PARADIGM BIOPHARMACEUTICALS LIMITED

ASX RELEASE 30th April, 2020

Paradigm reports: Under the US FDA Expanded Access Program treatment is completed for all of the ten planned patients. Paradigm granted Orphan Status by US FDA for MPS-I

KEY HIGHLIGHTS

- **Total Patient population (n=10) have completed dosing with Zilosul® (iPPS) in the US under the US IND Expanded Access Program (EAP).**
- **The Expanded Access Program remains on-track with patients completing scheduled checkups out to 6 weeks post final injection (Day 83).**
- **Paradigm expects to report results for the entire patient population (n=10) to the market Q3 CY2020.**
- **Patient data reported will be in line with primary and secondary endpoints for the proposed Phase 3 trial.**
- **FDA has granted Paradigm orphan designation request for treatment of MPS-I complications-including pain and arthropathy.**

Paradigm Biopharmaceuticals Ltd (ASX: PAR) is pleased to announce it has completed treatment of all ten patients with Zilosul® under the FDA IND Expanded Access Program (EAP) in the US. The company has also been advised by the FDA that Paradigm's orphan designation request for MPS-I has been granted, joining the previously granted designation for MPS-VI.

The EAP which commenced on the 18th February with the treatment of the first patient, has now treated all of the ten planned patients. All patients taking part in the study must complete regular evaluations with the treating physician, with the final evaluation taking place 6 weeks post the last injection received (day 83). The EAP program will report on pain outcomes similar to those previously evaluated in the TGA SAS (refer ASX Announcement 6th April) as well as those proposed as endpoints for the Phase 3 Clinical trial. Paradigm expects data for the total population (n=10) of patients to be available to the market during Q3 CY 2020.

Mr. Paul Rennie, Paradigm's Chief Executive Officer said:

"Paradigm is excited to have achieved this milestone, especially during the current health conditions created by COVID-19 and would like to thank all those involved in the Expanded Access Program for their continued diligence to the treatment program.

What is The FDA Expanded Access Program?

"Expanded access" (also called "compassionate use") provides a pathway for doctors and patients to gain access to investigational drugs, biologics, and medical devices used to diagnose, monitor or treat patients with serious diseases or conditions for which there are no comparable or satisfactory therapy options available outside of clinical trials[1].

FDA recognizes that osteoarthritis (OA) can be a serious disease with an unmet medical need for therapies that modify the underlying pathophysiology of the disease and potentially change its natural course to prevent long-term disability.

Through this Expanded Access Program, Paradigm seeks to provide Zilosul® (iPPS) to a limited number of patients who have failed other conservative therapies (standard of care), and for whom access is requested by the treating physician.

Mucopolysaccharidosis type 1 (MPS-I) – Orphan Status

Paradigm has received notification from the FDA that the orphan designation status request submitted by Paradigm staff on the 5th of March has been granted This was a positive response from the Agency in a short time frame with the FDA having until Day 120 (3rd July) to make their final decision. Paradigm has now been granted FDA orphan designation for both MPS-I and MPS-VI. The benefits the orphan designation status provides Paradigm as it progresses its MPS program include:

- Tax credits for qualified clinical testing;
- Waiver of New Drug Application (NDA)/Biological Licensing Application(BLA) user fees;
- Eligibility for 7-year marketing exclusivity uponm marketing approval.

What is MPS?

The mucopolysaccharidoses (MPS) are a family of Orphan Diseases. The cumulative rate for all types of MPS is around 3.5 in 100,000 live births and generally the patients present in one of three ways:

1. As a dysmorphic syndrome (MPS IH, MPS II, MPS VI) often with early onset middle ear disease, deafness, or upper airways obstruction;
2. With learning difficulties, behavioural disturbance and dementia and mild somatic abnormalities (MPS III);
3. As a severe bone dysplasia (MPS IV).

Mucopolysaccharidosis type I **(MPS-I)** is a rare inborn metabolic disorder caused by a genetic defect in the catabolism of two glycosaminoglycans (GAGs): heparan sulfate and dermatan sulfate. Disorders in the catabolism of these GAGs interfere with cellular function, resulting in abnormal bone development, growth retardation, cardiac and respiratory problems, and sometimes cognitive impairment[2].

MPS VI is recognized as an orphan designation, and classified as a rare autosomal recessive, inherited lysosomal storage disorder caused by a deficiency of N- acetylgalactosamine 4–sulfatase, leading to accumulation of glycosaminoglycans (GAGs) in the lysosomes and physical manifestations.

Current treatment for MPS patients includes Enzyme Replacement Therapy (ERT) which acts to reduce non-neurological symptoms and pain. MPS patients undergoing approved ERT however, continue to report ongoing stiffness, pain, inflammation, and heart and airway soft tissue manifestations. **The current standards of care are not adequate in treating pain** associated with joint inflammation and musculoskeletal issues and these drugs currently equate to a market size of around **US$1.4b per annum,** with BioMarin's ERT treatments costing US$300k – US$600k p.a. **Paradigm believes iPPS may be an effective adjunct/combination therapy with current ERT treatments.**

In November 2018, Paradigm in-licensed the MPS indication from the Icahn School of Medicine at Mount Sinai, New York. The market size for MPS in the US is in excess of 13,000 patients with a potential iPPS market share of US$650m – US$1.3bn per annum.

Paradigm is currently expecting feedback on the Joint Parallel Scientific Advice submission for MPS-VI to the FDA and EMA. The joint submission to the Agencies, detailed the proposed trial design for a pivotal/registrational trial in MPS-VI. Paradigm is also preparing to begin a pilot clinical program in evaluate iPPS in MPS-I subjects with residual symptoms following Enzyme Replacement Therapy or Bone Morrow Transplantation treatment.

About Injectable PPS (iPPS).

Injectable PPS (iPPS) is not currently registered in Australia, but it is was previously registered in four of the seven major global pharmaceutical markets. In those European markets, iPPS is registered as an antithrombotic agent. In Australia, iPPS for human use is not currently available for sale.

Zilosul® is a registered Trademark of Paradigm Biopharmaceuticals Ltd (ASX: PAR).

Authorised for release by Paul Rennie, Managing Director & CEO.

[1] https://www.fda.gov/news-events/public-health-focus/expanded-access

[2] Aldenhoven, Sakkers, Boelens, de Koning, & Wulffraat, 2009; Beck et al., 2014; Bittar, 2018; Schroeder et al., 2013.

To learn more please visit: www.paradigmbiopharma.com

FOR FURTHER INFORMATION PLEASE CONTACT:
Simon White
Director of Investor Relations
Tel: +61 404 216 467
Paradigm Biopharmaceuticals Ltd
ABN: 94 169 346 963
Level 15, 500 Collins St, Melbourne, VIC, 3000, AUSTRALIA
Email : investorrelations@paradigmbiopharma.com