ÆTERNA ZENTARIS

In Pursuit of Medical Innovations

November 2023
Corporate Presentation

Forward-Looking Statements

This document contains statements that may constitute forward-looking statements within the meaning of U.S. and Canadian securities legislation and regulations, and such statements are made pursuant to the safe-harbor provision of the U.S. Securities Litigation Reform Act of 1995. Forward-looking statements are frequently, but not always, identified by words such as "expects," "aiming", "anticipates," "believes," "intends," "potential," "possible," and similar expressions. Such statements, based as they are on current expectations of management, inherently involve numerous risks, uncertainties and assumptions, known and unknown, many of which are beyond our control.

Forward-looking statements in this document include, but are not limited to, those relating to Aeterna's expectations regarding: our cash position and our ability to fund future operations; the timing for and status of clinical and preclinical studies for our programs, including AEZS 150; our efforts to secure a commercialization partner for Macrilen® (macimorelin) in the U.S. and Canada; the timing for the completion of enrollment in our Phase 3 DETECT study; and our proposed next steps for each of our priority pipeline programs, including with respect to regulatory developments and clinical and pre-clinical studies. Additionally, certain forward-looking statements in this presentation may be considered “financial outlook” for the purposes of applicable securities laws. Financial outlook is provided for the purposes of assisting the reader in understanding our financial performance and our ability to meet management’s strategic objectives and the reader is cautioned that it may not be appropriate for other purposes.

Forward-looking statements involve known and unknown risks and uncertainties, and other factors which may cause the actual results, performance or achievements stated herein to be materially different from any future results, performance or achievements expressed or implied by the forward-looking information.

Such risks and uncertainties include, among others: we may not be successful in finding a commercialization partner for Macrilen® (macimorelin) in North America or other territories not currently partnered; we may not be able to re-launch sales of Macrilen® (macimorelin) in the United States; our reliance on the success of the DETECT trial in CGHD; results from our ongoing or planned pre-clinical studies and our DETECT trial may not be successful or may not support advancing the product further in pre-clinical studies, to human clinical trials or regulatory approval; our ability to raise capital and obtain financing to continue our currently planned operations; our now heavy dependence on the success of macimorelin (Macrilen®; GHRYVELIN™) and related out-licensing arrangements and the continued availability of funds and resources to successfully commercialize the product; our ability to enter into out-licensing, development, manufacturing, marketing and distribution agreements with other pharmaceutical companies and keep such agreements in effect; and our ability to continue to list our common shares on the NASDAQ. Investors should consult our quarterly and annual filings with the Canadian and U.S. securities commissions for additional information on risks and uncertainties, including those risks discussed in our Annual Report on Form 20-F and annual information form under the caption "Risk Factors". Given the uncertainties and risk factors, readers are cautioned not to place undue reliance on these forward-looking statements. We disclaim any obligation to update any such factors or to publicly announce any revisions to any of the forward-looking statements contained herein to reflect future results, events or developments, unless required to do so by a governmental authority or applicable law.

No securities regulatory authority has either approved or disapproved of the contents of this presentation.

Certain Other Matters

Any graphs, tables or other information demonstrating our historical performance or that of any other entity contained in this presentation are intended only to illustrate past performance of such entities and are not necessarily indicative of future performance. This presentation is for informational purposes only, does not purport to contain all of the material information with respect to the Company and is not a recommendation that any person should make an investment in the Company. Moreover, this presentation does not constitute an offer to sell or a solicitation of an offer to buy or acquire securities of the Company in any jurisdiction or an inducement to enter into investment activity, nor may it or any part of it form the basis of or be relied on in connection with any contract or commitment whatsoever. Any reference to “$” or “dollars” means United States dollars.

Investment Highlights

Specialty biopharmaceutical company developing and commercializing a diversified portfolio of pharmaceutical and diagnostic products

Targeting multiple high value indications with significant unmet need across *therapeutics* and *diagnostics*

Rapidly advancing development programs towards proof-of-concept maximizes opportunity while conserving capital

Strong cash position with sufficient capital to fund operations and advance programs into 2025[1]

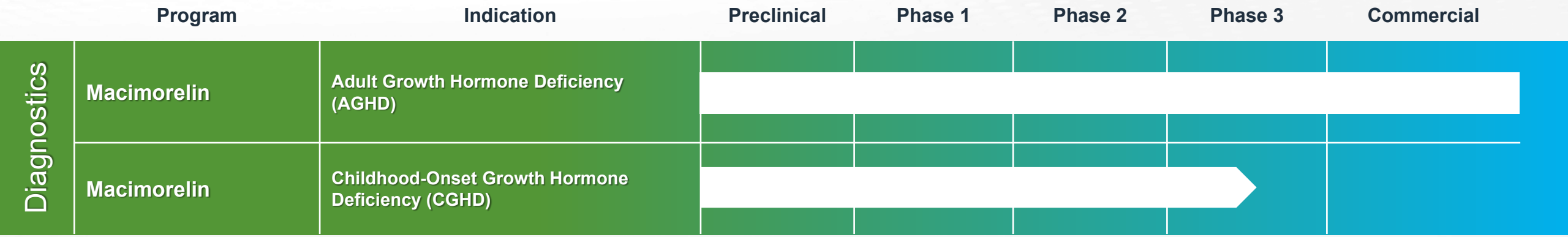
1: Based on Management's current expectations and planned development activities

Therapeutic Pipeline Targeting High-Value Indications

Program	Indication	Preclinical	Phase 1	Phase 2	Phase 3
AIM Biologicals	Neuromyelitis Optica Spectrum Disorder (NMOSD)		• Demonstrated positive preclinical proof-of-concept • Conducting preclinical studies in NMOSD with Mass General Hospital • Scientific advice meetings with regulatory authorities in near future		
	Parkinson's Disease (PD)				
AEZS-150 (Delayed clearance parathyroid hormone)	Chronic Hypoparathyroidism		• Detailed profiling through *in vitro* studies and *in vivo* models • GMP manufacturing • Initiate IND-enabling preclinical studies in 2024		
AEZS-130 (Macimorelin)	Amyotrophic Lateral Sclerosis (ALS, Lou Gehrig's Disease)		• Accumulating data for positive effects on survival of motor-neurons • Continued assessment in transgenic mouse ALS models and human patient-derived neuron cultures • Tox and safety studies ongoing and based on existing body of data		

Diagnostic Commercial and Development Pipeline

Robust Business Development Efforts to Identify and Secure Commercialization Partner in United States



U.S./Canada[1]	European Economic Area / UK	Israel and Palestine Authority	Turkey and some Balkan Countries	Korea	ROW
ÆTERNA ZENTARIS	Pharmanovia	MegaPharm We Know The Way	ER-KIM	Pharmbio Korea Inc.	ÆTERNA ZENTARIS

1. Sales of Macrilen® (macimorelin) are temporarily discontinued in the United States commercial market for the diagnosis of adult growth hormone deficiency ("AGHD"), until anticipated re-launch with an alternate commercialization partner. Aeterna has an ongoing effort to identify strategic development and commercialization partner.

