October 2024 I Euronext: ALBPS – OTC: BPTSY

Biophytis®

LIVE HEALTHIER LONGER

Forward Looking Statements

This presentation contains forward-looking statements. Forward-looking statements include all statements that are not historical facts. In some cases, you can identify these forward-looking statements by the use of words such as **«outlook », «believes», «expects», «potential», «continues», «may», «will», «should», «could», «seeks», «predicts», «intends», «trends», «plans», «estimates», «anticipates» or the negative version of these words or other comparable words.** These forward-looking statements include statements regarding Biophytis' anticipated timing for its various BIO101 (20-hydroxyecdysone) clinical trials and expectations regarding commercialization. Such forward-looking statements are based on assumptions that Biophytis considers to be reasonable.

However, there can be no assurance that the statements contained in such forward-looking statements will be verified, which are subject to various risks and uncertainties including, without limitation, delays in patient recruitment or retention, interruptions in sourcing or supply chain, its ability to obtain the necessary regulatory authorizations, COVID-19-related delays, and the impact of the current pandemic on the Company's clinical trials. The forward-looking statements contained in this presentation are also subject to risks not yet known to Biophytis or not currently considered material by Biophytis.

Accordingly, there are or will be important factors that could cause actual outcomes or results to differ materially from those indicated in these statements. Please refer to the «Risk Factors» section of the Company's 2023 Full Year Financial Report available on BIOPHYTIS website *(www.biophytis.com)* and to the risks discussed in the Company's registration statement on Form F-1 and other reports filed with the Securities and Exchange Commission (the "SEC"). We undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise, except as required by law.

biophytis

LIVE HEALTHIER LONGER

A clinical-stage biotechnology company specialized in the development of therapeutics for muscular and metabolic diseases

HQ location: Paris, France
Other locations in Sao Paulo, BR and Cambridge, MA US

Founded:
2006

Euronext growth Paris (ALBPS)
OTC market (BPTSY)

Drug discovery: biology of aging for developing drugs for age-related diseases

Multiple partnerships

Academical partnerships

SCIENCES SORBONNE UNIVERSITÉ

MÉDECINE SORBONNE UNIVERSITÉ

Industrial partnerships

eurofins

SEQENS

Pharmaceutical partnership

BLANVER

Biophytis
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BIOPHYTIS' People: Expertise & Passion

Stanislas Veillet
CEO, cofounder

Université Paris Sud · Danone

Rob van MAANEN
Chief Medical Officer

Astellas · Khondrion

Pierre DILDA
Chief Scientific Officer

UNSW Sydney · Mayoly Spindler Laboratoires

Edouard BIETH
Chief Business Officer

Tillotts Pharma (Zeria Group) · AstraZeneca

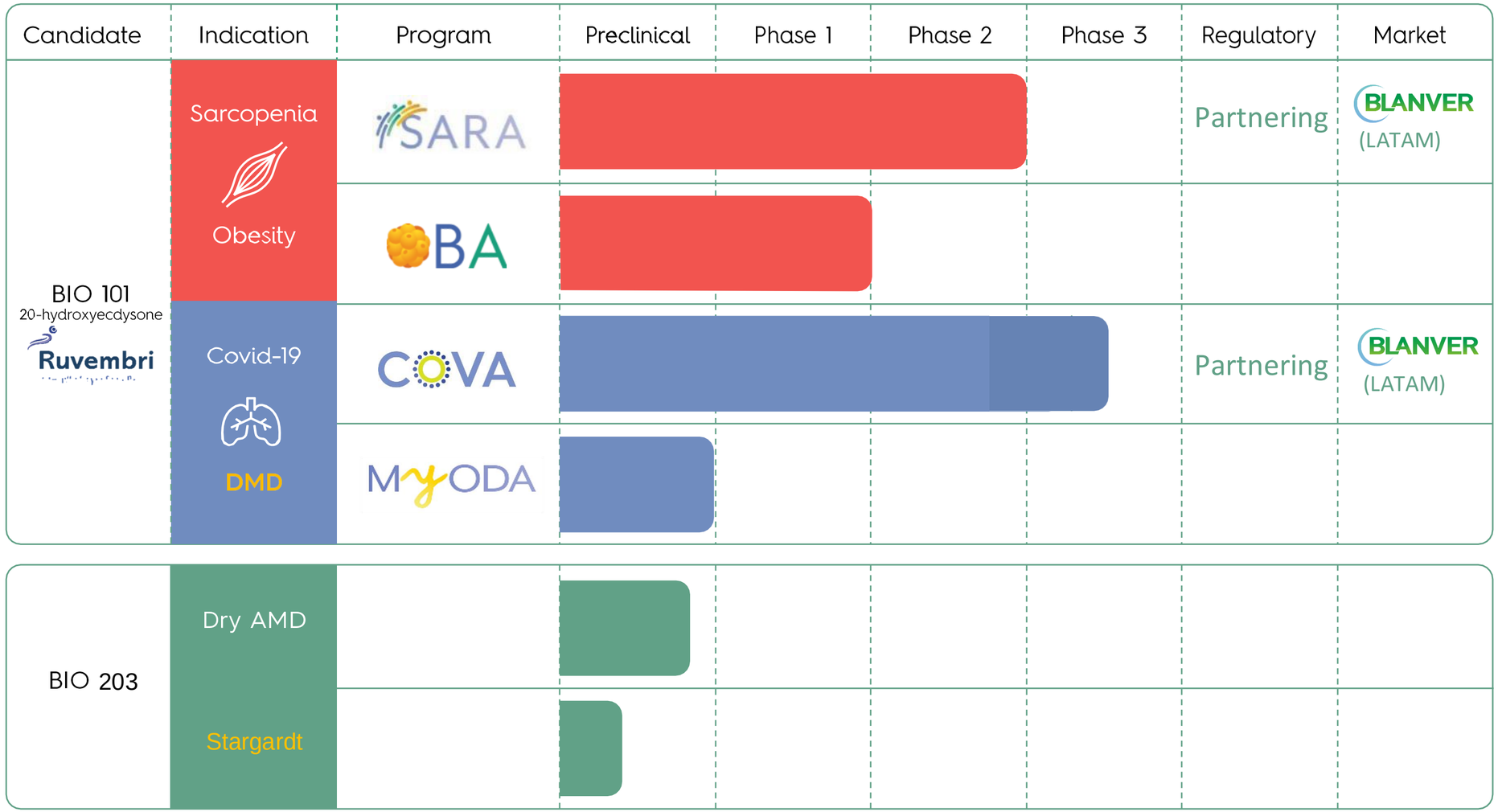
Waly DIOH
Chief Operations Officer

Monsanto · Université Paris Sud

Chiara BACCELLI
Chief Pharmaceutical Operation, Officer & Quality Assurance Director

ucb · bioprojet Pharma

Our Clinical Pipeline



xxx orphan diseases

BIO101 (20-hydroxyecdysone): First-in-class drug candidate

New molecular target

- Activation of MAS receptor[1] (renin-angiotensin system)
- Regulation of smooth, cardiac and skeletal muscle metabolism
- Stimulation of muscular and respiratory functions

