

## Biophytis updates on SARA clinical study of Sarconeos in sarcopenia and presents four posters at the International Conference on Frailty & Sarcopenia Research (ICFSR) in Miami

Paris (France), March 1<sup>st</sup>, 2018, 7.45am - BIOPHYTIS (Euronext Growth Paris: ALBPS), a biotechnology company specializing in the development of drug candidates to treat age-related diseases, today announces that it will present four posters and will give two oral presentations in the treatment of Sarcopenia at the 8<sup>th</sup> International Conference on Frailty & Sarcopenia Research, held March 1<sup>st</sup>-3<sup>rd</sup> 2018 in Miami, United States. These results demonstrate the strong potential of Sarconeos (BIO101) in the treatment of Sarcopenia and confirm the relevance of the SARA-INT international clinical study, in which the first patient will be enrolled in the coming weeks.

**Stanislas Veillet, CEO of BIOPHYTIS, comments:** *"We are proud to provide an update on the progress of the SARA clinical study and to present original results confirming the strong potential of Sarconeos (BIO101) in the treatment of sarcopenia. A poster highlights exciting data, demonstrating that the efficacy of Sarconeos in improving muscle function requires the stimulation of muscular anabolism and energy metabolism, which explains the remarkable effect observed on mobility in animal models. In addition, for the first time, we are presenting the first results of SARA-OBS study, which allows us to monitor up to one hundred sarcopenic patients in a dozen clinical centers in the United States and Europe for 6 months, evaluating physical activity by actimetry. These patients are expected to be included in the SARA-INT interventional study, the first patients being enrolled in the coming weeks, first in Belgium and the United States, for which we obtained the approvals at the end of 2017."*

Oral presentations and posters that will be presented at the ICFSR provide an update on the progress of SARA study of Sarconeos (BIO101) in sarcopenia and present original results on the mechanisms of action of Sarconeos (BIO101) and BIO103, the second-generation compound in preclinical development for the treatment of muscular dystrophies:

- The SARA-OBS clinical study evaluates the mobility, strength and physical activity of up to one hundred sarcopenic patients recruited from a dozen clinical centers in the United States, Belgium, France and Italy over a 6-month period. It contributes to a better characterization of patients affected by this new geriatric indication. The first results of characterization of this population at inclusion and the first measurements of physical activity by actimetry will be presented.
- The objective of SARA-INT is to evaluate the safety and the efficacy of two doses of Sarconeos in the treatment of sarcopenia. The clinical protocol, meaning inclusion criteria and the main criterion, has been adjusted according to the scientific advice of the European Medicines Agency (EMA) and the Food & Drug Administration's (FDA) considerations for the submission of an Investigational New Drug (IND) application. Biophytis already obtained the approvals in 2017 from the FDA and the Federal Agency for Medicines and Health Products (FAMHP) to start this study, and is waiting for approvals from the French and Italian agencies. The first patients from the SARA-OBS study will be enrolled in the interventional

study in Belgian and American clinical centers in the coming weeks, once their consent is obtained and new patients will be recruited in at least 10 new clinical centers currently being opened

- By activating the MAS receptor, Sarconeos (BIO101) stimulates anabolism and mitochondrial activity of skeletal muscle cells, which explains the effects observed in animal models not only on muscle mass but also on strength and mobility.
- BIO103, a second-generation drug candidate in pre-clinical development, confirms its potential in the treatment of muscle degeneration. BIO103 improves muscle function in an animal immobilization model, confirming its potential for the treatment of disuse atrophies.

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### **Oral presentation – Thursday March 1<sup>st</sup>:**

#### **Combined effects of BIO101 on anabolism and mitochondrial function in skeletal muscle cells**

This study demonstrates that the overall beneficial properties of BIO101 on muscle function rely on both anabolic and mitochondrial effects. Increases in mitochondrial respiratory spare capacity, in energy metabolism flexibility and in antioxidant capacity in response to BIO101 exposure are believed to be responsible for more energy production. These new results are key elements to better understand the effects of BIO101 in improving running ability of old mammals and justify the clinical development of Sarconeos in patients with sarcopenia.

### **Oral presentation – Saturday March 3<sup>rd</sup>:**

#### **SARA-OBS, an observational study dedicated to characterize age related sarcopenia population suitable for interventional studies**

The SARA-OBS study will contribute to a better characterization of Age-related Sarcopenia in a community dwelling older patients at risk of mobility disability. SARA-OBS patients will be used in SARA-INT, to evaluate safety and efficacy of BIO101.

### **Posters:**

#### **CLINICAL TRIALS**

Title: **P110: Daily Mobility profile in Age-Related Sarcopenia: Actimetry baseline data from SARA-OBS, a six-month observational multicentre clinical study in EU and US.**

Connected actimetry implemented in SARA-OBS allows to gather relevant information about mobility patterns of the older participants throughout the trial period without interfering with everyday activity - an innovative application of the Internet of Things (IOT) to clinical trials.