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AIM Biologicals Platform

Targeted, Highly Specific Autoimmunity Modifying Therapeutics

Potential to address not only the symptoms, but the cause of auto-immune, inflammatory, neurodegenerative disorders early on. Induction of selective and highly target specific immune tolerance based on the natural concept of feto-maternal tolerance.

In Development for:

Neuromyelitis Optica Spectrum Disorder (NMOSD)

Parkinson's Disease (PD)

AIM Biologicals:

Differentiated Approach to Autoimmune Diseases

Novel Autoimmunity Modifying Therapeutic Proteins

- Innovative platform technology enabling antigen-specific tolerization in auto-immune disease
- Leverages natural processes that take place during pregnancy which protect the fetus

Autoimmune Diseases Largely Disappear During Pregnancy

- No suppression of immune response to pathogens or early cancer stages
- Excellent tolerability expected

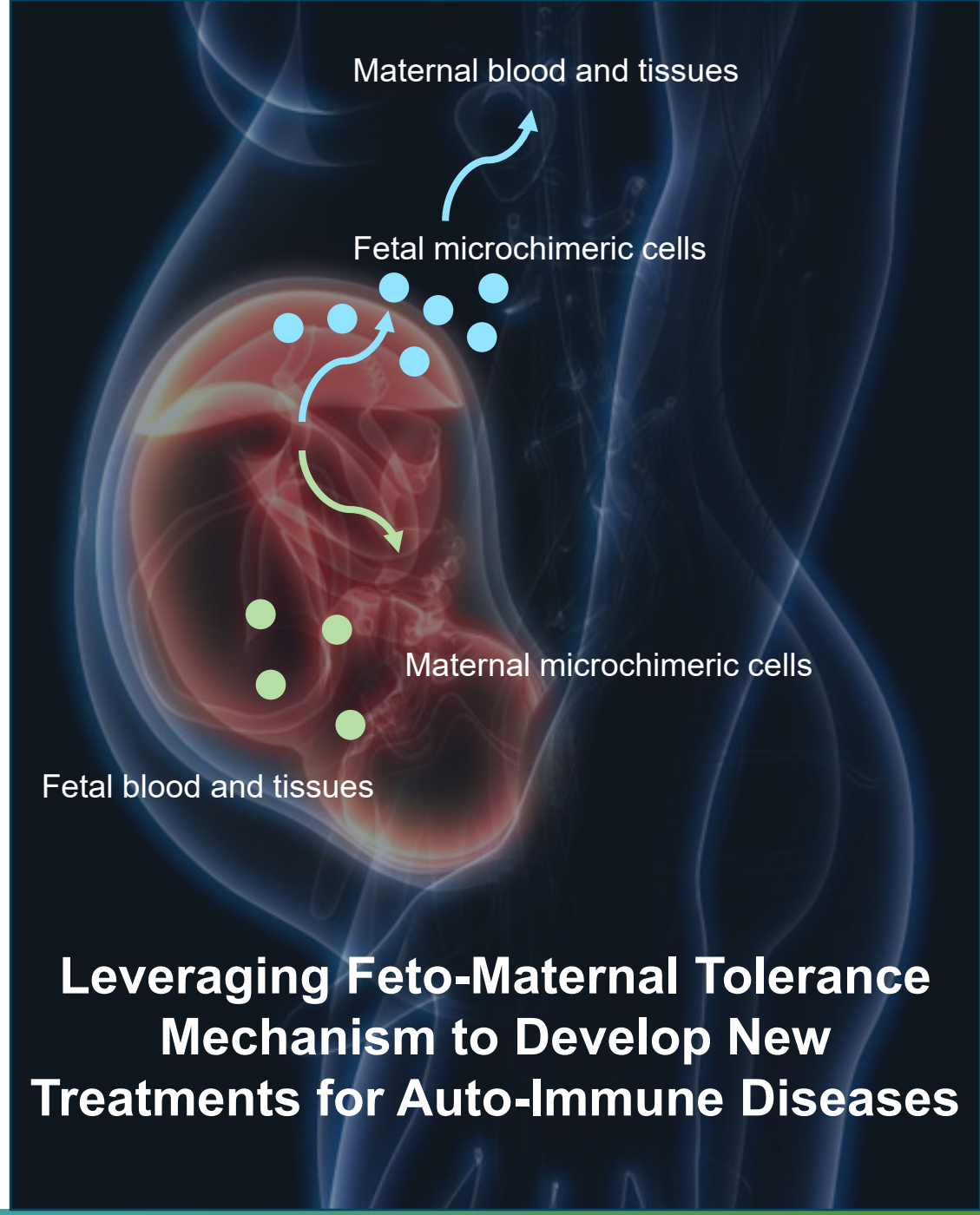
Antigen-presenting
HLA-G molecule = “AIM Bio“

AIM Biologicals:

Mechanism of Action

Antigen-Specific Immunomodulation

- Due to 50% paternal proteins, a fetus is a semi-allograft for the maternal immune system
- Still, fetal cells are tolerated by the mother´s immune system
- AIM Biologicals resemble naturally occurring, pregnancy-associated molecules
- Platform technology can be adapted to different diseases by antigen selection



Leveraging Feto-Maternal Tolerance Mechanism to Develop New Treatments for Auto-Immune Diseases

**Image adapted from BioRender.com (2022)*

*Suah AN 2021 J Clin Invest 131(1)e140715

AIM Biologicals:

Treatment of Neuromyelitis Optica Spectrum Disorder (NMOSD)

Rare, autoimmune disorder leading rapidly to blindness, paralysis and even death if left untreated

Inflammatory lesions of the optic nerve(s), spinal cord and brain

- Affects ~30,000 people in the US[1]
- Expected to be $2.5 billion market by 2028
- Current therapies are costly, life-long treatments with significant side effects

Program Highlights:

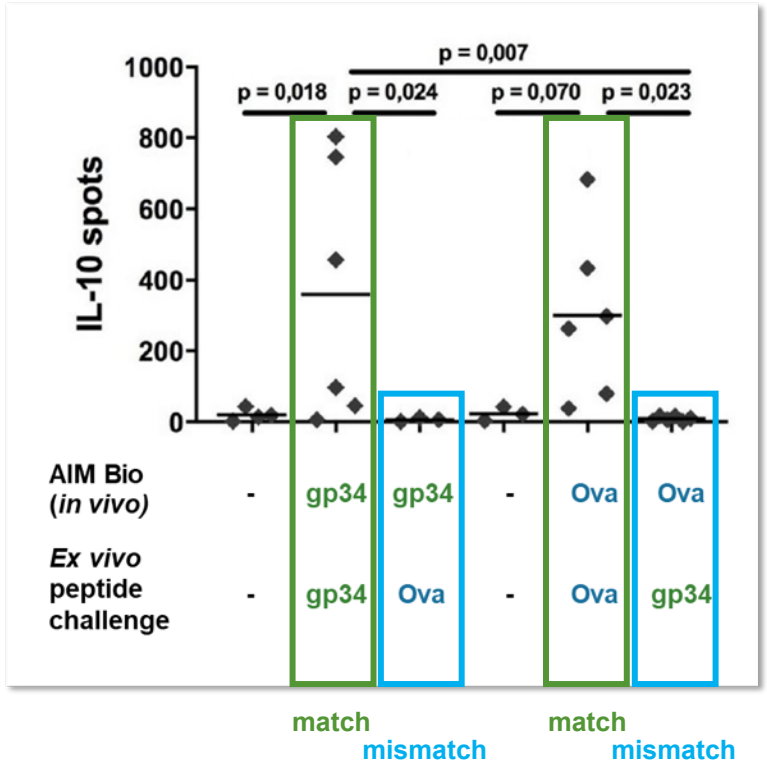
- **Demonstrated positive preclinical proof-of-concept in various *in vitro* and *in vivo* models**
- **In depth profiling of a limited set of candidates for potential use in clinical development**
- **Confirmed mechanism of action and efficacy in *ex vivo* studies in human blood samples from NMOSD patients**
- **Evaluation of manufacturing strategy and initiation of production of selected development candidates**
- **Ongoing compilation of a comprehensive preclinical data package for scientific advice meetings with regulatory authorities, expected to take place in the near future**

1. ACTRIMS 2023: NMOSD 3 times more common in women than men in US | ACTRIMS 2023: Black women have highest rate of NMOSD in US | Neuromyelitis News

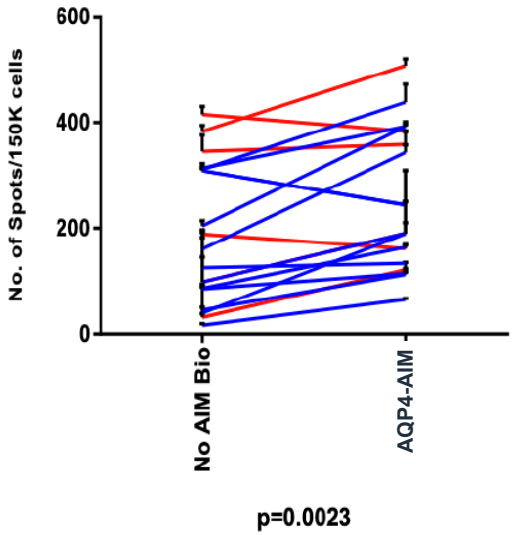
AIM Biologicals:

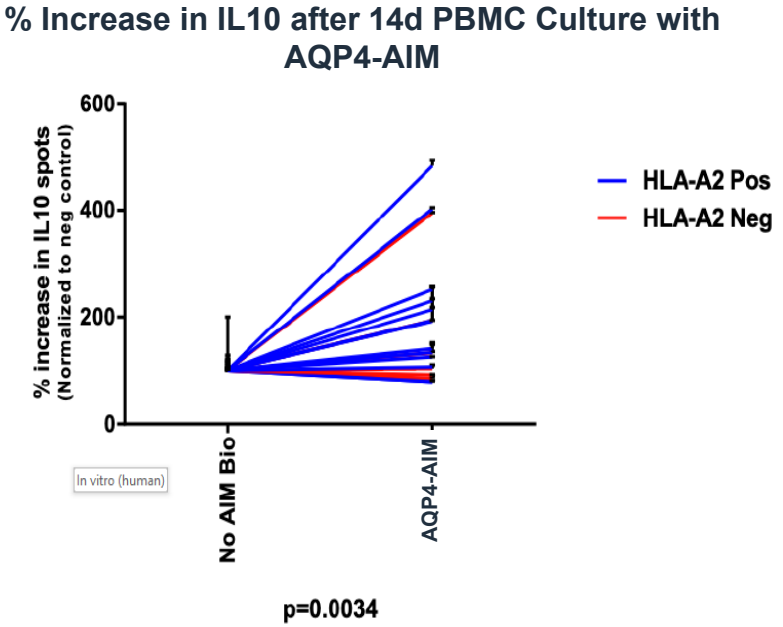
Induce Antigen-Specific Regulatory T Cells *In Vivo*

Antigen-Specific Treg Induction



Induced Regulatory T Cells (Tregs) in 12/13 (92%) Samples from Healthy Donors with the Matching HLA-A2 Epitope (Blue Lines)