POC & safety in clinical studies

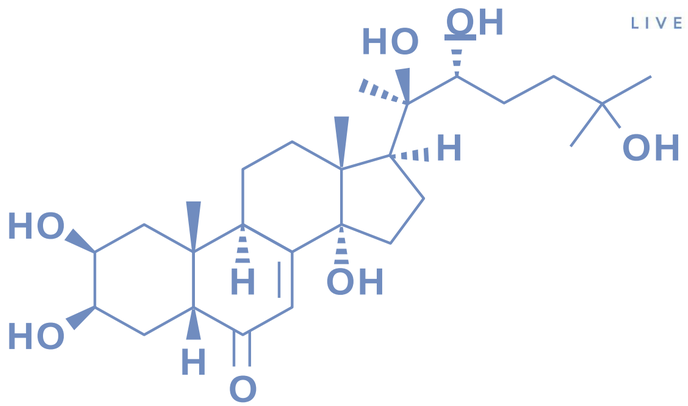
- Clinical studies in healty elderlies and obese adults (Phase 1)
- Clinical study in sarcopenic & obese sarcopenic elderlies (Phase 2)
- Clinical study in severe Covid-19 (Phase 2-3)

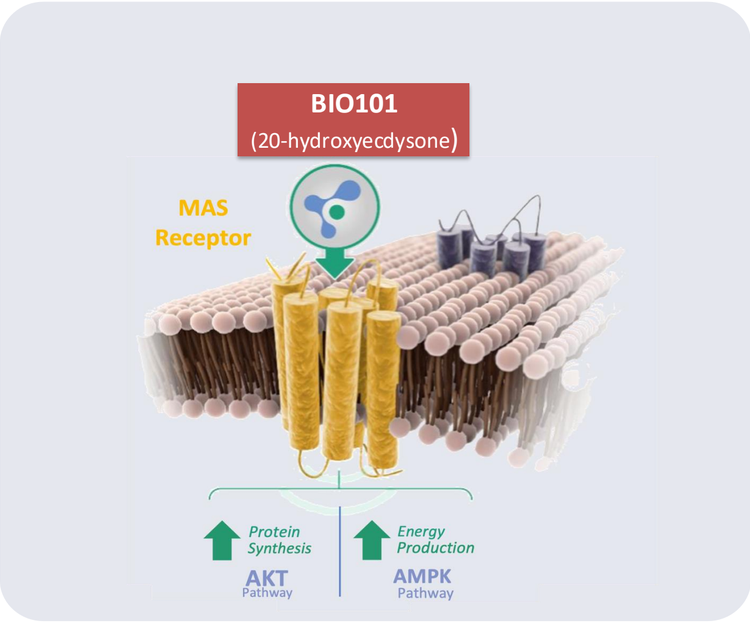
Convenient administration & affordable cost

- API manufactured at industrial scale
- Oral with adult and pediatric formulations

Rock-solid IP

- 14 patent families, 44 granted in key countries





BIO101 (20-hydroxyecdysone) activates MAS receptor and triggers downstream two signaling-pathways in myocytes: AKT & AMP

Source : [1] Lafont et al. 2022, doi: 10.1530/JME-21-0033

Licencing-out BIO101 in sarcopenia (SARA) and Covid-19 (COVA) to regional pharma partners

Executing the partnering strategy

- Objective: license-out BIO101 (20-hydroxyecdysone) to regional pharmaceutical companies for its co-development and future commercialization
- Scope: regional deals with leading regional pharma companies, with focus on phase 3 ready programs (SARA, COVA)
- Revenue: license deal with upfront, milestones and royalties on future sales

LATAM: Exclusive license agreement with Blanver for BIO101

NORTH AMERICA: Active research for partnerships

EUROPE: Active research for partnerships

ASIA: On going discussions with regional pharma partners

€108 M licensing deal with Blanver for LATAM region (June 2024)

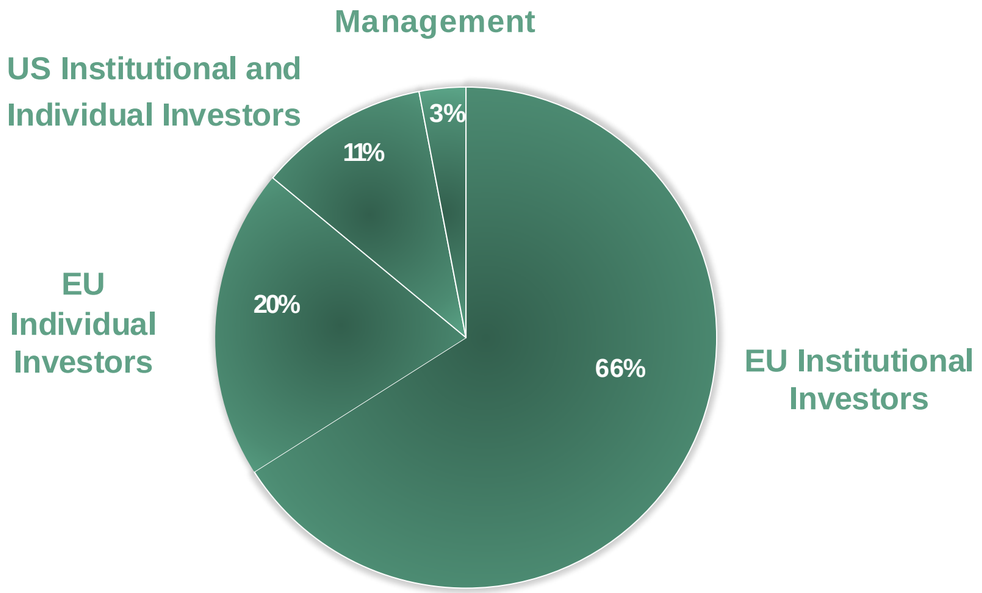
- Blanver is a Brazilian pharmaceutical company with 30+ history specialized in infectious and musculo-skeletal diseases.
- Blanver has been granted an exclusive license agreement covering the 4 indications under development for BIO101 in Latin America
- Biophytis will receive an upfront payment and additional payments based on the achievement of targets, for a total amount of up to €108 million, as well as double-digit royalties on future product sales.
- Sergio Frangioni, CEO of Blanver, said: "*Innovation is part of Blanver's DNA, and we are delighted to partner with Biophytis to introduce this unique medicine to Latin America*"

