Monepantel Anti-viral Activity Against SARS-CoV-2 Confirmed

- Further testing demonstrates Monepantel (MPL) and monepantel sulfone (MPLS) reduce SARS-CoV-2, the causative agent of COVID-19.
- Experimental results to date include repeat studies in VERO cells by two independent laboratories and evaluation of SARS-CoV-2 anti-viral activity in human Calu-3 cells.
- MPL and MPLS have reduced virus burden regardless of laboratory, cell type or timing of treatment (prior or post-infection).
- Preparations for a Phase 1 clinical trial in humans in progress.

9 September 2020 – Perth, Australia: PharmAust Ltd (ASX:PAA), a clinical-stage oncology company, is pleased to announce a successful second repeat of its *in vitro* anti-viral confirmatory testing demonstrating anti-SARS-CoV-2 activity of both monepantel (MPL) and monepantel sulfone (MPLS).

PharmAust hypothesised that MPL and MPLS exert anti-viral effects by inhibiting the mTOR pathway, a molecular pathway central to the control of cellular function. These latest experiments were conducted by Australian NATA accredited clinical trial speciality laboratory 360biolabs Pty Ltd in Melbourne using monkey VERO E6 cells. 360biolabs undertook a variation to the method previously and successfully conducted in VERO and human Calu-3 cells as announced to the market on 4 June, 18 June and 25 August 2020. The 360biolabs methodology introduced the experimental drug prior to infection of cells, while in previous studies the drug was added post-virus infection. Both laboratories independently showed that MPL and MPLS have anti-SARS-CoV-2 activity.

In experiments conducted at 360biolabs, MPL and MPLS inhibited virus burden by up to 99% and 75%, respectively. The data for MPL were quite notably similar to the 100% inhibition demonstrated for remdesivir used as a positive control, although at differing concentrations of drug. Anti-viral activity by mTOR inhibitor rapamycin was not demonstrated at the concentrations tested by 360biolabs.

PharmAust Chief Scientific Officer, Dr Richard Mollard commented “MPL and MPLS have provided an anti-viral effect against SARS-CoV-2 in every experiment conducted by PharmAust to date. Furthermore, MPL has exerted greater than 90% reduction in SARS-CoV-2 virus burden in five of six experiments in two independent laboratories using both monkey and human cell lines. It does not appear to matter if MPL or MPLS are added pre or post virus infection.”

Despite the success of these experiments, it is important to note that activity *in vitro* does not always translate to human patients. Remdesivir is currently the only drug approved by the US Food and Drug Administration (FDA) for the treatment of COVID-19 infections. The FDA approval for the clinical use of remdesivir is under emergency-use authorisation and is

corroborated by a study demonstrating the capacity of the drug to improve recovery time following COVID-19 infection from 15 days to 11 days. More recently, researchers leading a study involving 105 hospitals in the US, Europe and Asia reported that remdesivir had scant benefit in patients with moderate COVID-19 infections.

MPL may have a distinct advantage over many other drugs in development given that it has already been used in human clinical trials and is a very well-known drug with a high safety profile. Remdesivir is an intravenous therapy that delivers fluids directly into a vein in a hospital setting whereas MPL can be administered orally in tablet form. This means patients could be treated earlier when they first test positive rather than patients hospitalized with COVID-19. Ultimately, the potential benefit of MPL needs to be determined in Phase I/ II trials and PharmAust is now preparing a clinical trial program in humans.

This announcement is authorised by the Board.

Enquiries:

Dr Roger Aston
Executive Chairman and CEO
rogeraston@pharmaust.com

Dr Richard Mollard
Chief Scientific Officer
rmollard@pharmaust.com

About PharmAust (PAA):
PAA is a clinical-stage company developing targeted cancer therapeutics for humans and animals. The company specialises in repurposing marketed drugs lowering the risks and costs of development. PAA's subsidiary, Epichem, is a successful contract medicinal chemistry company.

PAA's lead drug candidate is monepantel (MPL), a novel, potent and safe inhibitor of the mTOR pathway – a key driver of cancer. MPL has been evaluated in Phase I clinical trials in humans and dogs; was well tolerated and produced a significant reduction in key prognostic biomarkers. PAA is positioned to commercialise MPL for treatment of human and veterinary cancers as it advances the drug in Phase II clinical trials.

About 360biolabs:
360biolabs is APAC's most comprehensive clinical trials speciality laboratory, supporting therapeutic, vaccine and diagnostics development. It develops and conducts pharmacokinetic (PK) and pharmacodynamic (PD) assays across a wide variety of therapeutic areas and provides extensive support services to ensure the success of preclinical studies and clinical trials.