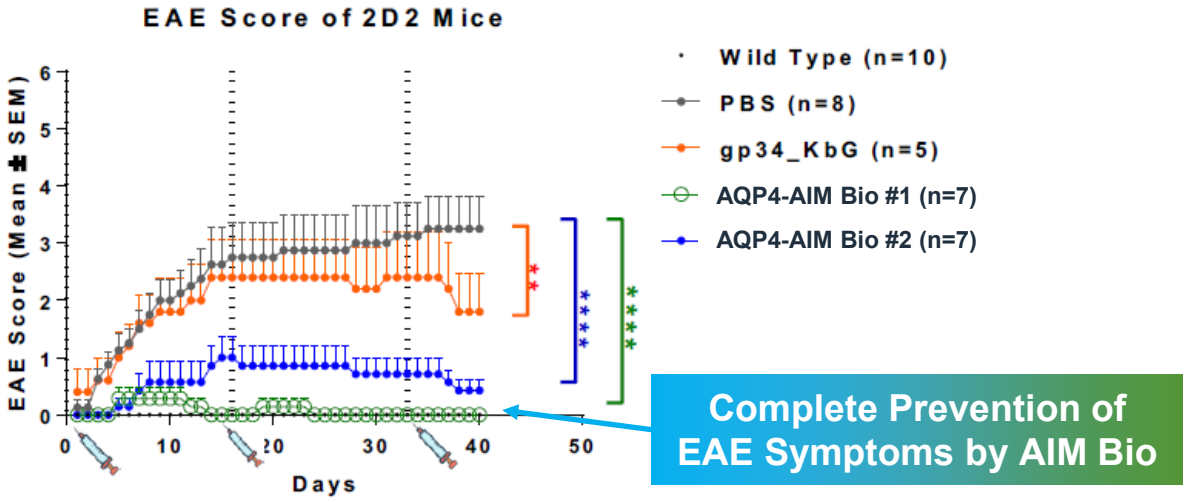


[1] Glazer N 2022 Oxford Open Immunology 3(1)iqac001

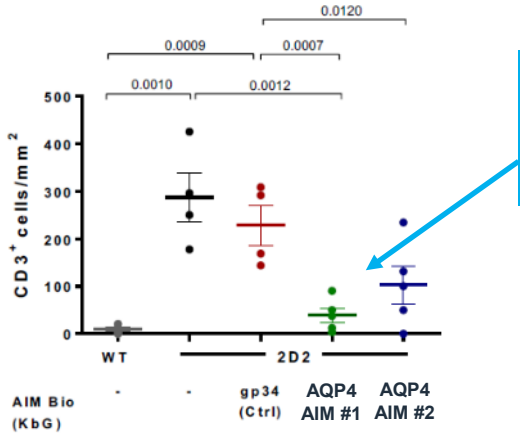
AIM Biologicals:

Demonstrated Efficacy in Preclinical Models

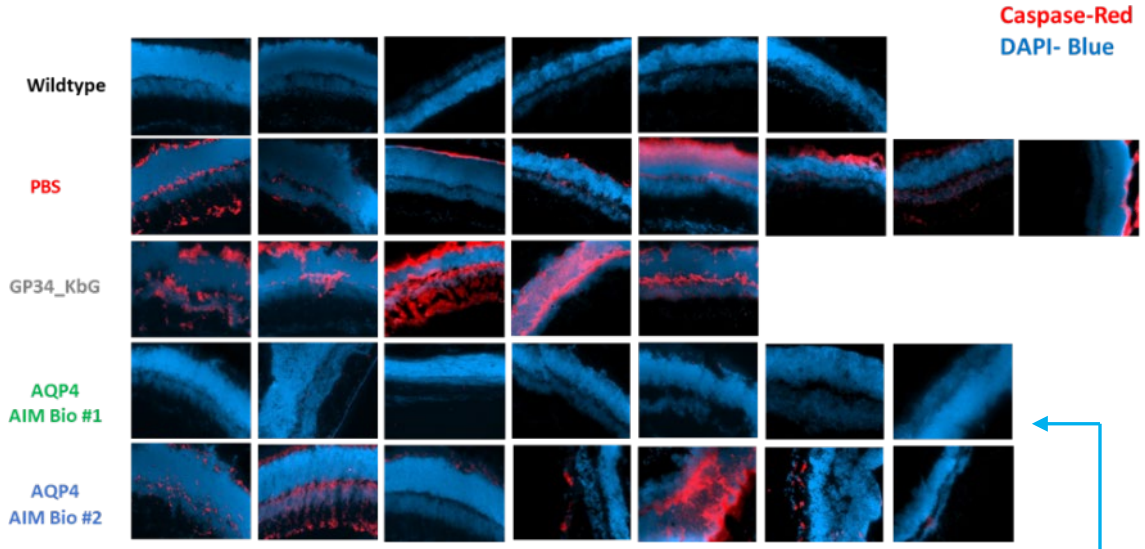
Spontaneous 2D2 Optic Neuritis Mouse Model



Complete Prevention of EAE Symptoms by AIM Bio



Strong Reduction of Cytotoxic T Cells in the Optic Nerve



Protection of the Retina, No Detectable Apoptosis

Program Highlights:

- **Demonstrated positive preclinical proof-of-concept in various *in vitro* and *in vivo* models**
- **In depth profiling of a limited set of candidates for potential use in clinical development**
- **Confirmed mechanism of action and efficacy in *ex vivo* studies in human blood samples from PD patients**
- **Evaluation of manufacturing strategy and initiation of production of selected development candidates**
- **Ongoing compilation of a comprehensive pre-clinical data package for scientific advice meetings with regulatory authorities, expected to take place in the near future**

AIM Biologicals:

Treatment of Parkinson's Disease (PD)

Progressive neurodegenerative autoimmune disease affecting the central nervous system

Primarily impacts the motor system, causing a wide range of physical and non-motor symptoms

α-Synuclein as target antigen

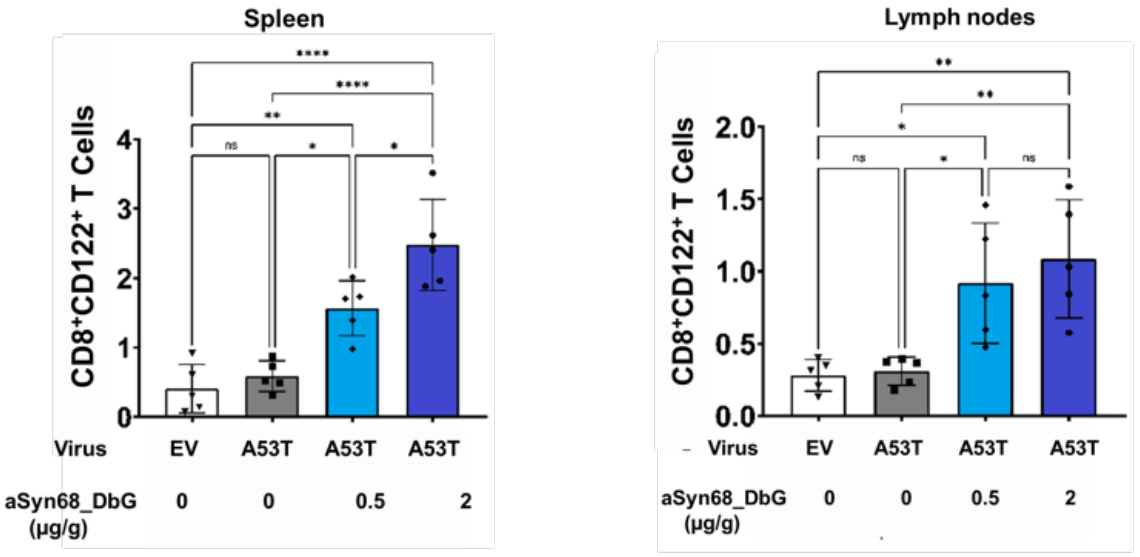
- Affects 9 million people worldwide
- Affects 1.5 million people in the US
- Current treatment market of $4.28 billion