Key milestones in the development of BIO101 (20-hydroxyecdysone)

	Achieved in the last 12 months	Anticipated in the next 12 months
OBA	Approval to start the OBA Phase 2 study in the US.	Start of OBA phase 2 study
MYODA	Amendment of the Phase 1/2 study protocol to be filed with regulatory agencies (FDA, EMA)	Start of MYODA phases 1/2 study
SARA	€108M licensing partnership with brazilian pharma Blanver for LATAM	Partnering in Asia and/or Europe. Launch the phase 3 SARA-31 study.
COVA	€108M licensing partnership with brazilian pharma Blanver for LATAM	Partnering in Asia and/or Europe Start of second phase 3 study depending on the pandemic evolution.

Financial data

Shareholding structure



Number of shares: 6,130,872 (August 31, 2024)

Key financial figures

Listing Euronext (ALBPS) and US market (OTC)

- Cash position: €2.2m (June 30, 2024)
- €4m issued in convertible bonds in H1 2024
- Atlas convertible bond facility - up to €16m available until June 2026

Analyst Coverage

- H.C. Wainwright – Joe Pantginis, Ph.D.
- Kepler Cheuvreux – Nicolas Pauillac
- Invest Securities – Jamila El Bougrini, Ph.D.

BIO101 (20-hydroxyecdysone)

in Obesity

Muscle wasting associated with pharmacology treatment of obesity: an unmet medical need

Obesity is a serious chronic disease

1bn

Adults and children are currently living with obesity globally.

3x

The global prevalence of obesity has more than tripled since 1975.

$4tn

The global cost of treating obesity-related complications is expected to rise by over $4 trillion by 2035.

Up to 40%

Total weight loss that comes from muscle when obese patients are treated with GLP-1RA.

nature biotechnology

After obesity drugs' success, companies rush to preserve skeletal muscle
Nature Biotechnology. 2024 42(3):351-353

« [There is a need to] counter the side effects of dramatic weight loss [induced by GLP-1s]. [Biotechs] are searching whether it is possible for people to lose weight on these GLP-1 RA agonists without losing muscle. »

Sources:
World Obesity Federation report: https://www.worldobesity.org/news/economic-impact-of-overweight-and-obesity-to-surpass-4-trillion-by-2035
World Health Organization report: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight
McCarthy et al. Weight Loss Strategies and the Risk of Skeletal Muscle Mass Loss. Nutrients 2021, 13, 2473: https://doi.org/10.3390/nu13072473

Competition : BIO101 is the only muscle agent in development focusing on muscle strength

Drug	Company	Mode of action	Main Effect	Safety & Side effects	Administration route	Status
BIO101	Biophytis	MAS Receptor activator	Muscle strength (*knee extension determined by dynamometry)*	BIO101 has been very well tolerated in 277 individuals across multiple clinical studies	Oral	Phase 2
Azelaprag	BIOAGE	APJ agonist	% change in overall weight loss	Azelaprag has been very well tolerated in 240+ individuals across multiple clinical studies (5)	Oral	Phase 2
Bimagrumab	Lilly Versanis	Activin type II receptor blocker	Changes in body weight, waist circumference, and body composition	Muscle spasms and diarrhea (2)	Intravenous	Phase 2
Enobosarm	veru	Selective Androgen Receptor modulator	Total lean body mass	Increased hepatic transaminases, fatigue, hypercalcaemia (1)	Oral	Phase 2

There is no drug registered for muscle preservation in obesity

Source: (1) Lancet Oncol 2024; 25: 317–25 (2) JAMA Network Open. 2020;3(10):e2020836. doi:10.1001/jamanetworkopen.2020.20836 (4) DrugBank entry on Trevogrumab (5) https://bioagelabs.com/azelaprag

Potential attributes of BIO101 (20-hydroxyecdysone) in obese patients treated with GLP-1RA

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Effects on muscle wasting:

- Preservation of muscle strength
- Reduction of muscle mass loss
- Improvement of mobility

Effects on fat tissues:

- Increase of fat mass loss

Convenient and safe administration :

- Oral route
- Adequate safety demonstrated in adults from trials in other indications

Source: Foucault 2012. AgroParisTech, 2012. NNT : 2012AGPT0041. pastel-00998299

Supportive preclinical data in obesity

Metabolic effects in obese mice :

- Protective effect of BIO101 (20-hydroxyecdysone) in mice fed an obesity-inducing high-fat diet, preventing adipose tissue development
- Anti-obesity effect by increase in energy expenditure

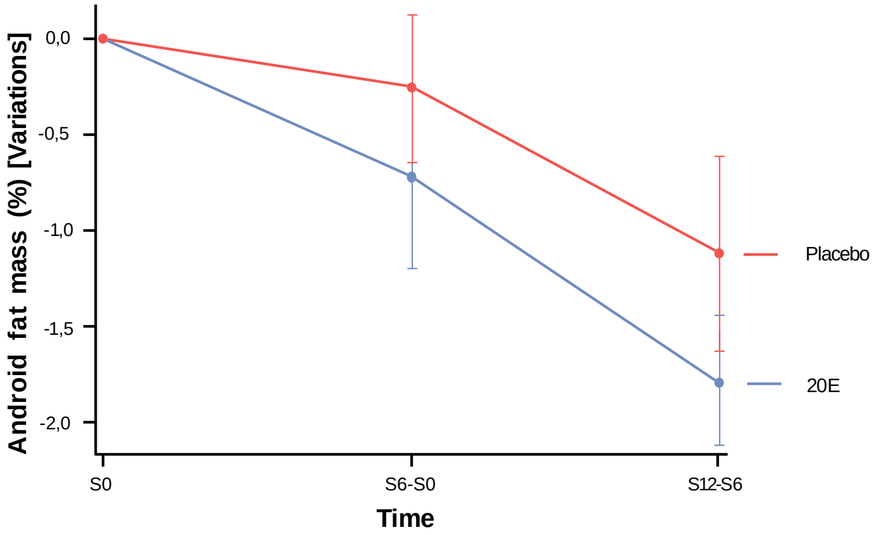
Muscle function in mice fed high fat :

