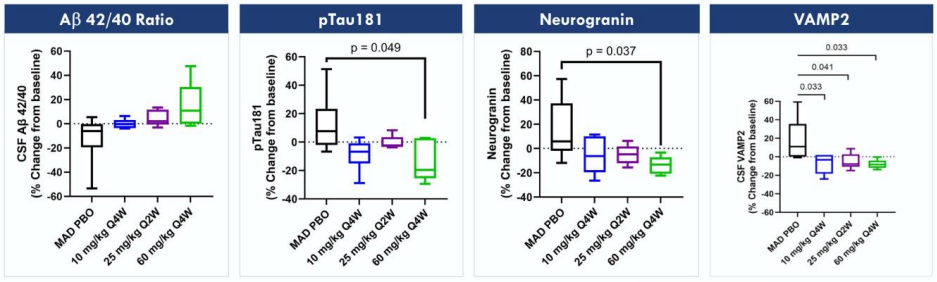
CSF BIOMARKERS

Consistent Improvement in CSF Amyloid, Tau and Synaptic Biomarkers Indicate Downstream Pharmacology of Sabirnetug After Only Three Doses



Amyloid pathology *Tau pathology* *Synaptic injury*

n = 8 subjects/treated group; 6 subjects in pooled placebo (PBO); p-values from unpaired, 2-sided Student's t test

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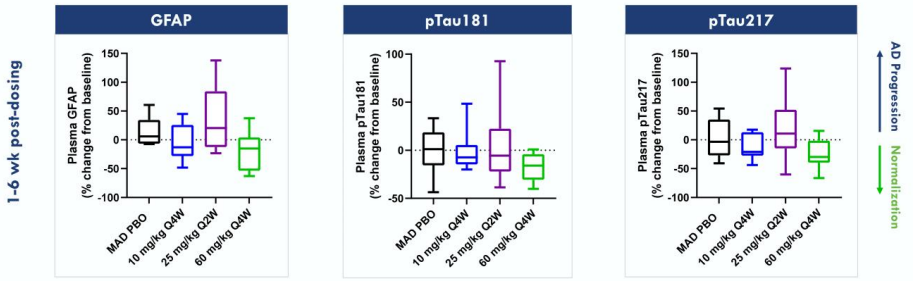
PLASMA BIOMARKERS

Trend Toward Normalizing Plasma Biomarkers with 10 mg/kg and 60 mg/kg Q4W



- Plasma measurements of glial fibrillary acidic protein (GFAP), pTau181, and pTau217 in 10 mg/kg Q4W & 60 mg/kg Q4W groups were lower than placebo
- More impact to fluid biomarkers was observed with longer dosing duration
  - The 25 mg/kg Q2W cohort differed in dose and sample timing, with drug on board for less time than the 10 mg/kg & 60 mg/kg Q4W cohorts

n = 8 subjects/treated group; 6 subjects in pooled placebo (PBO); p-values from unpaired, 2-sided Student's t test

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SAFETY

Sabirnetug Demonstrates Potential for Best-in-Class Safety

Compelling Overall Safety Profile, with Low Incidence of ARIA-E

INTERCEPT-AD Phase 1 Safety Data

5 Total ARIA-E cases, or ~10%

0 Cases of ARIA-E in ApoE4 homozygotes N=6

0 Deaths, SAEs Related to Study Drug

✓ **Limited incidence of ARIA-E**
- 10 mg/kg Q4W: 1 asymptomatic case
- 25 mg/kg Q2W: 1 asymptomatic case
- 60 mg/kg Q4W: 2 asymptomatic cases; 1 symptomatic case

✓ **No ARIA-E observed in ApoE4 homozygotes (n=6), despite comprising 13% of study**
- Differentiated from other antibodies that have ARIA-E rates ~30% to ~40% in participants who are E4-homozygotes

✓ **Broad therapeutic index** with convenient monthly dosing
- Safety profile may support attractive benefit/risk option for large portion of patients

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INTERCEPT-AD Phase 1 Data Support Potential for Sabirnetug to Offer Best-in-Class Efficacy and Safety

	Key Takeaways from INTERCEPT-AD
Potential for Differentiated Efficacy	✓ First mAb to demonstrate selective target engagement of AβOs (most toxic form of Aβ) ✓ Rapid, significant plaque reduction comparable to the current market front-runners at similar timepoints ✓ Improvement of AD biomarkers in CSF and plasma are a strong indication of downstream effects
Potential for Differentiated Safety	✓ Compelling safety profile with low incidence of ARIA-E ✓ Absence of ARIA-E observed in ApoE4 homozygotes ✓ Broad therapeutic index with convenient monthly dosing

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Clinical Development Plans & Strategic Considerations