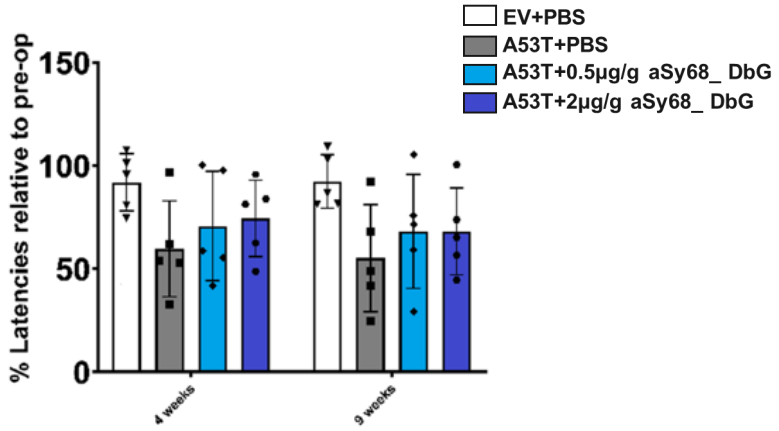
AIM Biologicals:

Demonstrated Improvements in Preclinical Parkinson's Disease Model

Significant induction of regulatory T cells, and improvement in motor function

AIM Bios induce regulatory CD8+CD122+ T cells in spleen and lymph nodes





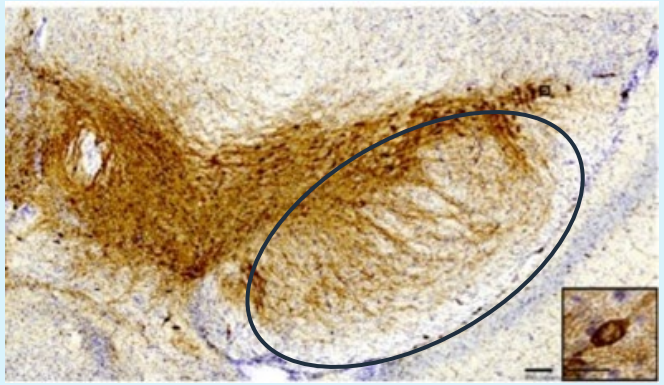
AIM Bios show a trend towards improvement of motor function in the Rotarod test

AIM Biologicals:

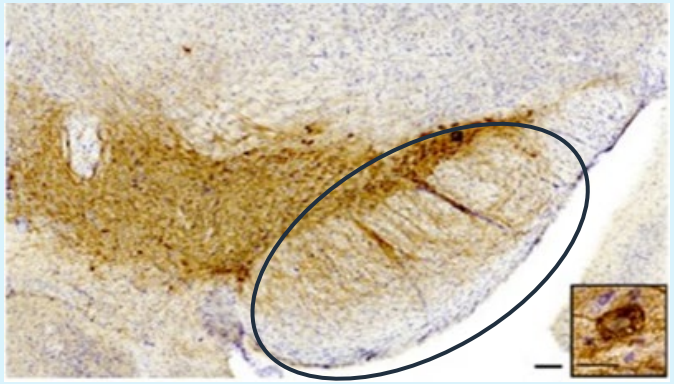
Significant Rescue of Substantia Nigra Neurons

Preclinical Parkinson's Disease Model

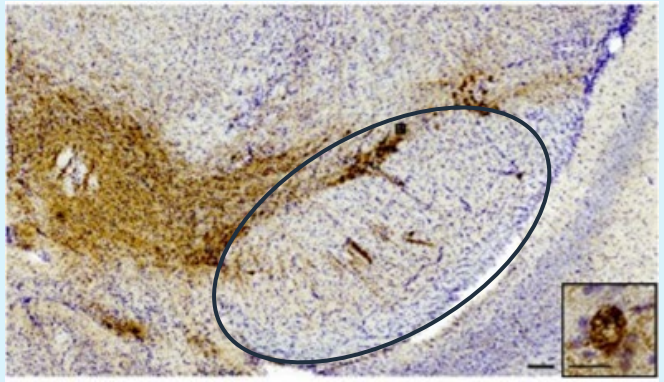
Control (EV)



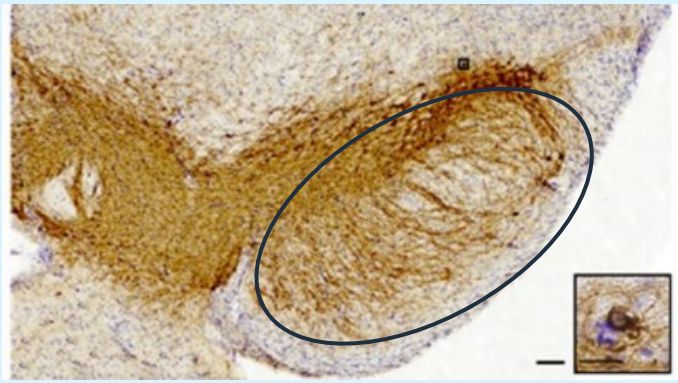
A53T + 0.5 µg/g aSyn-AIM Bio



A53T + PBS

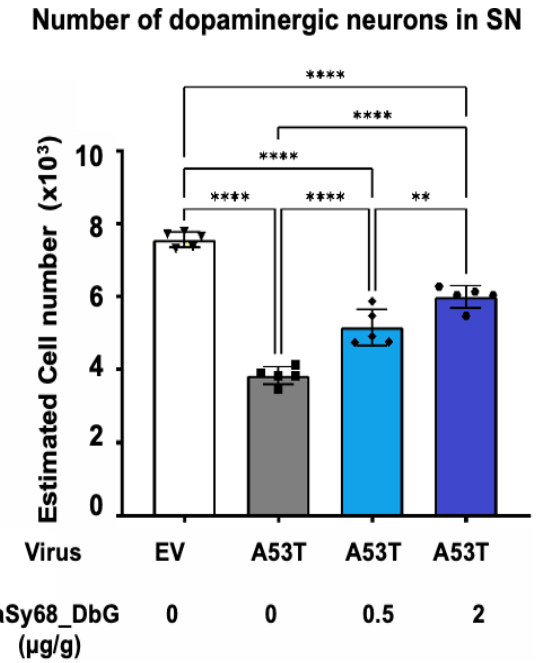


A53T + 2 µg/g aSyn-Aim Bio



Scale bars: 100 µm, 20 µm

Significantly improved survival of SN neurons



AEZS-150

Delayed Clearance Parathyroid Hormone Fusion Polypeptides DC-PTH for the Treatment of Chronic Hypoparathyroidism