- Improved physical performances in adult and old animals orally treated with BIO101 (20-hydroxyecdysone)

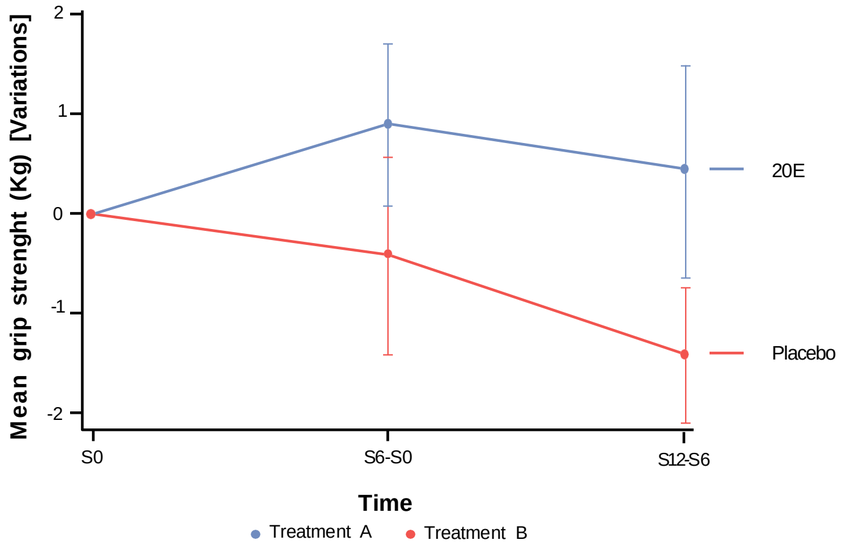
Source: Foucault et al. 2012, Obesity, 20, 270-277; Foucault et al. 2014, Physiology & Behavior, 128, 226-231; Serova et al. 2023, Journal of Cachexia, Sarcopenia and Muscle. 15(1):55-66

Promising clinical data in obese patients on hypocaloric diets for weight-loss

Android fat mass
(p=0.0386)



Handgrip strength
patients with weight loss >5%
(p=0.0974)



20-hydroxyecdysone (20E) daily dose of 37.5 mg (given in the form of a dietary supplement) compared to placebo (n=58)

12 weeks study, with weight loss on hypocaloric diet for six weeks (S0-S6) followed by a normocaloric diet for six weeks (S6-S12)

Source: Foucault 2012. AgroParisTech, 2012. NNT : 2012AGPT0041. pastel-00998299

OBA – Phase 2 development plan

Design

- Randomized, double-blind, placebo-controlled phase 2 trial
- Assess efficacy and safety of BIO101 (20-hydroxyecdysone) 350 mg BID administered orally over 21 weeks

Endpoints

- Primary
  - Muscle strenght (knee extension)
- Secondary
  - Walking speed (6-minute walking test)
  - Muscle strength normalized in relation to muscle mass
  - Weight, muscle mass and fat mass
  - Symptoms reported by patients (PROs)

Patient Population

- 164 obese patients treated with GLP-1 RAs, together with hypocaloric dieting
- Obese patients (BMI ≥30) or overweight (BMI ≥27 with one or more sequalae e.g. hypertension and sleep apnoea)

Product

BIO101 (20-hydroxyecdysone)

in Duchenne Muscular Dystrophy

MyODA

The life of patients with Duchenne Muscular Dystrophy (DMD)

Orphan genetic disease affecting 1/5,000 boys at birth (220,000 patients worldwide)

”*Duchenne is every child and parents’ worst nightmare come true*“
(Victoria, Mother of Dougie)

0 to 2 yo
No symptoms

5 yo
Motor delay

Around 12 yo
Wheel chair

Around 19 yo
Trachestomy
& Assisted ventilation

Around 25 yo
Heart failure

Around 30 yo
Death
(cardio-respiratory causes)

- Degenerative : **every muscle is slowly and inexorably damaged** (dystrophin deficiency)
- **It can affect anyone** : 1/3 arise from random spontaneous genetic mutations, which may occur during any pregnancy

Source : AFM TELETHON

There is no effective treatment

Despite research progress, no treatment is able to cure or effectively control the progression of the disease

Corticosteroids
(Prednisone, deflazacort, vamorolone)

They are the standard of care, but their use is controversial and not uniformly recommended.

- **Mobility loss delayed by 2 years**
- **Serious side effects** (weight gain, behaviour disorders, muscle wasting, osteoporosis, cataracts, high blood pressure...)
- **Long-term use associated with more serious sequelae** (69% of complications reported in non-ambulatory patients)

Source : Orphanet J. Rare Dis. doi.org/10.1186/s13023-021-01758-9

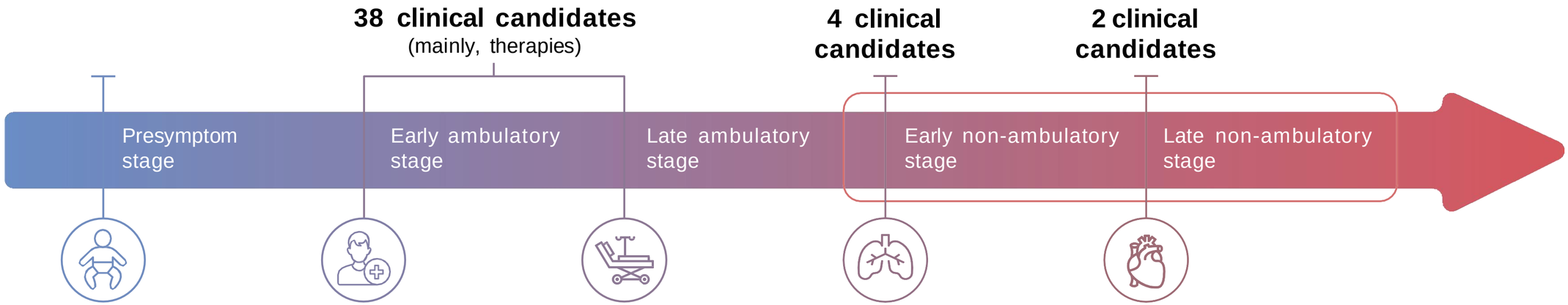
Gene-based Therapies
(exon skipping, microdystrophin, etc...)