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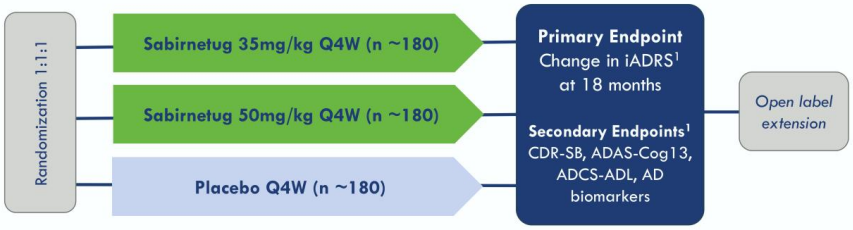
ALTITUDE-AD Study Design

Objective: To evaluate the clinical efficacy, safety and tolerability of sabirnetug
Patient population: Patients with early AD (MCI or mild dementia due to early AD)



1. iADRS: Integrated Alzheimer's Disease Rating Scale; CDR-SB: Clinical Dementia Rating – Sum of Boxes; ADAS-cog: Alzheimer's Disease Assessment Scale – Cognitive Subscale; ADCS-ADL: Alzheimer's Disease Cooperative Study – Activities of Daily Living

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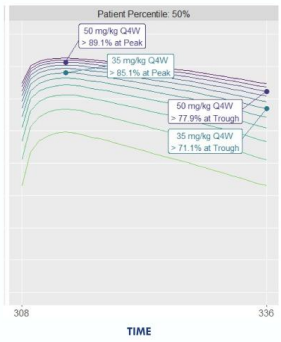
Simulated CSF Target Engagement at Steady-State for ALTITUDE-AD Doses

CSF target engagement was simulated at a candidate list of doses given Q4W at steady-state



Ph2 Dosing Strategy (ALTITUDE-AD)

lower dose: 35 mg/kg Q4W

upper dose: 50 mg/kg Q4W

- Notable **diminishing differentiation** as dose increases
- Doses were selected with **peak-trough** variation in mind: select doses based on trough (end of dosing interval) CSF engagement

Regimen — 10 mg/kg Q4W — 15 mg/kg Q4W — 20 mg/kg Q4W — 25 mg/kg Q4W — 30 mg/kg Q4W — 35 mg/kg Q4W — 40 mg/kg Q4W — 45 mg/kg Q4W — 50 mg/kg Q4W — 55 mg/kg Q4W — 60 mg/kg Q4W

Sabirnetug Subcutaneous Formulation Under Development in Collaboration with Halozyme

Potential to Broaden Patient Access and Increase Treatment Convenience

Halozyme

- Announced partnership with Halozyme in November 2023 to develop subcutaneous dosing option for sabirnetug
- Halozyme's drug delivery technology, ENHANZE®, is commercially validated in seven approved therapies, with global collaborations covering more than 60 therapeutic targets
- Current sabirnetug potential target product profile inclusive of no more than single weekly injection

Plan to initiate Phase 1 bioavailability study in mid-2024 comparing the pharmacokinetics of subcutaneous forms of sabirnetug to the IV form

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Acumen Leadership Team

Experienced in AD/Neuro Drug Development

DANIEL O'CONNELL
Chief Executive Officer
ACUMEN
neuroVentures

JAMES DOHERTY, PHD
President &
Chief Development Officer
ACUMEN
Sage Therapeutics
AstraZeneca

ERIC SIEMERS, MD
Chief Medical Officer
ACUMEN
Lilly

MATT ZUGA
Chief Financial Officer &
Chief Business Officer
ACUMEN
HIGHCAPE PARTNERS

RUSSELL BARTON
Chief Operating Officer
ACUMEN
Lilly

JANICE HITCHCOCK, PHD
VP, Regulatory Affairs
ACUMEN
Lilly

LIEAN SCHENK
VP, Head of CMC
ACUMEN
Lilly Lonza
NOVAVAX

SIEW TIN GAN
Head of Clinical
Operations
ACUMEN
Takeda

ROBERT DEAN, MD, PHD
Sr. Development Advisor,
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Methods
ACUMEN
Lilly

JASNA JERECIC, PHD
Analytical Methods
Leader, Research Scientist
ACUMEN

DEREK MEISNER, JD
Chief Legal Officer
ACUMEN
X4

JULIE BOCKENSTETTE
Executive Vice President,
Head of HR
ACUMEN
Roche
Lilly

Acumen team has decades of experience in Alzheimer's drug discovery and development

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Sabirnetug IP & Market Exclusivity

