Media Release

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FDA GRANTS ORPHAN DRUG STATUS FOR PHARMAXIS ANTI FIBROTIC DRUG FOR MYELOFIBROSIS

Pharmaceutical research company Pharmaxis Ltd (ASX: PXS) today announced that the U.S. Food & Drug Administration (FDA) has granted orphan-drug designation for its oral pan LOX inhibitor PXS-5505 for the treatment of myelofibrosis.

PXS-5505 is an oral drug that inhibits all lysyl oxidase family members (LOX, LOXL1, 2, 3 & 4). The compound successfully cleared pre-clinical safety including 6-month toxicity studies and has shown significant reductions in fibrosis in *in-vivo* models of myelofibrosis and other cancers. PXS-5505 has shown to be well tolerated in Phase 1 single and multiple ascending dose studies in humans with an excellent pharmacokinetic and pharmacodynamic profile.

Pharmaxis CEO Gary Phillips said, "We are very pleased with the FDA orphan-drug designation for PXS-5505. Pharmaxis believes that the current treatments for myelofibrosis can be augmented by a pan-LOX inhibitor and be disease modifying in a market with high unmet need and significant deal values for programs with clinical proof of concept. We expect to file an investigational new drug (IND) application with the FDA shortly and will provide an update on the clinical trial plans at that time."

Myelofibrosis is a rare cancer in which normal bone marrow tissue is gradually replaced with a fibrous scar-like material. Over time, this leads to progressive bone marrow failure preventing the production of adequate numbers of red cells, white cells and platelets. Myelofibrosis has a poor prognosis and limited therapeutic options. Apart from a small group of patients eligible for stem cell transplantation, current standard of care are JAK1/2 inhibitors which provide mainly symptomatic relief but carry a risk of worsening blood cell counts. A recent publication[1] reported that Pharmaxis pan-LOX inhibitor compounds significantly decreased the bone marrow fibrotic burden in two different models of primary myelofibrosis.

For a drug to qualify for orphan designation both the drug and the disease or condition must meet certain criteria. Orphan designation qualifies the sponsor of the drug for various development incentives such as reduced regulatory fees and extended periods of market exclusivity. The granting of an orphan designation request does not alter the standard regulatory requirements and process for obtaining marketing approval. Safety and effectiveness of a drug must be established through adequate and well-controlled studies. Additional information can be found at the FDA website[2].

Reference 1: https://link.springer.com/article/10.1007/s12185-019-02751-6
Reference 2: https://www.fda.gov/industry/developing-products-rare-diseases-conditions/designating-orphan-product-drugs-and-biological-products

#ENDS#

SOURCE: Pharmaxis Ltd, Sydney, Australia

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About Pharmaxis

Pharmaxis Limited is an Australian pharmaceutical research company and a global leader in drug development for inflammation and fibrotic diseases. The company has a highly productive drug discovery engine, drug candidates in clinical trials and significant future cash flows from partnering deals.

Leveraging its small-molecule expertise and proprietary amine oxidase chemistry platform, Pharmaxis has taken four in-house compounds to Phase 1 trials in just five years. Boehringer Ingelheim acquired the Pharmaxis anti-inflammatory AOC3 inhibitor in 2015 to develop it (BI 1467335) for two diseases: the liver condition Non-alcoholic Steatohepatitis (NASH) and diabetic retinopathy (DR).

The company's successor amine oxidase program has developed an oral anti-fibrotic LOXL2 inhibitor, aimed at NASH, pulmonary fibrosis (IPF) and other high-value fibrotic heart and kidney diseases, with a commercial partnering process underway, a systemic pan-LOX inhibitor for acute fibrosis and cancer that will enter a phase 2 study in 2020 and a topical pan-LOX inhibitor for scarring that is expected to commence phase 1 studies in 2H 2020. Pharmaxis' Mannitol platform has yielded the products Bronchitol® for cystic fibrosis, which is marketed in Europe, Russia and Australia, with United States FDA approval pending; and Aridol® for the assessment of asthma, which is sold in the United States, Europe, Australia and Asia.

Pharmaxis is listed on the Australian Securities Exchange (PXS). Its head office, manufacturing and research facilities are in Sydney, Australia. http://www.pharmaxis.com.au/

What is Primary myelofibrosis?

Primary myelofibrosis is a disorder in which normal bone marrow tissue is gradually replaced with a fibrous scar-like material. Over time, this leads to progressive bone marrow failure. Under normal conditions, the bone marrow provides a fine network of fibres on which the stem cells can divide and grow. Specialised cells in the bone marrow known as fibroblasts make these fibres.
In primary myelofibrosis, chemicals released by high numbers of platelets and abnormal megakaryocytes (platelet forming cells) over-stimulate the fibroblasts. This results in the overgrowth of thick coarse fibres in the bone marrow, which gradually replace normal bone marrow tissue. Over time this destroys the normal bone marrow environment, preventing the production of adequate numbers of red cells, white cells and platelets. This results in anaemia, low platelet counts and the production of blood cells in areas outside the bone marrow for example in the spleen and liver, which become enlarged as a result.

Primary myelofibrosis is a rare chronic disorder diagnosed in an estimated 1 per 100,000 population. It can occur at any age but is usually diagnosed later in life, between the ages of 60 and 70 years. The cause of primary myelofibrosis remains largely unknown. It can be classified as either JAK2 mutation positive (having the JAK2 mutation) or negative (not having the JAK2 mutation).

Source: Australian Leukemia Foundation: https://www.leukaemia.org.au/disease-information/myeloproliferative-disorders/types-of-mpn/primary-myelofibrosis/

Forward-Looking Statements

Forward-looking statements in this media release include statements regarding our expectations, beliefs, hopes, goals, intentions, initiatives or strategies, including statements regarding the potential of products and drug candidates. All forward-looking statements included in this media release are based upon information available to us as of the date hereof. Actual results, performance or achievements could be significantly different from those expressed in, or implied by, these forward-looking statements. These forward-looking statements are not guarantees or predictions of future results, levels of performance, and involve known and unknown risks, uncertainties and other factors, many of which are beyond our control, and which may cause actual results to differ materially from those expressed in the statements contained in this document. For example, despite our efforts there is no certainty that we will be successful in partnering our LOXL2 program or any of the other products in our pipeline on commercially acceptable terms, in a timely fashion or at all. Except as required by law we undertake no obligation to update these forward-looking statements as a result of new information, future events or otherwise.