AEZS-150/DC-PTH

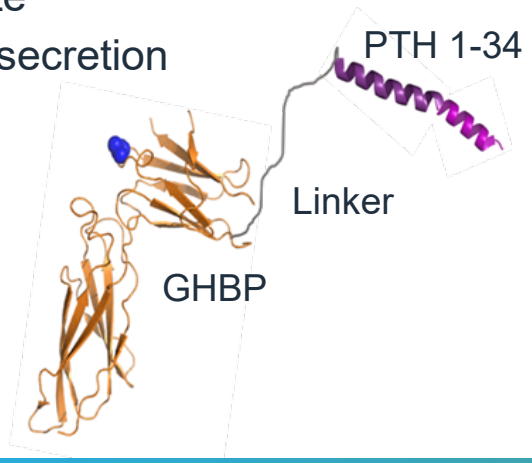
(Delayed Clearance Parathyroid Hormone)

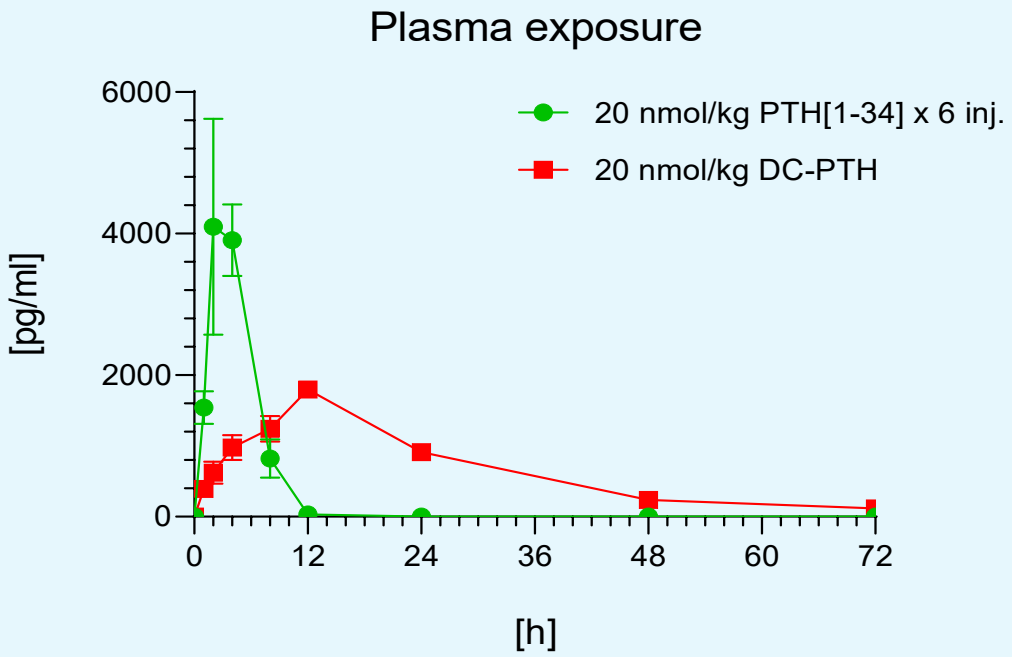
Fusion protein designed to have a delayed clearance and a prolonged activity

Linking PTH 1-34 to GHBP with flexible linker (Gly4Ser)4

Designed to:

- Normalize serum calcium
- Normalize serum phosphate
- Normalize urinary calcium secretion





AEZS-150

Treatment of Chronic Hypoparathyroidism

Progressive metabolic disorder resulting from insufficient secretion of parathyroid hormone

Leads to chronic deficiency of calcium in the blood affecting a number of systems including the neuromuscular and cardiovascular

Last endocrine disorder where hormone replacement is not standard of care

- Market opportunity: US: 60,000 and Europe: 70,000[1]
- Expected to be $2.7 billion market by 2028[1]

Program Highlights:

Detailed profiling through *in vitro* studies and *in vivo* hypoparathyroidism models

Established a master cell bank for a cell line expressing good yield

Continued progress in the development of a production process suitable for larger scale GMP manufacturing

Initiate IND-enabling preclinical studies in 2024

1. DelveInsight 2022 Hypoparathyroidism – Market insight, epidemiology, and market forecast – 2032

AEZS-150

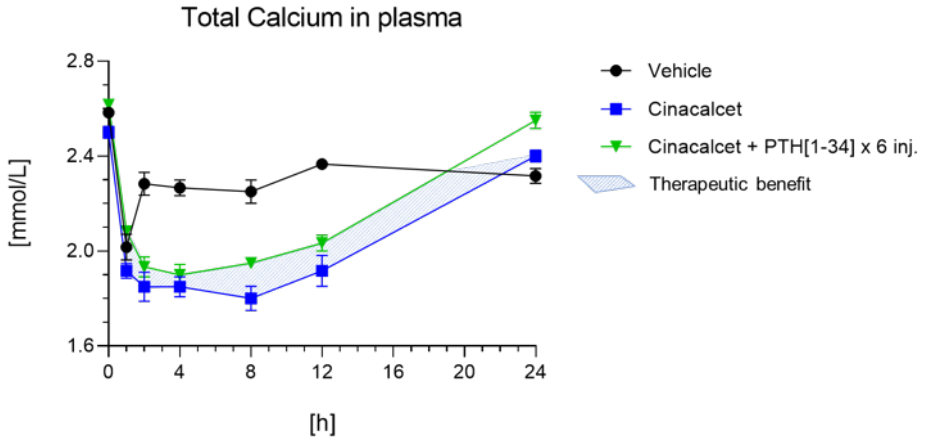
Demonstrated Preclinical Efficacy *In Vivo*