Gene therapies have been considered to be a revolution for the past 35 years, but what are the concrete results today?

- **Limited effectiveness**[1]
- **Highly restricted number of addressed patients** (e.g. 13% for eteplirsen[2], and limited to young patients)
- **Toxicity issues** (several deaths suspected[3])
- **Outrageously expensive** ($3,2M/patient for Elevidys[4])

Source : [1] Expert Opinion on Investigational Drugs, 2021, doi:10.1080/13543784.2021.1868434; [2] Front. Cell Dev. Biol. 2021, doi: 10.3389/fcell.2021.689533
[3] Science, 2023, doi: 10.1126/science.adi8800; [4] Pharmaceutical Technology, 2023.

Late-stage patients are neglected



- No approuved drug for their **specific respiratory problems**
- Excluded from current clinicals trials
- Average age for tracheostomy is **19 years old**[1]

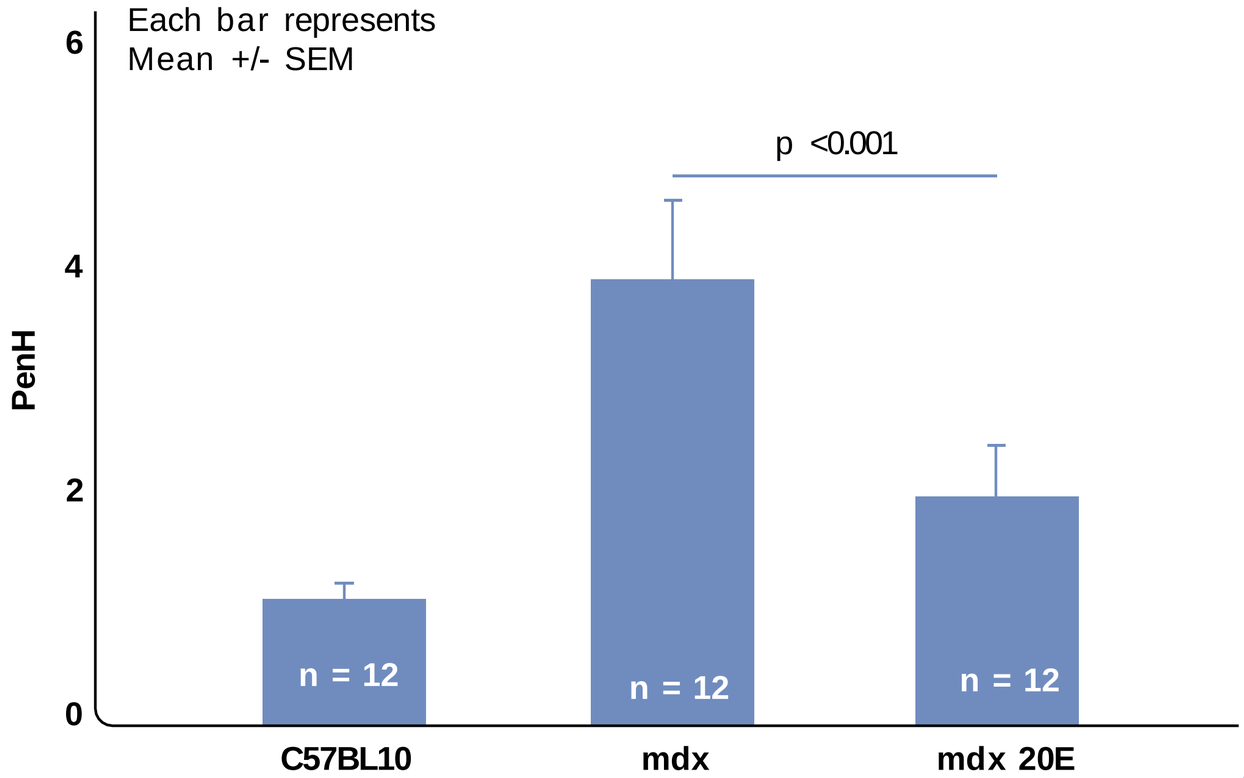
- How do we treat these children who cannot breathe properly as we speak ?
- Ventilatory assistance, mostly invasive, has extended life expectancy by 10 years, **BUT with drastic impact on quality of life**

Source : [1] Orphanet J. Rare Dis., 2020, doi: 10.1186/s13023-020-01430-8

Our solution: A first-in-class medication

BIO101 (20-hydroxyecdysone) aims to improve breathing capacity

Improvement in airway responsiveness (PenH) in C57BL10-mdx mice.



Source: Dilda et al. Neuromuscular Disorders, 29, S1, S158

Preparing to start phase 1-2 clinical study in DMD

Design

- A Randomized, Double-Blind, multi-center Phase 1-2 Study
- Evaluate the Safety, Efficacy, Pharmacokinetics, and Pharmacodynamics of BIO101 (20-hydroxyecdysone) in Non-Ambulatory DMD Patients with Respiratory Deterioration.
- Pediatric oral formulation (powder) of BIO101 (20-hydroxyecdysone)

Endpoints

- Primary
  - change from baseline in Forced vital capacity (FVC)
- Secondary : The Peak Expiratory Flow (PEF), Performance of Upper Limbs (PUL) scale, Grip strength (MyoGrip)
- Part 1 (N=15): Safety, tolerability & PK - 7 days of escalating dose)
- Part 2 (N=45): Safety and efficacy on respiratory function (FVC, PEF) of one dose for 48 weeks

Patient Population

- Age: ≥12 years old
- Non-ambulatory DMD patients
- Patients at risk of respiratory failure