- Exclusive, perpetual, irrevocable, worldwide, royalty-free license from Merck to its Amyloid Derived Diffusible Ligand (ADDL) IP including issued sabirnetug patents
- Sabirnetug Global IP estate:
  - ✓ Issued patents in 19 countries
  - ✓ Composition of matter patents and methods of use run into July 2031
  - ✓ Patent term extensions may be available, 3-5 years depending on jurisdiction
- Biologics market exclusivity is expected for sabirnetug as a novel biologic drug
  - ✓ US provides 12 years market exclusivity for novel biologics
  - ✓ Europe provides 10 years of market exclusivity for novel biologics

Significant Milestones Achieved in 2023 and 2024

MILESTONES	STATUS/ EXPECTED TIMING
Proof-of-mechanism topline results	✓
Biomarker results from Phase 1 study	✓
End of Phase 2 meeting with FDA	✓
Initiation of ALTITUDE-AD trial	✓
Anticipated initiation of Phase 1 subcutaneous trial	Mid-2024

~$297M

Cash, cash equivalents and marketable securities as of Mar. 31, 2024

We believe that Acumen has the expertise and resources to advance sabirnetug into the first half of 2027

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Summary

Key Takeaways

- ✓ Significant and growing Alzheimer's population in need of additional treatment options
- ✓ Sabirnetug demonstrates high selectivity for toxic AβOs in AD patients
- ✓ Highly experienced clinical, regulatory and development leaders driving sabirnetug 's development
- ✓ **Positive Phase 1 data strengthen potential for sabirnetug to offer best-in-class efficacy and safety**

Next Steps

- ✓ Initiated ALTITUDE-AD clinical study in May 2024

  Two treatment arms versus placebo: 50 mg/kg Q4W and 35 mg/kg Q4W

- ➡ Anticipate initiation of Phase 1 subcutaneous clinical study in mid-2024

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Appendix

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Preclinical Data

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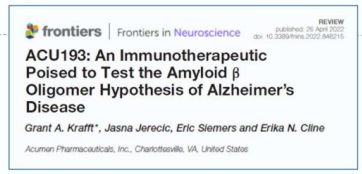
Sabirnetug: Extensive Data Package Supporting Development

SELECTIVITY
- Nanomolar affinity for AβOs, >500-fold greater selectivity for AβOs over Aβ monomer, with limited or no discernable binding to vascular amyloid or dense core amyloid plaques
- Binds broad range of endogenous Aβ, from dimers to high molecular weight AβOs

PHARMACOLOGY
- Dose-dependent effects in multiple in vitro neuroprotection assays
- Positive memory and behavioral effects in multiple in vivo transgenic mouse models for AD

PK/PD
- Brain penetration and biodistribution demonstrated in multiple species
- Performs like other peripherally administered CNS mAbs

SAFETY
- IgG2 subclass lacks inflammatory effector function signaling (FcγR binding)
- Nonclinical microhemorrhage studies show no increased risk of microhemorrhage
- GLP studies demonstrated acceptable safety supporting clinical dosing plans including Ph 2


frontiers | Frontiers in Neuroscience

REVIEW

ACU193: An Immunotherapeutic Poised to Test the Amyloid β Oligomer Hypothesis of Alzheimer's Disease

Grant A. Krafft*, Jasna Jerecic, Eric Siemers and Erika N. Cline

Acumen Pharmaceuticals, Inc., Charlottesville, VA, United States

Sabirnetug is a promising immunotherapy for early AD expected to provide meaningful cognitive and functional benefits, slow disease progression, and offer an attractive safety profile.

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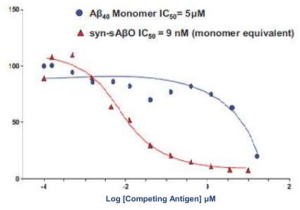
SELECTIVITY

Sabirnetug is the First mAb Developed to Selectively Target AβOs

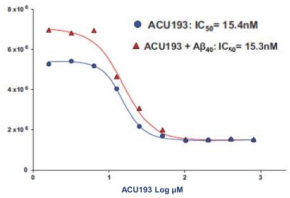
Highly selective for Aβ oligomers versus Aβ monomers

Sabirnetug Selectivity



Binding of sabirnetug to AβOs >500x binding to Aβ monomer

Sabirnetug Selectivity in presence of 5µM monomeric Aβ



Even in the presence of a large excess of Aβ monomer, binding of sabirnetug to AβOs is unchanged

Sabirnetug selective for binding to AβOs is preserved even in the presence of a large excess of Aβ monomers – such as what is present in the brain, thus limiting 'target distraction'

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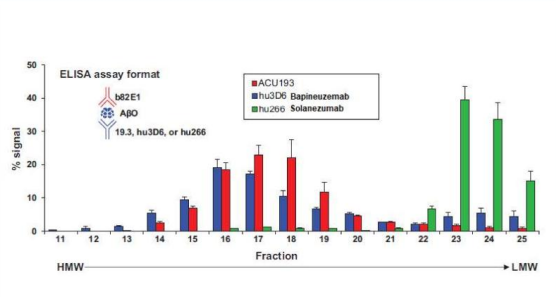
SELECTIVITY

