

Odiparcil development advances with recruitment of first patients in a new biomarker study in MPS VI children and adults

- ▶ Study conducted in the United-States aims to consolidate leucocyte GAG and skin GAG content measurement as disease biomarkers in MPS VI children and adults
- ▶ These two new biomarkers will be used to assess the efficacy of odiparcil in reducing GAG levels
- ▶ Study results are expected in the first half of 2020
- ▶ In parallel, the Phase IIa clinical study evaluating odiparcil in MPS VI is progressing and headline results are now expected by the end of the year for all treatment arms

Daix (France), September 2, 2019 – Inventiva (Euronext: IVA), a clinical-stage biopharmaceutical company developing oral small molecule therapies for the treatment of diseases in the areas of fibrosis, lysosomal storage disorders and oncology, today announced the recruitment of the first patients in a new biomarker study in children and adults with mucopolysaccharidosis type VI (MPS VI)

Conducted at the UCSF Benioff Children’s Hospital in Oakland, California, by Dr Paul R. Harmatz, the trial will investigate leukocyte glycosaminoglycan (leukoGAGs) levels in three children and skin glycosaminoglycan (skinGAGs) levels in three adults with MPS VI before and post enzyme replacement therapy (ERT), and in six age-matched control subjects not affected by MPS VI. This study is part of Inventiva’s strategy to develop biomarkers to evaluate the efficacy of odiparcil, the Company’s drug candidate for the treatment of MPS, in reducing leukoGAGs and skinGAGs. This approach has been launched following the Food and Drug Administration’s (FDA) guidance on the relevance of biomarkers for diseases such as MPS¹. Results of this study are expected in the first half of 2020.

A first biomarker study sponsored by Inventiva showed that, despite ERT treatment, the current standard of care, leukoGAG levels remained very high and were not impacted when measured one hour after ERT infusion although the activity of the arylsulfatase B² enzyme was very high. This finding suggests that leukoGAG levels may be further reduced with a new treatment such as odiparcil.

Measurement of leukoGAGs and skinGAGs is performed in the ongoing Phase IIa iMProveS (improve MPS treatment) clinical study evaluating odiparcil for the treatment of MPS VI patients. Given the recent progress achieved in the iMProveS study, headline results for all treatment arms are now expected by the end of the year.

¹ Slowly progressive, low-prevalence rare diseases with substrate deposition that results from single enzyme defects: providing evidence of effectiveness for replacement or corrective therapies; Guidance for Industry; U.S. Department of Health and Human Services Food and Drug Administration; July 2018.

² Arylsulfatase B is the enzyme that naturally degrades GAGs within the body and which is deficient in MPS VI patients.

Inventiva had initially planned to publish the study results in two steps: the headline results of the double-blind placebo controlled arms by the end of the year followed by the results of the open label cohort during Q1 2020.

Dr. Paul R. Harmatz, the principal investigator of this new biomarker study, said: *“I am very excited about the launch of this second biomarker study with the recruitment of the first patients. Following our first biomarker study that demonstrated the limitations of ERT in reducing leukoGAGs, this trial will help us better understand the dynamic of the response to this therapy in leukocytes. It could also possibly provide a second measure of GAG storage in a readily accessible tissue such as the skin, thereby strengthening the appraisal of intracellular GAG variations.”*

About odiparcil

Odiparcil is an orally-available small molecule that acts on the underlying cause of the symptoms of mucopolysaccharidosis (“MPS”), a group of rare, progressive genetic disorders. MPS is characterized by the accumulation of glycosaminoglycans (“GAGs”), polysaccharides which are important for the modulation of cell-to-cell signaling and the maintenance of tissue structure and function, in the lysosomes of cells. Due to genetic mutations, lysosomes in patients with MPS contain deficient versions of the enzymes necessary to break down GAGs. As a result, GAGs accumulate within the lysosomes, causing the latter to swell and interfere with the ordinary functioning of cells, leading to the symptoms associated with MPS. MPS is categorized by subtypes, depending on the enzyme that is deficient and the corresponding GAGs that accumulate. By modifying how GAGs are synthesized, odiparcil facilitates the production of soluble GAGs that can be excreted in the urine, rather than accumulating in cells. Specifically, odiparcil acts on chondroitin sulfate (“CS”) and dermatan sulfate (“DS”), either or both of which accumulate in patients with MPS I, II, IVa, VI and VII.

Inventiva is currently evaluating odiparcil in a Phase IIa clinical trial for the treatment of adult patients with the subtype MPS VI.

Odiparcil has been granted Orphan Drug Designation (ODD) for the treatment of MPS VI by the U.S. Food and Drug Administration (FDA) and the European Medicines Agency (EMA) and has also obtained Rare Pediatric Disease Designation (RPDD) in the U.S. for the treatment of MPS VI.

About Inventiva

Inventiva is a clinical-stage biopharmaceutical company focused on the development of oral small molecule therapies for the treatment of diseases with significant unmet medical needs in the areas of fibrosis, lysosomal storage disorders and oncology.

Leveraging its expertise and experience in the domain of compounds targeting nuclear receptors, transcription factors and epigenetic modulation, Inventiva is currently advancing two clinical candidates – lanifibranor and odiparcil – in non-alcoholic steatohepatitis (“NASH”) and mucopolysaccharidosis (“MPS”), respectively, as well as a deep pipeline of earlier stage programs.

Lanifibranor, its lead product candidate, is being developed for the treatment of patients with NASH, a common and progressive chronic liver disease. Inventiva is currently evaluating lanifibranor in a Phase IIb clinical trial for the treatment of this disease for which there are currently no approved therapies.

Inventiva is also developing odiparcil, a second clinical-stage asset, for the treatment of patients with MPS, a group of rare genetic disorders. The Company is currently investigating odiparcil in a Phase IIa clinical trial for the treatment of patients with the MPS VI subtype.

In parallel, Inventiva is in the process of selecting an oncology development candidate for its Hippo signalling pathway program. The Company has established two strategic partnerships with AbbVie and Boehringer

Ingelheim in the areas of autoimmune diseases and idiopathic pulmonary fibrosis (“IPF”) respectively. AbbVie has started the clinical development phase of ABBV-157, a drug candidate for the treatment of moderate to severe psoriasis resulting from its collaboration with Inventiva. Both collaborations entitle Inventiva to receive milestone payments upon the achievement of pre-clinical, clinical, regulatory and commercial milestones, in addition to royalties on any approved products resulting from the partnerships.

The Company has a scientific team of approximately 70 people with deep expertise in the fields of biology, medicinal and computational chemistry, pharmacokinetics and pharmacology as well as in clinical development. It also owns an extensive library of approximately 240,000 pharmacologically relevant molecules, around 60% of which are proprietary, as well as a wholly-owned research and development facility.

Inventiva is a public company listed on compartment C of the regulated market of Euronext Paris (Euronext: IVA – ISIN: FR0013233012). www.inventivapharma.com

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UCSF disclaimer

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Please refer to the “Document de référence” filed with the Autorité des Marchés Financiers on April 12, 2019 under n° R.19-006 for additional information in relation to such factors, risks and uncertainties.

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