ASX & Media Release

Publication and Patent Filing for Humanized Version of Deoxymab 3E10

Melbourne, Australia; January 30, 2018: Patrys Limited **(ASX: PAB)**, a therapeutic antibody development company, is pleased to announce publication of a scientific article regarding the humanization of Deoxymab 3E10 in leading scientific journal *Biochemical and Biophysical Research Communications*. The article, "Re-engineering and evaluation of anti-DNA autoantibody 3E10 for therapeutic applications," is currently available online[1] and will be included in a future print edition of the journal.

After licensing the Deoxymab 3E10 technology from Yale University in 2016 Patrys completed a comprehensive *in silico* design and optimisation program for the antibody. The research article describes the design, expression and testing of a panel of humanized 3E10 antibodies that led to the selection of PAT-DX1 as lead candidate in April 2017.

The publication describes how variants were expressed in a modified CHO expression system and evaluated in a number of functional assays for their physiochemical attributes and ability to penetrate nuclei to selectively cause DNA damage. There was significant variability in capacity to penetrate the nucleus, most likely due to differential DNA binding affinity and ability to access and utilise the transport pathways into the cell. To confirm that the di-scFv variants exhibited similar or enhanced effects on DNA double-stranded break accumulation, an evaluation on U251 human glioblastoma cells (both PTEN proficient and deficient) was conducted. Consistent with previous observations using murine 3E10, the new humanized 3E10 variants showed significant accumulation of DNA double-stranded DNA breaks in treated PTEN-deficient cells, whilst no accumulation was seen in PTEN-proficient cells. These results confirm that the humanized version of Deoxymab 3E10 acts similarly to, or better than, the original murine version.

Patrys' Chief Executive Officer and Managing Director, Dr James Campbell commented: "We are excited about progress made with PAT-DX1, particularly the pre-clinical data that has been reported since September 2017 and the new discoveries around localization of tumor metastases. Along with our co-applicant, Yale University, we have filed a provisional patent application to protect the panel of 3E10 variants generated as part of the *in silico* design work. This provides an additional layer of protection to the Deoxymab intellectual property portfolio, and strengthens Patrys' leading position in DNA damage repair therapeutics."

[1] Z Rattray, V Dubljevic, NJW Rattray, DL Greenwood, CH Johnson, JA Campbell, JE Hansen. Re-engineering and evaluation of anti-DNA autoantibody 3E10 for therapeutic applications. *Biochem Biophys Res Commun*. 2018 [PMID 29374508; Epub ahead of print].

About Deoxymab 3E10, PAT-DX1 and PAT-DX1-NP

Deoxymab 3E10 is a DNA damage-repair (DDR) antibody that was first identified in lupus as an autoantibody that bound to normal cells. Of particular interest is that whilst most antibodies bind to cell surface markers, Deoxymab 3E10 penetrates into the cell nuclei and binds directly to DNA where it inhibits DNA repair processes and kills cells that have mutations or deficiencies in DNA repair mechanisms as found in various cancer cells. Deoxymab 3E10 has single agent therapeutic potential and has been shown to significantly enhance the efficacy of both chemo- and radiotherapies. Further, Deoxymab 3E10 can be conjugated to nanoparticles to target delivery of chemotherapeutics, and now diagnostic imaging agents, to tumors.

Patrys has developed a humanized form of Deoxymab 3E10, PAT-DX1 with improved activity over the original version of 3E10, and is progressing this, and a nanoparticle-conjugated form (PAT-DX1-NP) towards the clinic. In a range of pre-clinical cancer models PAT-DX1 has shown significant ability to kill cancer cells in cell models, human tumor explants and xenograft models. PAT-DX1 has also been shown to work synergistically with the approved PARP inhibitor, olaparib. Patrys believes that PAT-DX1 may have application across a wide range of malignancies such as gliomas, melanomas, prostate, breast, pancreatic and ovarian cancers.

Patrys' rights to Deoxymab 3E10 are part of a worldwide license to develop and commercialize as anti-cancer and diagnostic agents a portfolio of novel anti-DNA antibodies and antibody fragments, variants and conjugates discovered at Yale University.

-Ends-

For further information, please contact:

Patrys Limited:
James Campbell
Chief Executive Officer
P: +61 3 9670 3273
info@patrys.com

Patrys IR:
Ben Walsh
WE Buchan
P: +61 2 9237 2801
bwalsh@buchanwe.com.au

About Patrys Limited:
Based in Melbourne, Australia, Patrys (ASX: PAB) is focused on the development of antibodies as therapies for a range of different cancers. Patrys has a pipeline of anti-cancer antibodies for both internal development and as partnering opportunities. More information can be found at www.patrys.com.