Product	2023	2024	2025	2026
BIO 101 (20-hydroxyecdysone)	Amendment to CTA approval	Phases 1-2 study		

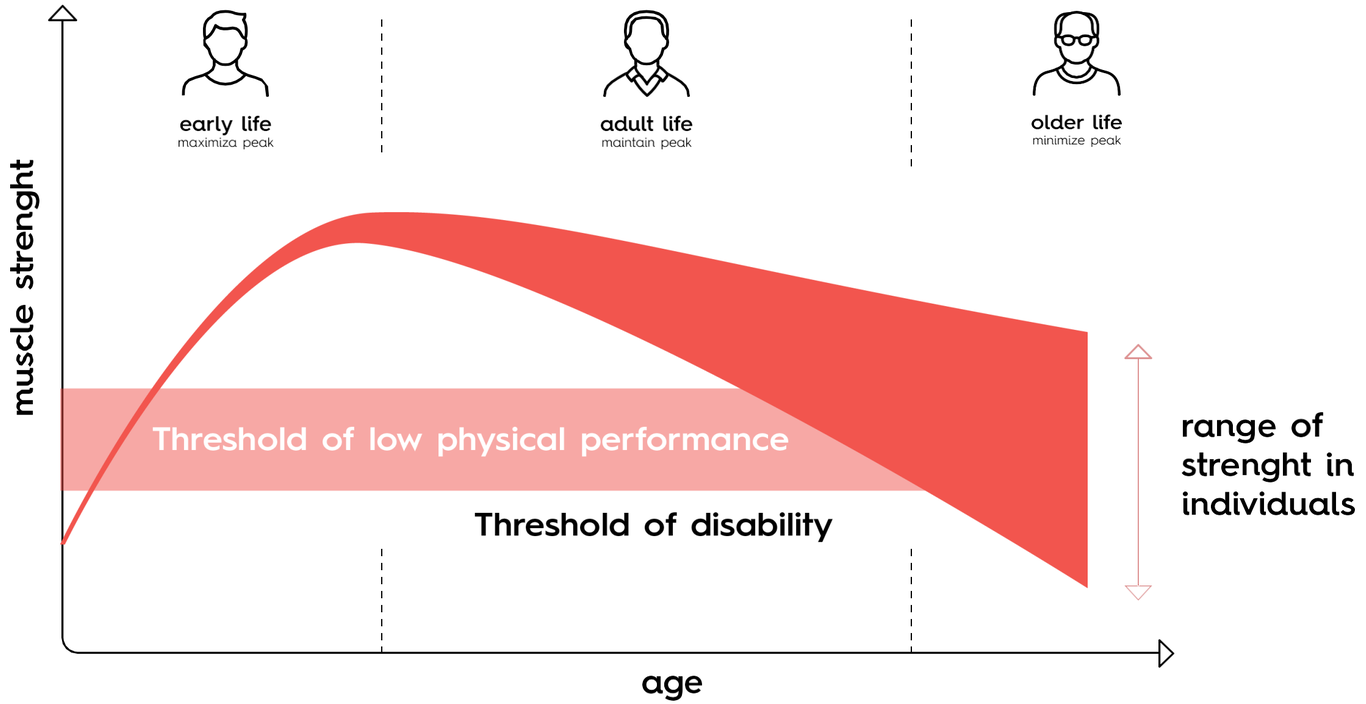
BIO101 (20-hydroxyecdysone)

in SARCOPENIA

SARA

Sarcopenia is an aged related disease, with no approved drug

Sarcopenia is a syndrome defined by many consortia including the EWGSOP (The European Working Group on Sarcopenia in Older People), characterized by **progressive and generalized loss of skeletal muscle mass, strength and function** associated with an increased risk of adverse events such as disability, poor quality of life and death.



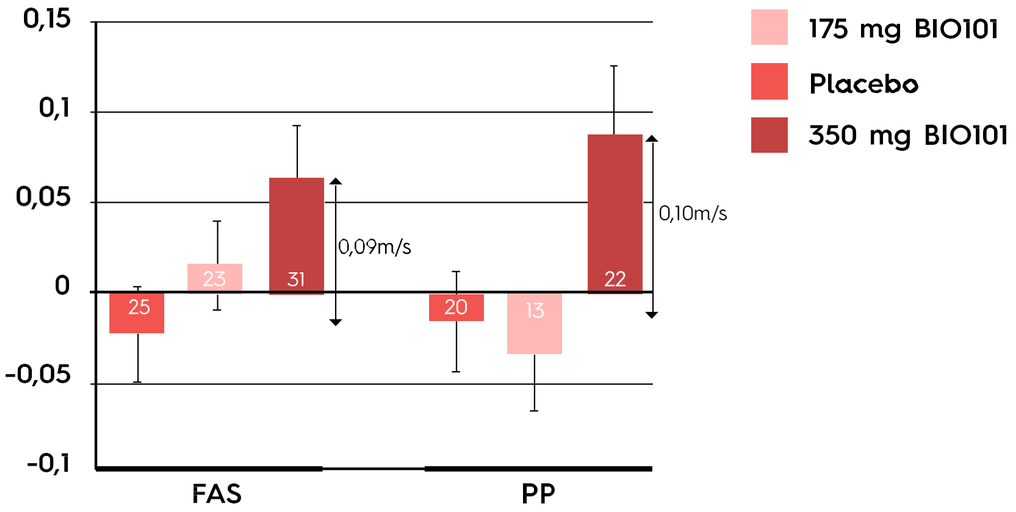
Source : 1. Munro HN. Adaptation of body protein metabolism in adult and aging man. Clin.Nutr. 1982;1:95-108.; Yuan 2023, Epidemiology of Sarcopenia, Metabolism

Promising results obtained in SARA-INT phase 2 trial

BIO101 (20-hydroxyecdysone) significantly improves the 400 MWT gait speed, the primary endpoint, in the PP population after 6 months of treatment

- Global, double-blind, randomized, placebo-controlled trial in patients with aged-related sarcopenia at risk of mobility disability to evaluate safety and efficacy of BIO101 (20-hydroxyecdysone)
- At the highest dose of 350 mg bid: clinically meaningful improvement of 0.10 m/s in the PP population (significant, p=0.008) compared to placebo for the 400MWT gait speed after 6 months of treatment
- This gait speed level of 0.10 m/s is known to be associated with a reduction in mobility disability and mortality in the elderly
- BIO101 (20-hydroxyecdysone) demonstrated the same effects on mobility in the **sarcopenic obese subpopulation.**

Change from baseline at M6 Gait speed



Treatment effect is nominally significant in PP population at M6 (p = 0.008)

Source: Tourette et al. 2022. The Journal of Frailty & Aging, vol. 11: S1,22 doi: 10.14283/jfa.2022.22.