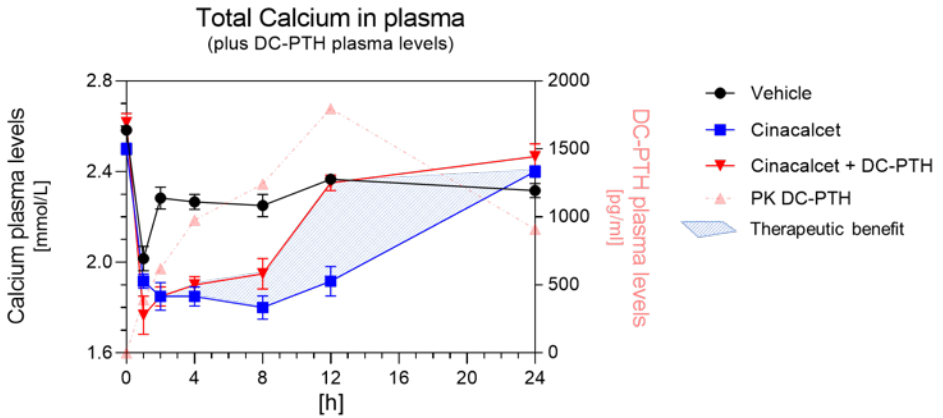
Cinacalcet administration rapidly induces classical symptoms of hypoparathyroidism, i.e. reduced plasma calcium level for up to 12-24 h

Single treatment with 20 nmol/kg DC-PTH (AEZS-150) at t_{0h} normalizes calcium level at 12 h, effect correlates with plasma exposure

Six subsequent treatments of 20 nmol/kg PTH 1-34 ($t_{0\text{-}5h}$) provide only limited improvement of calcium levels

The plasma DC-PTH level reaches a maximum after 12 h and demonstrates delayed clearance





AEZS-130 (Macimorelin)

Ghrelin Agonist for the Treatment of Amyotrophic Lateral Sclerosis (ALS, Lou Gehrig's disease)

Program Highlights:

Successful development of an alternative formulation suitable for use in ALS

Accumulating data for positive effects on survival of motor-neurons

Continued assessment in transgenic mouse ALS models and in human patient-derived neuron cultures

Completion of initial toxicology and safety studies to support clinical development as a therapeutic

AEZS-130:

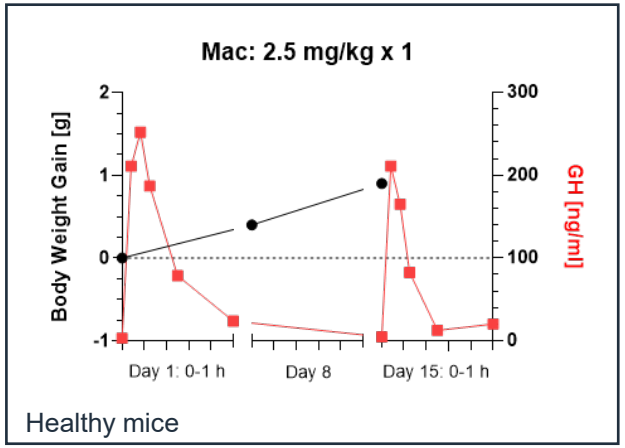
Treatment of Amyotrophic Lateral Sclerosis (ALS; Lou Gehrig's Disease)

Fatal progressive and degenerative neurological disease affects the motor neurons that control voluntary muscle movement

Over time, motor neurons degenerate and die, leading to muscle weakness, loss of muscle control and eventually paralysis

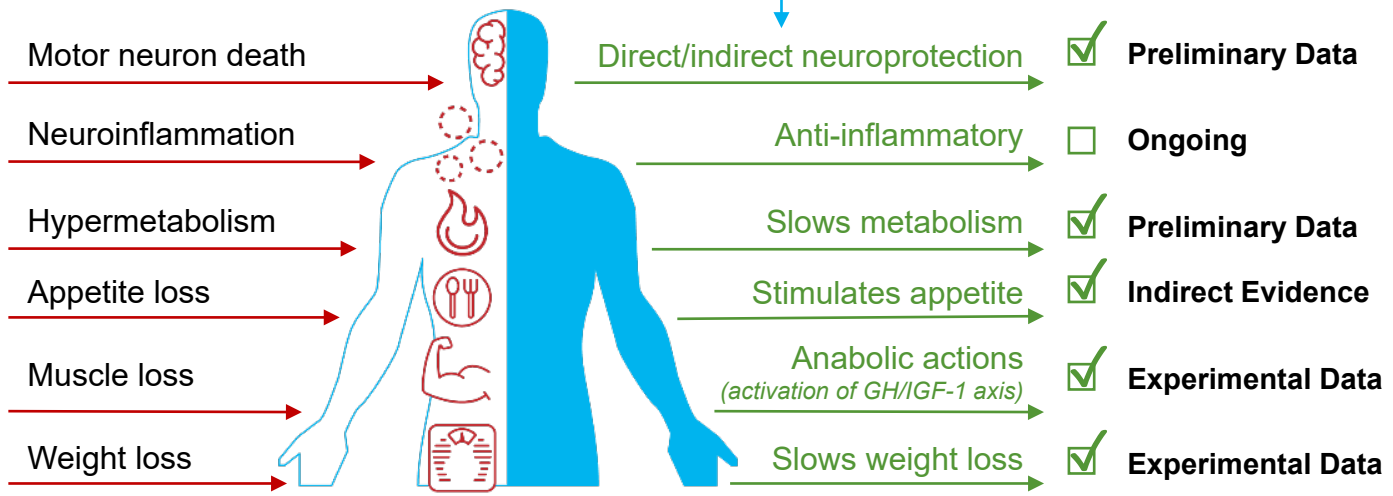
- Affects ~31,000 people in the US
- Significant unmet medical need with no treatment for halting progression

AEZS-130: MoA of Macimorelin in ALS



Disease modifiers
(& pathophysiology)

Macimorelin
(Ghrelin mimetic)



Multiple actions to slow disease progression, improve quality of life and extend survival

Macimorelin potently stimulates GH release and leads to increased body weight gain after repeated dosing in healthy mice

Positive effects on body weight and on the GH/IGF-1 axes observed in mouse ALS models

Neuroprotective activity demonstrated in lower motorneuron cultures derived from induced pluripotent stem cells from ALS patients