#### **NEW DRUG DEVELOPMENTS**

Title: **P112: Combined effects of BIO101 on anabolism and mitochondrial function in skeletal muscle cells**

This study demonstrates that the overall beneficial properties of BIO101 on muscle function rely on both anabolic and mitochondrial effects. Increases in mitochondrial respiratory spare capacity, in energy metabolism flexibility and in antioxidant capacity in response to BIO101 exposure are believed to be responsible for more energy production. These new results are key elements to better understand the effects of BIO101 in improving running ability of old mammals and justify the clinical development of Sarconeos in patients with sarcopenia.

Title: **P113: BIO103 demonstrates sharp improvement of skeletal muscle function in an animal model of hindlimb immobilization**

These results demonstrate the efficacy of BIO103 in the prevention of muscle weight and strength loss in a hindlimb immobilization animal model. BIO103, a hemisynthetic derivative of Sarconeos could offer a new option for the treatment of disuse muscle atrophy, which is commonly associated with severe acute and chronic complications.

Title: **P114: SARA-INT, A double-blind, placebo controlled, randomized clinical trial to evaluate safety and efficacy of Sarconeos (BIO101)**

SARA-INT clinical design is based on the European Medicines Agency scientific advice and FDA IND considerations.

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#### About SARA-OBS:

SARA-OBS is a multicentric observational study involving up to one hundred patients over a six-month period in nine clinical centers in Europe and The United States. The study aims to enrol and characterize a population of sarcopenic patients who may be included in the SARA-INT study Phase 2b. The recruitment is carried out according to criteria defined by the Foundation for the National Institutes of Health: 6mn walk test, 400 meters gait speed test, electronically recorded patient-reported outcomes (ePROs): SF-36 QOL questionnaire, measures of muscle strength and muscle mass, plasmatic biomarkers.

#### About SARA-INT:

The objective of SARA-INT is to evaluate safety and efficacy of Sarconeos in a randomized placebo controlled study in patients  $\geq 65$  years suffering from sarcopenia and considered at risk of mobility disability. SARA-INT will estimate Saroneos effect on decreasing the risk of mobility disability after a 6 months treatment. SARA-INT will take place in 21 sites in EU and US and will consist of four main visits (baseline, Month1, Month3, and Month6). The main end-point is the gait speed in the 400-meter walking test. Key secondary end-points are the questionnaire PF-10 within SF-36 and raising from a chair at SPPB. Other endpoints include the 6mn distance, body composition, grip strength and physical activity by actimetry. Patient Reported Outcomes (SF-36, SarQoL and TSD-OC) and biomarkers of sarcopenia will be also studied. Patients are selected based on the FNIH criteria (Studenski at al., 2014; SPPB  $\leq 8$  and ALM/BMI  $< 0.512$  in women and  $< 0.789$  in men or ALM  $< 19.75$  kg in men and  $< 15.02$  kg in women. Patients retained from SARA-OBS and newly recruited will be dosed at Sarconeos- 175 mg b.i.d. and 350 mg b.i.d. during 26 weeks versus placebo.

#### About SARCONEOS:

Sarconeos is a first-in-class drug candidate based on the activation of the MAS receptor (major player of the renin-angiotensin system) restoring muscular anabolism, inhibiting myostatin, and that had demonstrated meaningful activity in animal models of muscular dystrophies. Sarconeos is developed in the treatment of sarcopenia, an age-related degeneration of skeletal muscle, leading to loss of mobility in elderly people. This condition, for which no medical treatment currently exists, was first described in 1993 and has entered the International Classification of Diseases (M62.84) in 2016. It affects more than 50 million people worldwide.

#### About BIOPHYTIS:

Biophytis SA ([www.biophytis.com](http://www.biophytis.com)), founded in 2006, develops drug candidates targeting diseases of aging. Using its technology and know-how, Biophytis has begun clinical development of innovative therapeutics to restore the muscular and visual functions in diseases with significant unmet medical needs. Specifically, the company is advancing two lead products into mid-stage clinical testing this year: Sarconeos (BIO101) to treat sarcopenic obesity and Macuneos (BIO201) to treat dry age-related macular degeneration (AMD).

The business model of BIOPHYTIS is to ensure the conduct of the project until clinical activity in the patient is

proven, then to license the technologies in order to continue the development in partnership with a pharmaceutical laboratory.

The company was founded in partnership with researchers at the UPMC (Pierre and Marie Curie University) and also collaborates with scientists at the Institute of Myology, and the Vision Institute.

BIOPHYTIS is listed on the Euronext Growth market of Euronext Paris (ALBPS; ISIN: FR0012816825).

For more information: <http://www.biophytis.com>

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