SARA-31 – Phase 3 development plan

Design

- Global, double-blind, randomized, phase 3 placebo-controlled trial
- Assess safety and efficacy of BIO101 (20-hydroxyecdysone) 350 mg BID administered orally over at least 52 weeks, as compared to placebo
- Treatment effect based on estimation of the risk of mobility disability

Endpoints

- Primary
  - Major Mobility Disability (MMD) assessed by the inability to complete the 400-meter walk test (400MWT) within 15 min
- Secondary
  - Gait speed 4-meter from Short Physical Performance Battery (SPPB)
  - Handgrip Strength (HGS)
  - Patient Reported Outcomes (PRO)

Patient Population

- Age: 65 years old or over
- Low mobility measured by Short Performance Physical Battery: SPPB 3 ≤ SPPB ≤ 7
- Low Handgrip Strength (HGS < 20 and <35 kg in female and male)
- Slow walkers (gait speed < 0.8 m/s)
- Reporting a loss of motor function over the last year

Ruvembri
20-hydroxyecdysone

in SARIs

(Severe Acute Respiratory Infections)

Ruvembri™ is the marketing name for BIO101 (20-hydroxyecdysone) in Covid-19 indication

COVA

Targeting Hospitalized Patients with severe respiratory symptoms due to COVID-19

Patients **aged 45 and above**, with proven COVID-19, and severe respiratory symptoms:

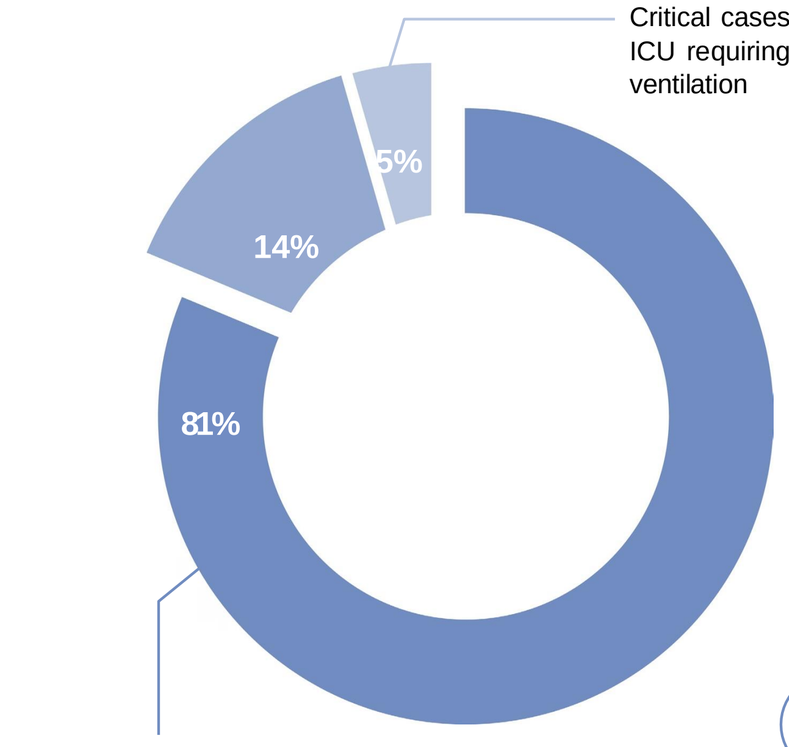
- With evidence of respiratory decompensation ≤7 days before start of study medication, meeting one of the following :
  - Tachypnea: ≥ 25 breaths per minute
  - Arterial oxygen saturation 92% or less

Hospitalized patients with respiratory failure estimated to 15-18% of hospitalized patients: ca **500 new patients per day or 180,000 patients/year in the USA** *(CDC data, October 27, 2022)*

Allowed medications :

- Antiviral agents such as remdesivir, Paxlovid™
- Anti-inflammatory agents such as dexamethasone, tocilizumab™

Severe cases:
hospitalized with hypoxemia, tachypnea or pneumonia



Adapted from Wu et al. JAMA, 2020

Phase 2-3 COVA clinical study to evaluate of Ruvembri™ in the treatment of severe forms of COVID-19

THE LANCET
EClinicalMedicine
Published by THE LANCET

Design

- Administration of 350 mg b.i.d of BIO101
- Global, multi-center, double-blind, placebo-controlled group Phase 2-3 sequential (2 parts) adaptive design
- International study including 37 clinical centers in US, Brazil, France & Belgium

Endpoints & Study Follow-Up

- Primary endpoint : proportion of patients with respiratory failure or early death within 28 days
- Secondary endpoints : mortality at 28 and 90 days; discharge at 28 days
- End of study: Q2 2022 (N=237) after early study termination

Inclusion criteria

- Age : 45 years old or over
- Hospitalized for severe respiratory symptoms and with proven Covid-19 infections
- Patients with hypoxemia (<92%) or tachypnea (> 25 breaths/min)
- All authorized Covid-19 drugs (anti-viral or anti-inflammatory)