Enhanced innervation of motorneurons in mouse ALS models

Macimorelin

A Disruptive Oral Diagnostic Test Solution for Growth Hormone Deficiency

First and Only AGHD Test Approved by US FDA and European Commission

Growth Hormone is Critical to Lifelong Health

Produced by the pituitary gland
(located at the base of the brain)

Children

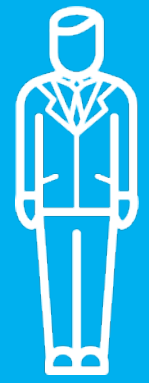
Promotes growth

Reduction in auxological parameters:

- Short stature
- Low growth velocity (speed) for age
- Increased fat around the waist
- Delayed tooth development

Adults

Maintains normal body stature and regulates metabolism



No clear signs or symptoms, but recognized by:

- Metabolic syndrome
- Osteoporosis
- Muscle wasting
- Impaired quality of life

Increased risk of:

- Cardiovascular (CV) issues
- Bone fractures

Macimorelin

Only Approved Oral Diagnostic for GHD

No Other FDA or EC Approved Specific Test for GHD

Insulin tolerance test (ITT) considered the "Gold Standard" in GHD detection procedures[1,2]

Not FDA or EC approved or regulated

"[ITT Test] is increasingly used less frequently in the U.S. because of safety concerns." [2]

"Because the **macimorelin** test is simple, well tolerated with minimal side effects and of shorter duration with only 3 to 4 blood draws compared to other GH–stimulation tests, it is anticipated that its use will increase over time." [2]

"Very promising test that is easy to conduct with high reproducibility, safety, and diagnostic accuracy comparable to the ITT…test" [2]

1: *Molitch et al. J Clin Endocrinol Metab.* 2011; 1587-1609
2: AACE 2019 Guidelines: American Association Of Clinical Endocrinologists And American College Of Endocrinology Guidelines For Management Of Growth Hormone Deficiency In Adults And Patients Transitioning From Pediatric To Adult Care, 2019

Pivotal Phase 3 DETECT[1] Study for Diagnosis of CGHD Ongoing

Expect to Complete Enrollment by End of 2023

Open-label, single dose, multicenter, multinational clinical trial

Macimorelin GHST is performed twice (for repeatability data)

Two standard GHSTs (currently required) as controls: arginine (i.v.), clonidine (p.o.)

Study design is suitable to support claim for potential of macimorelin as stand-alone test

Global clinical study: 

1. NCT 04786873 ClinicalTrials.gov

Macimorelin Commercial Rights

Aeterna Zentaris Owns Worldwide Rights Outside Europe, Korea, Israel and Palestine Authority

U.S. / Canada

Robust business development efforts to identify and secure a commercialization partner

- Novo Nordisk returned license for macimorelin in U.S. and Canada
- Sales of Macrilen® for adult use in U.S. temporarily discontinued as of May 23, 2023

Pharmanovia

License Agreement to Territories in European Economic Area and UK

- **Ghryvelin® Launched in a number of key countries**
- Pricing and reimbursement milestones
- Royalties on sales
- Aeterna Zentaris controls supply chain and provides finished product according to supply agreement

Pharmbio Korea Inc.

License Agreement on Development and Commercialization in Republic of Korea

- **Received approval for Macrilen® in September 2023**

MegaPharm

Distribution and Commercialization Agreement in Israel and the Palestine Authority

ER-KIM

Distribution and Commercialization Agreement in Turkey and some Balkan countries

1. Sales of Macrilen® (macimorelin) are temporarily discontinued in the United States commercial market for the diagnosis of adult growth hormone deficiency ("AGHD"), until anticipated re-launch with an alternate commercialization partner. Aeterna has an ongoing effort to identify strategic development and commercialization partner.

Corporate Overview

Financial Snapshot

NASDAQ: AEZS / TSX: AEZS

Strong Cash Position with Cash Projected to Fund Operations and Advancement of Priority Pipeline Programs into 2025[1]

~$38.8M	~$7.5M	~4.9M	~8K
Cash on Hand as of September 30, 2023	Market Cap[2]	Shares Outstanding[3]	3-Month Avg. Volume[4]

1: Based on Management's current expectations and planned development activities
2: Based on November 8, 2023 closing price of $1.53 per share on NASDAQ and the number of issued and outstanding AEZS shares on that date
3: Information as of September 30, 2023
4: Based on information as of November 8, 2023 for the 3-month average daily trading volume on NASDAQ

Management

Klaus Paulini, PhD
President and Chief Executive Officer; Managing Director, Aeterna Zentaris GmbH

Eckhard Guenther, PhD
SVP Business Development and Alliance Management
Managing Director, Aeterna Zentaris GmbH

Giuliano La Fratta
SVP Finance, Chief Financial Officer

Nicola Ammer, MD
SVP Clinical Development, Chief Medical Officer

Michael Teifel, PhD
SVP Non-Clinical Development, Chief Scientific Officer

Multiple Milestones Expected Over Next 12-18 Months

Strong Financial Position with Cash Projected to Fund Operations and Advancement of Priority Pipeline Programs into 2025[1]

AIM Biologicals: NMOSD and PD

- Evaluation of manufacturing strategy
- Initiation of production of selected development candidates in NMOSD and PD
- Compilation of a comprehensive pre-clinical data package
- Scientific advice meetings with regulatory authorities expected in the near future

AEZS-150: Hypoparathyroidism

- Meet with regulatory authorities to determine the development path forward in Q4 2023
- Initiate IND-enabling preclinical studies in 2024

AEZS-130: ALS

- Completion of proof-of-concept studies
- Completion of toxicology and safety studies
- Scientific advice meeting with regulatory authorities to discuss program development next steps

Macimorelin

- Identify commercialization partner for US
- CGHD: Expect to complete enrollment by end of 2023

1: Based on Management's current expectations and planned development activities

Investment Summary

Executing strategy towards value creating milestones

Therapeutic Development Programs

Targeting multiple high-value indications across areas of unmet need

Advancing pipeline to clinical and regulatory value inflection points

Development and Commercial Diagnostics

AGHD

Only oral drug indicated for diagnosis of adult growth hormone deficiency

CGHD

Ongoing Phase 3 study with completion of enrollment expected year end 2023

Significant Cash Runway

Strong cash position with sufficient capital to fund operations and develop programs into 2025[1]

1: Based on Management's current expectations and planned development activities

In Pursuit of Medical Innovations

Investor & Media Relations
JTC Team
833.475.8247
aezs@jtcir.com