Sabirnetug Binds to a Wide Range of Oligomeric Species of Aβ

Comparison of Aβ species-mAb complex signals across SEC fractions



Sabirnetug binds to oligomeric species of Aβ that are differentiated from those bound by hu266 (solanezumab) or hu3D6 (bapineuzumab)

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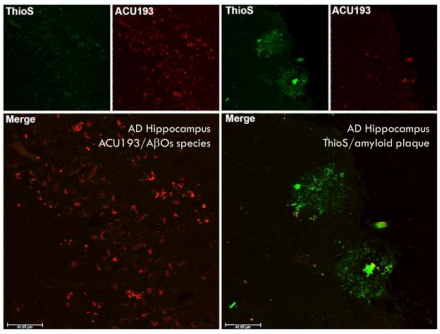
SELECTIVITY

Sabirnetug is Highly Selective for AβOs Versus Aβ Plaques

Sabirnetug staining in human AD brain slices sabirnetug (red) binds non-Thioflavin S positive Aβ (green)



Sabirnetug has little or no binding to thioflavin S positive fibrillar Aβ plaque in human AD brain tissue

Sources: E. Cline et al. CTAD 2019.

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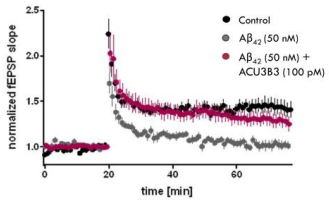
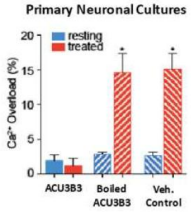
AβOs Bind to Neurons and are Toxic; Mouse Analogue of Sabirnetug Prevents Toxicity

After binding to neurons, AβOs disrupt Long Term Potentiation (LTP) and cause pathologic increases in intracellular calcium that is destructive to cells.

ACU3B3 prevents AβO inhibition of hippocampal LTP *ex vivo*



ACU3B3 prevents AβO mediated Ca2+ elevation in cell cultures



Note: (1) ACU3B3 is the mouse monoclonal antibody precursor to and equivalent of humanized sabirnetug (ACU193)

ACU3B3 prevents changes in aberrant neuronal activity thought to underlie memory loss in AD and prevents AβO mediated disruption of calcium homeostasis in neuronal cultures

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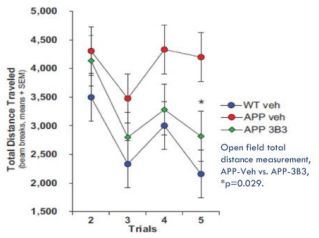
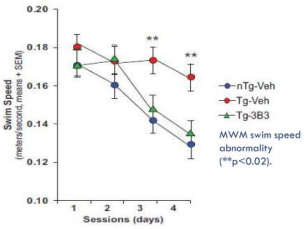
Treatment of a Transgenic Mouse Model of AD Results in Behavioral Improvements

Murine parent version of sabirnetug (ACU3B3) was used to treat younger mice with depositing plaque or older mice with abundant plaque



Open field total distance measurement, APP-Veh vs. APP-3B3, *p=0.029.

Deficits in younger (5-7 months) transgenic mice are markedly reduced with treatment



MWM swim speed abnormality (**p<0.02).

Deficits in older (9-10 months) transgenic mice are markedly reduced with treatment

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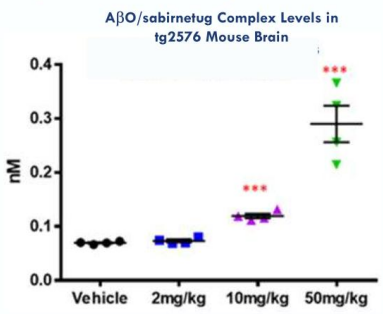
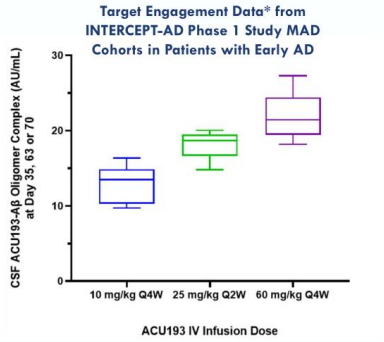
Sabirnetug Enters the CNS and Binds to AβOs in Transgenic Mice and Patients with Early AD in a Dose Dependent Manner





Sabirnetug engages target AβOs in transgenic mouse brain (tg2576) and is found in CSF of patients with early AD

*One patient from Cohort 5 (10 mg/kg Q4W) excluded because only received one administration of drug (study drug discontinued after lacunar infarct).

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