COVA

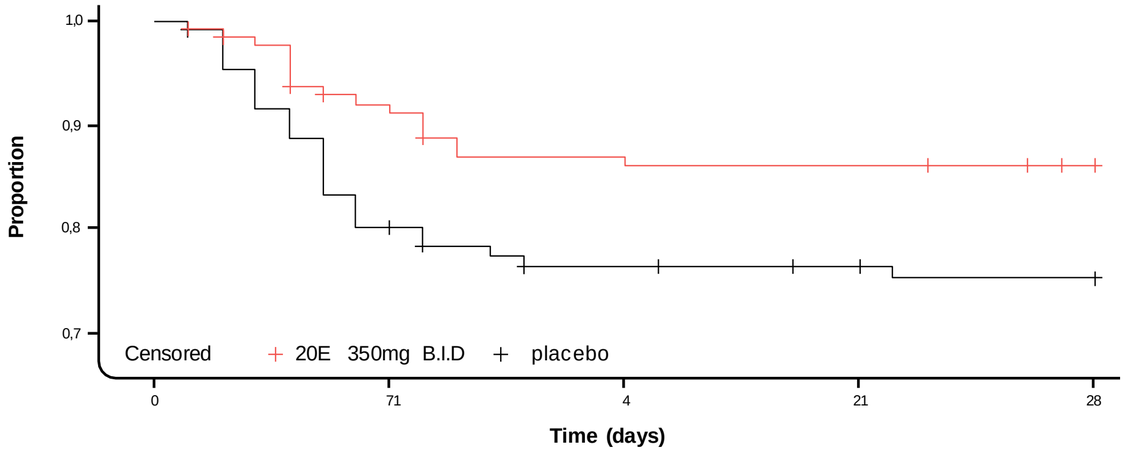
Source: Lobo et al., 2024. www.thelancet.com Vol 68 February, 2024

Positive results strongly supporting therapeutic potential of Ruvembri™ in severe COVID-19 : respiratory failure or early death

Respiratory Failure or early death : The study met primary endpoint

- **Reduction in the risk of early death or respiratory failure at day 28 by 44% (p=0.043, CMH test)**
- Time to early death or respiratory failure over 28 days was lower (p=0.022, Kaplan Meier analysis)
- Post hoc analysis confirmed the reduction in **the risk of early death or respiratory failure** in the ITT population and in the PP population

Proportion without respiratory failure or early death, Kaplan-Meier Analysis, ITT population



THE LANCET
EClinicalMedicine
Published by THE LANCET

COVA

Source: Lobo et al., eClinicalMedicine 2023 : 102383.
Published Online : https://doi.org/10.1016/j.eclinm.2023.102383

Source: Lobo et al., 2024. www.thelancet.com Vol 68 February, 2024

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- Founder and director of the Vision Institute in Paris and professor at the Sorbonne's medical

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- Director of the Research Center of the Great Ormond Street Hospital for Children

Dr. Yann Meunier

- Professor, Director of the International Institute of Medicine and Science
- Has led clinical trials for new treatments for HIV/AIDS

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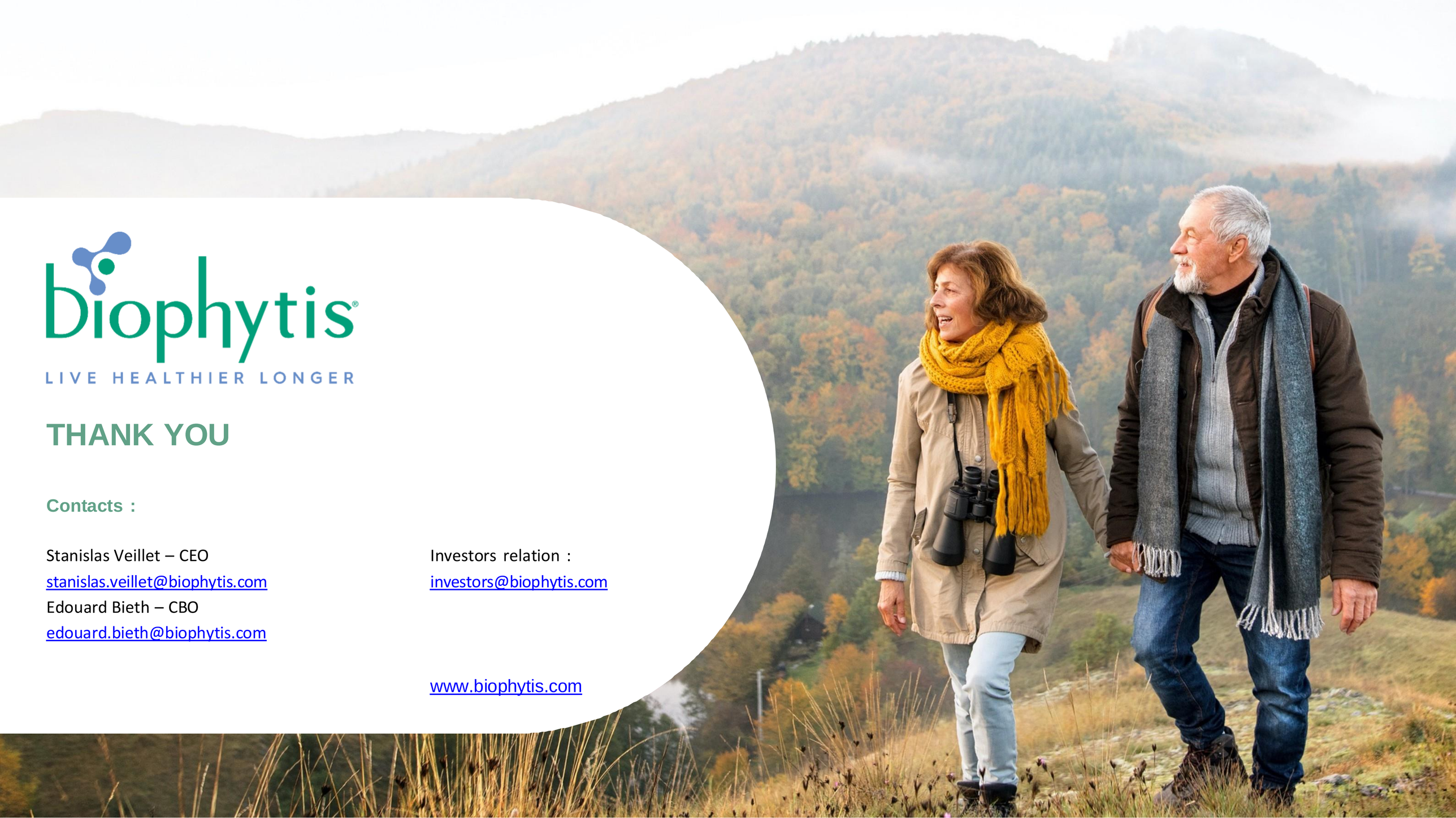
THANK YOU

Contacts :

Stanislas Veillet – CEO
stanislas.veillet@biophytis.com
Edouard Bieth – CBO
edouard.bieth@biophytis.com

Investors relation :
investors@biophytis.com

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